

**THE DEVELOPMENT OF AN OPEN LEARNING SYSTEM IN
BRUNEI DARUSSALAM**

by

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B.Sc., Salford University, 1976**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS OF THE DEGREE OF
MASTER OF ARTS
in the Faculty
of
Education**

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Simon Fraser University
December, 1992**

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THE DEVELOPMENT OF AN OPEN LEARNING SYSTEM IN BRUNEI DARUSSALAM

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ABSTRACT

The purpose of this thesis is to develop a framework of an open learning system for adults in Brunei Darussalam. The present educational system of Brunei Darussalam is mainly geared for children and adolescents who have not yet left the school system. Adults are provided with few opportunities for recurrent education. In order to develop a framework, it is important to have an understanding of adult education, adult learners, open learning and the needs of adults. This thesis provides an in-depth description of the principles of adult education, the characteristics of adult learners, the problems and barriers that impinge on adult learning and the main characteristics of open learning and how it is able to meet the needs of adults.

Open learning is used with considerable success in a number of developed and developing countries. In many cases open learning systems were specifically developed to meet the needs of adults, providing them with greater access to learning. This thesis uses the examples of a number of open learning systems developed in other countries. It describes the concepts of open learning, examines key features of a number of open learning systems and discusses its practicability in a Brunei Darussalam context. It provides a useful source for the development of an open learning system in Brunei Darussalam. The key features include: (1) experiences of educators and planners in developing and managing open learning systems, (2) trends in open learning, (3) current practices in open learning, (4) various models of open learning systems, (5) the range of technology used in those systems, (6) the relationship of cost and student numbers, and (7) the planning process.

The description of Brunei Darussalam provides an illuminating account of the problems, the needs of the country, the economy, employment patterns, the educational

system and current provision of continuing adult education. It describes existing facilities and assesses its inadequacies, discrepancies and unmet needs. The problems and needs are compared to the problems and needs of adults in countries that have already developed open learning systems. The greater the similarities the better support it provides for an open learning system in Brunei Darussalam.

It is believed that descriptions of adult education, adult learners, lifelong learning, open learning systems and the planning process may provide important knowledge and understanding to educators and planners in Brunei Darussalam in the development of an open learning system.

Results of the study show that:

- (1) There is a need for an open learning system in Brunei Darussalam.
- (2) That an open learning system is suitable for Brunei Darussalam.
- (2) That it is feasible to develop the concept of an open learning system that meets the learning needs of adults in Brunei Darussalam.

ACKNOWLEDGMENTS

To Jackie
for her support, encouragement, and assistance

To Professor Mike Manley-Casimir
for his excellent guidance, inspiration, support and patience

To my family and friends
for their encouragement

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CHAPTER 1

BACKGROUND AND STATEMENT OF THE PROBLEM

1.1 Educational Needs of Adult Learners

Present day societies face the challenge of unprecedented and accelerated social and political change. Education has an important role to play in helping society come to terms with rapid change. Educational systems must also adjust, particularly when faced with the phenomenal pace of technological development. New strategies in teaching and learning are required. The individual will not be able to assimilate all the available knowledge in one life time. In response to these societal changes, however, a fundamental shift in education has occurred from teaching as a process of imparting factual knowledge to teaching skills in learning, acquiring, organising, using knowledge, and coping with change. The role of the teacher, therefore, has also changed, becoming more of a facilitator rather than only a provider of factual knowledge. Factual knowledge in this context is meant as merely the acquisition of facts and figures rather than the full meaning of a state of consciousness or familiarity gained by experience or learning. During the early years of education it is imperative that children, besides learning basic knowledge, acquire the skills of learning how to learn thus enabling them to become, in later life, explorers of knowledge.

In recent years a significant growth of interest has occurred in learning systems other than formal, full-time study in post-secondary education. The interest in alternative learning systems stems from a number of factors.

Society's needs are changing as a consequence of rapid technological innovations and changes affecting the workplace, resulting in obsolescence of existing knowledge and skills within a short time. For example, the half-life of electronic engineers, the period over which half their knowledge becomes obsolete, was at one time estimated at 10 to 15 years; today, many leading American firms estimate that half-life at two years (Paine, 1988: 5). A proportionally high number of adults require frequent upgrading of skills throughout their working lives. As more and more working adults return to a learning environment in order to upgrade skills, lifelong learning as a concept, where individuals continue to develop their knowledge, skills and attitudes over a lifetime, becomes more widely accepted. For example, when a potato farmer needs to update himself on the use and application of new products (pesticides or fertilizers), or a doctor on new pharmaceutical products, their basic requirement is for new knowledge. They normally understand how to apply them and have skills to do so. If, however, a new set of equipment or machinery is introduced on the farm, or in the surgery, they are likely to need a larger training component of a course. Then if the farmer decides to add dairy farming, he not only needs new knowledge and skills but also a new understanding of the whole operation. Upgrading of his management skills will also be required to cope with a more complex farm. A similar need would arise if an engineer moves from a motor-vehicle maintenance plant to an electricity generation plant or to a planning department. Recent estimates indicate that in the future the average worker will have to be retrained at least five times during his or her employable life due to technological innovation (The Open Learning Agency, 1992: 6; Verduin et al, 1986: 50).

Today's society is becoming increasingly mobile especially with the speed and ease of modern transport. For example, a study by Peterson on lifelong learning in America, quoted that in 1975-76, twenty-five million American adults moved during the period

1975-76 - nine million of them to a different country, four million to a different state and the rest within the state (Peterson and Associates, 1980: 143). This figures seem rather high but the source comes from page 42 of the US Bureau of Census 1977. The study also indicated that the most mobile Americans tend to seek additional education. Therefore, a substantial number of adults find it difficult to maintain a continuing link with a single learning institution. Other studies have shown a tendency for populations to shift from rural to urban settings. For example, in America at the turn of the century, about 60% of the country's population was rural, but by 1920 only 30% was farm-based. Today, it is estimated that as few as 2 to 3 % live in farms and ranches. The trend would be the same in many other developing and underdeveloped countries (Kasworm, 1983: 15-16). Campbell stated that would-be learners tend to move across educational sectors, from provider to provider as, for example, from college to university to technical school to university-provided in-service training services (Campbell, 1984: 13). Therefore there is a desire among some adult learners for a mix of educational experience. Individuals traveling from city to city or country to country in search of job opportunities would obviously benefit from accumulating credits earned at different institutions.

With increasing frequency people are changing jobs in mid-career resulting in demands for retraining. Several studies (Campbell, 1984; Freedman 1987: 29; Kasworm, 1983) indicated that a majority of adults enrolled in college evening classes because of a desire for career advancement or to prepare for a different job. Another study indicated that American adults ranked career change as the third most important reason for their focus on learning, after stating reasons of wanting to be better informed and for personal satisfaction (Kasworm, 1983: 18-19). An example of a career change, if a manual worker, on obtaining a qualification from college, qualifies him to take on a better job in the same

company or elsewhere. Career change of this kind serves as motivation for others to pursue continuing education.

Family life patterns are also changing, with more and more women joining the workforce. The work of Campbell shows that in some societies, they comprise over half of the workforce (Campbell, 1984: 13). In the United States, for example, the proportion increased from 33.4% in 1960 to 44% in 1985 and the figure is expected to grow to 59% in 1995 (Rachal, 1989: 9). Some women returning to the workforce after raising families discover that previous qualifications are outdated and no longer sufficient in the current employment environment. For example, a nurse, who has not practiced for fifteen years would be required to take a refresher course before returning to nursing; and an office typist who has left employment for extended period may need to learn word processing and become familiar with the computer before finding a job in a modern office.

Today, many industries are faced with the challenge of producing better and cheaper products to survive in a competitive world. An industry therefore has to depend on the quality of its human capital, and the skills, and education of its workforce, in particular its managerial workforce, all of which determine its long-term success and survival. A UK study by the Manpower Services Commission in June 1985 showed that companies with high business performance usually have strongly and positively high levels of training (Smith, 1987: 66). The study measured the performance by a combination of six parameters such as profitability, increased output, etc. and then measured against levels of training activity such as the proportion of employees trained, number of training days per employee, and so forth.

Changes in world economy have resulted in many traditional industries losing out to rival competitors from emerging nations able to use cheaper labour. An example is the once mighty cotton industry of Britain, with large numbers of employees working in its

mills dotted throughout industrial areas of Lancashire. Today, most of the mills are gone, idle because of economic recession and their inability to compete with products from Hong Kong, India, Malaysia and Singapore. New industries have emerged, however, such as the manufacture of instrumentation and electronics. With this change, industrial needs shifted from low skilled large labour intensive manufacturing to high skilled automated manufacturing.

The changes mentioned above illustrate many of the concerns facing society today. Given that the survival of our present day society lies in an educated workforce and that constant upgrading is required, it is therefore essential that provisions are made for better access to education for adults including those who are working, the geographically and economically disadvantaged and those who for some reason or other lack formal education. For many, an improved educational standard represents a higher rung on the socio-economic ladder and a way out of the poverty trap. There are concerns that present traditional systems are not able to meet many of these needs.

The solution, therefore, is to adopt a more flexible learning system that fulfills the needs of adults whatever their circumstances. Such a system for adults would allow frequent admission, self-paced study, choice of delivery systems and learner control over content and structure. Removal of barriers, such as: rigid academic requirements, a fixed time-table (9 am to 5 pm. schedule) and an inflexible curriculum, would address some of these concerns.

In developing a learning system for adults, elements of accessibility, flexibility and control are essential parts of its characteristics. Accessibility could include an open admission with few or no academic requirements for entry to courses, support for learners to study at their own pace, low cost study materials, quality teaching (as in high quality learning materials) and student support services (as in counseling, easy access to libraries

and tutors). Flexibility includes frequent admission periods, and flexible hours which allow working adults to study without leaving their jobs. Control means that the learner makes the decision over the content and structure of the course, choice of delivery systems and increased autonomy (as in learning independently). These elements are examined in more detail in chapter 3.

1.2 The Author's Role in Education.

The author is currently employed as an assistant director at the Permanent Secretary's Office, Ministry of Education, Brunei Darussalam. His responsibilities include general administration, international liaison and distance learning. His experience in education includes posts as a secondary school science teacher, head of science, deputy principal and principal of a secondary school (4 years), and a sixth form college (5 years), and Special Duties Officer (seconded) to the Ministry of Industry and Primary Resources in Brunei Darussalam. In September - October 1988, with the generous assistance of the Government of Brunei Darussalam and the Commonwealth of Learning (Vancouver), he spent a month attached to the Commonwealth of Learning, and made a study tour of open learning institutions, including Deakin University (Victoria, Australia), the UK Open University, the Open College in London, the Manchester College of Arts and Technology and the North Island College on Vancouver Island. In June 1988, a directive was given for the author to look at distance education as an alternative system for higher degree courses for government officers. A unit has since been established under the auspices of the Permanent Secretary's Office for coordinating distance learning. A working committee was appointed, and chaired by the author, to make a feasibility study. The recommendation of the committee to the Permanent Secretary was not to set up a distance learning facility, but instead to establish an adult professional continuing education center

(established in September 1991), with strong ties to the Universiti Brunei Darussalam. The author was granted a one year in-service program to pursue graduate studies at Simon Fraser University. The author hopes that the one year experience gained at SFU will provide insight into aspects of open learning, and assist in the development of an Open learning system in Brunei Darussalam.

1.3 Purpose of this Thesis

The purpose of this thesis is to develop a framework of an open learning system for adults in Brunei Darussalam. The present educational system of Brunei Darussalam is mainly geared for children and adolescents who have not left the school system. Adults are provided with few opportunities to recurrent education. In order to develop a framework, it is important to have an understanding of adult education, adult learners, open learning and the needs of adults. This thesis provides an in-depth description of the principles of adult education, the characteristics of adult learners, the problems and barriers that impinge adult learning and the main characteristics of open learning and how it is able to meet the needs of adults.

Open learning is used with considerable success in a number of developed and developing countries. In many cases open learning systems were developed specifically for the needs of adults and they have provided greater access to learning for adults. This thesis describes the concept of open learning, examines key features of a number of open learning systems and discusses its practicability in a Brunei Darussalam context. It provides a useful source for the development of an open learning system in Brunei Darussalam. The key features include: (1) experiences of educators and planners in developing and managing open learning systems, (2) trends in open learning, (3) current practices in open learning, (4) various models of open learning systems, (5) the range of

technology used in those systems, (6) the relationship of cost and student numbers, and (7) the planning process.

The description of Brunei Darussalam provides an illuminating account of the problems, the needs of the country, the economy, employment patterns, the educational system and current provision of continuing adult education. It describes existing facilities and assesses its inadequacies, discrepancies and unmet needs. The problems and needs are compared to the problems and needs of adults in countries that have developed open learning systems. The greater the similarities the better support it provides for an open learning system in Brunei Darussalam.

