A Manpower Planning Process for the Institutions of Higher Education in the Inter-American Division

Carlos Alberto Archbold

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Andrews University
School of Graduate Studies

A MANPOWER PLANNING PROCESS FOR THE
INSTITUTIONS OF HIGHER EDUCATION
IN THE INTER-AMERICAN DIVISION

A Dissertation
Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by
Carlos Alberto Archbold
June 1983
A MANPOWER PLANNING PROCESS FOR THE
INSTITUTIONS OF HIGHER EDUCATION
IN THE INTER-AMERICAN DIVISION

A dissertation
presented in partial fulfillment
of the requirements for the degree
Doctor of Philosophy

by

Carlos Alberto Archbold

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# TABLE OF CONTENTS

LIST OF FIGURES .......................................................... iv
LIST OF TABLES ........................................................................ V
ACKNOWLEDGEMENTS ............................................................. VII

Chapter
I. INTRODUCTION .......................................................... 1

Background of the Study ......................................................... 1
Statement of the Problem .......................................................... 5
Purpose of the Study .............................................................. 5
Theoretical Framework ........................................................... 6
History ................................................................................. 8
Definition of Manpower Planning ............................................. 11
Manpower Planning and Personnel
Administration ........................................................................ 12
Development of Human Resources .......................................... 15
Importance of the Study .......................................................... 23
Definition of Terms ................................................................ 24
Delimitations of the Study ...................................................... 25
Limitations of the Study .......................................................... 25
Organization of the Study ......................................................... 25

II. REVIEW OF THE RELATED LITERATURE .......................... 27

Techniques of Manpower Planning ........................................ 30
Manpower Planning in Education ............................................. 47
Manpower Planning in the Church ............................................ 49
Summary .............................................................................. 55

III. RESEARCH METHODOLOGY ........................................... 57

Type of Research ................................................................... 57
Sources of Data ...................................................................... 57
Institutions to be studied ......................................................... 58
Procedure ............................................................................. 59

IV. PRESENTATION OF DATA .................................................. 61

Introduction ........................................................................... 61
Overview of the Institutions .................................................... 63
Montemorelos University ........................................................ 64
Degrees offered at Montemorelos ............................................ 64
Enrollment ............................................................................. 66
Faculty ................................................................................ 68
Antillian College ................................................................... 69

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Degrees offered at Antillian College
Enrollment
Faculty
West Indies College
Degrees offered at West Indies College
Enrollment
Faculty
Caribbean Union College
Degrees offered
Enrollment
Faculty
Institut Adventiste Franco—Haitien
Degrees offered
Enrollment
Faculty
Colegio Adventista Dominicano
Degrees offered
Enrollment
Faculty
Centro Adventista de Estudios Superiores
Degrees offered
Enrollment
Faculty
Instituto Colombo Venezolano
Degrees offered
Enrollment
Faculty
Membership growth in the Division
Manpower Inventory
Occupation
Aspirations
On Human Resource Planning
Summary

V. A SUGGESTED MANPOWER PLANNING PROCESS
Introduction
Basis for the Process
The Process
The Developmental Phase
Definition of the Mission statement
Identifying Determinants
Defining Institutional goals
The Implementation Phase
Manpower Inventory
Manpower Forecast
Manpower Programming
Recruitment
Career Planning
Control and Evaluation
Summary

VI. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS
Summary .......................................................... 118
Conclusions ......................................................... 122
Recommendations ................................................. 123

APPENDIX A- Letters ............................................. 126
APPENDIX B- Manpower Inventory Form ............... 130
APPENDIX C- Fortran Program ................................. 133
SELECTED BIBLIOGRAPHY .................................... 141
VITA ................................................................. 147
LIST OF FIGURES

1. The Concept of Human Resource Development . . . . 22
2. Vetter's Manpower Planning Process . . . . . 32
3. Coleman's Manpower Planning and Programming Process . . . . . 34
4. Castetter's Model of the Manpower Planning Process . . . . . . . 37
5. Baillie's Manpower Planning Model . . . . . 39
6. Burack's Stages of Manpower Planning and Implementation . . . . . . 40
7. Kahala's Manpower Information and Decision System . . . . . . . 44
8. Moyer's Adjusted Manpower Planning Process of School Districts. . . . . . . 46
9. Institutions of Higher Education in the Inter-American Division. . . . . . . 62
10. A Suggested Manpower Planning Process for the Institutions of Higher Education in the Inter-American Division . . . . . . 107
LIST OF TABLES

1. Student-Member Ratio in the Mexican Union . 67
2. Growth Pattern of Montemorelos University . 68
3. Enrollment Projection by Departments during 1982-1987 .......................... 68
4. Antillian College Enrollment Projections Based on Past Enrollment ........ 72
5. Enrollment Projections by Majors ............. 72
6. Student-Member Ratio in the Antillian Union. 73
7. Faculty Projections for Antillian College 74
8. Enrollment Projections for West Indies College .......................... 77
9. Student-Member Ratio in the West Indies Union .......................... 78
10. Enrollment Projections for Caribbean Union College ......................... 80
11. Student-Member Ratios in the Caribbean Union ......................... 81
12. Student-Member Ratios in the Franco-Haitien Union .......................... 83
13. Enrollment Projections for Colegio Dominicano .......................... 85
14. Student-Member Ratios in the Central American Union ......................... 88
15. Student-Member Ratios in the Colombo-Venezuelan Union ......................... 90
16. Enrollment in Higher Education and Student-Member Ratios during the Years 1976-1987. 92
17. Projected Membership Growth of the Inter-American Division ........................................ 92

18. The Ratios of Students Enrolled in Higher Education as Compared to the Youth Membership ................................................................................................. 93

19. Membership Growth Pattern for the Unions in the Inter-American Division .................... 95

20. Projections of Students and Teachers .......................................................... 96

21. Demographic Information of the Respondents of the Professional Human Resource Inventory Form ......................... 98

22. Comparison of Age Groups and Years at an Institution ................................................................................................. 99

23. Comparison of Age Groups and Desired Study Leave ................................................................................................. 101
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ABSTRACT

A MANPOWER PLANNING PROCESS FOR THE INSTITUTIONS OF HIGHER EDUCATION IN THE INTER-AMERICAN DIVISION

by

Carlos Alberto Archbold

chairman: Dr. Bernard M. Lall
ABSTRACT OF GRADUATE STUDENT RESEARCH
DISSERTATION

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Department of Education

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Name of researcher: Carlos Alberto Archbold

Name and degree of faculty adviser: Bernard M. Lall, Ph.D

Date completed: June 1983

Problem

Manpower Planning is a part of the administrative
process of an organization. The Inter-American Division
of Seventh-day Adventists operates a program in higher
education through eight institutions which serves the
countries of the Division. This educational program is
not equipped with a planning process that will provide the
professional manpower for these institutions as they grow
and expand their current offering of programs. Therefore,
the purpose of this study was to describe the availability
of the professional manpower at these institutions and suggest a manpower planning process to be incorporated in the administrative function of these institutions.

Method

The study utilized the descriptive method of research. The literature was reviewed to gather information related to the techniques of manpower planning. The data were collected by reviewing all available information on the institutions involved in the study such as master plans and self studies and the annual statistical reports of the General Conference. Additional information was gathered by the utilization of a professional manpower inventory form mailed to the institutions involved in the study.

Conclusions

The major conclusions drawn from the information and experience gained as a result of this study are:

1. A manpower planning process will aid in providing stability and quality to the higher education program in the Inter-American Division.

2. The Inter-American Division has the potential to expand its educational program based on the youth population that builds its constituency.

3. New programs must be included so that graduates may explore the job market outside the denominational structure.
Recommendations

The following recommendations are presented:

1. A uniform system of self-evaluation and progress reports should be implemented.

2. A manpower planning process should be implemented at the local level of each institution.

3. An effective institutional research program should be implemented at each institution.

4. A manpower file that would include all the professional manpower available should be created.

5. A coordinated educational program between the more developed institutions and the less developed ones should be established.

6. An effort must be made to develop an awareness among the administrators of the institutions of the importance of accurate reports regarding the operation of the institutions.
CHAPTER I

INTRODUCTION

Background of the Study

Planning is a very important element in everyone's life. It is "A way of making or doing something that has been worked out beforehand" (Worldbook Dictionary, 1974). Every human action is the outcome of a planning process. However, its importance is often ignored.

History will record the generations of the twentieth century as concerned users of the resources available to them. The technological advances achieved in this century are a testimony of human capabilities. They have contributed to the modification of the lifestyle of those who use them efficiently. But, with the diversification of the business and educational worlds that was a consequence of the advances, a very important element was overlooked. The growing industrial and educational institutions focused on the product output but overlooked the manpower involved which was instrumental in their success. Human resources were taken for granted. The concept of planning forced its way into the business world.
when resources and markets were scarce. Manpower planning is now forcing its way into the normal procedures of both educational and industrial institutions in order to secure an adequately trained work force needed to keep up with technology.

During the 1970s, manpower planning, noted before for its omission, has now become an "in" phrase (Cassel, 1973). It has attracted interest as a management tool and as a technique to improve the organizational performance of both industrial and educational institutions. As it stands in the 80s no organization can afford to be without manpower planning. In 1969, Walker predicted that the efficient utilization of human resources could very well be the most important determiner of success in the business world in the coming decade.

Stander (1977) noted that an absence of manpower planning leads to a decrement in organizational performance as a consequence of unanticipated, or unplanned for, imbalances between manpower supply and demand.

Castetter (1976) emphasized that a good manpower plan minimizes random administrative behavior. But, if it is neglected, schools are plagued with problems of attracting and holding personnel essential to its purposes.

A good manpower plan is an asset to any organization. As a futuristic approach to management, it
may assure good management for the future. As a component of the strategic plans of an organization, it is a means of avoiding shortages of skilled employees. As a developmental process, it provides services to society by enhancing the skills of the community resource.

In developing countries where the abundance of human resources is contrasted by the lack of financial resources, manpower planning is needed. Papohunda (1976) says:

The greatest wealth of most developing countries is their human resources and since the majority of these people are uneducated, unskilled or semi-educated and are responsible for generating the bulk of the gross national product of the country, manpower planning should concern itself with the problems of these countries. (p. 91)

According to this observation, the educational priority in developing countries is not only the intellectual upgrading of the population, but making that upgrading practical— one that will provide the people with adequate tools so that they may fully express their potential capacities; be these spiritual, intellectual, or material. This can be achieved by careful planning and utilization of the available resources.

The Seventh-day Adventist church has concentrated a large portion of its ministerial and educational efforts in the developing countries in such a manner that its largest membership is now outside the United States (SDA Yearbook, 1981). For better administration, the church has divided the countries of the world into thirteen,
large, general geographical units called divisions. The largest of these in membership is the Inter-American Division. This geographical area reaches north to Mexico, south to Venezuela, and includes the islands of the Caribbean. During the period 1970-1980, the membership growth of the division not only increased the demands on the ministerial force but also laid heavier burdens on the educational facet of the work.

The Inter-American Division has a department of education which supervises 550 elementary schools, seventy-nine secondary schools, two junior colleges, five senior colleges, and one university. However, it is necessary for the purposes of this study to focus on the institutions of higher education for it is their responsibility to train not only the work force of the division but also to supply the educational needs of its constituency within the division. This has become a task for these institutions. The upgrading of their academic programs, the expansion of their facilities to accommodate the increasing enrollments, and the prevailing political climate in this part of the world have all created a shortage of qualified personnel to fill the ranks. It is possible that the financial need of these institutions ranks second to the need of "people to train people." More now than ever, the Inter-American Division is in need of a manpower-planning program that will secure an adequate work force for the church and also provide a
meaningful education for those who although seeking education within the church may wish to work outside the denominational structure.

**Statement of the Problem**

The Office of Education of the Inter-American Division is in the process of constructing a potential work-force file with a view to assess the future manpower needs of the division. However, there is no systematic manpower planning process for the Institutions of higher education within the Inter-American Division. As of December 1980, the church reported a membership of 646,969 in the Inter-American Division. (*118 G.C. Annual Stat.*). Based on the statistical reports for the period 1976-1980, the church gained an average of 40,000 members per year. By the year 1985, this will represent an increase of approximately 200,000 members, projecting a total membership of 850,000.

This enormous growth pattern demands education of the church members at all levels; more so, at the higher educational level. It is therefore imperative that the Inter-American Division develop a manpower planning process to meet the expanding manpower needs of its institutions of higher education instead of operating on the concept of crisis management.

**Purpose of the Study**

The purpose of this study was to describe the
manpower availability at the institutions of higher education in the Inter-American Division and suggest a manpower planning process to be incorporated into their administrative function. The information obtained from the review of reports from various sources within the Seventh-day Adventist educational structure will be used to answer the following questions:

1. Is the accelerated growth of the Adventist church in the Inter-American Division affecting the demand for professional human resources at the institutions of higher education throughout the division?

2. How adequately is the current professional manpower pool filling the needs of the institutions of higher education in the Inter-American Division?

3. Is professional human resource planning a priority in the long range plans of the Institutions of higher education in the Inter-American Division?

4. In what way can the information obtained in the previous questions be used to develop a manpower planning process that can be incorporated in the administrative process of the institutions of higher education in the Inter-American Division?

**Theoretical Framework of Manpower Planning**

A viable approach to manpower planning is dependent on the understanding of the characteristics of an organization and its planning process. Essentialy
planning is a process of thinking ahead or a method for anticipating difficulties and possible solutions. As mentioned by Patten (1971, p.13), planning approaches the future with the aid of systematic analysis in order to minimize surprise and uncertainty and to eliminate mistakes and waste.

McFarland (1970) defines planning as a concept of executive action that embodies the skills of influencing and controlling the nature and direction of change.

Burack (1972, p. 54) states that planning is future oriented and its prime objective is the reduction of uncertainty. For him planning is composed of seven features:

1. Orientation toward the future, implying characteristic uncertainties associated with the anticipation of the unknown
2. Focus on objectives.
3. Detailed steps for meeting specific goals and time deadlines.
4. Sufficient detail to permit the launching of action programs and the formulation of controls to assure adequate performance.
5. Control criteria permitting comparison of progress against objective standards.
6. Enumeration of assumptions made by each plan.
7. Contingency plans (alternatives to fall back on).

Planning is a continuous executive function
involving perception, analysis, decision, and action. The
same can be said for manpower planning which consists of
two basic components:

1. A forecasting component which builds on an up-to-
date audit of on board manpower resources in predicting
anticipated future needs in the most specific and time-
targeted terms.

2. A programming component which specifies the
implementation steps responsive to the forecast, how and
where to recruit, how to audit the existing personnel, and
how to determine the degree to which future needs might be
met.

Manpower planning then is a planning process which
seeks to bring together the objectives of the organization
and the manpower resources to reduce the uncertainties
that may arise. Parallel to the concept of general
planning, manpower planning has three basic
characteristics. (1) it should be futuristic, (2) it
should involve action, and (3) there should be someone
designated to act according to the futuristic outlook
(Patten, 1971.)

History

Planning for the best utilization of human resources
dates as far back as the construction of the great
pyramids of Egypt. According to Tompkin (1971) it took
between 4,000 and 100,000 workers to do the job. The
project also required a sizeable number of architects,
engineers, foremen, and other support workers. These same considerations can also be applied to the building of the great wall of China and the operation of the military force of ancient Rome. Each civilization, it seems, has had to deal with a sound system to control the training and promotion of highly skilled people.

In recent times the term manpower planning emerged during the critical years of World War II when large-scale organizations were concerned with the shortage of laborers. Its popularity subsequently diminished but reappeared in the 1960s. This time, however, the concern was motivated by the over-abundance of semi-skilled and unskilled laborers and the shortage of engineers, managers, and professional employees. It has become a topic of increasing interest as organizations are concerned with employment and manpower availability in modern society. Its projections rely more on information about the total growth of the organization, and less importance is given to staffing and turn-over analysis. It has moved away from the traditional approach of personnel administration.

The upsurge of manpower planning as the development of the total quantitative and qualitative human assets in a society was so great that a few years later, according to Nadler (1970), major corporations were spending large sums of money on manpower planning. It was estimated that
10

General Electric was spending some $40,000,000 annually on educational support and training programs during the 1970s. A congressional committee reported that the federal government had spent about $180,000,000 to train federal employees at the end of the fiscal year 1966 (Nadler 1970).

Manpower planning has become a heavily researched topic as students direct their attention to bringing together organizational objectives and human resources. The process is futuristic and ties the manpower forecast in with future organizational goals.

Wikstrom (1963) indicated that before this awakening to the benefits of manpower planning process, in a broad sense, manpower planning was usually thought of as comprising those activities that were integral to building an estimate of the size and characteristics of the future work force of an organization. He further stated:

Manpower planning is not, and cannot be a panacea, but it can be a help. If a company carefully analyzes its operations, anticipates its problems and opportunities, and estimates the effects they will have on manpower, it will have to that extent reduced uncertainty about the future. (p. 33)

At about this same time, Cassidy (1963) stated that almost all organizations were lacking a plan that would provide continuous staffing of all vital personnel needs. The development of this plan would be totally dependent on the relationship between manpower planning and organizational planning. The elements that would figure
in this process would be resource analysis, developmental planning and the recruitment, selection and placement of personnel.

**Definition of Manpower Planning**

Manpower planning has different meanings to different people. Vetter (1964) looked at manpower planning as an asset to any organization. For him it meant more than executive development, multicolored replacement charts, and organization planning. His definition is one of the most widely accepted in the literature. He defines manpower planning as:

The process by which management determines how the organization should move from its current manpower position to its desired position. Through planning, management strives to have the right number and the right kinds of people, at the right places, at the right time, doing the right things, vital to the economic well being of the firm. (p. 15)

Cassell (1973) wrote that even though manpower planning is thought of and talked about, management still react to operational pressures on a daily basis. In his view, Vetter's definition of manpower planning is limited. It does not relate manpower planning to the major plans and purposes of the institution, neither does it suggest how people and jobs can come together. His new definition states:

The purpose of corporate manpower planning is to tie together decisions concerning recruiting, screening, compensation, training job structure, avenues of mobility and work
rules in such a way as to provide cost trade
t offs and decision options which can be ranked
according to various forms of advantage. (p. 15)

He hypothesized that when manpower planning occurs,
it is carried out in a fragmented fashion. It is
cconcerned primarily with the forecasting which is
unrelated to the actual demand and supply due to the
narrow conceptual understanding of the functions
associated with manpower planning.