It is believed that descriptions of adult education, adult learners, lifelong learning, open learning systems and the planning process may provide important knowledge and understanding to educators and planners in Brunei Darussalam in the development of an open learning system.

This thesis, at certain stages, addresses three issues:

(1) The factors that determine the need for an open learning system in Brunei Darussalam.

(2) The suitability of an open learning system in Brunei Darussalam.

(2) That it is feasible to develop the concept of an open learning system that meets the learning needs of adults in Brunei Darussalam.

1.4 Method

The study of Open Learning Systems in this thesis involves a literature search of data available from publications. Much of the work is descriptive and does not involve data collection using questionnaires or interviews. Descriptions of Brunei Darussalam are based on a limited number of publications as well as from the author's experience in the

Brunei Darussalam education system. Data was primarily obtained from the Brunei Darussalam Statistical Yearbook, Education in Brunei and from unpublished sources.

This thesis uses examples of open learning systems in a number of countries. Frequent references is made to the British experience because the educational system in Brunei Darussalam is very similar to the British system; which would serve as a useful contrast to study open learning systems, even though open learning systems exists in other small island settings,. Some educational services such as school examinations (Cambridge General Certificate of Education 'O' and 'A' levels examinations, City and Guilds, Royal Society of Arts Examinations and the Business & Technical Education Certificate examinations, etc.) are still provided by British institutions. Therefore, any changes will have to take into account the links that exist between the two countries.

This thesis, or part of it, will be used to propose the development of an open learning system in Brunei Darussalam. Therefore, it is advantageous to use examples compatible with the British educational system, since the majority of people in Brunei Darussalam would be familiar with the system and find it easier to understand the concepts developed in this thesis. This is particularly important, especially if the idea of an open learning system requires the committed support of stake holder groups to ensure the success of its development and implementation.

1.5 Statement of Limitation

This is not a data gathering thesis. It is a policy formation thesis that can be used to propose the development of an open learning system in Brunei Darussalam. The findings of this thesis may not be applicable anywhere else in the world, though some of the application could have some use elsewhere.

1.6 An Overview of the Organisation of this Thesis

Chapter one of this six chapter thesis provides a general statement of the needs and problems faced by adults in present day society. The purpose of this study and the organisation of the thesis are described. Limitations of the study are specified.

Chapter two contains a review of the literature on lifelong learning, the fundamental principles of adult education, the characteristics of adult learners and the barriers faced by adult learners. It concludes by outlining a list of key characteristics of a flexible learning system that would meet the needs of adult learners. It provides a framework for selecting alternative learning systems for adults that are currently practiced in a number of countries.

Chapter three contains a review of the literature on open learning. The review examines open learning systems, the history of open learning, the technology used in those systems, trends in open learning, current practice, limitations, models, and cost. In concluding this chapter, the key characteristics of open learning systems are compared to the characteristics of the flexible learning system outlined in the concluding part of chapter 2. It establishes that open learning is best suited for meeting most of the needs of adults. Ideas and information presented in this chapter act as a prelude to chapter five.

Chapter four describes Brunei Darussalam. It contains a brief history of the country, the economy, employment pattern and the education system. It presents the problems of Brunei Darussalam and discusses the current provision of continuing education and challenges in education and training. The conclusion to this chapter describes the needs of Brunei Darussalam. Data presented in this chapter acts as a prelude to chapter five.

Chapter five provides an analysis of the open learning needs of Brunei Darussalam. Based on the statistical data available from chapter four, a number of estimates were

made. The estimates include the number of adult learners requiring access to education and the cost of providing for them. The data is used to support the establishment of an open learning system. An assumption is made as to the client groups requiring access to education, the priorities of each group and the appropriateness of an open learning system are discussed based on the main features described in chapter three.

Chapter six includes a description of the planning process required for developing an open learning system, an overview of the thesis, and a discussion of the main points pertaining to the three issues raised in part 1.3 of this chapter. A conclusion and recommendations are then presented.

Figure 1.1 below shows a schematic diagram of the thesis.

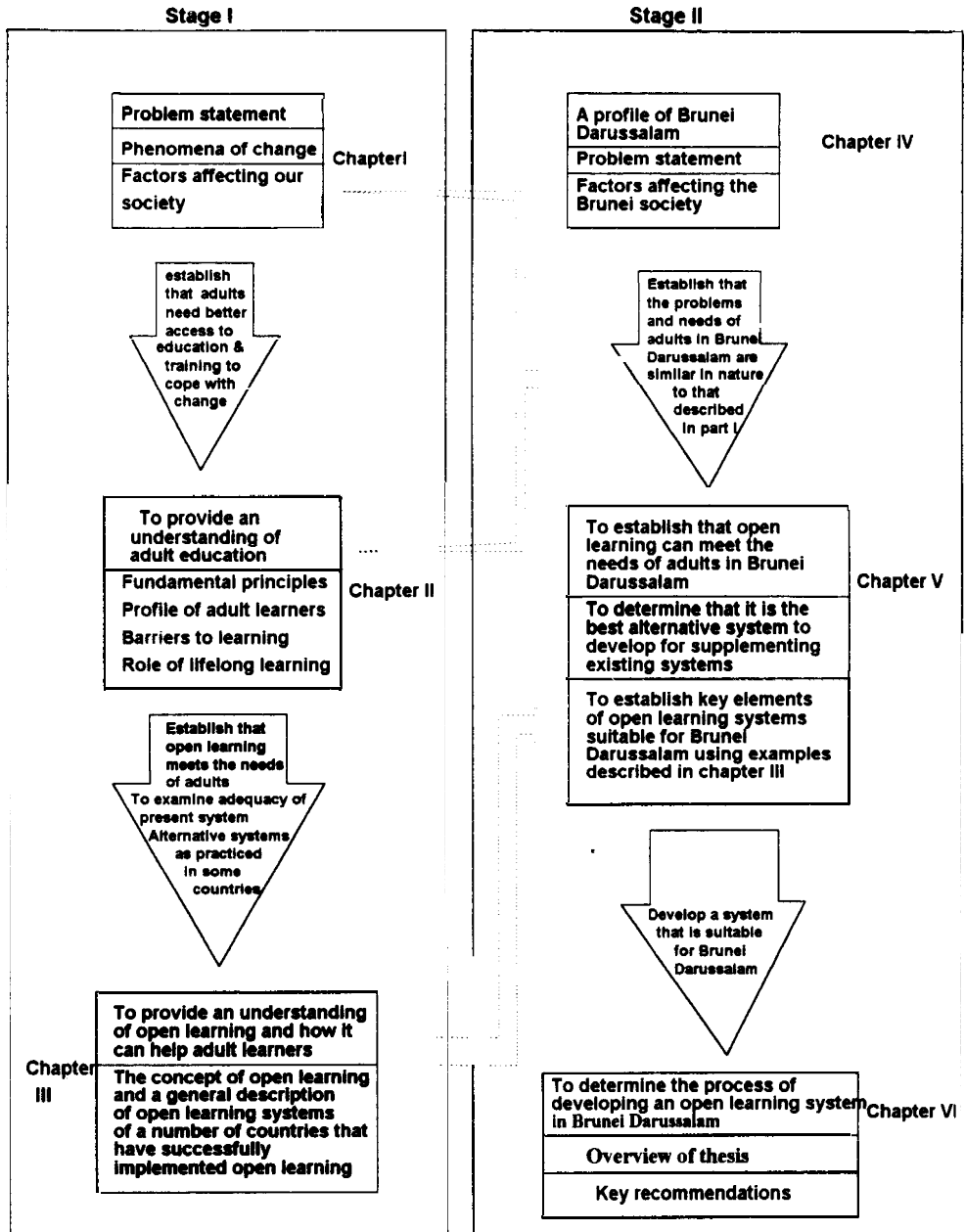


Figure 1.1: A schematic diagram of the thesis

CHAPTER 2

A FLEXIBLE LEARNING SYSTEM THAT MEETS THE NEEDS OF ADULT LEARNERS

Synthesis of this Chapter.

This chapter examines adult education, the general characteristics of adult learners and the relationship of lifelong learning to adult education. The essential characteristics of a flexible learning system are based on the general characteristics of adult learners and their problems as defined in chapters one and two. The characteristics are adapted for a learning system for adults in Brunei Darussalam.

2.1 Concept of Lifelong Learning

"Lifelong learning" as a concept, has been widely recognized particularly in the more developed countries. This is shown by The Lifelong Learning Act (The Mondale Act) passed in 1976 (Peterson & Associates, 1980: 3), the Adult Education Act passed in 1978 (Kay, 1981: 1-2), both in the United States and The Employment Promotion Act of Germany passed in June 25, 1969. The German Employment Promotion Act provided the right to subsidised training and education for German workers wishing to gain additional skills in present professions or training for those contemplating a change (Striner, 1971: 41). The establishment of the Open University and the National Extension College plus numerous other open learning institutions in Britain indicate the commitment of the British government to providing better access to education for a broad spectrum of age groups, particularly those who have left the traditional school system.

Lifelong education is sometimes referred to as "permanent education" (Striner, 1971: 3) or "recurrent education" (Centre for Educational Research and Innovation, 1973; Houghton and Richardson, 1974). The term education and learning can be interpreted in a

number of ways, and a clear definition of the two terms is important when examining the relationships of "learning throughout life" to the concepts of lifelong learning, lifelong education, and permanent education.

A definition taken from a 1973 report published by the Centre for Educational Research and Innovation (CERI) states that learning is an essential characteristic of the living organism necessary for its survival and for its evolution. In man learning occurs, not only in schools but at home, in the work environment, and in all of life's situations. "Education" is organised and structured learning (as in a deliberately created organisational framework within which knowledge, aptitudes, attitudes and skills can be acquired) which is confined to an intentionally created situation (often but not necessary institutional). Lifelong learning based on the above definition, therefore, emphasizes the need for adaptability through a constant acquisition and processing of information, formation of concepts, and development of attitudes and skills, all of which are qualities that have become more necessary in a rapidly changing society. This is similar to that defined by Peterson & Associates in *Lifelong Learning in America* (1980: 4) as "the process by which individuals continue to develop their knowledge, skills, and attitudes over a lifetime" and that there should be provision for them to do so.

Lifelong education, in its broadest term can best be described as the systematic learning of a person from cradle to grave and is often thought of as having three phases: the growing child, the growing adult and the adult in retirement. Each phase has distinctive learning characteristics and needs. Lifelong education breaks the traditional view that education is confined to the first part of a person's life, lock-step with working in adulthood and idling away in retirement (when education is void in the latter two parts of a person's life). Lifelong education, therefore, provides a bridge between the three parts of a persons life. In 1973, the International Commission on Development of Education

proposed: "Every individual must be in a position to keep learning throughout life. The idea of lifelong education is the keystone of the learning society." This is gaining ground in many educational spheres around the world.

The concept of lifelong education is that of a need for a lifelong process of assimilation of new knowledge and experiences at the service of a continuous openness to new situations and of enhancing people's ability to take their destiny into their own hands. Education then provides organised conditions for learning, enabling the learners to acquire new knowledge and put into a general context the facts and experiences they have acquired in unorganised learning situations. A person therefore is continually challenged to recurrent education in a society where technological development is expanding rapidly. The conventional image of the relationship between education and work as a linear progression from one to the other; a period of 12 to 20 years spent in education, followed by 40 years at work is becoming more and more inapplicable in the present day society. The new image of that relationship should be the double helix, each intertwined with the other for the whole of a lifetime (Williams, 1989: 5). The education of adults in many developed countries has also been rooted in this context.

Individuals of equal intelligence and ability progress at varying rhythms: some may arrive at full maturity by the age of 20 while others may not reach this stage until they are 30 or even later. Lifelong education would help those whose complete development comes at a later stage in life.

An increasing number of adults in developed and developing countries are participating in organised studies. This has been shown by a number of studies in North America and Britain, such as Peterson and Associates (1980), Woodley et al (1987), and Waniewicz (1976). Most involve high school graduates between the ages of twenty five and forty five years of age and employed (Peterson and Associates, 1980: 80). Other

studies show that 41% (sixty million) of adults in the United States wanted more education, 23% (forty million) were in a career change and around 8% (twelve million) needed professional updating (McNeil, 1981: 33). The need for continuing education programmes is based on the notion that professionals who enroll in such programmes become more competent than those who do not participate. It is believed that professionals responsible for providing vital public services cannot practice their profession for a lifetime based on the knowledge, skills, and understanding learned during their formal undergraduate and graduate training (Verduin et al, 1986: 67). This next section will examine in more detail the profile of an adult learner and will include constraints and barriers such as loss of income, family commitments, and difficulty attending regular classes due to shift work, transport difficulties, ill health or other obligations.