Manpower Planning and
Personnel Administration

Manpower planning and personnel administration are
not the same but are dependent on each other to a certain
extent. Manpower planning is built around objectives and
has moved away from the traditional approach of personnel
administration. According to Burack (1959) personnel
administration works with "givens" determined by manpower
planners, but the manpower planning function requires a
high level of interaction between the boss and
subordinates at all levels, and it is also futuristic.

French (1964) defined personnel administration as
the recruitment, selection, utilization, and development
of human resources by and within the enterprise. The
human resources of the enterprise consist of all the
individuals engaged in any of the organizations activities
regardless of levels.

However, Barnard (1948) indicated that the primary
purpose of those who developed personnel policies was not
to develop individuals but to facilitate the working together of groups of people toward definite ends. The new approach of manpower planning is both the development of the individual and the facilitation of working conditions. The development of both constitutes the entire legitimate purpose of human resource development or manpower planning. Referring to this new approach, Patten (1971) stated that more recently it has been noted that in personnel work the pendulum has decidedly swung toward total organizational planning and manpower planning. Many of the old guard in personnel work have found great difficulty in adapting to this rediscovered field of human resources in personnel administration. The old timers have continued to execute personnel functions as semiclerical, sterile activities and have contributed to the image of personnel work as a secondary staff function whose key people have neither the authority nor the respect that a fully organized manpower-management function requires and demands. It is expected that this image is bound to change as younger men with an orientation toward planning replace the old-timers.

Manpower Planning in an Organization

Manpower planning has a threefold purpose in an organization. These are: (1) to estimate the effects upon the size and nature of the employee force by any proposed changes in the projections of the organization (2) to identify manpower problems of the future and look for
possible solutions, and (3) to provide a basis for the actions needed to ensure that there will be enough people with the right skills and abilities to fulfill the long-term plans of the organization.

In any organization of any complexity manpower planning needs to be systematic in order for continuous and proper staffing to be insured. Nadler (1970) pointed out that this is an identifiable operation in many large organizations but disappears quite rapidly as the size of the organization diminishes. Frequently the cause is the lack of allocated resources to this purpose. French (1964) said that many problems emerge if manpower planning is haphazard or neglected. He further stated that manpower planning obviously must be integrated with overall organizational plans pertaining to sales and production, the purchase and use of equipment, research and engineering, the financial situation of the organization, and the planning of physical facilities.

Vetter (1964) indicated that manpower planning has a long economic life which deserves the same planning attention given to other assets with long lives. Action taken today in the manpower area will influence the quantity and quality of the company's future manpower. Manpower planning is concerned with the future and involves establishing manpower objectives for the organization through an analysis of current and past events and an attempt to forecast future events.
Basset (1970) believed that manpower planning was not done in many organizations because it is a much bigger, far more technical job than it appears at a first glance. He sees it as an immensely complex concept encompassing most of the elements of the personnel department and other departments and combining them in a very intricate pattern so that when the relationship between productivity and manpower planning can be established, management will make the linkage and will make it as much a part of the organization as is financial planning.

Developing Human Resources

According to Craft (1980, p.39) manpower planning is still viewed as a developing art more than a well-defined and universally accepted set of principles and practices. He suggests that a fruitful approach to provide a framework for action would be to draw concepts from other closely related areas with strong theoretical foundations.

The theoretical base of this study is drawn from the concepts of organizational theory and from the economics of investment in human capital. The main focus is on the implications of the growth of the educational program in the Inter-American Division and the development of its human resources. One of the key functions of manpower planning in its new conceptual form is the development of human resources. The manpower planning process involves, on one hand, anticipating the future by manpower
projections and then planning, developing, and implementing manpower-action programs largely in the form of educational training to carry out these projections. The relationship between manpower planning and human resource development is such that it is quite common to use both terms interchangeably. In reality the thrust of manpower planning popularity has been the focus on the development of human resources. The importance of this function is expressed as follows:

Human resource development is the process of increasing the knowledge, the skills, and the capacities of all people in a society. In economic terms, it could be described as the accumulation of human capital and its effective investment in the development of an economy. In political terms, human resource development prepares people for adult participation in political processes, particularly as citizens in a democracy. From the social and cultural points of view, the development of human resources helps people to lead fuller and richer lives, less bound by tradition. In short, the process of human resource development unlocks the door to modernization. Harbison (1964, p.2)

Nadler (1970) indicated that releasing human potential is a necessity. People usually have more in them than expected and can be more effective than they are. The gravity pull of role expectancy and self-fulfilling prophecies have deprived many organizations of the true potential of their employees. Employee education is necessary to move people ahead in the organization and to have employees ready to assume higher level positions. Nadler concludes that to obtain the adequate development
of human resources there must be a series of organized activities conducted within a specified time designed to produce the behavior changes that fall into the future objectives of the organization.

Organization theory researchers such as Burns and Stalker (1961) and Lawrence and Lorsch (1967) have found that organizational environments vary in stability and complexity. An unstable environment tends to be turbulent and uncertain in nature while a stable environment tends to be placid, unchanging, and relatively certain. The complexity of the environment depends on the range of activities that are relevant to the operations of the organization. A simple environment would have few problems while a complex environment represents a body of diverse and heterogenous problems. The stability and complexity of the environment have important implications for the development of human resources in the context of this study.

Educational institutions are complex environments (Thompson, 1967,p.3). More so is the case of the educational institutions in the Inter-American Division where several cultures meet and the institutions form part of an international network. As dynamic and complex environments, it is most likely that the manpower planning function is unstructured in nature. Where there is no stability, any planning or forecasting activity is based on subjective and intuitive methods. This situation
creates administrative problems, according to Lawrence and Lorsch (1967), since there appears to be an important connection for the individual between working in a structured organizational environment that can deal with both its task and his/her feelings of personal satisfaction and growth. Lawrence and Lorsch indicates that most individuals bring to an organization several motives that they seek to fulfill. Among the most important are a need for achievement, a need for affiliation, and a need for power. Any one of these needs can be met to some degree outside the organization but it is also a motivating force within.

Organizations with a certain degree of structure provide a powerful source of social and psychological satisfaction to their members as well as an opportunity to do their jobs well.

The Inter-American Division has had to deal with the high turnover rate of its employees in the educational institutions. It is possible that an analysis of the existing environments at the various colleges could provide some clues that would help to lower staff turnover. If the concern is to understand what types of organizations meet different environmental demands, the question of developing organizations that offer a high probability of satisfying individual needs will ultimately focus on the development of human resources where personal
goals can be tied into the overall organizational goals.

The nature of the educational institutions involved in this study and their mission based on religious ideals places them in a peculiar situation in relation to organizational theory. Other organizations can stabilize their environment by the fluctuation of capital or product output. This is not the case for educational institutions. Their stability can be achieved only by careful planning of the movement of people within the organizational structure. This study is therefore bound by constraints of utilizing people to stabilize an environment that will retain people.

The concept of managing people to stabilize an environment flows into the theories of investment in human capital as perceived by the science of economics. The thought of investment in human capital has been controversial over the years, according to Schultz (1967). He claimed that human values and beliefs inhibit people from looking upon human beings as capital goods except in slavery. Schultz pointed out, however, that the investment in human capital exists only for the advantage of people.

Wykstra (1971) sums up the thoughts of classical economists such as Friedrich List, J.S. Mills and J.R. McCulloch and says:

Those few classical economists who argued that human beings should be viewed in a capital context defended their proposition by noting that a) there were cost associated with the develop
ment and formation of human resources (largely education) b) the output of skilled human resources added incrementally to the national product and c) expenditures on human resources which increased national product also increased national wealth.

Other groups of economists such as Jean Baptiste Say (1821), John Stuart Mill (1909) and Henry Sidgwick (1901) who laid the foundations for the theory of investment in human capital, focused on the skills and abilities of human beings as the capital rather than on the individual as such. Adam Smith (1937) says it best "the skill of a man may be regarded as a machine that has genuine costs and returns a profit." In The Wealth of Nations he tried to show how to achieve efficiency in educational institutions such as schools, institutes, and colleges. He focused on this kind of investment in order to supply not only graduates but qualified and skilled manpower who could play a role in a country's development.

Human resources constitute a basic factor of production. The future projections of the Inter-American Division should require that they be aware of the need for investment in their human capital. Human beings are the life blood of a nation, says White (1962). Such is the case of the educational program in the Inter-American Division. The viability of the complete structure depends on the skills, strengths, attitudes, and behavior of the people who makes up the organization. To achieve its maximum potential the Division should nurture and employ
its human resources with even greater care than it develops its material possessions.

Al-Jenabi (1981) says that, in general, economist, educators, planners, policy makers, and politicians agree that manpower is a key resource on which a nation depends to develop viable institutions and a strong economy. The educational program of the Inter-American Division is aware of this fact and there are now great concerns about its human resources. The concern is much greater for organizations that involve such a large number of people. The mission of the church is to grow, and growth creates instability in the environment which in turn causes uncertainty in the individuals. This cycle of constant change requires a trained body of human resources that can deal with the change.

The whole concept of manpower planning and the development of human resources to cope with change can be understood best in visual form, as in figure 1. The elements in the half circles appear isolated until they are viewed in the context of manpower planning and human resource development where the relationship becomes more meaningful. The purpose of training is either to modify behavior or to introduce a new behavior required to fulfill a job. If this training enhances the growth of the individual in such a manner that his potentials are not limited to the fulfillment of only one job but are maximized in such a way that the individual can provide
Figure 1. The Concept of Human Resource Development.
input in future behavior modifications, then progress has been made in the employee's education. Investment in human capital has resulted in benefits and the organization acquires a stabilizing force. This is the fundamental concept upon which manpower planning is based, and it is also the theoretical framework within which this study is developed.

Importance of the Study

According to Vetter (1976), the members of a professional staff of any organization must be a concern since they cannot be trained in a short time. In the Adventist educational structure, finding people with expertise is not the only criterion for employment. It is necessary to find personnel whose religious beliefs and philosophy of education are compatible with those of the Seventh-day Adventist church. Considering the high turnover rate of the work force, finding educational personnel could be a major concern in the Inter-American Division. In the past, the educational program has experienced a lack of continuity because adequate personnel could not be located. In some cases, all the course work for a specific area of concentration has been conducted by one professor. This study could develop a manpower planning process that would be of significance for the educational program in the Inter-American Division. It could also assist in the creation of a systematic process that could provide adequately trained, and necessary manpower.
The institutions of higher education in the Inter-American Division are now working on their respective master plans. A manpower planning process could complement these plans and make them much more tangible administrative packages. With these tools in hand, all the short-term projections could be placed in proper perspective.

Definition of Terms

For better understanding this section includes the definition of terms that are used in this study. The definitions are given according to their context and usage in the Seventh-day Adventist vocabulary.

**Division:** the largest geographical and administrational unit next to the General Conference, embracing a number of unions, conferences and missions.

**Inter-American Division:** the geographical unit that includes the countries reaching north to Mexico, south to Venezuela, and the islands of the Caribbean.

**SDA Constituency:** members of the church who sponsor the educational program and arevinculated to the institutions in the study.

**Long-Range Planning:** planning which looks beyond the immediate problems and covers a span of five years or more (Moyer, 1976).

**Assessment:** the act of gathering data, pooling information, and making comparisons (Moyer, 1976).
Denomination: the Seventh-day Adventist Church.

Delimitations of the Study

This study is delimited to the Seventh-day Adventist institutions of higher education in the Inter-American Division.

Limitations of the Study

This study depends on a manpower inventory questionnaire and statistical information which have been compiled by the institutions during the period of the study. The data is limited by the inadequacy of communication since a major portion of the information was gathered by mail. The manpower inventory requires personal information and it is possible that the respondents may conceal information or misinterpret questions. The researcher assumes that the statistical information available is an accurate report of the actual situation at these institutions during the time frame studied.

Organization of the Study

This study was organized into six chapters: Chapter I includes the background of the study and the statement of the problem. Chapter II discusses the literature that is relevant to the study. The methodology employed in the study is discussed in chapter III, and chapter IV reports on the available manpower in the institutions of higher education in the Inter-American Division. Chapter V gives
the suggestions on how to incorporate manpower planning into the administrative structure of the educational program in the Inter-American Division, while the summary, conclusions, and recommendations of the study are included in Chapter VI.
CHAPTER II

REVIEW OF THE RELATED LITERATURE

The purpose of this chapter is to review the literature on manpower planning that relates to educational systems. The areas of major consideration are (1) techniques of manpower planning (2) manpower planning in education and (3) manpower planning in the Seventh-day Adventist church, particularly in the Inter-American Division.

The literature on manpower planning or human resource planning falls into two general categories which are discussed briefly. The first category deals with the growing importance of manpower planning in organizations. The articles reviewed identify the benefits of manpower planning and urge corporate investment in the process. Many of these articles were mentioned in chapter I.

Authors such as Haire (1970) viewed employees as capital investment. His major premise was that hiring a young person committed a company for approximately a million or more dollars during his working life, but that it was not until 12.5 years of work that the company actually received in productivity from that employee the investment made in him/her starting from the initial
salary. This, Haire said, is a major economic reason for human resource planning to take a more prominent place in the firm's decisions.

Beal (1979), Hollingsworth and Preston (1976), and Walker (1968) have all treated human resource planning as a means of avoiding the shortage of skilled employees resulting from technological advances or economic or sociological changes. Only by synthesizing the methods and findings of economists, behavioral scientists and strategic planners can a far-reaching road map be developed which incorporates the organization's future goals and anticipates the human resources needed. This process, they claim, is the ongoing manpower planning procedure. Other authors such as Burack and Gutteridge (1978) and Wikstrom (1971) have related the concept of human resource planning and development as a social responsibility of the employing organization.

The second category of literature on manpower planning describes the models and techniques used in manpower planning. These methods are further divided into two groups: the elementary methods and the complex mathematical models. Bryant et al. (1973) classified the various models and techniques into four groups: judgmental techniques, matrix models, quantitative techniques and computer simulations. The judgmental techniques included the most elementary form of manpower planning such as supervisor estimates, rule-of-thumb, replacement charts.
The matrix models group included models developed by Dill and Weber (1966) known as Matrix Model for Executive Planning Development and the model developed by Haire (1967) known as the Management Manpower Planning Matrix.

The quantitative methods fall into three categories: statistical methods, operations research methods such as Charnes' (1970) Goal Programming model, and network-flow methods. Computer simulations models such as PERSYM (Groover, 1969) and the Army's Reserve Manpower Model are included in this last group.

Grinold and Marshall (1977) used cross-sectional models, longitudinal models, and optimization models to demonstrate the strategic role of manpower planning in large organizations.

Thonstad (1968) dwelt on the mathematical and empirical models involved in manpower planning from an educational standpoint. However, his emphasis was on the replacement of individuals in a micro-complex without the considerations of human resource development.

The literature emphasizes the importance of human resource planning as a necessary component in all organizations. An array of techniques are provided to choose from. A commentary from Walker (1974) sets the pace for this study:
A discipline of human resource planning (manpower planning) has developed and is now widely used to guide management in planning...

these organizations also indicated, however, that these practices are extremely traditional and rudimentary. (p.19)

Coleman (1970) also mentioned that although pressures continue to build for the effective utilization of manpower, it has not acquired the level of sophistication in the process as expected. Consequently, an in depth discussion of the methods previously mentioned is beyond the scope of this study. The following section discusses in detail the techniques of manpower planning that have relevance to this study.

Techniques of Manpower Planning

There is no universally accepted definition of manpower planning, neither is there a universal technique as "the one" for manpower planning. Techniques range from the very sophisticated mathematical models to rudimentary procedures; therefore each setting, business or education, must be able to adapt the basic principles to each particular case. Wikstrom (1960) put it in the following way:

Manpower planning cannot be done by any rigid formula or by any standard procedure. The differences in the situations of companies even within the same industry are too great to permit a standard approach. The success of manpower planning depends on the skill and judgment of the management that does the planning. (p. 5)

One of the first techniques of manpower planning was published by Vetter. In 1964 he established some basic
guidelines on how to forecast manpower needs. Vetter's first principle dealt with the objectives of the institution or corporation. It was his belief that manpower planning and forecasting must be tied to a basic point to help a company realize its objectives. Therefore, manpower planners should first dig out the long-range goals of the firm and the reasoning behind these goals. This implies that manpower planning originates with the firm's basic profit, sales, and financial forecast.

The second principle involves inventory. Vetter indicated that in many companies manpower statistics have seldom been used in manpower planning. As a result, the forecasts are often meaningless and incomplete or inaccurate. Good manpower forecasting requires three sets of information: (1) past labor productivity; (2) employment and occupational trends; and (3) managerial and professional work force data.

The third principle enunciated by Vetter was to make an annual forecast and use it. In his words, "the experienced forecaster works on either a five or ten year forecast. He does this annually and makes revisions whenever new information indicates changes are in order" (p. 109).

In 1967 Vetter expanded on these principles and developed a manpower planning procedure (see fig. 2). This model completes the manpower planning and
Figure 2. Vetter's Manpower Planning Process.
forecasting in four phases. The first phase involves the data collection and analytical work which leads to a manpower inventory and manpower forecast. The second phase involves the identification of manpower problems and the determination of long-range manpower policies and objectives. The third phase consists of designing and implementing the manpower plans. The fourth phase is the control and evaluation of the performance of the plans in relation to their objectives.

Coleman (1970) also proposed a manpower planning and programming process. He concluded that before a manpower planning process could be examined, the terms manpower planning and manpower programming should be differentiated. He saw manpower planning as the process of determining manpower requirements and the means for meeting those requirements in order to carry out the integrated plans of the organization. He saw programming as structuring programs to provide the organization with the needed manpower. The process Coleman proposed consists of five stages and is shown in figure 3.

Stage 1

Stage 1 defines the organization's plans and objectives. The plans laid out at all levels of the firm provide the manpower requirements. Manpower planning and corporate objectives must go hand in hand otherwise the necessary personnel to accomplish these objectives will not be available.
Figure 3. Coleman's Manpower Planning Programming Process.
Stage 2

At stage 2 the gross requirements are determined. All the related facts about employees must be listed. This is in essence a forecasting of the human resource requirements needed to accomplish the goals of the institution. This stage also implies the development of adequate technique to determine the requirements for all types of manpower in the organization.

Stage 3

Stage 3 is where the manpower inventory is done to determine the present capabilities of the organization.

Stage 4

At stage 4 the net manpower requirements are determined. This becomes the difference between the gross human requirements and the inventory. In this step the planner can use the information obtained as a basis for future activities.

Stage 5

In the final stage of the process there is an integration of activities that guarantees that the manpower needs of the firm are met. The emphasis here is not only on traditional functions of recruitment, selection, and placement, but also on the development of manpower skills.

In 1971 Castetter developed a manpower planning process based on his perceptions of manpower planning in
education. Initially this was a five-step process until 1976 when another step was added. The new model is outlined in figure 4.

The first step in the process is to develop manpower planning assumptions. These are derived from the goals and aims of the educational institution. These assumptions are essential to the preparation of new programs, budgets, and forecasting.

The second step in the process is the projection of future organizational structure and manpower demand. This step involves two major tasks. The first task is to determine what organizational structure will be best for the future projections of the school. The second task is to create the job designs that will be needed for this organizational structure.

The third step is the manpower inventory. The purpose of this step is to determine if the available personnel can be matched with the manpower requirements dictated by the projected future structure.

Step four is the forecasting of changes in the available manpower as a result of retirements, resignations, deaths, disabilities, and other causes.

The fifth step is the implementation of the manpower plan. Castetter also designates this phase as the programming phase. It is the process of translating the needs and forecasts into the actual placing of personnel. The final step of the process is to determine if the plan
Figure 4. Castetter's Model of the Manpower Planning Process.
is satisfying the projections. This stage is called the controlling stage. Castetter indicates that for this plan to be successful it requires that manpower planning be integrated with other personnel processes. It must be continually analyzed to detect disparities between the forecast and the inventory. Most of all, he says, the process must be constant. Manpower planning must be an ongoing activity.

Shortly after Castetter published his manpower planning model, Baillie (1971) put it to use in a school district. His main purpose was to find out what were the determinants that would affect a manpower planning process. In the use of this model he found that it lacked a loop whereby control could provide input for future manpower plans. The present form insinuated a one-time activity. From the experience gained Baillie proposed the model shown in figure 5. As expected this model builds in a loop that gives manpower planning a cyclic nature. It shows the importance of manpower determinants and how they relate to the manpower inventory and forecast. As Baillie says "It forces identification of the gap between the desired manpower goal and the current situation" (p. 307).

Burack (1972) suggested a manpower planning model in six stages (fig. 6):

Stage 1

The first stage establishes that manpower planning takes place within a "going concern" and that the nature
Figure 5. Baillie's Manpower Planning Model.
Figure 6. Burack's Stages of Manpower Planning and Implementation.

and scope of planning is influenced by "corporate inputs." Decisions about these inputs are made at the highest organizational levels and, as such, set guidelines for all formal, goal-oriented activity at lower levels.

Stage 2
Effects of top management decisions are shown as producing manpower reactions within each major organizational function. These take the form of projections or estimates of the categories of manpower which will be needed under the changing conditions fostered by stage 1 management decisions. These decisions also depend on the manpower information system—a system for collecting, analyzing, and interpreting data and the organization's manpower resources.

Stage 3
Stage 3 stresses the parallel process of organizational change and manpower forecasting. Manpower planners are faced with the challenge of analyzing the direction and force of events set in motion in stage 1, and the following through on the initial projections of stage 2 in order to gauge likely changes in the organization's structure. These and many other considerations become basic inputs to a complex of activities known as the manpower forecast. It is in the forecast that the manpower planner must quantify, to the best of his information and ability, the initial
projections of stage 2 and the organizational changes identified or anticipated at stage 3.

Stage 4

In stage 4 the manpower planner comes to grips with the specific implications of organizational change and his manpower forecast. The forecast establishes the nature and scope of manpower deficits, by category or positions, when compared with estimated future needs. These deficits must be met (a) from internal sources, (b) through the conduct of intraorganizational manpower searches, or (c) from outside sources, through a planned program of recruitment and selection.

Internal search procedures are importantly dependent on the quality of the manpower inventory data base. In some cases this is limited to body counts of incumbents in various job or occupational classifications, but in other cases it is enriched by performance data, experience records, achievement motivation, and the like.

Stage 5

Stage 5 reflects the implementation of the manpower research results of previous stages: the carrying out of appropriate recruitment decisions and the design and conduct of various training and development activities.

Stage 6

Stage 6 exists so that one may confront certain emergent manpower trends in our society and may
acknowledge the unique and difficult challenges they represent.

Kahalas (1974) proposed that it would be fruitful to view the manpower planning process as an information decision system with certain informational inputs which are transformed into decision outputs. The model he recommends is shown in figure 7 and it is based on the use of multiple regression and Markov chain analysis to forecast the demand for manpower. It is his opinion that with the massive growth in educational organizations, planners will be forced to utilize these quantitative designs to obtain the maximum from both their human and financial resources.

Walker (1974) proposed a four stage model for human resource planning. In this model there are three basic elements: 1) forecasting 2) programming and 3) evaluation.

The first element would anticipate the human resource requirements to meet future plans. The second element would put into action the necessary steps to supply the needs and at the same time support individual choices. The third element would be concerned with the effectiveness of the forecasting and the programming elements.

The four stages of the Walker model are then developed within the three elements; that is, in each element there will be four stages that represents successive levels of complexity and scope in the system.
Figure 7. Kahalas' Manpower Information Decision System.

Stage 1
Stage 1 represents the basic approach to an organization's needs for a small organization.

Stage 2
Stage 2 represents a short-range planning cycle. It is an effort to supplement the informal human resource management style with formal tools.

Stage 3
Stage 3 is the practice of human resource planning with the aid of computer capabilities and other activities aimed at satisfying the needs for both long-range and short-range plans.

Stage 4
Stage 4 represents the ultimate techniques in human resource planning.
It is assured that the majority of organizations would be using stages 1 and 2 and that only as the need arises due to increase in the number of individuals and in complexity of the planning procedure would the use of the next stages be included.

In 1976 Moyer implemented Castetter's model in a school district to determine if a manpower planning process was feasible. As a result of the process, a graphic representation of the adjustments made to the original model was developed (see fig. 8). These adjustments are based on a cyclical manpower planning
Figure 8. Moyer's Adjusted Manpower Planning Process of school districts.

process and according to the individual appointed to monitor it. Moyer also suggests that new planning assumptions be developed yearly as a result of examining the educational program, the geographical data, staff characteristics, and the deviations from the basic plan.

**Manpower Planning in Education**

There is very little written on manpower planning in education. Even though Herndon (1976) insisted that manpower planning is practical in education when compared to industry where unexpected changes or variables must be considered, more has been done in the field of business than in education. The first concept of manpower planning in schools was developed by Castetter (1962). He developed a planning process which utilized pupil population and personnel ratios as planning tools. In 1971, Baillie published one of the first doctoral researches on manpower planning. The purpose of his study was to discover what were the determinants for implementing a manpower planning process in a school system. As a result of his study Baillie found the following factors to be indispensable: community demand for education, system aims, system programs, system physical plants, the policy of the district and its manpower procedure, the structure of the organization, and the staffing practices and characteristics.

Another dissertation was published on manpower planning by Moyer (1976). The purpose of his study was to
determine whether it was feasible for a public-school district to implement a manpower planning process for the purpose of developing manpower plans. Moyer strongly believed that the implementation of a manpower planning process would provide the opportunity for school districts to conduct the personnel functions in an organized and planned fashion, rather than deal with them as critical problems. The major concern of Moyer's study was to define (1) How the future manpower requirements and the organizational structure be predicted and illustrated? (2) How can manpower planning assumptions be developed? and (3) How can these requirements and structures be used to develop plans for recruitment, reduction or redeployment, and development?

By answering these three questions it was determined that it is feasible for public-school districts to engage in manpower planning. Based on his findings Moyer proposed a manpower planning model previously discussed (fig. 8).

Kurtz (1977) conducted an in depth study to determine to what extent critical external and internal factors that affect manpower planning can be identified. He also tried to determine what assumptions could be made regarding the impact of internal and external factors on the manpower planning projections. The external factors identified were

1. Demand for public education
2. Community support
3. Federal programs and revenues

The internal factors were:
1. School district policies
2. Staffing practices

As a result of this investigation, Kurtz concluded that the development of some type of manpower planning system is both feasible and necessary. At the time of the study, the personnel division of the pilot project school district disclosed a lack of a method of projecting needs beyond a year-to-year basis. It was felt that forecasting could be accomplished with a high degree of accuracy, and that a model could be developed for the projection of long-range plans. A final conclusion was that in the school district studied manpower planning should be done as a step in a centralized process of the over-all personnel function for the purpose of efficiency and accuracy.

Manpower Planning in the Seventh-day Adventist Church

There is no information in literature of any study done in the area of manpower planning in any Seventh-day Adventist educational institution. There were only two studies available in the literature. One by Klimes (1967) concerned information collected on the Seventh-day Adventist work around the world. With this information
Klimes tried to demonstrate that there was a need for a manpower planning process for the church. Based on his survey Klimes concluded that the membership of the church would continue to increase and would require a larger number of highly qualified workers. He recommended that the Secretariat of the General Conference of Seventh-day Adventist coordinate and administer the world-wide Seventh-day Adventist manpower development program. Klimes particularly recommended that the Department of Education cooperate actively with the Secretariat in preparing specialized studies and programs to meet the needs of the church.

The other study was done by Scott (1968). His objective was to determine the factors contributing to the imbalance between the needs for and the available supply of occupationally prepared Seventh-day Adventist service personnel in selected denominational institutions in California. He found that the existing vocational programs were lacking in breadth, depth, and availability for youth and adults. Scott also found that the promotional programs had failed to orient parents and students toward service and that the inaccessibility of Adventist training opportunities and the expense of education were inhibiting the potential student work force. Based on these findings Scott recommended that the philosophy and objectives of Adventist education should be re-evaluated; that there should be an interrelated
emphasis between the liberal arts and vocational or professional arts; and that a vocational curriculum based on denominational and student needs should be initiated. One of his major suggestions was the organization of work experience programs in cooperation with the various agencies of the Adventist church. This essentially means more in depth study of the needs of the church and a plan to fill them. In other words, an effective manpower planning program.

In 1968, Charles Taylor then educational secretary of the Inter-American Division produced a document entitled "Looking down the Road". This was, and so far has been, the only written document available from the Division with the intention of looking at the whole education program in the context of a master plan from a manpower planning perspective. Taylor clarifies his intentions by saying:

The type of masterplan to be explored in this study should actually precede the drawing of a campus masterplan in that it seeks to identify educational needs and determine the objectives which the campus (or campuses, bursary programs, seminary extension courses, and all other educational expenditures, both operational and capital investment) should seek to attain. Instead of individual buildings on one drawing, we are locating and assigning functions to whole institutions and educational systems. (p.1)

In doing this comprehensive study four questions were addressed regarding the projections for 1980: (1) How many students should the elementary, secondary, and college programs plan for? (2) How many teachers and what
kind should be planned for in preparing operating budgets for the school system? (3) How large a capital investment and what type of investment will be needed to house and equip this school system? 4) what recommendations can be made on a logically unified rationale, as to what steps should be taken to obtain and allocate most effectively the human and material resources for such a program?

In the context of the present study questions two and four are of relevance. However, reference will be made to all in an effort to describe the total projections that were made. At the preparation of this report the projections were based on a growth rate of the Inter-American Division that would achieve a membership of 350,000 to 380,000 by 1980. In 1980 the membership of the division was in the neighborhood of 650,000. If all the plans were carried out according to this report, the planning process would have provided for only 50 percent of the actual demands.

The projections for the amount of elementary, secondary and college students that the division should plan for were calculated based on the student-to membership ratio which at that time was 11.9 to 100. If the trend had continued, the total expected enrollment to provide for would have been 45,200. However, if the projections had been based on the premise that every SDA child of school age, 6-18 would be in an SDA elementary or secondary school, and had used the primary and youth
Sabbath School enrollments as a guide, and adding a 3 percent for college enrollment, the total estimate would have been 190,000. Teacher projections were based on the ideal student-teacher ratio of 30:1 in elementary schools and somewhat smaller ratios in secondary schools. An important consideration was taken into account regarding the location of SDA churches and the membership required to operate an educational institution. Based on the statistics of the Sabbath School enrollment, Adventist education was only filling the needs of 25 percent of the membership of school age. From those considerations, it would take just over 600 members to fill a six-room elementary school at the 30:1 ratio with SDA children. It was estimated that at the secondary level the numbers would be slightly smaller. At the college level the study assumed the position that the economic conditions in the Inter-American Division and the high cost of higher education would preclude attempt to offer a college education to every Adventist youth in the various specialities. Estimates were based on: (1) the projected need for denominational employees in different categories and (2) projected college and university enrollment trends based on the current enrollment. The available data at that time revealed that the member-college student ratio was .32 in 1967 and that if the trend continued, it would be at .42 by 1980. According to the statistics of the General Conference, in 1967 there were 309 college and
academy teachers in the Inter-American Division. This represented a 9.1 percent of the denominational workers. But if the projections on membership growth materialized, twenty-one new college and academy teachers would be needed on a yearly basis.

One of the most important findings of the Taylor study pertaining to manpower planning reads:

Assuming that all denominational employees are to be graduates of denominational colleges, the colleges in our division should produce by 1980, 114 yearly dropout replacements, 14 retirement replacements, and 231 for growth; a total of 359. (p.25)

Regarding the investment to house and equip the proposed schools, it was estimated that about $12 million should be invested in education in the next twelve years. Concurrently it was suggested that the bursary plan be considered as capital investment in personnel rather than operating expenses.

Of the ten recommendations offered by Taylor on how to meet the needs for the next twelve years, only number ten was relevant to this study. Recommendation number ten is in synthesis the body of the whole study in the context of the present study. It urges each local field and each union to study its own projected needs and prepare its own master plan in consultation with the Division so that such plans may be incorporated into the over-all plan of the Division.

The only other document that could be found regarding manpower planning is the section on "Educational
Financial Policies" a section of what is known as the College Staff Bursary Plan in the working policy of the Inter-American Division (pp. F-41-F47). The bursary plan provides financial assistance to individuals designated by the Union educational committees with the purpose of upgrading the professional human resources for a specific purpose.

Summary

The purpose of this chapter was to review the literature on manpower planning that relates to this study. Manpower planning is a topic of increasing interest as organizations have become concerned about having the right people, at the right time, doing what they like most, as best possible. During the last few years a shift has taken place in the use of the term manpower planning. This term tends to refer to large groups of people, mainly blue-collar workers in a macro environment. The term human resource planning has been now adapted to refer to professional and highly skilled personnel in a micro complex. It is quite common, however, to find in the literature both terms used interchangeably.

The literature reviewed focused on the role of manpower planning as a key element in the decision-making process of an organization. The techniques that were discussed dealt with the non-mathematical models of
Manpower planning. The literature indicated that these are the most widely used.

Manpower planning is heavily identified with the world of business. Information in the field of education is scarce and primarily compares mostly job markets with careers and the needs of developing countries. There was very little that dealt with manpower planning as a means of providing institutions of higher education with highly skilled human resources.

In the Adventist church, there were only three studies available that dealt with manpower planning. Klimes collected information on the Seventh-day Adventist work around the world and recommended the General Conference coordinate a worldwide manpower development program. Scott tried to determine what were the factors contributing to the imbalance between the needs for and the available supply of occupationally prepared Seventh-day Adventist personnel in selected denominational institutions in California. Taylor looked at the whole educational program in the Inter-American Division in the context of a master plan from a manpower planning perspective. However, there was no evidence of a follow-up on the recommendations presented.

The information obtained in this chapter serves as a basis for the development of a manpower planning process to be discussed in chapter V.
CHAPTER III

RESEARCH METHODOLOGY

The purpose of this study was to describe the manpower availability at the institutions of higher education in the Inter-American Division and suggest a manpower planning process to be incorporated in the administrative function of these institutions. Chapter III includes all aspects of the methodology employed in conducting the research for the purposes of this study.

Type of Research

The format of this research was a descriptive study, based on the definition of Isaac and Michael (1975),

Descriptive research is used in describing situations or events. It is the accumulation of a data base that is solely descriptive it does not necessarily seek to explain relationships, test hypothesis, make predictions or get at meanings and implications, although research aimed at these more powerful purposes may incorporate descriptive methods. (p. 18)

Sources of Data

The data for this study were obtained from all the available sources of information on the institutions of higher education in the Inter-American Division. The most important documents utilized were:
1. Annual Statistical Report of the General Conference of Seventh-day Adventist
2. Annual world report on education
3. Annual reports of the Unions in the Inter-American Division
4. Master plans and self-studies of the institutions
5. Correspondence, telephone contacts and personal interviews with administrators of the institutions where additional information was needed
6. A modified form of Moyer's Manpower Inventory

Institutions Included in this Study

The following is a list of the institutions of higher education in the Inter-American Division, indicating the union and the country where each is located.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Union</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antillian College</td>
<td>Antillian</td>
<td>Puerto Rico</td>
</tr>
<tr>
<td>Centro Adventista de Estudios Superiores</td>
<td>Central American</td>
<td>Costa Rica</td>
</tr>
<tr>
<td>Caribbean Union College</td>
<td>Caribbean</td>
<td>Trinidad</td>
</tr>
<tr>
<td>Colegio Adventista Dominicano</td>
<td>Antillian</td>
<td>Dominican Republic</td>
</tr>
<tr>
<td>Haitian Adventist Seminary</td>
<td>Franco-Haitian</td>
<td>Haiti</td>
</tr>
<tr>
<td>Instituto Colombo Venezolano</td>
<td>Colombo-Venezuelan</td>
<td>Colombia</td>
</tr>
<tr>
<td>Montemorelos University</td>
<td>Mexican</td>
<td>Mexico</td>
</tr>
<tr>
<td>West Indies College</td>
<td>West Indies</td>
<td>Jamaica</td>
</tr>
</tbody>
</table>
Procedure

The answer to the first question posed—Is the accelerated growth of the Adventist church in the Inter-American Division affecting the demand for professional human resources at the institutions of higher education throughout the division?—was obtained by comparing the growth of the student body of the institutions studied during the years 1975-1980 with the membership growth in each of the unions for the same period. This comparison was made by gathering data from the statistical reports of the unions and the institutions and organizing the findings into tables and graphs to determine if the educational process was being affected by membership increase. In addition, the programmable computer languages, Statistical Package for the Social Sciences (SPSS) and Biomedical Computer Program-P series (BMDP) were used for a more detailed analysis of specific areas.