There is a relationship between the needs and goals of institutions (including organisations and agencies) and the individual adult learner. Verduin et al (1986) describes this relationship by rationalising lifelong learning as having its roots in the basic needs of society; the societal goals of protection and safe well-being for all people found within the society. Service institutions, such as fire departments, police departments, and hospitals are established to serve its members and, in turn, fulfill the societal goals of protection and safe-well-being for all people found within society. I would further add that manufacturing organisations are a creation of society to serve their needs, e.g. the manufacture of motorcars to provide humankind with easy transportation, the telephone for easy communication, and so forth.

Society, however, is made up of individuals and adult learners, like society and organisations and agencies, have definite goals of their own for the improvement of their individual lives. These goals come from the needs of individuals and, in turn, from their

personalities. Adults have individual needs because of their different personalities, and subsequently leads to many different goals as they engage in various formal, informal, or self-directed learning experiences. Both the institutions and the individuals need to survive in a competitive world, especially in a society facing rapid technological changes. Figure 2.1¹ of Verduin et al (1986: 7) shows the relationship between institutions and individuals and the various elements affecting its goals. The culture of a society influences the institutions and the individual; the culture having certain beliefs and characteristics (ethos) which reflect definite values that will affect the expectations of the institutions and the needs of the individual.

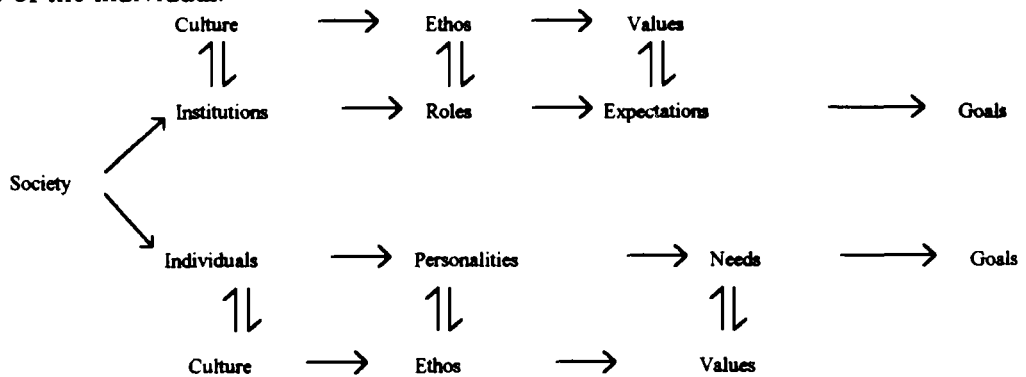


Figure 2.1: Verduin', Miller's and Greer's model

Although the model of Verduin et al only shows the cultural influence, the economic, social and technological influences on the individual and institutions are just as important. The outcome of the different learning needs of adults depends on the goals set by the society that they live in.

¹Verduin et al's model appears to be derived from that developed by Jacob W. Getzels, James M. Lipman and Roald F. Campbell. Educational Administration as a social Process: Theory, Research, Practice. (New York, Harper & Row, 1968) p.106.

2.2 Adult Education and General Profile of Adult Learners.

2.2.1 Adult Education

The basic purposes of adult education can be described in four major categories: (1) to facilitate change in a dynamic society, (2) to support and maintain the good social order, (3) to promote productivity, and (4) to enhance personal growth (Beder, 1989: 39; Townsend Coles, 1977: 10-14). Beder describes the philosophy of adult education as falling into three broad traditions: (1) the liberal-progressive, (2) the countercritique, and (3) the personal growth traditions.

A large number of articles have been written and books published in relation to adult education. The history of adult education is a lengthy one, and "organised and systematic instruction for mature people" may have preceded the formal organisation of schools for children and youth (Titmus, 1989: xxiv). One of the earliest books, *A History of the Origin and Progress of Adult Schools* was issued in Britain as far back as 1816 and today more than 3,000 doctoral degrees have been awarded in adult education (Imel, 1989: 135). The importance of adult education became widely recognised as a discrete and serious branch of education in the 1950s in Europe and North America (Townsend Coles, 1977: 2). At the same time adult education was seen as contributing to development in many developing countries. Several series of books contributed to the literature of adult education: those from the *American Association for Adult Education* (AAAE), founded in 1926 and later to merge with the *National Education Association* (NEA) to form the *Adult Education Association of the U.S.A.* (AEA); *The Journal of Adult Education*, founded in 1929 that later became known, in 1950, simply as *Adult Education*; and the *Canadian Journal for the Study of Adult Education*, in Canada, first published in 1987.

The Facilitation of Change in Society

Some of the phenomena of change are mentioned in earlier in this paper. Values, attitudes, beliefs, and social role expectations change as a consequence of our changing lifestyles. These bring about some change in the behaviour of a person. Any inappropriate role behaviour of an adult is negatively sanctioned by society which perceives that adult as failing to comprehend social change and to act accordingly (Beder, 1989: 39). Consequently life can be difficult for that adult. Therefore adult education can bring about changes in adults by enabling them to comprehend and adapt to the changes in their environment. Adult education is also a useful vehicle in the continuous updating of adults in rapid change in the knowledge needed to perform specialised tasks (1989:39).

Adult education, created to serve the interests of the underprivileged and bring about social change has its roots in the labour movement of Great Britain. Entwistle (1989: 37) described the danger of the "takeover by the middle class of institutions created by or for the underprivileged"; that the middle class will appropriate for its own benefit any social institution intended to benefit the disadvantaged; that adult education has become a middle class preserve. There are many examples of adult classes, from the university extension courses to those offered by schools, where the majority of those who attend are already well-educated (Entwistle, 1989: 36; Hartnett, 1974; Woodley et al, 1987: 85).

The view held by many adult educators is that little public funding was made available for adult education. Adult education, for economic reasons, is still not universally available, as it was once intended to be. Entwistle (1989: 37) suggests that it is not necessary for the provision of adult education to reach all adults within a country for social change to take place. Using the experiences in countries of Europe, he continues by explaining that vast social gain can be achieved by those from the working class who are

able to benefit from adult education to provide leadership to their fellow workers. Social change, therefore, does not rely on headcount, such that adult education is not judged a failure if it lacks widespread appeal. The more people that are politically educated, the more comprehensive and radical the change would be (1989: 37).

The Support and Maintenance of Good Social Order

The promotion of a good social order as one of the aims of adult education is closely linked to democratic ideals, which has its roots in the early adult education movement in the United States (Beder, 1989: 40). Researchers such as Linderman, N.D. Baker, Sheets, Jayne, and Spence, P.A. Bergevin (Beder, 1989: 40) and Paulo Freire (Grabowski, 1972) looked at the essential role of adult education as promoting democracy.

Beder (1989:40) draws on the work of the above researchers and came up with the statement that "Democracy can work only if the citizenry exercises rational, informed, choice, for in the absence of informed, rational choice, propaganda prevails, and democracy lapses into totalitarianism." The notion that in a democratic state, where the electorates are adults, the purpose of adult education is to: assist in informing and developing critical skills of adults to make judgment based on known facts, to resist prejudices, and to permit intellect to rule over feelings; develop adults as informed, critical-thinking citizens; assist adults to participate competently and intelligently in the affairs of the various institutions that constitute democratic society; assist in bringing together groups of people within communities that are able to identify common problems and participate in problem solving; promote equal economic opportunity for all (1989: 40-41).

The radical ideas of Paulo Freire have a significant impact on adult education, particularly in developing countries (1989: 41). Freire (in Grabowski, 1972) links socio-economic order, socio-cultural, and political order directly to education. He promotes literacy training, "liberal" education, and educational reform as a way of liberating the oppressed (1972). He championed the plight of the poor by his "emphatic insistence that relevant and effective adult education be provided for the oppressed, for the disadvantaged; and that adult education, in general, should not be conceptualized and implemented in a way which contributes to the plight of the oppressed" (1972: 3).

In England, for example, adult education as social policy has very much been used as a tool by the state from the early part of the century (Griffin: 1987: 12-13). It has always been subject to government intervention, particularly in the context of development (1987: 3). As an object of social policy, the welfare state, which Britain has very much become, and the adult education movement have common roots in a desire to extend the economic and social benefits of industrialised society to all of the people (1987: 19). Griffin (1987:13) describes a democratic society where pluralism exists as a distribution of power in society amongst a number of groups of people, such as organised interest or pressure groups, financial, industrial, social or so forth. These groups compete openly, in a democracy, for the control and allegiance of the population and individual citizens. In such a system there is check and balance. The power of one group can be checked and balanced by another group or several opposing groups. Such a system is designed to benefit all, including the relative powerless. The role of education, therefore, is to educate adults in making informed choice of the competing groups and their ideals.

The ideas of R. M. Titmuss (in Griffin, 1987: 19-21), his "Residual Welfare, Industrial Achievement-Performance and Institutional Redistributive models" of social policy are an important influence on adult education in Britain. The residual model

assumes economic growth on such a scale that welfare is increasingly focused selectively upon a "residual and declining minority of needy group" and the performance and institutional redistributive models are based on the assumption that social problems such as poverty persist in industrial society on such a scale that "it is necessary for social services to be established as major institutions rather than residual agencies in industrial societies" (Griffin, 1989: 22). The 1919 Report of the Adult Education committee, just after the First World War, contains some elements of the Titmuss's ideas, such as welfare based on needs, equality, citizenship, solidarity, and the sense of shared ideals (Griffin, 1987: 20).

The Promotion of Productivity

Adult education assists in the promotion of productivity by enhancing individual performance (as in human resource development) as a means toward increasing organisational effectiveness and economic growth due to attainment of human skills and knowledge through education (Beder, 1989: 41-42; Paine, 1988: 20). Linderman, Smith, Powell, and Nadler all discuss the role of adult education at the organisational level: that the personal development of workers has an impact on their productivity; and that education should seek to maximise organisational effectiveness through the enhancement of employee or member competence (1989: 42).

To Enhance Personal Growth

The purpose of adult education is to facilitate personal growth; the growth of a person capable of rational and critical thinking, who has high moral character, and so forth (1989: 43). Here, adult education is concerned with the individual development that is very much influenced by the ideas of Maslow, Bergevin, Jacks, Knowles and others (1989:

43). Maslow, for example, among other things examines the basic human needs for personal growth and the concept of self-actualisation as a goal of personal growth (1989: 43). Bergevin (in Beder, 1989: 43) expresses personal growth in terms of maturity: as meaning the "growth and development of the individual towards wholeness in order to achieve constructive spiritual, vocational, physical, political and cultural goals." Bryson (in Beder, 1989: 44) looks at adult education as helping personal growth at three levels, namely: relational level (the learner developing effective relationship with others), self-actualisation (learner understanding their own potentials and how to actualise them), and enrichment level (learner making creative use of leisure time).

The Liberal-Progressive Tradition of Philosophy

In liberal-progressive education, the role of adult education is to support the continuous improvement of democratic order as prescribed by thinkers such as Hart, Lindeman, Sheats, Jayne, and Spence, and Knowles (in Beder, 1989: 44). Liberal education, at one end of the liberal-progressive spectrum, which predominates in the areas of secondary and higher education, focuses on cultivation of the intellect on three essential characteristics - knowledge of facts, a systematic grasp of a subject matter, and the ability to critically assess and analyse - that are essential for the learner to achieve wisdom (1989: 44-45). Here, the teacher is viewed as the master of the subject matter who is responsible for transferring knowledge to novice learners (1989: 45). Butler and Russell, both notable intellectual leaders of adult education, came from the mold of the liberal end of the spectrum (1989: 45).

The progressive end of the spectrum believed learning should proceed from experience: that adult education facilitates learner-centered learning and the teacher acting as facilitator rather than guardian of knowledge as a mean of achieving a good democratic

society (1989: 45). Notable educators from that end are Lindeman and Knowles (1989: 45).

The Countercritique Tradition of Philosophy

The countercritique tradition focuses on the relation of education to society. The Marxist doctrine has a marked influence on the countercritique tradition. Countercritique educators view society as class based and that "individual behaviour is the product of historical forces, rooted in material conditions" (1989: 45). They talk in terms of the conflict: between the ruling class (bourgeoisie) and the working class (proletariat) and between individuals in different social positions. The work of Bowles and Gintis focuses primarily on the relationships among the economic means of production, class structure, and education. The ideas of Paulo Friere also influenced the countercritique educators. Friere proposed adult education as helping raise critical consciousness, through dialogue with learners, as a way of taking back control of forces that rule their lives (1989: 47; Grabowski, 1972: 4). A number of other notable educators have influenced the development of adult education, particularly in Britain, such as: Mansbridge, Tawney, Cole and Miller between 1900 and late 1960s; and Evans, Jackson, Griffin, Illich Freire and Gelpi between 1960 and late 1980s (Evans, 1987: 5-29). Figures such as Miller, Illich, Freire, Griffin, and Gelpi are considered as ultra-radical in their thinking of adult education (1987: 8).

Personal Growth Tradition of Philosophy

The personal growth educators share views similar to those in the liberal-progressive traditions, in the belief that society is essentially good, but they tend to focus more on the individual than on the society (Beder, 1989: 47). Knowles, the proponent of

Andragogy in North America, has a big influence on personal growth ideas in adult education. Learning therefore become learner-centred, where the learners are responsible for their actions. They make their own choices, control learning content, process, and evaluate, which are very much a part of this tradition. The object of adult education, therefore, is to assist learners in making choices that maximise their human potential, and to utilise the instructor as merely a facilitator of learning.

2.2.2 Adult Learners

When do we consider a person an adult? It is tempting to accept a person as an adult on reaching a certain age, for example, on reaching the age of 18 or 21 years old (Krajnc, 1989: 19). That person may be considered to have achieved a certain level of maturity and mental state expected of an adult. Some researchers may use other criteria, such as, emotional, social and intellectual maturity (Krajnc, 1989: 19). In education, particularly in third world countries, children drop-out of school at an early age because circumstances (economic, cultural, and so forth) do not allow them to continue in the formal system. Many find themselves in the workforce by their early teens or even younger. To set up a system of education that caters for adult learners based on age, would be to deny this group of "adults" access to learning opportunities. For example: in Nepal only 28% of children, who enroll, complete the elementary school cycle (Hawes and Stephens, 1990: 3); and about 60% of children and youths between 6 and 23 years are outside the formal education system in the Asia and Pacific region (the number grew by more than 100 million within two decades) (Selim, 1987: 125). Even in Europe, with more developed educational systems, a proportion of children do not reach the end of compulsory schooling, but the proportion completing elementary school may be much higher than most Third World countries. For example, 8% of students in Sweden, 10% of

students in the Netherlands and France, 9% of students in Italy, and 5% of students in Germany do not reach the end of compulsory schooling under normal conditions (Jallade et al, 1989: 40). They leave with inadequate mastery of the knowledge and skills relevant to the contemporary job market: they have insufficient reading and writing skills, no clear understanding of the economic and social environment, little exposure to modern science - they include migrant workers' children (1989: 43) Many countries, as a major policy, provide all young people leaving compulsory education with at least one or two years of vocational training.

Chronological age alone is inadequate as a determinant of adulthood. Boucouvalas and Krupp in their studies examined the work of a number of researchers who defined adulthood by biological, social, psychological, and existential age (Troll, 1976) and by functional measures of age such as biological, behavioral, subjective, interpersonal, social, and other indices (Kastenbaum, 1985; Boucouvalas and Krupp, 1989: 184)

Adults are disadvantaged in many of the traditional learning systems. For example, Kidd (1965: 37) stated that:

Schools and colleges have traditionally planned with needs of children or youths in mind. Accordingly, if it was assumed that what was being offered was education, then if an adult wanted education he ought to take what was offered. It actually happened for many years that many adults seeking an education not only took a curriculum designed for children, were taught by teachers whose experience was with children, but were obliged to sit at desks built for children.

Now most educationists agree that curriculum and methods should be related both to the goals of education and to the needs of the students.

An adult Learner can be defined as a person who is regarded as an adult by the society to which he/she belongs, either enrolled full; or part-time in an institution outside the setting of a traditional school, but engaged in one or more activities of organised instruction, including correspondence courses and private tutoring; usually at a set time

and place; ordinarily under the auspices of a school, college, religious organisation, neighborhood centre, community organisation, or other organised authority; and generally with a predetermined end result that may or may not be a certificate, diploma, or degree. Activities such as worship services are excluded.

Adult education has been linked to terms such as "formal", "nonformal", "informal", "lifelong learning", "lifelong education", "continuing education", and "recurrent education". In 1976, the one hundred and forty two participating countries in the General Conference of UNESCO agreed to a general recommendation on the development of adult education. The assembly also agreed on the following definition (Townsend Coles, 1977: 5; Ironside, 1989: 15):

The term "adult education" denotes the entire body of organised educational processes, whatever the content, level and method, whether formal or otherwise, whether they prolong or replace initial education in schools, colleges and universities as well as in apprenticeship, whereby persons regarded as adult by the society to which they belong develop their abilities, enrich their knowledge, improve their technical or professional qualifications and bring about changes in their attitude or behaviour in the twofold perspective of full personal development and participation in balanced and independent social, economic and cultural development. (UNESCO 1976)

Townsend Coles (1977) includes skill training as part of adult education, as he sees training as having an educational component since the learner needs to have sufficient academic background if training is to be successful. However, the inclusion of skill training as part of adult education is a matter of interpretation and open to debate. In Britain, for example, adult education has historically been limited to the non-vocational education of adults (Titmus, 1989: 545).

A number of studies (Tough, 1989: 256) have shown that, on average, adults spend about 500 hours a year each at major learning efforts and 73% of deliberate learning projects are planned by the learner himself or herself. A further 7% are planned by a

friend, relative, or other nonprofessional and only 20% are planned by a professional educator (a person trained, paid, or institutionally designated to facilitate the learning) or guided by a set of materials. About 14% of adults learn in groups: 10% in groups lead by a paid instructor and 4% in peer groups. Ten percent of professionals operate in groups and seven percent operate on a one-to-one situation.

Verduin et al (1986: 6) identify three groups of adult learners: undereducated adults, who have not acquired many of the basic skills and knowledge through other forms of formal education; adults, who wish to undertake training, retraining, and continuing professional education for career development and economic sufficiency; and adults who wish to learn for leisure and enrichment.

Adults who require basic education are generally regarded as those seeking to learn to read and write and are usually associated with developing and Third World countries where illiteracy is most prevalent. For example, the rates of illiteracy in the Indian sub-continent and many parts of Africa are rising in spite of universal education and increased provision. Although enrollment in many countries has increased, populations increase have outpaced the increase in school places and, with the exception of a few countries, have outstripped economic growth. Provision for adult education often falls short of the desired level required to meet the needs of an increasing number of children, who fail to benefit from basic education, and are destined to become illiterate adults. Possession of at least a primary education has become a social norm in many societies and illiterate adults usually stigmatise both families and their local and national communities. An illiterate is a person who does not possess the essential skills enabling him or her to engage in activities for which literacy is required for effective functioning in his or her group or community and whose level of attainment in reading, writing, and arithmetic is insufficient for him or her to continue to use those skills towards his or her own and the community's development.

Illiteracy also affects the more affluent countries. For example, it is estimated that between 17 to 21 million adults in the United States were considered as illiterates or functional illiterates (who cannot read or comprehend the kinds of communications they might receive from public agencies) in 1982 (Verduin, 1986: 44), and somewhere between 12% and 30% of all Canadian adults are functionally illiterate (The Open Learning Agency, 1992: 10). Adults who are illiterate find it extremely difficult to adapt to changes in a society where technological changes demand frequent skill upgrading. The demands for literacy, for even the lowest-skilled and lowest paid jobs, have increased as a result of the change in the nature of work. An illiterate person traveling to a distant place would most probably find it very difficult to navigate through an unfamiliar road system that requires his ability to read maps, follow road signs and obey all traffic laws and regulations; he will also find it impossible to obtain a driving license. To operate a democratic society successfully also requires that its citizens are able to participate fully in its political process (Beder, 1989: 40). A literate society that is able to make informed decisions would be more stable than a society that is largely illiterate. The illiterate can potentially be exploited, influenced or suppressed.

Literacy is also a relative term, embedded in individual societies and subject to cultural norms. In a mobile society, a highly literate person for many reasons (marriage, famine, war, poverty, job opportunities) may move to another country, that has a different culture and language. That person brings with him or her a different life experience not totally acceptable to his adopted society. He or she becomes a newly functional illiterate. As a person, who is disciplined in lifelong learning, he or she may eventually succeed in the new environment, if there is access to education.

The second group of adults need continuing education to gain knowledge and skills in order to function within the economic domain of adult living. It is a form of lifelong

learning that provides for: self-determined improvement and enrichment of individuals' lives; concurrent education for adults who are involved in earning a living; employment-related preservice and/or inservice education; and pursuit of learning in an intentional and systematic fashion. The product of this area of continuing education is the opportunity to improve one's job skills, advance in one's career, qualify for relicensure (continued membership in a professional body), and/or renew credentials. For example, a person working in computers or in electronics may need to upgrade his or her knowledge and skills frequently because of the rapid development of new technologies.

The continuing education needs of adults for career development are generally associated with the economic needs of private and public sector organisations. Educational activities, to meet the private sector needs, usually come in three forms: training on the job; training off the job, and a combination of both on- and off-the-job training. In on-the-job training, it is possible to have formalised learning in a classroom setting and individualised learning, such as an apprenticeship (essentially learning as you go) or cooperative work study programme. Training off the job can take several forms, including public education (usually state organised campus based teaching), vocational/skill centre, work place or employer-sponsored program (seminar/courses), private proprietary school, and equipment manufacturer's schools. Some large corporations operate their own training schools. The third form is a combination of on-the-job training, that provides the practical aspects of learning and off -the-job training that involves the theoretical component of the programme. Learning is primarily based on personal contact between teacher and the taught and is hence time and place dependent. This form of learning tends to be costly and there is loss of productivity while the learner is away from the job. It has been estimated that industry in North America spends US\$40 billion a year annually on continuing education (Bates, 1989: 134: Williams, 1988: 4)

Many studies have been made on adult learning and the body of literature available provides a valuable framework for the development of adult education. Studies have shown that adult learners differ in many ways to children and youth and as such should be treated differently to encourage greater participation in learning. The art and science of helping adults to learn and the study of adult education theory, process, and technology to that end is generally termed "andragogy" which is distinct from pedagogy, which is concerned with child and youth education (Krajnc, 1989: 19-20). Andragogy, a term first used by E. Rosenstock in Berlin in 1924, is concerned with the education of those who have completed or interrupted their initial education, in order to take part in other major activities or take on other social roles (1989: 20).

Andragogy is more often used in the United States than in Europe, as the result of the influence of Malcolm Knowles. Knowles's concept on Andragogy is based on four assumptions (Verduin, 1970: 16; Krajnc, 1989: 21):

"...as a person matures, (a) his self-concept moves from one of being a dependent personality toward one of being a self-directed human being; (b) he accumulates a growing reservoir of experience that becomes an increasing resource for learning; (c) his readiness to learn becomes oriented increasingly to the development tasks of his roles; and (d) his time perspective changes from one of postponed application of knowledge to immediacy of application, and according to his orientation towards learning shifts from one of subject-centredness to one of problem-centredness."

A multidisciplinary approach is required to understand the development and learning of adults. The system of andragogy provides a link between adult development and adult learning (Boucouvalas and Krupp, 1989: 183). In narrow terms, however, learning takes on the character of acquiring information, knowledge, skills, attitude, and wisdom. Change occurs in adult development and learning. Boucouvalas and Krupp stated that "Development leads to changes in the nature, modes, interest, and content of learning, and

learning often leads to further development" (1989: 184). It should be noted, however, that Knowles's distinction between andragogy and pedagogy is unacceptable by many scholars in the West. In some countries in Eastern Europe, such as in Poland, the concept of adult pedagogy is adopted instead of andragogy (Jarvis, 1989: 23).

When performing tasks there is a noticeable difference between adults and children and also between younger and older adults. Adults tend to learn differently from children. Characteristics of adult learners include: they usually bring to the learning situation more clearly developed personal goals, better formulated ideas about what constitutes useful subject matter, and a desire to learn things that they themselves define as worthwhile, usually because these things can be applied in some way to relatively immediate real-life situations. Adults are seldom interested in learning answers to which they do not already know the questions; they are more sensitive to being treated in a way considered more appropriate for children; they are afraid of looking foolish in front of others; they have a low regard for abstract information; they tend to overestimate the importance of school learning and underestimate the importance of non-school learning; and they frequently underestimate their own ability to learn in relatively formal settings (Knapper and Cropley, 1985: 50).

Midwinter (1982: 19-20) describes the survey (in Britain) of the Centre for Policy on Aging in 1982, the proportion of people in later life engaged in any form of education as very low compared to those in the 15 to 24 age-range. For example, 12% of the 15 to 24 age-range are involved in some form of education compared to only 2% of those over 60 years old. The study indicates that in the overall adult age group, women outnumbered men to the ratio of three to two (1982: 21). In the over 60 age-group, women outnumbered men to the ratio of seven to two.