This study looked for an answer to the second question—How adequately is the current professional manpower pool filling the needs of the institutions of higher education in the Inter-American Division?—this was determined by conducting a Manpower Inventory on all the institutions of higher education in the Inter-American Division. The Manpower Inventory was mailed to all of the institutions of higher education in the Inter-American Division. The data gathered served as the basis for conclusions relating to the availability of manpower for
the institutions of higher education in the Inter-American Division when compared to the programs they offer.

After tabulating the Manpower Inventory data and comparing the manpower availability with the projections of the institutions as indicated in their masterplans, the third question—Is professional human resource planning a priority in the long-range plans of the institutions of higher education in the Inter-American Division?—was considered.

From the information gathered from the literature about the various models and procedures of manpower planning, and the knowledge of the available manpower in higher education in the Inter-American Division in hand, suggestions are given on how to develop a manpower planning process suitable to a particular case. This dealt with the fourth question—In what way can the information obtained in the previous questions be used to develop a manpower planning process that can be incorporated in the administrative process of the institutions of higher education in the Inter-American Division?
CHAPTER IV

PRESENTATION OF DATA ON THE DEMAND FOR MANPOWER PLANNING
FOR THE INSTITUTIONS OF HIGHER EDUCATION
IN THE INTER-AMERICAN DIVISION

Introduction

This chapter seeks to establish the magnitude of the need for a manpower planning process for the institutions of higher education in the Inter-American Division. Whether this need be potential or real it is based on a demand and supply relationship. The projections regarding a manpower planning process to supply professional manpower or to retrain and upgrade the existing human resources, are based on the premise that the existing conditions and trends will persist throughout the time interval covered by this study.

There are eight institutions of higher education in the Division. There is one in each union except the Antillian Union where there are two. Two of the colleges are located in the English-speaking territories of the Division, one is in the French-speaking region, and the other five are in Spanish-speaking areas. The location of these institutions depends heavily on economical factors and political stability of the host country. In figure 9,
Figure 9. Institutions of Higher Education in the Inter-American Division.
the territory of the Division is outlined and the location of the institutions involved in the study are indicated.

The gap between the demand and supply of the adequately trained manpower is gleaned from the data that best describe the available manpower and the potential growth rate of the constituency of the Division and student enrollment projections. These projections are determined by employing techniques of linear regression, percentages and ratios. The estimation of the need for highly trained manpower is applied toward providing answers for the first, second, and third "specific research questions". In order to address these questions, the chapter is divided into three sections: (1) an overview of the educational facilities and their programs (2) the membership growth of the division and (3) the Manpower Inventory of the faculty of the institutions in question.

An Overview of the Institutions of Higher Education

The following section is a brief description of each of the educational facilities along with data pertaining to the programs offered, the enrollment and the faculty. The information presented is not equal for all cases in length and depth due to a variety of ways the data were presented in the respective self-studies and master plans. The purpose, however, is to give an overview of each institution and its future projections, where available.
At the time of the study two of the institutions involved, had not completed their self-studies. Information on these have been completed from personal communication with the administrators of the institutions and data from the statistical reports of the General Conference of Seventh-day Adventist.

Montemorelos University

The autonomous University of Montemorelos is located in the state of Nuevo Leon, Mexico. It is operated by the Mexican Union of Seventh-day Adventist. The institution grew out of what was known as the "Vocational and Professional College of Montemorelos" whose beginnings go as far back as 1897. In 1925 the institution was closed and then reopened in Mexico City in 1931. In 1942 it was renamed "Instituto Bíblico" and later transferred to Montemorelos as "la Escuela Agrícola Industrial". In 1948 the school of nursing was organized. In 1951 the secondary school was adjusted to government regulations. In 1961 the teacher-training program received full official recognition. In 1968 the four-year post-secondary programs were authorized. Finally, in 1973, the university was created by an official resolution of the government of the state, thus becoming the first Adventist University outside the United States.

Degrees offered at Montemorelos

University
The University offers course work leading to baccalaureate degrees in the following areas:

- Nursing
- Theology
- Music
- Medicine
- Education
- Business Administration

The program in Secondary Education offers concentrations in the following areas:

- Educational Psychology
- Natural Sciences
- Physics and Mathematics
- Social Sciences
- Spanish
- Theology

An Associate degree can be obtained in the following areas:

- Nutrition
- Nursing
- Secretarial Sciences

The University projects the offering of the following courses in the near future:

- Laboratory Technician
- X Ray Technology
- Dental Technology
- Agriculture
Anesthesia
Bilingual Secretary
Four year program in Nutrition
Master's degrees in Religion and Education

Enrollment

The University of Montemorelos primarily serves students from the Inter-American Division. However, the international student body has been increasing constantly. In regard to the other world divisions served by the University, the "Report of the Self-evaluation study" (p.2) gives the following information:

<table>
<thead>
<tr>
<th>Division</th>
<th>No of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa-Mid East</td>
<td>2</td>
</tr>
<tr>
<td>Euro-African</td>
<td>4</td>
</tr>
<tr>
<td>Far East</td>
<td>5</td>
</tr>
<tr>
<td>North American</td>
<td>99</td>
</tr>
<tr>
<td>North Europe-West Africa</td>
<td>1</td>
</tr>
<tr>
<td>South America</td>
<td>113</td>
</tr>
<tr>
<td>Trans Africa</td>
<td>1</td>
</tr>
<tr>
<td>Southern Asia</td>
<td>3</td>
</tr>
<tr>
<td>Inter-America</td>
<td>1476</td>
</tr>
</tbody>
</table>

At the time of this study the Mexican Union reported a total membership of 149,806. The student-member ratio averaged about 0.6 percent as indicated in table 1.
TABLE 1
STUDENT-MEMBER RATIO IN THE MEXICAN UNION

<table>
<thead>
<tr>
<th>Year</th>
<th>Union Membership</th>
<th>Enrollment Higher Education</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>90678</td>
<td>389</td>
<td>.42</td>
</tr>
<tr>
<td>1977</td>
<td>100451</td>
<td>437</td>
<td>.43</td>
</tr>
<tr>
<td>1978</td>
<td>111779</td>
<td>1137</td>
<td>1.01</td>
</tr>
<tr>
<td>1979</td>
<td>123806</td>
<td>600</td>
<td>.48</td>
</tr>
<tr>
<td>1980</td>
<td>136487</td>
<td>783</td>
<td>.57</td>
</tr>
</tbody>
</table>

Table 2 shows the growth pattern of the University since 1974, including the elementary and secondary sections. Even though there is not a strong growth rate for the last two years, 1980-1982, the administration of the University feels this is due to poor promotion. The master plan indicates that it is the firm belief of the administration that there are sufficient students to triple the present attendance. Table 3 is an enrollment projection by departments for the next five years (1982-1987). These projections were made by the administration of the university, taking into consideration the demographic growth of Mexico, the nature of the population, the demand for higher education, the status of higher education in the province of Nuevo Leon and the demands of the Adventist church.
TABLE 2

GROWTH PATTERN OF MONTEMORELOS UNIVERSITY
(1974-1982)

<table>
<thead>
<tr>
<th>School Year</th>
<th>Enrollment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974-1975</td>
<td>752</td>
<td></td>
</tr>
<tr>
<td>1975-1976</td>
<td>821</td>
<td>9</td>
</tr>
<tr>
<td>1976-1977</td>
<td>1,086</td>
<td>32</td>
</tr>
<tr>
<td>1977-1978</td>
<td>1,270</td>
<td>17</td>
</tr>
<tr>
<td>1978-1979</td>
<td>1,415</td>
<td>11</td>
</tr>
<tr>
<td>1979-1980</td>
<td>1,531</td>
<td>8</td>
</tr>
<tr>
<td>1980-1981</td>
<td>1,730</td>
<td>13</td>
</tr>
<tr>
<td>1981-1982</td>
<td>1,730</td>
<td>0</td>
</tr>
</tbody>
</table>


TABLE 3

ENROLLMENT PROJECTION BY DEPARTMENTS DURING 1982-1987

<table>
<thead>
<tr>
<th>Program</th>
<th>Actual</th>
<th>Increase</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretarial</td>
<td>54</td>
<td>66</td>
<td>120</td>
</tr>
<tr>
<td>Nutrition</td>
<td>61</td>
<td>74</td>
<td>135</td>
</tr>
<tr>
<td>Normal</td>
<td>96</td>
<td>64</td>
<td>160</td>
</tr>
<tr>
<td>Nursing</td>
<td>114</td>
<td>66</td>
<td>180</td>
</tr>
<tr>
<td>Medicine</td>
<td>203</td>
<td>--</td>
<td>203</td>
</tr>
<tr>
<td>Business</td>
<td>78</td>
<td>102</td>
<td>180</td>
</tr>
<tr>
<td>Education</td>
<td>136</td>
<td>464</td>
<td>600</td>
</tr>
<tr>
<td>Music</td>
<td>22</td>
<td>38</td>
<td>60</td>
</tr>
<tr>
<td>Theology</td>
<td>195</td>
<td>5</td>
<td>200</td>
</tr>
</tbody>
</table>


Faculty

The University employs thirty-five full time and fifteen part time teachers. Of the thirty-five full time teachers, thirteen have a doctoral level degree, eight have a master's degree and fourteen are trained to the bachelor's level. The university recognizes the
disadvantages of having teachers teach at the same level of their preparation but this is due in part to budgetary restrictions. Of the total group, 51 percent are nationals and 49 percent are foreigners. Of the eight with master's degrees, five are completing studies toward a doctorate. Of the fourteen with bachelor's degrees, eight are pursuing a master's degree. At the time of the preparation of the self-study, there were three other faculty members on leave studying toward doctoral degrees. If the new programs mentioned above were to materialize, Montemorelos University would be in need of additional teachers in the following areas:

- Business Administration
- X Ray and Laboratory Technology
- Bilingual Secretarial Sciences.

Until 1979 Montemorelos University had provided services to 0.56 percent of the students in tertiary education in the state of Nuevo Leon. Future plans are not only to improve the enrollment in the current areas but to offer programs that will satisfy the national and denominational needs.

Antillian College

Antillian College is located in Mayaguez, Puerto Rico. It is owned and operated by the Antillian Union of Seventh-day Adventist. It mainly serves the constituency of Puerto Rico and a diminishing number of students from the Dominican republic. In the past a large number of
students from other Unions enrolled at Antillian College, but due to immigration restrictions and the elevated cost of tuition, the number of students has diminished considerably. This college was initially located in Cuba but was transferred to Puerto Rico in 1961. In 1963 it received authorization to operate as an institution of higher education from the Council of Higher Education of Puerto Rico. In 1978 full accreditation of its academic program was obtained from Middle States Association of Colleges and Secondary Schools.

Degrees offered at Antillian College

Antillian College offers baccalaureate degrees in twelve areas and concentrations in three areas at the associate level.

Bachelor of Arts

Biology

Elementary Education

Secondary Education with concentration in:

Spanish

History

Music

Chemistry

Religion

Theology

Bachelor of Science

Business Administration
Nursing
Office Administration
Associate of Arts
Religion
Office Administration
Associate of sciences
Nursing
At the time of this study, a new program leading to an associate in computer sciences was being organized.

Enrollment
At the time of the preparation of their self-study, Antillian College had enrolled 753 students. They projected an enrollment of 1,021 by 1982. Table 4 indicates, however, that the enrollment trend was not increasing enough to attain this projected goal. In the 1981 revised projections, Antillian College projected an enrollment of 1500 by 1987. Table 5 shows the enrollment projections by departments up to 1987. It is unlikely, however, that this goal will be attained since the previous projections were unrealistic. Antillian College should use better projection techniques and consider the relevant factors that will affect their enrollment.
### TABLE 4

ANTILLIAN COLLEGE ENROLLMENT PROJECTION
BASED ON PAST ENROLLMENTS

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>261</td>
</tr>
<tr>
<td>1970-71</td>
<td>279</td>
</tr>
<tr>
<td>1971-72</td>
<td>377</td>
</tr>
<tr>
<td>1972-73</td>
<td>514</td>
</tr>
<tr>
<td>1973-74</td>
<td>462</td>
</tr>
<tr>
<td>1974-75</td>
<td>523</td>
</tr>
<tr>
<td>1975-76</td>
<td>618</td>
</tr>
<tr>
<td>1976-77</td>
<td>642</td>
</tr>
<tr>
<td>1977-78</td>
<td>754</td>
</tr>
<tr>
<td>1978-79</td>
<td>845</td>
</tr>
<tr>
<td>1979-80</td>
<td>810</td>
</tr>
<tr>
<td>1980-81</td>
<td>857</td>
</tr>
<tr>
<td>1981-82</td>
<td>753</td>
</tr>
</tbody>
</table>


### TABLE 5

ENROLLMENT PROJECTIONS BY MAJORS

<table>
<thead>
<tr>
<th>Majors</th>
<th>1986-87</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religion/Theology</td>
<td>400</td>
</tr>
<tr>
<td>Undecided and New Majors</td>
<td>350</td>
</tr>
<tr>
<td>Elementary Education</td>
<td>200</td>
</tr>
<tr>
<td>Nursing Education</td>
<td>200</td>
</tr>
<tr>
<td>Business Administration</td>
<td>100</td>
</tr>
<tr>
<td>Secretarial Science</td>
<td>100</td>
</tr>
<tr>
<td>Biology</td>
<td>50</td>
</tr>
<tr>
<td>Spanish</td>
<td>50</td>
</tr>
<tr>
<td>History</td>
<td>50</td>
</tr>
</tbody>
</table>

Source: Antillian College Academic Master Plan (1977-1982)

Table 6 indicates the student member ratio in the Antillian Union during the period 1976-1980.
TABLE 6
STUDENT-MEMBER RATIO IN THE ANTILLIAN UNION

<table>
<thead>
<tr>
<th>Year</th>
<th>Union Membership</th>
<th>Enrollment</th>
<th>Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>45,230</td>
<td>642</td>
<td>1.41</td>
</tr>
<tr>
<td>1977</td>
<td>48,822</td>
<td>754</td>
<td>1.54</td>
</tr>
<tr>
<td>1978</td>
<td>51,204</td>
<td>845</td>
<td>1.65</td>
</tr>
<tr>
<td>1979</td>
<td>55,264</td>
<td>810</td>
<td>1.46</td>
</tr>
<tr>
<td>1980</td>
<td>59,088</td>
<td>857</td>
<td>1.45</td>
</tr>
</tbody>
</table>

Faculty

Antillian College has twenty-eight teachers with doctor's degrees, forty-six with master's degrees, and twenty-six with bachelor's degrees. They are a heterogenous group coming from thirteen different countries. Among the graduates there are ten from Andrews University and six from Loma Linda University.

The following statements regarding faculty development were taken from the Academic Master Plan:

Antillian College seeks to improve its faculty by:

1. increasing the proportion of faculty holding earned doctorates and decreasing the proportion holding only baccalaureate degrees,
2. increasing the proportion of native Puerto Rican and Caribbean faculty,
3. increasing the number of native Puerto Rican holding master's and doctorates,
4. improving faculty retention and continuity and
5. improving the bilingual capability of the members of the teaching faculty (Academic Master Plan, 1977-82, p.17)

Table 7 indicates the faculty at the time of the preparation of the master plan, the projections, and the actual faculty in 1982.
TABLE 7

FACULTY PROJECTION FOR ANTILLIAN COLLEGE
1977-1982

<table>
<thead>
<tr>
<th>Year</th>
<th>Professors for 1981-82</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Docs</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Masters</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>Bachelors</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Associate</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>47</td>
</tr>
</tbody>
</table>

Source: Antillian College Academic Master Plan (1977-1982) p.18

Experience indicates that the faculty from the Caribbean tend to remain longer at the Institution. Therefore, the emphasis is on preparing or obtaining local talent to fill the needs for professional manpower. The institution is now providing sponsorship to assist faculty members in their professional advancement.

West Indies College

West Indies College is located in Mandeville, Jamaica, and it is owned and operated by the West Indies Union of Seventh-day Adventists. The institution was established in 1919 but did not gain its senior college status until 1959. It has full accreditation from the Board of Higher Reagents of the General Conference of Seventh-day Adventists. The Jamaica Joint Board of Teacher Education accredits the primary education diploma program and the Nursing Council
accredits the nursing program. At the time of this study, the college was in the process of negotiating with the Jamaican Ministry of Education for full recognition of the Secondary Education and Business degrees. In 1974, Andrews University began operating an extension school on the campus of West Indies College with a program leading to the Master of Arts degree in Religion. There are future plans to expand the extension school to provide greater opportunities for the local students to obtain a greater portion of their degree requirements off the campus of Andrews University.

Degrees offered at
West Indies College

West Indies College offers baccalaureate degrees in the following areas:

- Business Administration
- Mathematics
- Nursing
- Primary Teacher Education
- Religion
- Education
- Theology
- History
- Biology
- General Science
- English

The program in secondary education offers
concentrations in:

Religion
History
Biology
Chemistry
Mathematics
English

A diploma can be obtained in the following areas (A.A.):

Bible Instruction
Biological Science
Business Administration
Chemistry
Music
Physics
Pre-engineering
Primary teacher education
Secretarial Studies

Projected degrees to be offered are:
Baccalaureate degree in Communication and
Associate degree in:

Medical technology
Computer science
Music performance

Enrollment

West Indies College serves the constituency of the
West Indies Union and other countries in the Caribbean and
Central America on a smaller scale. An overall projection of West Indies College from its master plan shows a student body of 1500 by the year 1985, and 2000 by the year 1991. Table 8 is a projection of the growth of each department until 1987.