Differences of opinion still exist about how well adults can learn. Different researchers differ in their findings regarding the maintenance or decline of intellectual capacity, or learning aptitude, throughout life. Kidd (1965: 85) in his studies examines the work of Welford who indicates that older subjects' performance in industrial activities tends to be slower and more deliberate than those of the younger, but subsequently more accurate. His review of more recent studies indicates that adults of all ages can learn effectively (that growing old does not significantly reduce learning capacity or intellectual power); it is possible for adults' vocabulary to improve, not decline as they get older (up to 70 years for some professionals); and the amount of schooling that a person had affects considerably that person's performance in such tests (of ability). One of the critical factors of tests of ability seems to be the amount of practice of a particular task. People who frequently engage in intellectual as well as physical tasks, tend to maintain their learning capacity. The direction and intensity of the adult's motivation will significantly affect his success. An adult's performance will improve if he has a well-defined goal and high motivation (Kidd, 1965: 84-89).

It is the natural instinct of humankind to better themselves and in our modern society, a good education is perceived by many as a way of moving ahead, a means of upward mobility or personal growth. Adults who left the school system early on in life have less opportunity of returning to a learning environment. A number of barriers prevent them from enrolling into a learning system. There are numerous reasons for opting out of school early, but all can be placed under one of three headings: personal, financial or circumstantial. An adult who gains a basic education by attending courses at a village elementary school may find it difficult to take advanced courses if the centre is some distance away especially when transport is unreliable or non-existence. A housewife having all the prerequisite qualifications may be unable to enroll for a degree programme

because a part time course, that would fit in with her family commitments, is unavailable. An adult shift worker may be unable to fit in a 9-5 learning schedule and keep his job at the same time.

A number of theories have been put forward by different researchers. Woodley et al (1987) mentioned the Motivational theory of Houle as having three distinct groups - the first, 'goal-oriented' learners, used learning to gain specific objectives; the second, 'activity-oriented' learners, participated primarily for the sake of the activity itself rather than to develop a skill or learn subject matter; and the third, 'learning-oriented' learners who pursue learning for its own sake. Woodley et al also used Morstain's and Smart's (1987: 3) approach that multiple reasons can exist within the same individual and that motivations change over time. For example, a person may be easily motivated to enroll into a qualifying course because of the opportunity of social mobility upward and another person may not be motivated by it because he is comfortable where he is (because of stable income and the high esteem he holds within his social class), but he may enroll, when his circumstances change, such as, impending job redundancy because of changing skills requirement, or his income may no longer sustain his comfortable lifestyle.

Waniewicz's (1976: 80-83) study on 1,541 adult learners, in Ontario (Canada) between the ages of 18 to 69, classifies them into 9 broad categories: namely, desire to know (as in desire to gain knowledge or learning as a goal in itself); desire to achieve personal goal (as in personal growth, development, or fulfillment); desire to achieve practical personal goals; desire to achieve formal educational goals; desire to satisfy family needs; desire to achieve social goals; desire to escape (using the learning activity as a means to escape from the emptiness of everyday life); desire to socialise; and desire to reach a religious goal. His study shows that 35% of respondents stated personal growth, development, or fulfillment as their reasons for learning and 33% stated employment

requirements, job advancement, financial benefits, status enhancement, etc., and only a small fraction gave desire to know more as their reason.

Woodley et. al. (1987) made a study of 5000 'home' fee-paying students in England and Wales who were starting or continuing a course of a *substantial nature*, provided by an *educational body*, in the academic year 1980-81, and who were aged 21 or over on entry to a course. Students attending any course of a substantial nature were required to attend a minimum length of 2 hours a week for two terms, the main exceptions were day-release and short time courses, where the two-term stipulation was reduced to six weeks. Adults attending in-house or industrial training activities were not included, but students attending the following institutions were:- Colleges of further education and higher education (including polytechnics), universities, the Open University, correspondence colleges, long-term residential colleges, local authority adult education. The study looked at two categories of adult learners - those enrolled in qualifying and non-qualifying courses and showed that students on qualifying courses had predominantly 'instrumental' aims, related to jobs and career paths and the vast majority did not place 'leisurely self-development' as their reason for enrolling. Among non-qualifying students and those in the oldest age bracket, subject and personal development aims became most important. In addition, many students had multiple aims in pursuing courses (1987: 86-104). For example, 21% of respondents' aims were to improve their career prospects, another 17% wanted to use their qualification to change to another type of work, about 10% were hoping to gain advancement in their present type of work and 10% felt that the course would enable them to carry out their present job more effectively (1987: 88). The work of Hartnett et. al. (1974: 42) on smaller samples of subjects from three Universities in the United States also indicates similar trends, where the majority (55%) of respondents gave their reasons for taking qualifying courses as "an opportunity to get ahead" and a large

proportion (48%) indicated "an opportunity to use skills, training." Women differed somewhat in their motivation for studies than men and were likely to be more concerned with personal development or the subject matter itself than men. The studies of Hartnett (1974) and Woodley (1987) also show that certain socioeconomic groups are under represented in continuing education. For example, Woodley stated that the working class was massively under-represented (1987: 71) among mature students and that adult education is largely the preserve of the middle class (1987: 85); the situation is worse for women.

In all the above studies, practical personal goals (as in employment opportunities, financial or status benefits, opportunity for upward mobility, etc.) frequently came top of the list with respondents. Most of them are in the younger age group, for example, between the ages of 18 and 24 in Waniewicz's study (1976: 83). Table 2.1 below shows the main aims of adults in studying analysed by gender and age.

| Table 2.1: Main Aim in Studying Analysed by Gender and Age (%) | | | | | | |
|--|------------|--------------|--------------|--------------|--------------|-----------------|
| | | | | Age | | |
| Reason for taking a course | Men | Women | Total | 21-30 | 31-40 | 40 => |
| Instrumental | 73 | 59 | 67 | 76 | 62 | 42 |
| Self-development | 13 | 20 | 16 | 11 | 20 | 29 |
| Interest on subject | 11 | 17 | 14 | 11 | 15 | 23 |
| Other | 3 | 3 | 4 | 2 | 3 | 6 |
| Data from Distance Education in Asia and the Pacific (Asian Development Bank). p68 | | | | | | |

Studies have shown that better qualified students tend to enroll into continuing education (Hartnett et al, 1974: 53; Waniewicz, 1976: 16; Woodley et al, 1987: 58) Woodley et al (1987: 58), in their studies showed that the qualifications held by a learner at the time of leaving school clearly affected the respondent's destination: the higher the

qualifications, the more likely they are to continue with some form of study. Those with 'A' levels (or equivalent) tend to go for full-time study while those with 'O' levels (or no qualification) tend to go for part-time study.

Some studies indicate that the educational level of women is rising faster than that of men. The job market, however, is very segmented with men predominantly in industry (in production, engineering) and women in the service sectors and, most notably, in the care industry (health professions, caring for small children and aging persons). (Jallade et al, 1989: 45)

2.2.3 Barriers to Adult Learners

A speech given by Mr. Geoffrey Holland, Director of the Manpower Services Commission of adults in Britain, stated that 6 out of 10 of those at work left full time education at the earliest possible leaving age (15 or 16); a large proportion doing so because education had failed them - through a process of examinations designed to secure that 6 out of 10 of any cohort dropped-out of full time education by the age of 16; and the majority of those at work have no happy memories of education, got little from the experience, associate educational institutions and services with failure rather than achievement and have very little interest in, and even poorer expectations of, the world of education and all its works. (Molyneux, Low and Fowler, 1988: 202) Such observations were also made by other researchers, for example, Hooper and Osbone (in Woodley et al, 1987: 5) who described the British education system "as mainly performing a process of selection and status-training for the existing stratification system." They described that the system between 1945 and 1965 performed the functions of selection and rejection, and of providing appropriate job-training and socialisation, for two groups of young people, namely: the mass of early school-leavers (future manual workers), and a small number of

academic high-flyers (the future elite). One group was consistently rejected by the education system and the other consistently selected. Many systems derived from the British educational system, can be similarly described. Such systems, designed around the 'O' and 'A' level examinations are still in existence in a good many former British colonies. Given that a large proportion of adults have a negative experience of school life, the problem presented to the educator is how to encourage them to return to a continuing education environment. Adult education is therefore designed in response to inefficiencies in the system.

Barriers to learning for adults have been studied by Woodley et al (1987: 119-146), Waniewicz (1976: 114-160) and others. Woodley describes the problems in three areas: study and learning difficulties; personal and family difficulties; and distance learning difficulties associated with those taking correspondence courses. Cross (1981) and Ekstrom (in Waniewicz, 1976: 116) describe three types of barriers: situational (as in lack of money, time, childcare, transportation, family support), institutional (as in inconvenient schedules or locations, full-time fees for part-time study, inappropriate courses), and dispositional (as in feeling too old to learn, lacking confidence in one's ability to learn). Frequent barriers mentioned in those studies include: time constraints, such as, the inability to organise adequate study time, or too busy; family commitments; lack of face-to-face tuition and little socialisation with other students; delays in receiving teaching materials and marks/comments for assignments (for the distance/correspondence learners); lack of confidence in their abilities (some felt that their age may have an affect on their ability or memory-capacity to retain what they learn); problem with meeting the cost of their studies; work commitments that place severe restrictions on studies; lack of support services (for example, no counselling and very little information on availability of courses); insufficient prior education. Some post secondary courses, for example, require basic

academic qualifications such as 'O' or 'A' levels or diplomas. Interested adults are prevented from enrolling because in many cases there are inadequate provisions to bring adults, with little or no academic credentials, to a standard that enables them to qualify for higher courses.

It can also be argued that age can be a barrier to learning. As one gets older, the feeling of not being able to study or that it is physically too demanding (e.g. less able to see or hear, less memory retention, forgetfulness, unable to travel, and so forth.) becomes stronger. Some studies suggest that many of the barriers are attitudinal, such as "education is an activity for the young and maybe the early middle-aged," "too old to go back to school" and that adults no longer have a right to state provision beyond the most basic kind (Midwinter, 1982: 10). Many viewed elderly people in retirement as engaged in non educational activities, idling away in the garden, in holiday resorts or in retirement homes. Elderly people do take up education, but the numbers are few; they are those who are, socially and academically, predisposed to do so (1982: 19-21). In most cases, they have sound previous educational experience and good qualifications, retired in relative comfort, with all the paraphernalia of cars, telephones and so on which makes the take-up of education that much less difficult.

Adults in retirement can still lead active and healthy lives, especially in our modern day and age when the average life span is expected to be longer. In some countries, mandatory retirement age for men can be as low as 55 years and 50 years for women. They can continue to lead productive lives for a further 15 to 20 years or even longer. There are examples of notable figures, who lead very productive lives into their late years, such as George Bernard Shaw, who wrote several plays in his nineties (Selkoe, 1992: 135).

Bromley (in Midwinter, 1982: 50) in his study indicated that on average, an individual's intellectual peak is reached at the age of about 20, after which mental abilities began a gradual decline. This seems to suggest that a person's intelligence is directly linked to his or her physiological conditions: that the "bodily decline after the summit of growth is the sole and deliberating agent of change" (Midwinter, 1982: 50). The conventional notion that aging and memory decline is increasingly being challenged by American psychologists (1982: 56). A study, for example, of the creative output of scholars, scientists and artists, all of whom lived to 79 or more, showed that they continued to be more productive even after reaching the seventies (1982: 51). More recent studies suggest that peak intellectual performances seem to occur in middle-age (1982: 54). The study of E. L. Thorndike (in Kidd, 1959: 80) at Columbia University indicated that individuals are capable of learning at the same rate up to the age of 45 years old. There is no correlation between age and learning ability; that the performance of individuals on the intelligence test depends on their previous schooling, speed, vocabulary and attitude to learning (Kidd, 1959: 82).

Midwinter (1982: 57) suggested that differences in performance between age groups in standard intelligence tests can be attributed to social and cultural factors. The study of Schaie and Associates (Midwinter, 1982: 52-53) indicated that successive generations are becoming intellectually more able, and that mental ability in adult life follows an uneven course, sometimes regressing and sometimes improving. The relationship between age and mental abilities is very small and that the differences in performance between age groups in standard intelligence tests can be attributed to social and cultural factors. For example, those in the 70s group had a different upbringing to those in the 20s: those in the 20s may "have benefited from a more well thought out, stimulating approach, especially to early schooling that is somewhat removed from the

acid rote learning that was the fashion when our 70 year-olds were at school" (1982: 57-58). Much has changed between the lifestyles of the two groups, such as, the size of families, child rearing practices, health, nutrition and the way they are stimulated in early childhood (by easy access to television, computers, paperback books, and so forth). The 20 year-olds had considerably more formal schooling than had the 60 years-olds (Kidd, 1959: 79). Few longitudinal studies of individuals at different stages of their lives; with individuals tested again and again as they grow older, were made of intellectual development in humans (Kidd, 1959: 76). Most healthy elderly people score about as well as young or middle-aged adults on tests of mental performance, if they are given enough time and an environment that keeps anxiety at bay (Selkoe, 1992: 139). However, they tend to perform less well as the task becomes more complex. As we age, we can learn and remember nearly as well as in early life but may not learn and remember as rapidly during healthy late life.