**TABLE 8**

<table>
<thead>
<tr>
<th>Programs</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Professional</td>
<td>100</td>
</tr>
<tr>
<td>Sciences</td>
<td>140</td>
</tr>
<tr>
<td>Business Administration</td>
<td>250</td>
</tr>
<tr>
<td>English</td>
<td>50</td>
</tr>
<tr>
<td>Social Studies</td>
<td>35</td>
</tr>
<tr>
<td>Home Economics</td>
<td>15</td>
</tr>
<tr>
<td>Mathematics</td>
<td>40</td>
</tr>
<tr>
<td>Music</td>
<td>10</td>
</tr>
<tr>
<td>Nursing</td>
<td>100</td>
</tr>
<tr>
<td>Education</td>
<td>720</td>
</tr>
<tr>
<td>Secretarial Science</td>
<td>120</td>
</tr>
<tr>
<td>Theology</td>
<td>200</td>
</tr>
<tr>
<td>Undecided</td>
<td>200</td>
</tr>
<tr>
<td>Special Students</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: West Indies College Master Plan, p. 34
Table 9 shows the student to member ratio for higher education in the West Indies Union.

**TABLE 9**

**STUDENT-MEMBER RATIO IN THE WEST INDIES UNION**

<table>
<thead>
<tr>
<th>Year</th>
<th>WIC Enrollment</th>
<th>Union Membership</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>577</td>
<td>88,108</td>
<td>.65</td>
</tr>
<tr>
<td>1977</td>
<td>1137</td>
<td>94,462</td>
<td>1.20</td>
</tr>
<tr>
<td>1978</td>
<td>1498</td>
<td>100,289</td>
<td>1.49</td>
</tr>
<tr>
<td>1979</td>
<td>1394</td>
<td>108,104</td>
<td>1.28</td>
</tr>
<tr>
<td>1980</td>
<td>1653</td>
<td>112,247</td>
<td>1.47</td>
</tr>
</tbody>
</table>

**Faculty**

At the time of this study, West Indies College had six faculty members with an A.A. degree, eighteen with a bachelor's degree, twenty-eight with master's and eleven doctorates. The college has a sponsorship program to upgrade the existing faculty and has been recruiting qualified faculty to fill the needs of the growing departments and the new ones to be created.

**Caribbean Union College**

Caribbean Union College is located in the Maracas Valley about ten miles northeast of Port-of-Spain, capital of Trinidad and Tobago. The college was founded as East
Caribbean Training School in 1927. In 1947 the institution became a junior college offering two-year courses in Theology, Teacher Training, Business, and Secretarial Science. In 1956 the name was changed to Caribbean Union College. In 1970 four-year programs were instituted. The college is fully accredited by the Association of Seventh-day Adventist Colleges and Secondary Schools. It is also recognized as a teacher-training institution by the Ministry of Education and Culture of the Government of Trinidad and Tobago.

**Degrees offered**

**Caribbean Union College**

A baccalaureate degree can be obtained in the following areas:

- Theology
- Religion
- Business Administration
- History

A diploma can be obtained in the following areas (A.A):

- Theology
- Religion
- Education
- Business Administration
- Secretarial Science
- Business Education
- Science and Mathematics
Music
Industrial Education

Projected bachelors to be offered are:

Music
Office administration
Science and Mathematics
Modern Languages
Biblical Languages
Home economics

Enrollment at Caribbean Union College

The students at Caribbean Union College come from as far north as St. Croix, Virgin Islands, and as far south as Guayana and Surinam on the northern coast of South America. Occasionally students from Venezuela, Brazil, Colombia and as far as Argentina have attended Caribbean Union College. At the time of this study, the student population numbered 376. Table 10 projects enrollment up to 1987.

Table 10

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982-83</td>
<td>420</td>
</tr>
<tr>
<td>1983-84</td>
<td>460</td>
</tr>
<tr>
<td>1984-85</td>
<td>490</td>
</tr>
<tr>
<td>1985-86</td>
<td>520</td>
</tr>
<tr>
<td>1986-87</td>
<td>520</td>
</tr>
</tbody>
</table>

Source: Caribbean Union College Self Study, 1982, p.6
Table 11 shows the student to member ratio in higher education in the Caribbean Union.

**TABLE 11**

**STUDENT TO MEMBER RATIO IN THE CARIBBEAN UNION**

<table>
<thead>
<tr>
<th>Year</th>
<th>CUC Enrollment</th>
<th>Union Membership</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>209</td>
<td>56,700</td>
<td>.36</td>
</tr>
<tr>
<td>1977</td>
<td>287</td>
<td>60,387</td>
<td>.47</td>
</tr>
<tr>
<td>1978</td>
<td>368</td>
<td>64,227</td>
<td>.57</td>
</tr>
<tr>
<td>1979</td>
<td>346</td>
<td>66,689</td>
<td>.51</td>
</tr>
<tr>
<td>1980</td>
<td>346</td>
<td>71,155</td>
<td>.48</td>
</tr>
</tbody>
</table>

Faculty

Caribbean Union College has twenty-one full-time teachers and six part-time teachers. All except two are from the West Indies. These are the president and the head of the science department, who are from the United States. Nine faculty members have doctorates and the majority of the other faculty members have completed a degree equivalent to the master's level. Based on the recommendation made by the president of Andrews University on his consultation visit to CUC in 1978, there has been an effort to identify the necessary faculty for proposed programs along with a faculty development plan showing proposals for advanced education leaves for both the present and future staff (CUC self-study, 1981).

Institut Adventiste Franco-Haitien

The Institut Adventiste Franco-Haitien is located in
Port-au-Prince, Haiti. It is owned and operated by the Franco-Haitien Union of Seventh-day Adventists. This institution first opened its doors in 1921 at Vaudrevil, eight kilometers from the town of Cap-Haitien. In 1922 it was transferred to Port-au-Prince. In 1935 it was moved to a new location in the same city under the name of "College Vertieres". In 1947 it was finally moved to its present location known as Diquini. At the time of the present study, only the primary and secondary sections were officially recognized by the Ministry of National Education.

Degrees offered at IAFH

A Bachelors degree can be obtained in the following areas:

Theology
Education
Business Administration
Secretarial Science

Enrollment at IAFH

This institution serves the French-speaking population of the Inter-American Division. The major portion come from Haiti, Guadeloupe, and Martinique. Foreign students from Jamaica, Dominican Republic, Ivory Coast, Zaire, Burundi, and the United States have also attended the IAFH. At the time of this study, the enrollment at the college was 733 students. In its self
study IAPF does not make any future projections for enrollment. However, based on the enrollment increase from 279 in 1979 to 555 in 1980 and 733 in 1981, quite an increase is indicated. If the trend continues IAPF would need to acquire additional faculty positions.

Table 12 is an indication of the student member ratio in the Franco-Haitien Union.

**TABLE 12**

**STUDENT TO MEMBER RATIO IN THE FRANCO-HAITIEN UNION**

<table>
<thead>
<tr>
<th>Year</th>
<th>IAPF Enrollment</th>
<th>Union Membership</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>161</td>
<td>72,161</td>
<td>.22</td>
</tr>
<tr>
<td>1977</td>
<td>204</td>
<td>78,268</td>
<td>.26</td>
</tr>
<tr>
<td>1978</td>
<td>392</td>
<td>84,721</td>
<td>.46</td>
</tr>
<tr>
<td>1979</td>
<td>279</td>
<td>92,215</td>
<td>.30</td>
</tr>
<tr>
<td>1980</td>
<td>555</td>
<td>98,846</td>
<td>.56</td>
</tr>
</tbody>
</table>

**Faculty**

The Institut Adventiste Franco-Haitien has twelve full-time teachers and five part-time teachers at the college level. With the exception of two teachers, all have either an earned doctorate or a master's degree. At the time of this study, three faculty members were on leave obtaining higher degrees. The future plans call for three more teachers to take the place of those now completing their programs. Even with this planning, IAPF still has a need for qualified teachers. In the past they
have had to hire non-Adventist teachers to fill the gap in certain areas.

Colegio Adventista Dominicano

Universidad Adventista Dominicano

Colegio Adventista Dominicano is located in the outskirts of Bonao, Dominican Republic. It is owned and operated by the Antillian Union of Seventh-day Adventists. The college first opened its doors in 1947 and for twenty-six years operated in the town of Herrera just outside Santo Domingo, the country's capital. In 1974 it was moved to Bonao, a new location 40 miles north of Santo Domingo. In 1975 it was granted recognition as a junior college by the Board of Higher Education of the General Conference of Seventh-day Adventists. In 1982, the government of the Dominican Republic, through the Ministry of Education, authorized the college to function as an accredited university.

Degrees offered at UNAD

A Bachelors degree can be obtained in the following areas:

Theology

Education

An Associate degree can be obtained in:

Business Administration
Elementary Education
Nursing
Enrollment

This college primarily serves the students of the Dominican Republic. At the time of the self-study, in 1981 there were 223 students enrolled at the higher-education level. The potential student enrollment as projected by the institution is shown in table 13. This projection is based on a 10-15 percent increase in enrollment over the previous year. This method, however, is not a reliable method of projection.

TABLE 13

ENROLLMENT PROJECTIONS FOR COLEGIO DOMINICANO (UNAD) 1981-1986

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981-82</td>
<td>529</td>
</tr>
<tr>
<td>1982-83</td>
<td>581</td>
</tr>
<tr>
<td>1983-84</td>
<td>639</td>
</tr>
<tr>
<td>1984-85</td>
<td>702</td>
</tr>
<tr>
<td>1985-86</td>
<td>772</td>
</tr>
</tbody>
</table>

Since this institution is in the Antillian Union and shares the student population with Antillian College, the student member ratio for this college is very low (.28). It is expected, however, that as a university, and with the addition of new courses and programs of study, this institution will be able to attract a greater number of students.
Faculty

There are eighteen full-time teachers at the college. Five have a master's degree, eight have bachelor's degrees and five have associate degrees. This institution is having to alter all its plans due to the new university status. It has had to open two extensions to serve the needs of the Mission and Conference. This development has caused a crisis of professional human resources level at the time of this study.

Centro Adventista de Estudios Superiores

Centro Adventista de Estudios Superiores is located in Alajuela, Costa Rica. It is owned and operated by the Central American Union of Seventh-day Adventists. The humble beginning of this college goes back to 1920 as an elementary school in San Jose, the capital of Costa Rica. In 1925 it operated in Panama at Las Cascadas. In 1927 it was reopened at La Sabana, San Jose, under the name "Academia Adventista Centro-Americana". By 1932 it was moved to Tres Rios and renamed "Academia Adventista Hispano-americana". The name was changed in 1945 to "Colegio Vocacional de America Central". A two-year post secondary program was added in 1949. In 1950 it was moved to its present location at Alajuela. The education department is affiliated with Union College, Lincoln, Nebraska, and through this arrangement, the programs offered in this department are accredited with the North
Central Association of Colleges and Secondary Schools. The theology program was elevated in 1971 to a four-year program. Subsequently, the business, secretarial and education programs have all been elevated to offer a four-year degree.

Degrees offered at CADES

A baccalaureate degree is offered in the following areas:

- Elementary Education
- Business Administration
- Religion
- Secretarial Science
- Theology
- Mathematics and Physics

An associate degree is offered in:

- Secretarial Science
- Religion

Future projections are to offer a baccalaureate in:

- Biology
- Chemistry
- Spanish
- History
- Industrial Education

Enrollment

At the time of this study the above cited institution was in the process of submitting its self-
study and master plan. Personal communication with the administration indicated an enrollment increase from 310 students in 1982 to 340 at the beginning of 1983. Table 14 indicates the enrollment during a five-year period and the student-member ratio for the Union.

Faculty

At the time of this study this institution had twenty-four full time faculty members. Three had doctorates, fourteen had a master's degree, two had course work beyond the bachelor's degrees, and five had bachelor's degrees. Plans are now being made to sponsor faculty members to upgrade their degrees to meet the accreditation requirements and the projected new programs.

<table>
<thead>
<tr>
<th>Year</th>
<th>CADES Enrollment</th>
<th>Union Membership</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>233</td>
<td>54,429</td>
<td>.42</td>
</tr>
<tr>
<td>1977</td>
<td>188</td>
<td>60,665</td>
<td>.30</td>
</tr>
<tr>
<td>1978</td>
<td>222</td>
<td>67,783</td>
<td>.32</td>
</tr>
<tr>
<td>1979</td>
<td>295</td>
<td>75,629</td>
<td>.39</td>
</tr>
<tr>
<td>1980</td>
<td>283</td>
<td>77,245</td>
<td>.36</td>
</tr>
</tbody>
</table>

Instituto Colombo-Venezolano

Instituto Colombo-Venezolano is located in Medellin, Colombia. It is owned and operated by the Colombia-Venezuelan Union of Seventh-day Adventist. It was established in 1936 and opened its doors as "Colegio
Industrial Colombo-Venezolano. In 1941 it moved to Mariela, Medellin, but moved again in 1942 to its present location. It was renamed "Instituto Colombo-Venezolano" in 1948. An operating permit was granted in 1958 by the Colombian Ministry of Education. Post-secondary education was offered in 1960 and in 1969, the government recognized the teacher-training program retroactive to 1967. At the time of this study, a new property had been acquired and plans are being made to move the college to a location where the facilities can be expanded according to future demands.

**Degrees offered at ICV**

A baccalaureate degree is offered in:
- Theology and Education
- Business Administration
- Music
- Education

An associate degree can be obtained in:
- Religion
- Secretarial Science

**Enrollment**

Instituto Colombo-Venezolano is revising its plans in the context of the expansion at the new location. The only information available regarded the previous year's graduation which graduated the largest class in the
history of the institution. Table 15 indicates the student-member ratio for the Union in higher education during the period 1976-1980.

TABLE 15

STUDENT-MEMBER RATIO IN THE COLOMBO-VENEZUELAN UNION

<table>
<thead>
<tr>
<th>Year</th>
<th>ICV Enrollment</th>
<th>Union Membership</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>147</td>
<td>63,231</td>
<td>.23</td>
</tr>
<tr>
<td>1977</td>
<td>154</td>
<td>66,901</td>
<td>.23</td>
</tr>
<tr>
<td>1978</td>
<td>191</td>
<td>72,304</td>
<td>.26</td>
</tr>
<tr>
<td>1979</td>
<td>202</td>
<td>77,376</td>
<td>.26</td>
</tr>
<tr>
<td>1980</td>
<td>202</td>
<td>82,917</td>
<td>.24</td>
</tr>
</tbody>
</table>

Faculty

The revision of the plans at ICV have also affected the faculty projections awaiting the move to the new location. Information by personal communication with the administration of the institution indicated that there were four non-Adventist teachers on a part-time basis, and they were in need of twenty-two professionals to fill various positions relating to the growth and expansion of the institution.

Membership Growth in the Inter-American Division

The Inter-American Division is the fastest growing Division of the Seventh-day Adventist church. The political and economical situation in this part of the world has motivated significant changes in the customs and traditions of the countries involved. Religion has become an important part of the lives of many, especially in the
areas with greater political difficulties. These changes have had great impact on church growth.

The projections made in this section of the study, regarding church growth, have the specific purpose of determining if the membership growth of the Inter-American Division has an impact on the potential enrollment of the institutions of higher education, and how this affects the demand for professionally trained manpower. The statistical predictions for tables 16, 17, 18 and 19 are made by using data from the annual reports on Adventist education, and developing an equation based on the techniques of linear regression.

Table 16 indicates that the total student body enrolled in higher education accounts for only an average of 0.6-0.7 percent of the Division's membership through the period analyzed. The data suggests a constant relationship between church growth and student enrollment in higher education.

Table 17 is a prediction of the membership growth of the Inter-American Division through 1987. There are indications that if the growth trend continues, the membership will be close to the million mark. Comparing this information with table 16 shows a projected student body in the range of 5796 students by 1987.
### TABLE 16

**ACTUAL AND PROJECTED ENROLLMENT IN HIGHER EDUCATION AND STUDENT-MEMBER RATIO DURING THE YEARS 1976-1987**

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
<th>Student-Member Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>2,772</td>
<td>.57</td>
</tr>
<tr>
<td>1977</td>
<td>2,736</td>
<td>.52</td>
</tr>
<tr>
<td>1978</td>
<td>4,625</td>
<td>.82</td>
</tr>
<tr>
<td>1979</td>
<td>4,765</td>
<td>.78</td>
</tr>
<tr>
<td>1980</td>
<td>4,919</td>
<td>.76</td>
</tr>
<tr>
<td>1981</td>
<td>4,279</td>
<td>.61</td>
</tr>
<tr>
<td>1982</td>
<td>4,532</td>
<td>.61</td>
</tr>
<tr>
<td>1983</td>
<td>4,784</td>
<td>.61</td>
</tr>
<tr>
<td>1984</td>
<td>5,037</td>
<td>.61</td>
</tr>
<tr>
<td>1985</td>
<td>5,290</td>
<td>.61</td>
</tr>
<tr>
<td>1986</td>
<td>5,542</td>
<td>.61</td>
</tr>
<tr>
<td>1987</td>
<td>5,796</td>
<td>.61</td>
</tr>
</tbody>
</table>

*Note:* The data for the years 1981-1987 are statistically predicted according to the data of the years 1976-1980.

### TABLE 17

**ACTUAL AND PROJECTED MEMBERSHIP GROWTH OF THE INTER-AMERICAN DIVISION 1976-1987**

<table>
<thead>
<tr>
<th>Year</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>479,832</td>
</tr>
<tr>
<td>1977</td>
<td>519,908</td>
</tr>
<tr>
<td>1978</td>
<td>561,681</td>
</tr>
<tr>
<td>1979</td>
<td>608,567</td>
</tr>
<tr>
<td>1980</td>
<td>646,969</td>
</tr>
<tr>
<td>1981</td>
<td>692,433</td>
</tr>
<tr>
<td>1982</td>
<td>734,726</td>
</tr>
<tr>
<td>1983</td>
<td>777,019</td>
</tr>
<tr>
<td>1984</td>
<td>819,312</td>
</tr>
<tr>
<td>1985</td>
<td>861,605</td>
</tr>
<tr>
<td>1986</td>
<td>903,898</td>
</tr>
<tr>
<td>1987</td>
<td>946,191</td>
</tr>
</tbody>
</table>

*Note:* The data for the years 1982-1987 are statistically predicted according to the data of the years 1976-1981.
The potential student growth according to membership growth in table 16 is the guaranteed increase in potential student enrollment based on the past student-member ratio. If projections were to be based on the potential youth population in the Division, the potential enrollment would be much higher. Table 18 illustrates the relationship between the youth membership and the enrollment in higher education during the years 1976–1980.