Older learners have a slower rate of learning than those in the 20-25 year group, that may be due to visual acuity, auditory acuity, reaction time, increased fear of failure and different learning attitude (Irving Lorge, in Kidd, 1959: 84), but other abilities improve with age, such as verbal fluency (Boucoulalas and Krupp, 1989: 190; Kidd, 1959: 83), vocabulary (Kidd, 1959: 87) and intellectual power which remains more or less constant from 20 to 60 years old (1959: 84).

There are many methodological difficulties associated with the study of older learners in real life. Many studies of age-related decline in humans are carried out in psychologists' laboratories (Midwinter, 1982: 53). Midwinter (1982: 52) and Kidd (1959: 77) pointed out that many of the studies on elderly people's mental abilities have been carried out with residents of long-stay institutions who by definition are the least fit of their generations. Earlier tests carried out on adults were devised to measure the abilities

of children, and there is no proof that the technique has equal validity across all age groups (Kidd, 1959:78).

Development of any educational system that promotes more adults to lifelong learning should therefore take into consideration the problems and barriers faced. Although adult education is experiencing rapid growth, particularly in industrialised countries, in many cases the resources available are only a small fraction of the total education budget.

2.3 A Flexible Learning System For Adults.

In Verduin's model, institutions are established to serve the well-being of society. A learning system is also embedded in that organisation and as society's needs change, the learning system should be flexible to meet the changing needs of its adult members.

To cope with the huge diversity of needs, goals, and interests of adults as well as agencies and organisations involved in continued learning, various learning designs or models have been developed. These models, in general termed formal, non-formal, and informal, can cover the needed learning experiences for adults.

Needs, goals, and interests of adults change with time and place. The needs and interests of adults today are unlikely to be the same as the needs of adults living a century ago; the needs, goals and interests of adults in one country may not necessary be the same as those living in another country. Lengrad (1989: 8) stated, "Education should systematically inculcate in each individual the idea that beliefs, convictions, ideologies, habits, and customs are not universal patterns or rules applicable for all time and in any civilisation or way of life."

An ideal learning system for adult should have the following characteristics:

- It is organised around the theme that learning is a lifelong process;

- It is able to guide a student by eliciting, interpreting and analysing goals at the beginning point and throughout the learner's contact with the programme of instruction.
- It can formulate learning objectives in such a way that they serve as the basis for making decisions in instructional design, including evaluation, and in such a way that they will be fully known to be accepted by or capable of modification by students. A wide range of educational opportunities are provided including general interest programs, non-credit courses, formal credit courses leading to certificates or diplomas in technical and vocational training, and undergraduate and graduate university degrees.
- It is able to facilitate the participation of learners without imposing traditional academic entry requirements, without the pursuit of an academic degree or other certification as the exclusive reward.
- It provides the flexibility required to satisfy a variety of individual needs, the system should make it operationally possible to employ modern technology as options for mediating learning experiences.
- It uses testing and evaluation principally to diagnose and analyse the extent to which specified learning objectives have been accomplished. In other words, the system should be competence-based.
- It can accommodate distance between the instructional staff resources and the learner, employing the distance as a positive element in the development of independence in learning. It provides self-paced learning rather than time-imposed learning; learner-centered rather than institution-centered and uses a variety of teaching and learning strategies.

- It does not pose unnecessary barriers for access to disadvantaged adults who, for various reasons, do not take advantage of continuing education. It removes many of the barriers to learning (for example, pre qualification, examination before entry, quotas, etc.) and builds on existing skills and knowledge.
- It actively seeks to encourage adults to return to a learning environment.
- It is capable of working collaboratively with other institutions, as opposed to competitively, in areas such as program planning, transferability of skills and knowledge, and joint teaching of courses, including the sharing of instructional materials.
- Courses are affordable to adult learners.
- It has a strong student support system.
- It provides equal opportunity for the geographically disadvantaged (between urban and rural learners)

CHAPTER 3

THE OPEN LEARNING SYSTEM

Synthesis of this Chapter

This chapter examines the concept of open learning, determines its suitability in meeting adult learning needs and matches it to the characteristics of the flexible learning system generated in chapter two. This chapter is not intended to provide a detailed study of open learning or its system, but to identify key areas that are important when developing a similar learning system in Brunei Darussalam. The chapter is divided into nine parts. Part I describes open learning and systems that support open learning. Part II provides a brief historical background of open learning. Part III examines a number of technologies that are used in open learning. Part IV describes trends in open learning. Part V examines current practices in open learning, in course design and development; production and distribution; and student support services. Part VI describes the limitations of open learning. Part VII describes some open learning models. Part VIII examines the cost of open learning systems. The chapter concludes in part IX by describing open learning as meeting the general needs of adults.

3.1 Introduction

Open learning means many different things to different people. It is a difficult term to define and various researchers have different interpretations of open learning. Open learning is closely associated with distance learning and most researchers avoided making clear cut distinctions between open learning and distance education. To some it is synonymous with distance learning and correspondence courses (Daniel, 1989: 49). However there are subtle differences between open and distance learning. Distance learning is a form (sub-category) of open learning. For example, the Open Learning

Agency looks at open learning as an educational policy and distance education describes a means by which instruction is offered (1991: 5). Distance education simply means forms of instruction that rely heavily on ways of communication at a distance (Daniel, 1989: 49) but not all open learnings are distance learning. Open learning can occur with instruction that relies mainly on face-to-face communication (Race, 1989: 14). Distance, in this context, can be interpreted as the separation between instructor and learner. The learner is not necessarily some great distance away from the instructor. Both instructor and learner can be within an urban setting, do not often come face-to-face, but are accessible to each other (by phone, fax, teleconferencing and audioconferencing).

The general theme of an open learning system, as described by most researchers, is "accessibility" (Lewis, 1989: 90; Race, 1989: 14; Paul, 1990: 46), and "openness" (Lewis and Spencer, 1986; Daniel, 1989: 49). A number of studies (Paine, 1989; Race, 1989; Paul, 1990; Lewis and Spencer, 1986; Thorpe and Grugeon, 1987) describe open learning according to the following main characteristics: (1) accessibility, (2) control, (3) choice, and (4) accreditation. The Commonwealth Summary Report (Coffey et al, 1988:5) describes "open learning" as an attitude; designed to make education and training available to learners in forms, at times and in places such that they can take advantage of it.

Assessibility describes the commitment to helping students, especially working adults, to overcome traditional barriers to post secondary education, such as: open admission; finding ways for them to study in their own time; providing access to those located in communities not otherwise served by formal educational institutions (including providing printed study materials prepared especially for home studies with the support of a variety of media and services, including tutoring by correspondence, telephone or teleconferencing, and using such information technologies as computer-assisted learning, interactive video-disc and satellite television); opportunities for study without leaving their

jobs; affordable study materials; catering for a wide range of population strata, including the lower socioeconomic strata, aboriginal groups, dropouts, prison inmates, and so forth (Paul, 1990: 46; Lewis and Spencer, 1986: 121; Race, 1989: 14; Lewis, 1989: 90).

Flexibility describes the frequent admission periods; allowing students to studying at their own pace; and providing a broad range of student-support services, including tutoring, counseling and advising (Paul, 1990: 48; Lewis and Spencer, 1986: 121).

Control refers to the learners' control over content and structure (Race, 1989: 14; Paul, 1990: 48; Lewis, 1989: 90). The learner is able to negotiate what he or she wishes to learn on an individual basis. The student is able to decide the order in which a number of topics are approached, and how he or she is to be assessed.

Choice refers to the learners' choice of delivery system (Race, 1989: 14, Paul, 1990: 49, Thorpe and Grugeon, 1987: 1) and the learning process most appropriate to his or her individual requirements.

Accreditation describes the credit transfer system that allows for the recognition of courses accredited by other institutions for transfer credit; and provision for "experimental learning," the granting of credit on the basis of an assessment of the individual's life experiences (Paul, 1990: 49).

Open learning is seen to provide greater access to education and training for a larger population group irrespective of age and circumstances. Open learning systems are designed to offer opportunities for part-time study, for learning at a distance and for innovations in the curriculum. They are intended to allow access to wider sections of the adult population, to enable students to compensate for lost opportunities or to acquire new skills and qualifications for the future. The underlying principle in open learning is to expand the freedom of learners by removing many of the traditional barriers to learning, such as prerequisites, credit transfer, time, and distance. Any educational or training

scheme that systematically removes one or more barriers to learning can be regarded as open learning and that an open learning system, that incorporates the widest range of teaching strategies (such as independent and individualised learning), is one in which the restrictions placed on students are under constant review and removed wherever possible (Jeffries et al, 1990: iii). The task of the open learning developer, therefore, is to identify the barriers which stand in the way of potential students and to work to remove them. Open Learning systems aim to redress social or educational inequality and to offer opportunities not provided by conventional colleges and universities (Thorpe and Grugeon 1987: 11).

Open learning become an umbrella term covering a wide diversity of courses and programmes, institutions and philosophies (Thorpe & Grugeon, 1987: 2; Gross, 1979: 3). From the various definitions, one can draw the conclusion that open learning is a flexible system that includes distance learning and learning by correspondence. Therefore, references to correspondence courses and distance learning are not deemed inappropriate for mention in this paper. However, the use of distance learning as examples in this article does not imply that distance and open learning are one and the same thing.

MacKenzie et al (1975: 16) describe open learning systems as follows:

- The system must guide a student by eliciting, interpreting and analysing goals at the beginning point and throughout the student's contact with the programme of instruction.
- The system must formulate learning objectives in such a way that they serve as the basis for making decisions in instructional design, including evaluation, and in such a way that they will be fully known to, accepted by or capable of modification by students.

- The system must facilitate the participation of learners without imposing traditional academic entry requirements, without the pursuit of an academic degree or other certification as the exclusive reward.
- To provide the flexibility required to satisfied a variety of individual needs, the system should make it operationally possible to employ sound, television, film and print as options for mediating learning experiences.
- The system should use testing and evaluation principally to diagnose and analyse the extent to which specified learning objectives have been accomplished. In other words, the system should be competence-based.
- The system must be able to accommodate distance between the instructional staff resources and the learner, employing the distance as a positive element in the development of independence in learning.

Lewis and Spencer (1986) describe open learning as an open-closed learning continuum. This model combines many of the characteristics described by other researchers. The continuum is able to articulate between elements within a construct. The model shows the flexibility of various elements within open systems. The ability of each element to move from one end of the continuum to the other indicates that the system is able to fit the ever changing needs of learners. Figure 3.1 below illustrates Lewis's and Spencer's open-closed continuum model.

| Figure 3.1: The open-closed learning continuum | | |
|--|---|--|
| Basic Question | Aspects | |
| | Closed <===== | =====> Open |
| Who? | Scheme open to selected groups only | Scheme open to all |
| | Set entry requirements, e.g. traditional exam success | Self-assessment and diagnostic facilities |
| | Scheme not marketed | Extensive publicity, regular updated information |
| Why? | Choice made by others, e.g. tutor, employer | Learner choice |
| | No counseling or guidance | Pre-entry counseling |

| | | |
|--|---|---|
| What | Entire syllabus set out in advance, e.g. by validating body; no choice possible within it | Learner formulates own objectives and syllabus |
| | Limited to materials the tutor has produced | Uses wide range of materials drawn from many sources |
| | Whole course must be taken | Content tailored to need: individual learners can take different modules |
| | No guidance on selection of content | Guidance on selection of content |
| | Knowledge, facts, 'academic' | Experience, practice, feeling, attitude |
| | No recognition of past experience | Credit given for past experience |
| How? | Only one method/style provided for; little variation in learner activity | Choice of learning method/style: varied activities |
| | One route only through material | Choice of routs through material |
| | Package in one medium only | Package uses variety of media |
| Where? | One place only (e.g. at work) | Learner chooses place (e.g. home, work, while traveling) |
| | Regular fixed attendance required | Learner can attend, or not - as desired |
| | Practical work requires fixed timetable | Learner work offered through kits and/or drop-in access and/or place of work itself |
| When? | Fixed starting date(s) | Start any time |
| | Learner placed by a fixed timetable | Learner decides place of work |
| | Fixed ending | End at any time |
| How is the learner doing? | Externally mixed method of assessment e.g. formal exam | Variety of assessment methods; learner choice of assessment method; learner constructs method of assessment |
| | Normative assessment | Criteria/competency based assessment |
| | No feedback on performance | Frequent, full, ongoing feedback on performance, available as desired |
| | Assessment dates fixed and non-negotiable | Learner decides when to be assessed |
| | Assessment available only for whole course | Assessment available for each module |
| Who can help the learner? | No support outside course/package | Variety of possible kinds of support (e.g. advice, guidance, counseling) |
| | Only professional supporters (e.g. teachers) encouraged | Non-professional, as well as professional supporters; informal as well as formal support encourage (e.g. mentor, family, friends) |
| | Support available only in one place, e.g. training centre | Support available in many places |
| | Support available in one mode only, e.g. face-to-face | Support available in a variety of modes, e.g. letter, telephone, face-to-face |
| What does it leads to? | One destination | Various possible destinations |
| from Roger Lewis & Doug Spencer. Open Learning Guide: What is Open Learning. (London. Council for Educational Technology. 1986) p39-42 | | |

Lewis suggests that the number of basic questions can be increased or reduced to describe a scheme or to expand and reduce the number of aspects of each question. Figure 3.2 below shows the stages of openness within an aspect. An institution may adopt a combination of openness, for example, stage 3 for entry requirement to a programme, stage 4 for attendance, stage 2 for starting date, and stage 1 for assessment methods.

Figure 3.2: Lewis's Open-Closed Continuum - openness within an aspect

| Aspects | Closed <===== > Open | | | |
|----------------------|---|--|--|---|
| | Stage 1 | stage 2 | stage 3 | stage 4 |
| Entry qualifications | Rigid Pattern of formal qualifications | Variety of formal qualifications acceptable | Demonstration of competence; experience considered instead of/as well as formal qualifications | Scheme open to all; no entry requirements |
| Attendance | Regular attendance required on set dates | Regular attendance but dates negotiable | Attendance but minimal/frequent/at learner's convenience | No attendance required |
| Starting date | Fixed annual starting date | Limited number of starting dates | Wide choice of starting dates | Start any time |
| Assessment methods | Externally fixed method of assessment; no negotiation | Some choice available as to method but only in special cases | Learner chooses between wide range of assessment activity | Learner constructs methods of demonstrating competence. |
| | | | | |

Paul (1990: 40) stated that in practice, no educational institution is completely open, for an institution on the absolute open end on all dimensions of a closed-open continuum would not be an institution at all and that "none of our institutions represents a truly open learning environment. Every one of them is compromised in one way or another; some by intention but most by the inevitable conservatism and bureaucratization of function that characterize all universities" (1990: 45).

Each open learning system has its own unique set of characteristics, which are based on the environment and the circumstances and needs of client groups that each system serves. For example, the Open Learning Agency of British Columbia handbook (1991) provides a description of its open learning philosophy within the British Columbia context.

It has many common points raised by previously mentioned researchers. It defines open learning as having the following general characteristics and principles (1991: 4):

- it is organised around the scheme that learning is a lifelong process;
- it builds on existing skills and knowledge;
- it removes many of the barriers to learning (for example, pre qualification, examination before entry, quotas, etc.);
- is learner-centered rather than institution-centered;
- uses a variety of teaching and learning strategies;
- it provides an opportunity for institutions to work collaboratively, as opposed to competitively, in areas such as program planning, transferability of skills and knowledge, and joint teaching of courses, including the sharing of instructional materials;
- offers a wide range of educational opportunities including general interest programs, non-credit courses, formal credit courses leading to certificates or diplomas in technical and vocational training, and undergraduate and graduate university degrees; and
- it uses a variety of means to deliver self-study learning materials at a distance, supported by tutoring supplied in a variety of ways including telephone, teleconferencing, computer conferencing, live interactive television, or face-to-face, in local or regional centers.

Open learning can help the following groups of people (Race, 1989: 29):

1. The *high fliers*. This group, otherwise bored with the slower paced traditional classroom setting, is able to work through open learning components at their own faster rate.
2. The *low fliers* would gain by being able to spend extra time while working through and often necessary repeating open learning modules to bring themselves up to the same level as the rest of the group, which is more convenient than repeating a lecture.

3. The *absent learners* are people who have missed lectures through sickness or other circumstances. They may find it difficult to catch up and feel that copying down a colleague's lecture notes is a poor substitute for being present at a good lecture. Where an open learning module is being used, it is perfectly possible to catch up on it later.
4. The *learners weak in language skills* normally find it difficult to follow the pace of a lecture because they spend much of their energy making sense of the words themselves, with little else left to begin making sense of the ideas and concepts being taught. Self study modules allow them the extra time needed to master the meaning of words (for example, the time to refer to dictionaries). These learners may hold back the progress of the lecture by interrupting frequently to ask questions.
5. *Turned-off students*. Learners who do not like the formal teaching system may be more comfortable learning independently and at their own pace.
6. The *over anxious learners* are those who are most hurt or embarrassed by being seen in a group to have got something wrong, for example giving a wrong answer or not being able to answer a question. In an open learning module, mistakes are made in private or only in the presence of the tutor (as in one on one) without the audience of other colleagues.

There are limitations to some aspects of open learning, for example, not all mature vocational students can be readily given large measures of independence and work without direct supervision for considerable periods of time; courses requiring human interaction cannot be achieved in isolation; and most laboratory work or craft skills requiring practice with tools and machines (can be expensive or dangerous) usually warrants continuous supervision (Spencer, 1980: 22).

3.2 Historical Perspective of Open Learning

Open learning is not an idea conceived in the last two or three decades, though it is only in recent years that we have seen accelerated development of open learning systems worldwide. Most developed and developing countries have some form of open learning system in place. The earliest form of open learning was the correspondence course. The first documented case of correspondence education occurred in Boston in 1728 (Garrison, 1989: 223). It became popular in both Europe (Verner, 1964: 70) and North America (Garrison, 1989: 223) in the second half of the 19th Century. In 1878, a home reading circle started with the Chautauqua movement and was the first significant distance education effort in North America (1989: 223).

In Canada, the first prominent adult open learning system was the Antigonish Movement, initiated in 1935 (Rothe, 1986: 6). There are currently three educational institutions in Canada dedicated primarily to post-secondary open learning or distance education: The Open Learning Agency in British Columbia, Athabasca University in Alberta and Tele-universite in Quebec. Open learning, mainly in the form of distance education, began in 1889, with credit correspondence courses in professional upgrading for teachers at Queen's University in Kingston, Ontario (Croft, 1988: 101; Rothe, 1986: 6). The programme of correspondence courses, which, in conjunction with its summer school, permitted adult students - mainly teachers - to earn a degree. Other groups of professionals, including accountants, were eventually catered for by an open learning system. In 1935, the Canadian Broadcasting Corporation, the Canadian Federation of Agriculture and the Canadian Association for Adult Education jointly initiated the first prominent Canadian mediated adult open learning system - the Antigonish Movement (Rothe, 1986: 6). The movement's programme, based on forums or discussion-listening groups, included educational broadcasts, study clubs, regional organisers and printed

materials (1986:6). Today over 40 post-secondary institutions offer distance education programmes (Croft, 1988: 102). Various initiatives, to enhance the learning experience of distance learners, were taken by a number of provincial governments, including the use of print, audio and video-cassettes, teleconferencing, and radio; and the creation of dedicated television broadcasting, such as TVOntario, the Knowledge Network in British Columbia and the Tele-Universite (Croft, 1988: 101-106; Rothe, 1986: 11-12 and 22).

In Britain, correspondence study has been in existence since the second half of the 19th Century. It was the only formal system of teaching and learning that enabled learners, wherever they were, and whatever their conditions, to overcome the formidable barriers of space, time, social place, and economic status in the pursuit of learning (Paul, 1990: 46-47). In 1849 the University of London established syllabuses and examination procedures for external students and in 1958 set up statutes to allow students to register from anywhere in the world. A number of correspondence colleges, offering distance teaching to people seeking a 'second chance', were established by private individuals and at the height of their popularity, it was estimated that about 350,000 students per year enrolled in correspondence college courses (Coffey, 1988: 236).

The standard of correspondence education was generally low and there was criticism that a number of colleges were guilty of excessive commercialism. This led to a fall in the credibility of correspondence courses. There were attempts to control and raise the standard of correspondence colleges with, the introduction of a Council of the Accreditation of Correspondence Colleges, and using linked correspondence and broadcast courses, such as, those provided by the National Extension College, in collaboration with Anglia Television in the early 1960's.

The establishment of the Open University marked a significant milestone in the development of open learning. The idea of the Open University was conceived by Harold

Wilson, former Labour Prime Minister of Britain, although his original proposal was for a University of the Air (Holloway, 1979: 4; Scupham, 1975: 326). In 1964, he appointed Jennie Lee as Minister of Art, with responsibility for the University of the Air. In taking over Harold Wilson's ideas, she added two principles which she never departed from. First, it was to be a university in the fullest sense of the word: independent, autonomous, awarding its own degrees of comparable standard to any others. Secondly, it was to be open to all, without any entrance qualification (Holloway, 1979: 4).

The Open University (OU) was established in 1969 and the first batch of students enrolled in 1971. It provided a benchmark for others to follow. From the onset it had a commitment to high standards of course design and production using a wide range of media including broadcasting. An Institute of Educational Technology was also established to ensure standards of presentation. The OU has a significant effect on standards of other institutions. The high standard set by the OU has resulted in a growing acceptance of open or distance learning, as a credible educational alternative to traditional education, among governments, employers, academics and people in search of educational opportunities. As the trend setter in open and distance learning, the OU was used as a model by other countries in developing their own open institutions.

The OU is further described as follows (Hartnett & Associate, 1974: 19):

- It was granted a royal charter and offers accredited degrees for part-time students.
- It offers courses in humanities, mathematics, science, social science and technology.
- It takes in students that are over 18 years old (originally 21 years old).
- It has no formal academic requirements.
- It admits students on a first-come, first-served basis. However it also has quotas for course choice, occupation, and geographical region.

- Academic calendar runs from January - November, with summer break, and a three month provisional registration period.
- Students are charged a nominal tuition fee per course.
- The appointment of professionally qualified persons on a part-time basis as class tutors, correspondence tutors, markers and counselors in regional centres.
- Smaller centres with only counsellors usually hire rooms from local educational institutions and open 3 to 4 evenings a week and sometimes on Saturday. Activities in these centres include study, discussion, face-to-face instruction; review of TV and radio programmes, social gatherings; counselling, remedial assistance, lectures, and seminars.
- It employs TV and radio and broadcasts nationwide. It employs a wide variety of teaching materials in an integrated blend, which makes it unique, such as correspondence texts, broadcast and study notes, assignments, self-test questions, home-experimental kits, audio-visual aids, computer practice, tutoring, counseling, face-to-face and summer schools.
- It issues science kits for home use to students.
- It employs extensive computer-marked assignments, but some assignments are tutor marked.
- There is a compulsory summer one-week intensive residence program in a university setting.

Although no formal entry qualifications are required, the Open University requires that students assess themselves as to their capacities against the demands of the courses (MacKenzie et al, 1975: 344). The University provides informative guides, such as, the Guide for Applicants, and counseling for students to ensure that they are equipped for study at the required level. Those who are not quite ready are advised to take preparatory

studies first. New students are taken in on a three month probationary period. In general, about 25% of the students drop-out within the probationary period.

Academic standards are also being maintained by the British Open University. Studies have shown that there is no evidence to suggest that the final academic standard of its degree is any different to that of other conventional universities in the United Kingdom. For example, a study comparing the performance of Open University students and conventional UK university students taking economic courses showed that:

- the Open University students scored similarly to students in the conventional universities in macroeconomics, and
- the third year Open University students performed significantly better than third year conventional university students

The broadening of education for both Britain and Canada serves different purposes. For example, in Britain, initially, the motivation to provide access to education for adults had been political and ideological and in North America largely economic. In Canada, because of its geographical size, one of the problems has always been the access to learning institutions for the inhabitants living in remote regions, irrespective of age, race and social status. Canadian technological research and development in distance education services outstrip that of most other nations (Shobe, 1986: 215).

In Britain, the privileged class in the past has always had greater access to education, especially to higher education. Therefore, open learning is a means of providing access to the growing needs of the working class. Albert Mansbridge, a clerk in the Cooperative Wholesale Society, representing the Worker's Educational Association, presented a speech to a joint committee of workers and Oxford professors in 1907 calling

for Universities to provide more systematic and sustained courses for the adult learners (Campbell, 1984: 6):

What is the true function of a University? Is it to train the nation's best men, or to sell its gifts to the rich? Instead of recruiting her students from the widest possible area, she has restricted her area of selection to the fortunate few. They came to her not for intellectual training, but for veneration. Not only are work-people deprived of the right of access to that which belongs to no class or caste, the accumulated knowledge and experience of the race, but Oxford itself misses her true mission, while the nation and the race lose the services of its best men...if Oxford continues to stand apart from the workpeople, then she will ultimately be remembered, not for what she is but for what she has been.

Although an institution is established with the best intention of providing the widest possible access for the general population, often, the cost of tuition charged determines the type of students that can afford to enroll in open learning courses. For example a study by Hartnett et. al. (1974: 46) of three open universities in the United States, showed that a disproportionate number of students came from high-status occupations and from the well-educated strata of the population, and, in many cases, came from relatively affluent families.