**TABLE 18**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership</td>
<td>148,595</td>
<td>156,654</td>
<td>186,556</td>
<td>205,136</td>
<td>214,860</td>
</tr>
<tr>
<td>Percentage of total membership</td>
<td>31</td>
<td>30</td>
<td>33</td>
<td>34</td>
<td>33</td>
</tr>
<tr>
<td>Percentage in higher education</td>
<td>1.8</td>
<td>1.7</td>
<td>2.4</td>
<td>2.3</td>
<td>2.2</td>
</tr>
</tbody>
</table>

The percentage of the youth population enrolled in higher education during 1976–1980 stood at a scarce 2%. However, there is an enrollment projection potential. According to this table the youth population represents a third of the division's population. Taylor (1968. p 9) suggested that the enrollment target in higher education could be around three percent of the youth population. If this objective were to be placed in practice, there would be a significant increase in the student population in higher education. In tables 1, 6, 9, 11, 12, 14, and 15, the
student population was compared to the membership in the Unions, which indicated a constant relationship over the time frame studied. Table 19 is a projection of the membership growth of the Unions on an individual basis during the years 1976-1987. The growth of the Unions and the percentage of this growth that is applied to the enrollment in higher education is another means of determining the effect of membership growth on the educational process.

The effect that church growth will have on the professional manpower will depend also on the direction that each institution follows in satisfying the educational demands of its constituency. Table number 20 indicates the projected student population, teachers, and student-teacher ratio providing the trend continues.

**Manpower Inventory**

This section of the study reports the data gathered by using a modified form of Moyer's Manpower Inventory Form. The objective of the Manpower Inventory was to get information about the existing human resources in higher education throughout the Division. The forms were mailed to an administrator at each institution who distributed them to the personnel involved in higher education such as teachers, librarians, food service director, and any other personnel who required specialized training to fulfill their jobs. These forms were completed individually, sealed, and returned to the researcher. One hundred and
### Table 19
Membership growth pattern for the Unions in the Inter-American Division 1976-1987

<table>
<thead>
<tr>
<th>Years</th>
<th>AU</th>
<th>CU</th>
<th>CAU</th>
<th>CVU</th>
<th>FHU</th>
<th>MU</th>
<th>WIU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>45,230</td>
<td>56,700</td>
<td>54,429</td>
<td>63,231</td>
<td>72,161</td>
<td>90,678</td>
<td>88,108</td>
</tr>
<tr>
<td>1977</td>
<td>48,822</td>
<td>60,387</td>
<td>60,665</td>
<td>66,901</td>
<td>78,268</td>
<td>100,451</td>
<td>94,462</td>
</tr>
<tr>
<td>1978</td>
<td>51,204</td>
<td>64,227</td>
<td>67,783</td>
<td>72,304</td>
<td>84,071</td>
<td>111,179</td>
<td>100,289</td>
</tr>
<tr>
<td>1979</td>
<td>55,264</td>
<td>66,689</td>
<td>75,629</td>
<td>77,376</td>
<td>92,215</td>
<td>123,706</td>
<td>108,104</td>
</tr>
<tr>
<td>1980</td>
<td>59,088</td>
<td>71,155</td>
<td>77,245</td>
<td>82,917</td>
<td>98,846</td>
<td>136,647</td>
<td>112,247</td>
</tr>
<tr>
<td>1981</td>
<td>61,670</td>
<td>74,101</td>
<td>84,068</td>
<td>87,690</td>
<td>105,497</td>
<td>145,557</td>
<td>116,352</td>
</tr>
<tr>
<td>1982</td>
<td>65,115</td>
<td>77,622</td>
<td>90,127</td>
<td>92,675</td>
<td>112,229</td>
<td>157,054</td>
<td>122,544</td>
</tr>
<tr>
<td>1983</td>
<td>68,531</td>
<td>81,143</td>
<td>96,187</td>
<td>97,660</td>
<td>118,961</td>
<td>168,551</td>
<td>128,736</td>
</tr>
<tr>
<td>1984</td>
<td>71,947</td>
<td>84,664</td>
<td>102,246</td>
<td>102,644</td>
<td>125,693</td>
<td>180,048</td>
<td>134,928</td>
</tr>
<tr>
<td>1985</td>
<td>75,363</td>
<td>88,185</td>
<td>108,306</td>
<td>107,629</td>
<td>132,424</td>
<td>191,545</td>
<td>141,120</td>
</tr>
<tr>
<td>1986</td>
<td>78,778</td>
<td>91,706</td>
<td>114,366</td>
<td>112,614</td>
<td>139,156</td>
<td>203,042</td>
<td>147,312</td>
</tr>
<tr>
<td>1987</td>
<td>82,194</td>
<td>95,227</td>
<td>120,425</td>
<td>117,598</td>
<td>145,888</td>
<td>214,539</td>
<td>153,504</td>
</tr>
</tbody>
</table>

**Note:**
The data for the years 1982-1987 are statistically predicted from the data of the years 1976-1981.
TABLE 20

PROJECTION OF STUDENTS AND TEACHERS (1970-1987)

<table>
<thead>
<tr>
<th>Year</th>
<th>Students</th>
<th>Teachers</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>1183</td>
<td>133</td>
<td>8.9</td>
</tr>
<tr>
<td>1971</td>
<td>1185</td>
<td>153</td>
<td>7.7</td>
</tr>
<tr>
<td>1972</td>
<td>1280</td>
<td>225</td>
<td>5.6</td>
</tr>
<tr>
<td>1973</td>
<td>1672</td>
<td>166</td>
<td>10.0</td>
</tr>
<tr>
<td>1974</td>
<td>1965</td>
<td>181</td>
<td>10.8</td>
</tr>
<tr>
<td>1975</td>
<td>1875</td>
<td>216</td>
<td>8.7</td>
</tr>
<tr>
<td>1976</td>
<td>2772</td>
<td>314</td>
<td>8.8</td>
</tr>
<tr>
<td>1977</td>
<td>2736</td>
<td>355</td>
<td>7.7</td>
</tr>
<tr>
<td>1978</td>
<td>4625</td>
<td>362</td>
<td>12.7</td>
</tr>
<tr>
<td>1979</td>
<td>4765</td>
<td>297</td>
<td>16.0</td>
</tr>
<tr>
<td>1980</td>
<td>4919</td>
<td>383</td>
<td>12.8</td>
</tr>
<tr>
<td>1981</td>
<td>4279</td>
<td>373</td>
<td>11.4</td>
</tr>
<tr>
<td>1982</td>
<td>4532</td>
<td>392</td>
<td>11.5</td>
</tr>
<tr>
<td>1983</td>
<td>4784</td>
<td>411</td>
<td>11.6</td>
</tr>
<tr>
<td>1984</td>
<td>5037</td>
<td>430</td>
<td>11.7</td>
</tr>
<tr>
<td>1985</td>
<td>5290</td>
<td>450</td>
<td>11.7</td>
</tr>
<tr>
<td>1986</td>
<td>5542</td>
<td>469</td>
<td>11.8</td>
</tr>
<tr>
<td>1987</td>
<td>5796</td>
<td>488</td>
<td>11.8</td>
</tr>
</tbody>
</table>

Note:
The data for the years 1981-1987 are statistically predicted according to the data of the years 1970-1980.
seventy-five forms were returned completed of the four hundred that were mailed. The data presented are not intended to represent the opinion of the total population involved in higher education in the Division; they represent only the opinion of those who completed the forms. There is no intention of interpreting the data regarding attitudes or any other variables which are beyond the scope of this study. The purpose here is to express the raw data in terms of percentages of the total number of respondents which appears to represent a trend.

The data gathered were divided into four categories of information: (1) demographic (2) present occupation (3) future aspirations, and (4) knowledge of manpower planning. Table 21 sums up the demographic information of the respondents.

**Occupation**

An effort was made through questions seven and eight of the Inventory Form to gain information regarding the average time a faculty member stayed at an institution. In addition, opinions were solicited from the respondents as to whether or not their experience and preparation was adequate for the job they fulfilled through questions nine to thirteen of the Inventory Form. Table 22 indicates, by age groups, the average time respondents spent at an institution up to a twenty-year period.
### TABLE 21

**DEMOGRAPHIC INFORMATION OF THE RESPONDENTS OF THE PROFESSIONAL HUMAN RESOURCE INVENTORY FORM (PERCENTAGES OF THE TOTAL GROUP)**

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Age Categories</th>
<th>Age</th>
<th>Sex Categories</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20-30</td>
<td>31-39</td>
<td>40-49</td>
<td>50-60</td>
</tr>
<tr>
<td>Age</td>
<td>22.9</td>
<td>41.7</td>
<td>22.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Sex</td>
<td>M</td>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>57.7</td>
<td>42.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Single</td>
<td>Married</td>
<td>Divorced</td>
<td>Widowed</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>77</td>
<td>1.1</td>
<td>1.7</td>
</tr>
<tr>
<td>Employment status</td>
<td>local</td>
<td>Intra-Union</td>
<td>Inter-Union</td>
<td>Inter-Division</td>
</tr>
<tr>
<td></td>
<td>53.7</td>
<td>14.2</td>
<td>16.0</td>
<td>13.6</td>
</tr>
<tr>
<td></td>
<td>.6</td>
<td>16.7</td>
<td>6.5</td>
<td>22.6</td>
</tr>
</tbody>
</table>
The information in table 22 indicates that there is a high mobility of faculty at the institutions of higher education in the Division. It can be observed that the average years of service increased with age, however, the number of individuals decreased as the age group increased. This may mean that at a certain age, the individuals may leave to pursue higher education or may change their line of work.

From questions nine through thirteen on the inventory form the respondents indicated satisfaction in
their jobs. Seventy three percent thought that their education and experience was adequate to fill their present jobs. Twenty four percent thought that they needed more training and 2 percent could not determine if they were adequately prepared or not. Sixty five percent expressed satisfaction with their jobs and 81 percent felt a sense of pride and satisfaction with the job they were performing.

Aspirations
When asked what would be a job choice if there were a chance in the future, 54.5 percent of the respondents chose teaching. Eighteen and a half percent chose research and 14 percent chose administration. The most alarming information related to what would affect their future stay at their present institution; 65 percent indicated that they would leave to further their education. The fact that the present manpower is satisfied with its jobs but yearns for higher education should indicate to the administration that there is need to plan so the aspirations of the present manpower will be satisfied. Table 23 indicates the percentages of the different age groups who expressed a desire to leave within the next five years to further education. This trend to seek higher education should be taken advantage of by the administration of the institutions of higher education in this study, and plan new programs to attract those who are
leaving to return to a position that will be meaningful to both the individual and the institution where he/she serves.

**TABLE 23**

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>Percentage Desiring Leave</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>45.00</td>
</tr>
<tr>
<td>31-39</td>
<td>61.76</td>
</tr>
<tr>
<td>40-49</td>
<td>43.24</td>
</tr>
<tr>
<td>50-60</td>
<td>66.67</td>
</tr>
<tr>
<td>over 60</td>
<td>70.00</td>
</tr>
</tbody>
</table>

**On Human Resource Planning**

Another objective of the Manpower Inventory was to determine how many respondents had had an opportunity to serve on planning committees for human resources and how much they knew about the topic and how urgent they thought the need was. Of those who responded 50 percent had participated on a committee or had been in a meeting where the planning of human resources had been discussed. Seventy-two percent thought that manpower planning was an urgent necessity in the Inter-American Division in the area of education. Another 20 percent thought that it was a necessity but not urgent.

**Summary**

Chapter IV deals with the availability of professional manpower to satisfy the needs of the institutions of higher education in the Inter-American Division. An overview of the institutions involved in the
study indicated the current and projected programs and the need for professional manpower as the programs expand.

An analysis of the effect of church growth on the educational process indicated a positive relationship and a potential for an increase in enrollment during the time frame studied.

The Manpower Inventory revealed that the faculty members who responded were satisfied with their jobs but indicated that there was a strong desire to further their education. The majority of the respondents indicated that a manpower planning process was an urgent need in the Division.

The information obtained in this chapter leads to the process presented in chapter V.
Chapter V

A SUGGESTED MANPOWER PLANNING PROCESS FOR THE
INSTITUTIONS OF HIGHER EDUCATION IN THE
INTER-AMERICAN DIVISION

Introduction

Planning means different things to different people. A planning process as the term is used in this study, is taken to mean a series of progressive steps designed to reduce uncertainty in the future operations of the institutions of higher education in the Inter-American Division. As stated in chapters 1 and 2, the planning process is in the context of manpower planning and seeks to have the right individual in the right position at the right time. The concept includes not only the acquisition of new resources but also involves the development of the existing resources to their maximum potential.

As a whole, the Inter-American Division is growing at a rapid rate. This growth rate will have a definite effect on the educational program that it supports. The expansion of the educational institutions may be accompanied by new programs which will in turn require adequately prepared human resources. The manpower
planning process presented is designed to be a continuous function incorporated into the overall planning rather than a one-time event. It is expected that this planning function will encompass the projections at the Division level, at the Conference level, and especially at the local level at the institutions involved. The internalization of such a process into the administrative system of the higher education programs may provide a new dimension for the availability of qualified personnel and the retention of resources to provide stability to the growing educational programs in the Division.

**Basis for the Manpower Planning Process**

The important components of a manpower planning process are people and data. The expected results are controlled changes, and the process should be simple and easy to follow. It ties in the administrative functions of the institutions into an integrated planning process on a continuous basis. In the context of a manpower planning process for institutions of higher education in the Inter-American Division, there are four questions that form the basis of the planning process: (1) Where are we today and what are we achieving? (2) Where do we want to go or what do we want to achieve? (3) Where can we go? and (4) How can we get there or achieve what we want?

The planning system should be sensitive to the internal and external factors that may affect the
direction of the institution and the level of participation of its components. A constant monitoring of the sociological, economical, and cultural aspects of the environment should aid in determining future projections and reduce the uncertainty in the planning process. The planning steps recommended by Miller and Vaccaro (1979) can be applied to the planning process as recommended in this study:

1. There must be support from the highest level of officers. This requires that any planning done at the institutional level must be supported from the Division, the Union, and the Conference level.

2. There must be involvement of all those affected by the process. At an educational institution the planning actually starts with student needs. The demand for educational programs determines the human resources required. This planning process suggests a start from the lowest level and building toward the top.

3. The goals and objectives of the institution must be set and agreed upon. A realistic statement of possible achievements should be a concrete guide to the steady growth of the higher education process.

4. The process should be defined in specific steps.

5. The process should not be dominated by one person. A manpower planning process cannot be the job of even a committee; it must involve the whole body. Isolated
groups involved in planning detach from the overall administrative body and the integrated process loses its purpose.

6. The process must receive input on a steady or periodic basis from sources that may affect its cause.

7. The process must allow feedback after every stage or phase as it is completed.

8. A method of evaluation must be identified before the process is implemented.

9. A contingency plan should be available.

10. All decisions should be supported by data.

To implement these planning steps obviously requires some fundamental changes in the operation of the educational institutions in the Inter-American Division. The concept of administration will have to be extended beyond the Administrative Board of the Institutions which is usually controlled by the local Union that owns and operates the institution. A manpower planning process requires a more active participation from the present faculty in each academic department. The constituency must participate actively if its needs are to be met, and a system of measuring student mobility has to be perfected in order to provide the data for the decision-making activities.

The Process

The manpower planning process described here is
applicable to both the development of the existing human resources and the acquisition of new resources. The process is composed of three major phases:

1. A developmental phase
2. An implementation phase
3. An evaluation phase

Each phase is made up of steps which should provide the necessary information to move on to the following stage. These phases have a level of independence, yet they should be followed in the recommended order to create a foundation for the subsequent phase and maintain continuity. Figure 10 is a graphical representation of the process.

The Developmental Phase

The completion of this stage should provide answers to two of the fundamental questions of the planning process. Where are we today? Where do we want to go? The major function of this phase is to examine the potentials for growth of the institution in question. There are three major steps in this phase:

1. Define mission statement
2. Identification of the determinants of growth
3. Establishment of goals and objectives.

Definition of the mission statement. The mission statement is a broad statement of the purpose of the institution. It defines certain parameters that give the
Figure 10. A suggested Manpower Planning Process for the Institutions of Higher Education in the Inter-America Division.
direction to the college's activities. As Christian institutions of higher education, they need to define a clear-cut purpose of existence. Many of these institutions were patterned after educational institutions in the United States. Since the cultural and social environments are different, original parameters could have misled the direction of these institutions. A mission statement for institutions of higher education in the Inter-American Division should reflect the purpose of the Seventh-day Adventist church in the Inter-American Division. Each Union must analyze its constituency and, in consultation with the appropriate authorities, establish the perspective and motive of existence of the educational institution within its territory. This step in the planning process is where support from the top level is essential. By having top-level participation in the definition of a mission statement, both the Division and the Union will be aware of the direction in which the institution chooses to go.

Identifying determinants. Determinants are defined as those factors, both internal and external, that can one way or another affect the operation of an institution.

External factors are those factors that are beyond the control of the administration of the institution but can still affect its operation and development. Baillie (1971) determined the following external factors as the most relevant to educational institutions:
1. The constituency: without a constituency there is no purpose of an educational program. The first step at this level is to conduct a needs assessment to determine (a) What are the attitudes of the constituency toward the educational program? (b) Will they support the educational program, and if so, how will they do it?

2. The community and its local traditions: the surrounding community inevitably influences the institution. Therefore this step includes a study of the local community and its peculiarities. What local customs will the institution have to deal with in order to function? Included in this step are the local government requirements concerning education and the institution's potential to deal with them.

3. The financial resources: the growth of any educational institution requires financial support from its constituency. In the Adventist educational system unless the financial status of the Union is strong and the governing board is willing to support the growth of the institution, its chances for development and expansion are very poor. The trends of the Union must be analyzed and the economic, social, and political environment in which it is developing must be constantly monitored.

Internal factors must be identified and measured to access the inner potential of the institution to grow. A comparison between the weaknesses and the strengths of the institution should be made. An honesty factor is very
crucial here. It requires a clear, concise, and realistic statement about the state of affairs at the local level.

According to Kurtz (1977) the internal factors to be analyzed are:

1. Staffing patterns: this step should analyze the kind of working policy the institution has, the faculty mobility, and the type of power the institution has to attract needed human resources.

2. Current financial status: the financial power of the institution must be assessed. No future programming can take place if a financial barrier exists that cannot be overcome.

3. Ability to expand: this step requires an analysis of the topological and geographical parameters of the institution. Is there available land for expansion? What is the potential for enrollment? These are considerations to be analyzed here.

Defining Institutional Goals and Objectives. The identification of goals and objectives are really an extension of the mission statement. The difference is that at this point the purpose of the institution is met with the realistic needs and requirements of the constituency being served. In this stage of the manpower planning process, the accomplishment of goals should be set as a function of time. Goals should be classified as:

1. Long term: these represent the direction of the
educational process as described by the education department at the Division level. The time limit for the achievement of these goals is beyond five years.

2. Intermediate: these goals are established by the institution and normally cover a five-year period. Projections at this level deal with enrollment, new programs, or small scale expansions. These can be subject to the projections of the Union or local Conferences.

3. Short range: these are set by the departments. They are the basis of the whole planning system. It is here where the weaknesses of departments are overcome on a short-term basis thereby allowing the planning process to grow in pyramid form from the local level to the top administrative level. The time frame for these goals is usually one to two years.

Well-defined goals and objectives provide direction and define parameters for decision making. Essentially, the heart of the manpower planning process is the establishment of a commitment among the existing human resources to close the gap between "where we are and what we want to achieve." The culmination of this phase sets the stage for the second phase of the process.

The Implementation Stage

The implementation phase of the planning process is the human dimension: the human resources are closely identified with the planning purpose. The purpose of this stage is twofold: (1) to develop the maximum potential of
the existing resources and (2) to recruit new resources that will fill new needs or take the place of those moving up or out. The major task in the implementation of the plan is the allocation of the human resources and the assignment to jobs that are appropriate to their talents and levels of preparation. The following steps systematically progress through the implementation stage: (1) establishing the objectives of program areas, (2) manpower inventory, (3) manpower forecast, and (4) manpower programming.

**Establishing the objectives of program areas**

This stage is a continuation of the final stage of phase 1. The objectives of each department are placed in proper perspective with the overall goals of the institution. Each department defines its direction for the near future (short-range) indicating the requirements in terms of human resources in the context of their future projections.

**Manpower Inventory.** The inventory stage is an assessment of the existing resources in light of the forecasting step. The important consideration here is the ability of the present manpower to receive new information and be able to develop to the level of the new requirements of the programs to be modified or established.

**Manpower Forecast** The forecasting of human resources
can be done in light of the long-range, intermediate, and short-range goals. Burack and Walker (1972) suggest that a short-range forecast (two years) usually gives the best numbers and characteristics of the resources needed. The forecasting stage is really an extension of the total administrative planning in the financial area. It is vital that the institution engaged in manpower forecasting assess the extent to which manpower forecasting should be based on the past trends in staffing practices at the institution. Variables to consider at this stage are retirement, death, resignation, leaves, dismissals, and promotions or transfers. The quality of the forecast can also be improved if the factors that have influenced in the past are currently affecting the manpower structure and are also considered.

**Manpower Projection.** This stage of the process sums up the demonstrated needs between the forecasting and inventory stage.

**Manpower Programming.** The programming function encompasses the critical stages from recruitment to the development of the available resources. Its major concern is to meet the future manpower requirements by being able to prioritize the educational training needed to fill positions that may open. It is also concerned with career planning to retain the available manpower and develop their capabilities to the maximum.
Recruitment. In the context of manpower planning for higher education recruitment is defined by Castetter (1976) as a method of developing a pool of qualified persons willing to work in a system. The concept of recruitment is relatively dormant in the Inter-American Division. Employees have been selected in the past on the basis of a "call" to work. The theological implications of this procedure are beyond the scope of this study. In the process suggested here, selection and recruitment of prospective human resources are combined. Individuals should be selected in principle based on their philosophical affinity with the Adventist church and in line with a working policy. This function is an inner search into the Adventist potential work force rather than an open recruitment process. This requires each administrator to be aware of his/her role as a facilitator for the development of the inner pool of human resources. The location of the various educational facilities in the Inter-American Division and the service they provide to a constituency composed of various cultures and customs require that recruitment and selection of employees maintain a balance among the various ethnic groups involved at each specific institution. This nature of recruitment in this context ties in very closely with career planning.

Career Planning. The career planning function must
contribute to the stability of the programs and possibly to a decrease in the mobility of personnel. This is especially desirable in this instance due to the peculiarity of the requirements for human resources in Seventh-Day Adventist Institutions of higher education. The needs of individuals whether an incumbent or newly hired, are juxtaposed against those of the organization. A workable solution to seek in this step is a satisfaction of organizational objectives that paves the way for individual fulfillment and growth. Each individual must be viewed in full panorama of both competencies and deficiencies and how these can be dealt with within the organizational structure. This step requires that the educational program throughout the Division must be sensitive to individual needs of dignity, development, achievement and personal goal realization. If this is to be a reality, the manpower planning has to be a continuous function.

Control and Evaluation

Success in manpower planning is dependent upon the control system used to monitor the performance. The purpose of control and evaluation is to identify the faults and deviations from the original direction and to improve performance. This stage permits adjustments to new situations and enables the planning function to meet the future needs. The process should be reviewed on a timely basis before any new decisions are made regarding
new projections. Vetter (1967 p,35) says that those involved in manpower planning must develop an "evaluative" mentality. He points out that this mentality refuses to be satisfied with the status quo; it always seek to improve and looks for deficits in the existing system.

A second advantage for the evaluation phase is that it maintains and updates the contingency plans that should exist in the implementation stage of the process. The upward and downward contingency plans are the alternatives if the plans in operation fails. Upward contingency plans refer to situations where new opportunities arise such as accreditation, acquisition of new territories or large donation of funds. Downward contingency plans refer to situations such as budget cuts, the phasing out of programs, sponsored individuals who do not return, or the resignation of key personnel. If control is to be effective, evaluation standards must be set in order to determine if the process is leading in the right direction.

Summary

Chapter V reflects both the information resulting from a search in the literature on techniques of manpower planning and the awareness of the need for qualified professionals in the educational program in the Inter-American Division.

The suggested process is divided into three phases: a developmental phase, an implementation phase, and a
control and evaluation phase. Each of these phases sets the foundation for the following phase, and the final phase includes feedback which monitors the ongoing process. As stated before, the success of such a process depends heavily on the effort of the organization to internalize the process, making it an active part of the whole administrative function.

The proceeding suggestions depicted in the diagram are the general guidelines of the manpower planning process. It is expected that at the local level of each institution the necessary adaptions will be made to fit specific needs.
CHAPTER VI
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to describe the manpower availability at the institutions of higher education in the Inter-American Division of Seventh-day Adventists and to suggest a manpower planning process to be incorporated into the administrative function of these institutions. This was accomplished by answering the following questions:

1. Is the accelerated growth of the Adventist church in the Inter-American Division affecting the demand for professional human resources at the institutions of higher education throughout the division?

The accelerated growth of the Adventist church is affecting the educational process and the demand for human resources since there is a direct relationship between church growth and the increase in student population that demands higher education. A larger constituency increases the complexity of the educational process not only in enrollment but also in accountability regarding the quality and variety of programs being offered.

2. How adequately is the current professional
The current manpower cannot adequately fill all the potential needs for human resources because the rate of expansion and development of new programs is growing faster than the availability of skilled professionals or the re-training of the existing resources. The study revealed that even though there is an acceptable level of job satisfaction there is also high mobility of resources.

3. Is professional human resource planning a priority in the long range plans of the institutions of higher education in the Inter-American Division?

Human resource planning should be a priority in the long-range plans of these institutions of higher learning. This study found that only 50 percent of the respondents had participated in some sort of planning of human resources and that the knowledge about the implications of a manpower planning process was scarce. Human resource planning has not become an internalized process in the administrations of educational institutions in the Adventist church, particularly in the Inter-American Division.

4. In what way can the information obtained in the previous questions be used to develop a manpower planning process that can be incorporated in the administrative process of the institutions of higher education in the Inter-American Division?
A manpower planning process is a necessity for the educational programs in the Division if they intend to keep up the growth rate and expansion of their education programs. Unless there is some system to project the future needs and secure the resources, there could be a risk of a decreasing quality educational programs. This could affect other areas of the church in its evangelization mission.

The procedures followed to answer the questions were: (1) a comparison of church growth and enrollment in higher education (based on these figures, projections were made up to 1987); (2) the statistical reports of the General Conference of Seventh-day Adventists for the years 1976-1980 were reviewed along with the master plans and self-studies of the institutions in question; and (3) a Manpower Inventory was completed by the administrators and faculty of the educational institutions included in the study. The information obtained from these sources led to the suggestion of the Manpower Planning Process presented in chapter V.

In order to develop a conceptual framework for the suggested process, the literature on manpower planning was reviewed to determine; (1) what techniques of manpower planning are being used and what is their importance in an organizational structure, (2) what are the current manpower planning factors in education, and (3) manpower
planning in the Adventist church, particularly in the Inter-American Division.

Two trends of writing were found: one presented the advantages of the concept of manpower planning and its benefits to large and small organizations; the other presented the various techniques of manpower planning. The techniques of manpower planning could also be divided into two groups: (1) those that use mathematical models to forecast the needed resources and (2) those that use a step-by-step process which involves the whole administrative structure. This study choose to follow the second group as a basis since it seemed more relevant to the type of setting involved in this study.

Manpower planning in education is new. Usually the approach is used toward the development of human resources in a macro-context at a national level—especially in developing countries. As a planning process to secure resources for an institution or school district, however, very little information is available. No major studies on manpower planning could be found in the literature on Adventist education. The only available indication of such a process is a bursary system which provides sponsorship of some individuals to advance their education. However, this system does not always operate in the context of a planning process to supply future needs.
Conclusions

The conclusions of this study are drawn from the information and experience gained in this investigation. A review of literature indicated that manpower planning in terms of the developing human resources is beginning to gain territory in the administrative process of various organizations. The topic has become the object of extensive research, and elaborate models and techniques have been created. There is evidence however, that there is still a preference for the less elaborate methods of manpower planning. Manpower planning is not a magic word for solving problems in the area of human resource planning and development. The major contribution of such a process is to reduce the uncertainty of the future in terms of projections and goal achievements.

The Inter-American Division has the potential for an educational program much larger than the one it now operates especially when taking into consideration that one third of its membership is made up of young people, the principal clients of an educational program. Church growth has a positive effect on the educational program in terms of increased enrollment; however, this poses another problem since the church would not be able to absorb the number of graduates. This forces the institutions to develop new programs for job markets outside the denomination. In recent years the educational institutions have made gigantic leaps in the areas of
accreditation, expansion, and the upgrading of their programs. This makes the need for manpower planning urgent since qualified professionals must be available to offer programs of such quality that the graduates can compete in the job market outside of the church structure.

The educational program has not had any priority at the local levels. Based on the historical development of higher education in the territory of the Division, the geographical locations and church growth, the Inter-American Division should have had a stronger educational program as compared to other Divisions, which are not so fortunate with the uniformity of language and cultural background as is Inter-America.

Recommendations

Based upon the review of the related literature and the findings of this study, the following recommendations are presented for consideration:

1. A uniform system of self-evaluation and progress reports should be implemented. This would allow the officials at the Division level to monitor on an equal basis the complete educational program.

2. A manpower planning process should be implemented at the local level at each institution involved in this study.

3. An efficient institutional research program
which would supply accurate data on the various areas and thus support the planning process should be initiated.

4. A manpower file containing information on potential employees and consultants that are available to the denomination should be created. Appendix C is a sample program written in the FORTRAN computer language that could be utilized to store the data.

5. A coordinated educational program should be implemented. This would direct the upgrading of the existing human resources, by utilizing those institutions that have better facilities and programs to prepare the needed resources at other institutions where the need could be at a crisis level.

6. Administrators of these institutions should develop an awareness of the importance of reporting accurate information and data on behalf of the institution. This would greatly enhance any planning process and present a realistic picture of the status of the institution.

Recommendations for Further Study

The information gained in this investigation suggests the following areas in which further studies should be done:

1. The development of need assessment instruments for each of the institutions involved in this study.

2. A manpower planning process for the institutions offering secondary and primary education in the Inter-American Division.
3. The development of a forecasting technique that can be utilized to forecast enrollment at the elementary, secondary and tertiary levels of education in the Division.

4. A determination of the factors that affect the mobility of the professional manpower in the Inter-American Division.
APPENDIX A

Letters
March 24, 1982

Dear Friends in Inter-America:

As part of my doctoral work at Andrews University, I am presently involved in research concerning professional manpower planning for institutions of higher education in the Inter-American Division of Seventh-day Adventist. As part of the work force in the IAD, your help in completing this research is invaluable. I cannot express in words the importance of your sincere participation.

A response to the enclosed manpower inventory form takes about six minutes of your time. No attempt will be made to identify you or your educational institution. The information obtained will be used only for research purposes.

Please use the enclosed self-addressed envelope for returning the completed form. Use one of the following procedures:

1. Give the sealed envelope to the coordinator of the study on your campus. He will return all by bulk mail.
2. Secure stamp from the coordinator and mail.

Thank you for your time and help. May the Lord bless you richly in your work.

Sincerely yours,

Carlos A. Archbold
Doctoral Student

Enclosure

AJP
March 26, 1982

To Whom It May Concern:

The purpose of this letter is to give official endorsement on behalf of the Department of Education for the research project conducted under the direction of Andrews University’s Education Department by Carlos A. Archbold.

Continual self-study is needed, not only by individual institutions, but by our educational system, and every well-planned initiative in this direction will be helpful to the accomplishment of the mission of our church. The brief moment needed to cooperate in this project is time well invested, and I know you will appreciate similar cooperation when it comes your turn to become involved in research as a part of your professional upgrading.

Sincerely yours,

Charles R. Taylor
Director

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April 13, 1982

TO WHOM IT MAY CONCERN:

Carlos A. Archbold is at the present time working towards his Doctorate at Andrews University. He is proposing to make a study on "Manpower Planning for the Institutions of Higher Education in the Inter-American Division." He has consulted with the Department of Education on this, and we feel that this study may make a positive contribution towards strengthening the professional workforce of our education program.

Anything that you may do to cooperate with Brother Archbold in obtaining the information he requires will be greatly appreciated.

Sincerely yours,

L. Herbert Fletcher
Director
DEPARTMENT OF EDUCATION
APPENDIX B

Professional Manpower Inventory Form
Professional Human Resource Inventory Form

Personal Information

Please indicate your answer with a (X) where appropriate.

1. You fall in one of the following age brackets:
   - 20-30
   - 31-39
   - 40-49
   - 50-60
   - over 60

2. Sex:
   - M
   - F

3. Marital status:
   - Single
   - Married
   - Divorced
   - Widowed
   - Separated

4. Spouse’s Occupation

5. Your status at this institution:
   - Local
   - Intra-Union
   - Inter-Division
   - Other

6. Highest academic degree completed

   Additional studies

   Area of major concentration

   Area(s) of minor concentration

   Where did you obtain your degree?

7. What is the title of your present job?

8. How long have you been working at this institution?
   - Present position __ years
   - Other position __ years

9. Do you feel that your academic education and experience is adequate to fill your position?
   - yes
   - no
   - don’t know

10. If your answer is no, what would you like to do to improve your performance? List in order of preference

11. Check one of the following to show how you think you compare with other people.
   - I like my work much better than most people like theirs.
   - I like my work better than most people like theirs.
   - I like my work about as well as most people like theirs.
   - I dislike my work much more than most people dislike theirs.

12. Check one of the following to show how much of the time you feel satisfied with your job.
   - most of the time
   - a good deal of the time
   - about half of the time
   - Occasionally
   - seldom

13. Do you feel a sense of pride or accomplishment as a result of the type of work that you do?
   - yes
   - no
   - not sure
14. If you have a choice in the future, your job preference would be:
   - Teacher
   - Researcher
   - Administrator
   - Non-educational Please explain
   - Other please explain

15. Which of the following is most likely to interrupt your stay at this institution during the next five years.
   - Leave to obtain a higher academic degree
   - Retirement from denominational work
   - Transfer to another institution
   - Return to home base
   - Other please explain
   - None

16. What are your future career goals or aims?

17. Check one of the following to show how you compare your knowledge of manpower planning or human resource planning with other people.
   - I know more than most people about it.
   - I know about the same as most people.
   - I know less than most people about it.
   - I don't know anything about it.

18. Have you ever participated on a committee whose main function was to recommend or select professional personnel for your department or other departments?
   - Yes
   - No

19. If selected to serve on a manpower planning committee, the majority of people on your campus would:
   - Serve with a lot of interest.
   - Serve with not so much interest.
   - Serve because they were selected.
   - Serve with indifference.
   - Ask to have their names withdrawn.

20. In your opinion, a planning process to secure the professional work force of your institution is:
   - An immediate necessity
   - A necessity but not urgent
   - Not necessary
   - Don't know

21. Comments:
APPENDIX C

Sample FORTRAN Program
C THIS IS A PROGRAM TO KEEP TRACK OF THE AVAILABLE MANPOWER FOR
C TERTIARY EDUCATION IN THE INTER-AMERICAN DIVISION. IT WAS PRE-
C PARED BY CARLOS ARCHBOLD AND IT IS DESIGNED TO GIVE RELEVANT
C INFORMATION ON INDIVIDUALS WHO MIGHT FILL POSITIONS REQUIRING
C SPECIALIZED PREPARATION.
C
CALL SETDCS (99,'PROSP ',4,1,IRR)
IF(IRR.EQ.0 ) GOTO 15
CALL OPEN(99,2,1ST)
CALL CLOSE(99,2)
15 INTEGER CHO
N=99
CALL CLEAR(2)
20 CALL SCR1
INPUT CHO
IF (CHO .EQ. 1) CALL ADD (97) ; GOTO 20
IF (CHO .EQ. 2 ) CALL INQ(99) ; GOTO 20
IF (CHO .EQ. 3) CALL DEL; GOTO 20
IF (CHO .EQ. 4 ) GO TO 9999
OUTPUT "WRONG ENTRY"
GO TO 20
9999 STOP
END
C THIS SECTION ADDS THE PERTINENT INFORMATION
C TO MAKE UP THE INDIVIDUAL FILES OF POTENTIAL WORKERS.
SUBROUTINE ADD(N)
CALL CLEAR (2)
OUTPUT "ENTER ID NUMBER"
29 INPUT IDNO
IF (IDNO .LE. 999) GO TO 30
OUTPUT "WRONG ENTRY TRY AGAIN"; GOTO 29
30 OUTPUT "ENTER NAME"
OUTPUT "FIRST NAME LAST NAME"
OUTPUT "NO MORE THAN 24 CHARACTERS"
READ (105,101 ) N1,N2,N3,N4,N5,N6
101 FORMAT (6A4)
CALL AGESCR
34 INPUT IAGE
IF (IAGE.LE.5) GOTO 35
OUTPUT "WRONG ENTRY TRY AGAIN" ;GOTO34
35 CALL NATSCR
36 INPUT NAT
IF (NAT .LE. 24) GO TO 37
OUTPUT "WRONG ENTRY TRY AGAIN" ;GOTO 36
37 CALL MARSCR
38 INPUT MAR
IF (MAR .LE. 4) GO TO 39
OUTPUT "WRONG ENTRY TRY AGAIN" ;GOTO 38
39 CALL LANSCR
40 INPUT LAN
IF (LAN .LE. 7) GO TO 41
OUTPUT "WRONG ENTRY TRY AGAIN"; GOTO 40
CALL JPROFSCR
OUTPUT 'MAJOR AND MINOR'
INPUT JPROF
INPUT MINOR
IF (JPROF .LE. 27) GO TO 43
OUTPUT 'WRONG ENTRY TRY AGAIN' ; GOTO 42
CALL KDEGSCR
INPUT KDEG
IF (KDEG .LE. 12) GO TO 45
OUTPUT 'WRONG ENTRY TRY AGAIN'; GOTO 44
CALL LSP0SSCR
INPUT LSPOS
IF (LSPOS . LE. 11) GO TO 46
OUTPUT 'WRONG ENTRY TRY AGAIN'' ; GOTO 46
CALL IEXPSCR
INPUT IEXP
IF (IEXP . LE. 2) GO TO 49
OUTPUT 'WRONG ENTRY TRY AGAIN' ; GOTO 48
OUTPUT 'ENTER ANY CHARACTERISTICS'
OUTPUT 'NO LONGER THAN 24 CHARACTERS'
READ (105,101) IC1,IC2,IC3,IC4,IC5,IC6
CALL EOF(99)
CALL OPEN (99,4,1ST)
WHITS (99,202) IDNO,N1,N2,N3,N4,N5,N6,IAGE,NAT,MAR,LAN,
JPROF,MINOR,KDEG,LSPOS,IEXP,IC1,IC2,IC3,IC4,IC5,IC6
CALL CLOSE (99,2)
OUTPUT 'DATA SAVED'
FORMAT (13,6A4,II,II,II,II,II,II,II,6A4)
OUTPUT 'PRESS RETURN TO CONTINUE'
INPUT A1
RETURN
END

C THE FOLLOWING SUBROUTINE IS TO LOCATE EITHER INDIVIDUALS OR
C CHARACTERISTICS OF INDIVIDUALS
SUBROUTINE INQ(M)
INTEGER CHO
C CLEAR (2)
CALL CLEAR (2)
OUTPUT '1. FIND PERSON'
OUTPUT '2. DISPLAY CHARACTERISTICS OF PERSON'
OUTPUT '3. GO BACK TO MAIN MENU'
OUTPUT 'YOUR OPTION?'
INPUT CHO
IF (CHO.EQ.1) GOTO52
IF (CHO.EQ.2) GOTO 53
IF (CHO.EQ.3) GOTO 54
OUTPUT 'WRONG ENTRY. TRY AGAIN' ; GOTO 51
CALL FINDPER
GO TO 50
CALL FINDCH
GOTO 50
FLAG1=1
RETURN
END

C THIS SUBROUTINE WILL LOCATE A PERSON WITH THE DESIRED PROFESSION
C AND DEGREES
SUBROUTINE FINDCH
CALL BOF (99)
CALL CLEAR (2)
CALL JPROFSCR
59  INPUT IPR
   IF (IPR . EQ. 0) GO TO 63
   IF (IPR . LT. 27) GO TO 60
   OUTPUT 'WRONG ENTRY'
   GO TO 59
60  CALL KDEGSCR
62  INPUT IDBG
   IF (IDBG . LT. 12) GO TO 65
   OUTPUT 'WRONG ENTRY'
   GO TO 62
65  CALL FSIZE (99, NOREC)
   CALL OPEN (99, 4, 'ST')
   KO=0
   DO 80 I=1, NOREC
   CALL READFL(IDNO,N1,N2,N3,N4,N5,N6,AGE,NAT,MAR,LAN,
               * JPROF,MINOR,KDEG,LSPOS,IELP,IC1,IC2,IC3,IC4,IC5,IC6)
   IF (JPROF . EQ. IPR) GO TO 71
   IF (MINOR . EQ. IPR) GO TO 71
   GO TO 30
71  IF (KDEG . EQ. IDEG) GO TO 75
   GO TO 80
75  WRITE (108,300) IDNO, N1, N2, N3, N4, N5, N6
   KO=KO+1
300  FORMAT (3X, 13, 4X, 6A4)
80  CONTINUE
   CALL CLOSE (99,2)
   IF (KO.NE.0) GOTO 82
   OUTPUT 'NONE'; GOTO 84
82  OUTPUT 'END OF FILE:'
84  OUTPUT '* PRESS RETURN TO CONTINUE...'
   INPUT A1
   RETURN
END
C GIVEN AN I.O. NUMBER, THE FOLLOWING SUBROUTINE WILL LIST THE
C CHARACTERISTICS OF THE INDIVIDUAL
SUBROUTINE FINDCH
DIMENSION IDGR(12,2), ITIT(27,3), ISTAT(4,2), ILAN(7,3), IXP(2)
DATA ((IDGR(I,J), J=1,2), I=1,4) / 'A.A.  B.A.  B.S.  M.A. '/
* ((IDGR(I,J), J=1,2), I=5,8) / 'M.S.  PH.D.  ED.D.  TH.D. '/
* ((IDGR(I,J), J=1,2), I=9,12) / 'D. MIN. M.DIV. M.B.A.  DIP '/
DATA (ITIT(I,J), J=1,3) / 'HISTORY  SECRETARY '/
* (ITIT(3,J), J=1,3) / 'ADMINISTRATO'/
* (ITIT(I,J), J=1,3), I=4,6) / 'BUSINESS  TCHINDUSTRIES  MATHEMATICS '/
* (ITIT(I,J), J=1,3), I=7,9) / 'EDUCATION  THEOLOGY  HOME. ECONO.'/
* (ITIT(I,J), J=1,3), I=10,12) / 'PSYCHOLOGY  DEAN  ENGLISH '/
* (ITIT(I,J), J=1,3), I=13,15) / 'IND. ARTS  NURSE  SOC. STUDIES'/
DATA ((ITIT(I,J), J=1,3), I=16,18) / 'BIOLOGY  CHEMISTRY '/
* (ITIT(18,J), J=1,3) / 'MUSIC '/
* ((ITIT(I,J), J=1,3), I=19,21) / 'PASTOR  STUD. SERV.  PHYS. EDUC.'/

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* ( (ITIT(I,J), J=1,3), I=22,23) '/SPANISH OFFICE MNGMN'/
* ( (ITIT(I,J), J=1,3), I=24,25) '/LIBRARIAN AGRICULTURE '/
* ( (ITIT(I,J), J=1,3), I=26,27) '/FOOD SERV. COMP. SCIEN.'/
DATA (ISTAT(I,J), J=1,2), I=1,2) '/SINGLE MARRIED '/
* ( (ISTAT(I,J), J=1,2), I=3,4) '/DIVORCED/WIDOWED '/
DATA (ILAN(I,J), J=1,3), I=1,2) '/ENGLISH SPANISH '/
* ( (ILAN(I,J), J=1,3), I=3,5) '/FRENCH ENG. SPAN. SPAN. FRENCH '/
* ( (ILAN(I,J), J=1,3), I=6,7) '/ENG. SP. FR. ENG. FRENCH '/
DATA (IXP(J), J=1,2) '/YES NO '/
INTEGER CHO
OUTPUT 'ENTER ID NO.'
80 INPUT CHO
IF (CHO.GT.999) GOTO 88
IF (CHO.LE.0) GOTO 88
CALL 3OF(99)
CALL FSIZE (99,NOREC)
DO 85 I=1,NOREC
CALL READFL(IDNO,N1,N2,N3,N4,N5,N6,IMAGE,NAT,MAR,LAN,
* JPROF,MINOR,KDEG,LSPOS,IXP,IC1,IC2,IC3,IC4,IC5,IC6)
IF (CHO.EQ.IDNO) GOTO 86
85 CONTINUE
OUTPUT 'NOT FOUND'
OUTPUT 'PRESS ANY KEY TO CONTINUE...'; INPUT A1
GOTO 89
86 CALL CLEAR (2)
WRITE(108,222) N1,N2,N3,N4,N5,N6,(IDGR(KDEG,J), J=1,2),
* (ITIT(MINOR,I), I=1,3), (ITIT(MINOR,I), I=1,3),
* (ISTAT(MAR,J), J=1,2), (ILAN(LAN,J), J=1,3), IXP(IXP)
222 FOR R A T (//,20X,6A4,///3X'HIGHEST DEGREE',3X,2A4,///,12X,'MAJOR',
* 3X,3A4,///,12X,'MINOR',3X,3A4,///,3X,'MARITAL STATUS',3X,2A4,
* ///,1X,'LANGUAGES SPOAKN',3X,3A4,///,7X,'EXPERIENCE',3X,A4,///)
OUTPUT 'PRESS RETURN TO CONTINUE...'; INPUT A1
GOTO 89
88 OUTPUT 'WRONG ENTRY'; GOTO 80
89 FLAG1=1
RETURN
END

C THE FOLLOWING SUBROUTINE WILL DELETE NAMES FROM THE MAIN FILE
SUBROUTINE DEL
INTEGER CHO
OUTPUT 'ENTER ID NO.'
80 INPUT CHO
IF (CHO.GT.999) GOTO 88
IF (CHO.LE.0) GOTO 88
CALL BOF(99)
CALL FSIZE (99,NOREC)
DO 85 I=1,NOREC
CALL READFL(IDNO,N1,N2,N3,N4,N5,N6,IMAGE,NAT,MAR,LAN,
* JPROF,MINOR,KDEG,LSPOS,IXP,IC1,IC2,IC3,IC4,IC5,IC6)
IF (CHO.EQ.IDNO) GOTO 86
85 CONTINUE
OUTPUT 'NOT FOUND'
OUTPUT 'PRESS ANY KEY TO CONTINUE...'; INPUT A1
GOTO 89

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OUTPUT 'WRONG. TRY AGAIN'; GOTO 80
CALL DELE(99)
OUTPUT 'DELETED...'
OUTPUT 'PRESS ANY KEY TO CONTINUE'; INPUT A1
RETURN

END

C THE FOLLOWING SUBROUTINE ENTERS INTO THE MAIN PROGRAM
SUBROUTINE SCR1
CALL CLEAR (2)
OUTPUT '  '
OUTPUT '  '
OUTPUT '  '
OUTPUT '  1. ADD A RECORD'
OUTPUT '  2. INQUIRY'
OUTPUT '  3. DELETE A RECORD'
OUTPUT '  4. END'
OUTPUT '  '
OUTPUT '  YOUR NUMBER ?'
RETURN
END

SUBROUTINE AGESCR
CALL CLEAR (2)
OUTPUT 'CHOOSE AN AGE GROUP'
OUTPUT ' 1. 20-30'
OUTPUT ' 2. 31-39'
OUTPUT ' 3. 40-49'
OUTPUT ' 4. 50-60'
OUTPUT ' 5. OVER 60'
RETURN
END

SUBROUTINE NATSCR
CALL CLEAR (2)
OUTPUT 'INDICATE NATIONALITY'
OUTPUT ' 1. MEXICAN'
OUTPUT ' 2. GUATEMALAN'
OUTPUT ' 3. SALVADORAN'
OUTPUT ' 4. HONDURANIAN'
OUTPUT ' 5. BELIZE'
OUTPUT ' 6. NICARAGUAN'
OUTPUT ' 7. COSTARICAN'
OUTPUT ' 8. PANAMANIAN'
OUTPUT ' 9. COLOMBIAN'
OUTPUT '10. VENEZUELAN'
OUTPUT '11. PUERTORICAN'
OUTPUT '12. CUBAN'
OUTPUT '13. DOMINICAN'
OUTPUT '14. JAMAICAN'
OUTPUT '15. TRINIDADIAN'
OUTPUT '16. VIRGIN ISL.'
OUTPUT '17. HAITIAN'
OUTPUT '18. MARTINIQUE'
OUTPUT '19. ABC ISL.'
OUTPUT '20. GRENADE'
OUTPUT '21. BARBADOS'
OUTPUT '22. BAHAMAS'
OUTPUT '23. GUADALOPE'
RETURN
END

SUBROUTINE MARSCR
CALL CLEAR (2)
OUTPUT 'WHAT IS PROSPECT MARITAL STATUS'
OUTPUT ' 1. SINGLE'
OUTPUT ' 2. MARRIED'
OUTPUT ' 3. DIVORCED'
OUTPUT ' 4. WIDOWED'
RETURN
END
SUBROUTINE LANSCR
CALL CLEAR (2)
OUTPUT 'LANGUAGES SPOKEN'
OUTPUT '1. ENGLISH'
OUTPUT '2. SPANISH'
OUTPUT '3. FRENCH'
OUTPUT '4. ENGLISH AND SPANISH'
OUTPUT '5. SPANISH AND FRENCH'
OUTPUT '6. ENGLISH, SPANISH, FRENCH'
OUTPUT '7. ENGLISH AND FRENCH'
RETURN
END
SUBROUTINE JPROFSCR
CALL CLEAR (2)
OUTPUT 'INDICATE PROSPECT PROFESSION'
OUTPUT '1. HISTORY'
OUTPUT '2. SECRETARY'
OUTPUT '3. ADMINISTRATOR'
OUTPUT '4. BUSINESS TEACHER'
OUTPUT '5. INDUSTRIES'
OUTPUT '6. MATHEMATICS'
OUTPUT '7. EDUCATION'
OUTPUT '8. THEOLOGY'
OUTPUT '9. HOME EC.'
OUTPUT '10. PSYCHOLOGY'
OUTPUT '11. DEAN'
OUTPUT '12. ENGLISH'
OUTPUT '13. IND. ARTS'
RETURN
END
SUBROUTINE KDEGSCR
CALL CLEAR (2)
OUTPUT 'INDICATE HIGHEST DEGREE OBTAINED'
OUTPUT '1. A.A.'
OUTPUT '2. B.A.'
OUTPUT '3. B.S.'
OUTPUT '4. M.A.'
OUTPUT '5. M.S.'
OUTPUT '6. PH.D.'
RETURN
END
SUBROUTINE LSPOSSCR
CALL CLEAR (2)
OUTPUT 'WHAT IS SPOUSE PROFESSION'
OUTPUT '1. NURSE'
OUTPUT '2. SECRETARY'
OUTPUT '3. HOUSEWIFE'
OUTPUT '4. BUSINESS'
OUTPUT '5. INDUSTRIAL'
OUTPUT '6. TEACHER'
RETURN
SUBROUTINE IEXPSCR
CALL CLEAR (2)
OUTPUT ' INDICATE PROSPECT EXPERIENCE '
OUTPUT ' 1. PREVIOUS EXPERIENCE'
OUTPUT ' 2. NO PREVIOUS EXPERIENCE '
RETURN
END
SUBROUTINE CLEAR(L9)
DATA L E / 2 7 /, L C /2 2 B 0 /, L S /2 2 /
WRITE (108, 131) LE, LC, LS
RETURN
END
SUBROUTINE READFL (IDNO,N1,N2,N3,N4,N5,N6,NAGE,NAT,MAR,LAN,
*JPROF,MINOR,KDEG,LSPOS,IEXP,IC1,IC2,IC3,IC4,IC5,IC6)
READ(99,202) IDNO,N1,N2,N3,N4,N5,N6,NAGE,NAT,MAR,
*LAN,JPROF,MINOR,KDEG,LSPOS,IEXP,IC1,IC2,IC3,IC4,IC5,IC6
202 FORMAT (I3,6A4,I1,I2,I1,I1,I2,I2,I2,I2,6A4)
33 RETURN
END
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Vita

Name: Carlos Alberto Archbold

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Undergraduate and Graduate Schools attended:

Antillan College, Mayaguez, Puerto Rico
University of Puerto Rico, Mayaguez, Puerto Rico
Andrews University, Berrien Springs, Michigan

Degrees Awarded:

1969 -- Bachelor of Arts, Antillan College
1974 -- Master of Science, University of Puerto Rico
1983 -- Doctor of Philosophy, Andrews University

Professional Experience

1969-1971 Instructor, Antillan College, Mayaguez, Puerto Rico
1974-1977 High School Teacher, Dean of Student Affairs, Colegio Adventista Dominicano, Bonao, Dominican Republic
1977-1978 Director of Chemical Technology, Inter-American University, Aguadilla, PR
1977-1980 Instructor, Adult Education, Berrien OIC, Benton Harbor, MI
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Professional Memberships:

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