The British Open University has the advantage of economy-of-scale, and with the population concentrated mainly in the urban areas makes easier communications between learners and institutions. The OU serves a large population base of around 60 million. Education in Canada is a provincial responsibility and therefore universities were established and mainly funded by each provincial government. The Canadian universities have a provincial mandate and serve a smaller population base (the population of Canada is about 25 million with 3.5 million from British Columbia). However, the percentage of the population enrolled in open/distance learning programmes is much higher in Canada than in Britain (0.56% vs 0.24% in 1985) (Coffey et al, 1988: 18). Nationally, the total

number of students enrolled in open learning/distance learning courses totaled 141,172 persons in Canada compared to 136,408 persons in the United Kingdom (1988: 18). The open/distance learning students in Canada came from a large geographical area and enrolled in a wide variety of provincial institutions. Whereas, in Britain the bulk (126,756 students) are enrolled in the Open University (1988: 27).

Despite the increasing importance of technology in present day open learning systems, particularly so in distance learning, the commonest form of learning is still in print form. In developing and third world countries, where computers, telephones and televisions are still considered luxuries, print and mail are the only modes of communication used in open learning.

In 1984, the provincial government of British Columbia created the Open University Consortium that included the three provincial universities, the Knowledge Network of the West (KNOW) and the Open Learning Institute. The Consortium makes it possible for learners to combine classroom-based and home-study courses from member institutions in order to obtain a recognised university degree through the Open Learning Institute (OLI). In 1988, the OLI and Knowledge Network merged to form the Open Learning Agency (OLA). The Agency operates with the philosophy that learning is a lifelong process. It is learner-centered rather than institution-centered, builds on existing skills and knowledge, and uses a variety of teaching and learning strategies. The OLA, beside developing and providing distance learning courses, also acts as a coordinating agent for distance education in the province. The Agency also set up an Educational Credit Bank in 1989. This enables British Columbia residents to obtain a qualification (certificate, diploma or degree) by accumulating transferable course credits earned from other accredited educational institutions. Students are also able to gain credit for non-formal learning, such as workshops, industry-based training and on-the-job experience. Through its

collaboration with the provincial universities, students can register through the OLA for distance education courses at any one of the three provincial universities (The University of British Columbia, University of Victoria and Simon Fraser University). Knowledge Network provides programme broadcasts that support many of the distance education courses offered by the three universities.

Although Canada has a long history of open and distance learning development, students in many parts find it very difficult to obtain a coherent degree by distance education in the subjects of their choice. For example, the numbers of students who graduated entirely 'at a distance' in British Columbia amounts to only a handful, compared with the 85,000 graduates of the British Open University (Bates, 1989: 135). The bulk of distance learning programmes in Canadian institutions are in the areas of social sciences and humanities, with few in maths/sciences and technology (due to difficulty of laboratory work) and at Masters' level (Croft, 1988: 106). This was also true in the early days of the British Open University. The Open Tech programme in Britain, developed through the Manpower Services Commission, is mostly technology based (Temple, 1989: 120). Science courses tend to be more expensive and difficult to run than humanities or social sciences. In the American open universities, home science kits are not allowed and students have to travel to learning centres for practical lessons, which takes away the learners' independence of choice. The British Government has provided special funding to the Open University to assist in reversing this. Around 1980, 47% of students registered for maths/science/technology courses; in 1987 the figure was 49% and by the late 1980s the majority of students were admitted into science-based courses (Molyneux et al, 1988: 273).

3.3 Use of Technology in Open Learning Systems

This section is intended to provide a brief overview of the technology used in education, particularly where it can play a significant role in adult learning. Technology is increasingly used in education in most industrialised countries. Present trends in the use of technology in education point toward more "electronic campuses". Technology can offer tremendous advantages in many learning systems, particularly for the adult distance learner. For example, the media used in open learning systems includes audio-cassettes, video-cassettes, inter-active video-disc, cable TV, satellite TV, pre-programmed computer-based learning, computer-based communications (electronic mail, computer conferencing, access to remote databases). In any learning system, all educational media must be chosen and integrated carefully, in an educationally functional and above all systematic way. The most popular forms of media used today are the text, audio, television and computing. Each form of media mentioned is a technology itself and subject to considerable technological change.

Print-based media are the most widely used in education and probably considered as the most effective means of teaching at a distance (Bates, 1992: 3; Taylor, 1987: 181). It is hard to imagine that the print can ever be completely replaced by other mediums of learning, yet alone it is seldom seen as completely desirable (George et. al., 1989: 17). In combination with other media it can become a powerful teaching tool. The mere use of print and broadcast media, for example, does not mean that they can be utilised effectively for educational purposes (Rumble, 1986: 11). The learners need to be capable of studying independently and to understand how best to use these media for learning.

In a formal setting, the two-way nature of the communication process is essential (George et. al., 1989: 1). For example, in a classroom, there is a certain amount of two way communication, an essential ingredient in learning, involved between teacher and

students. Most electronic communication systems are one-way, with the exception of correspondence by post (slow response time), telephone (instantaneous), two-way radio (instantaneous), and electronic mail, but in combination with other technologies can lead to two-way communication. Rumble (1986: 12) states that two-way communication between the individual student and tutor is an essential component of a distance education system. Students may communicate with their mentors in writing, by electronic mail, fax, by telephone and two-way radio, or in individual face-to-face meeting. This underlines the multiplicity of combinations of media that can facilitate educational communication between instructors and learners.

An increasing number of institutions, however, are using combinations of the four media. The main reasons for the increasing use of technology in open learning systems, particularly in distance learning are as follows (Bates, 1992: 3):

- A much wider range of technology is becoming available to learners;
- The cost of technological delivery is dropping dramatically;
- The technology is becoming more "user-friendly";
- Technology is becoming affordable to more learners; and
- Technology is becoming a more powerful teaching tool (pedagogically).

Bates (1992) describes the relationship between media, technology and distance education applications of technology. He refers to media as the "generic forms of communication associated with particular ways of representing knowledge. Each medium not only has its own unique way of presenting knowledge, but also of organising it, often reflected in particular preferred formats or styles of presentation." Table 3.1 below illustrates the relationship.

Table 3.1: Relationship between media, technology and distance education applications of technology

| Media | Technologies | Distance education applications |
|---------------------------|---|---|
| text (including graphics) | print computers | course units; supplementary materials; correspondence tutoring; data-bases; electronic publishing. |
| audio | cassettes, radio; telephone | programmes; telephone tutoring; audio-conferencing. |
| television | broadcasting, video-cassettes, video-discs; cable, satellite, fibre-optics, ITFS, micromave | programmes; lectures; video-conferencing |
| computing | computers telephone, satellite, fibre-optics, ISDN, CD-ROM, video-disc | computer-aided learning (CAI, CBT); E-mail, computer-conferencing, audio-graphics; databases, multi-media |

Bates, A.W. *Theory and Practice in the Use of Technology in Distance Education*. 1992 (In press) In: Keegan, D. (ed) *Theoretical Underpinnings of Education at a Distance*. London: Routledge

The advantages of the use of technology in education are (Paul, 1990: 121):

- increase productivity;
- increase efficiency;
- innovation and product leadership;
- better quality of service;
- better decision-making;
- better management and coordination;
- better staff development and training

However, not all technologies can be appropriately applied in every situation of the open learning systems. Bates (Delivery and New Technology, 1989: 302) suggested several factors that need to be considered:

- the provision of better access, and location of learners;
- the cost effectiveness of the technology used, including production cost in relation to the numbers of students and trainees;

- teaching needs, including the kind of education and skills required;
- the make-up of the media and how they can encourage active learning, and
- the organisational framework in which technology will be introduced for open-learning purposes.

For example, it would be inappropriate to introduce media such as television broadcasts and learning by computer when the vast majority of the population does not have access to a television set and only an elite few own computers.

Rumble's (in Taylor, 1987: 181) studies of students in South America demonstrated that they spent nearly 70 per cent of their study time using print materials that accounted for 20 per cent of the course cost. However, students spent only four percent of their study time on broadcast that accounted for over 60 per cent of the total teaching costs (1987: 181).

Gastkemper (1990: 165) suggested that the following six factors need to be considered when making media choice:

- the intended teaching situation;
- the objectives of learning;
- characteristics of the target learners;
- events of instruction as needed;
- attributes of media as needed;
- practical aspects, including cost.

Bates (1992: 15) proposed four hypotheses that emphasised the special roles of different media in learning: (1) The need for multiple forms of experience, (2) Media are "neutral" regarding content, but specific regarding skills, (3) Media can be matched to appropriate conceptual models of thinking and (4) Learners need to interact both with the

learning material, and with tutors or instructors, and other students, in order to learn effectively. The hypotheses are explained as follows:

Hypothesis #1: To understand a concept completely it has to be experienced in a number of different ways; it may have to be presented through different media. Our understanding of a concept, such as cold, can be through experience (touching a block of ice), through word ('that is cold'), or numbers (minus 20 degrees centigrade). The process of learning is associated with the physical experience, by abstract definition ("a form of energy arising from random movement of molecules of matters"), or through symbolism (a person struggling through the Arctic region).

Hypothesis #2: Full understanding only comes as a result of learners developing skills in using or working on concepts. Learning involves two definite features: (1) acquiring knowledge of facts, principles, ideas, concepts, events, relationships, rules and laws; (2) utilising or working on that knowledge to develop skill. Media vary in their suitability for developing certain specific intellectual, social or operational skills. Different media should be used for different skills in using concepts (1992: 15). Some studies suggest that the television (zooms, camera movement, and so forth) could facilitate the development of perceptual skills (identification of foreground from background, story sequencing, and so on) in young children (1992: 18) but it is considered less effective for achieving detailed or deep comprehension than print or other permanent media (1992: 17).

Hypothesis #3: Certain media can match some of the ways learners need to think about subject matter. Bates talks of "isomorphism" between the use of a particular medium and the way a learner needs to think about that subject

matter (1992: 15). Certain ways of thinking about subject matter can best be represented through one specific medium rather than others, and this facility can help unblock certain conceptual difficulties which students would otherwise meet. Bates points out that while print may be a powerful medium for dealing with abstract ideas, other media can sometimes provide more insight where print alone would be insufficient.

Hypothesis #4: The choice of technology is an important factor in the control over the medium available to the learner (1992: 22). Lectures and broadcast (terrestrial, cable or satellite) are short-lived (ephemeral) technologies, whereas, permanent technologies such as books, cassettes or computers allow learners to view or listen to material at more convenient times. Studies have shown that learning from ephemeral media is much more difficult than learning from permanent material (1992: 22).

3.3.1. Computer

Computer-based learning refers to any way of using computers in education or training. It is still regarded as being in the early stage of development. Computers are frequently used to train users of computer systems, or students of computer science, but they can be used in areas quite unconnected with computers. Computers are useful tools in computer-based learning (CBL) in education and training. They can be used: for (self) testing of student-performance in an objective way; when (the use of) the computer itself is the subject of learning; when complex/dynamic systems or models are the subject of learning; and when the objective is some (cognitive) skill which can be structured well enough (1990: 166). For example, they can act as simulators, to allow learners to practice using complex equipment; they can be used repeatedly, allowing learners as much time and

practice as they need to master a procedure; they can test levels of competence on certain kinds of skill and knowledge (Laurillard, 1987: 47). Computers have been used in education for over 20 years in Canada (Kaufman, 1986: 297) and in Britain (Laurillard, 1987: 47). However, the use of computer-based learning should be pedagogically appropriate for its intended use and that it significantly helps the learning process, for a particular setting, when a text (video/workbook, and so forth) is deemed insufficient (1987: 50). Recent advancements in computer technology and reduction in unit costs means that more individuals are able to afford a basic system and institutions, with modest budgets, are able to purchase better systems.

In Britain and Canada, the use of the computer in education is still confined to small-scale, under-financed projects and it is used mainly for administrative services (George et al, 1991: 15; Laurillard, 1987: 52). As a teaching medium, the computer has a small share of the instructional combination (George et al, 1991: 15) and its use in computer-based training is often for the wrong reasons (pedagogically inappropriate) (Laurillard, 1987: 52).

The use of computers in distance education, as described by Kaufman (1986: 297), comes in two modes: (1) local and (2) transmitted. In local mode the computer stands alone as an independent system; in transmitted mode, a computer or terminal is connected to another computer (on line) and the operation depends upon the communication between these devices. A number of computers may be remotely linked to a central computer, a complex learning network (as in Computer-Mediated Communication) can be established which could theoretically link all distance learners with their instructors and with a central institution. Such systems already exist in some institutions in North America and Britain, for instance Simon Fraser University, British Open University and at the University of Illinois-Urbana (Kaufman, 1986: 298; George et al, 1991: 14). The PLATO

courseware developed by Control Data Corporation started at University of Illinois-Urbana and is now available in Canada on the information utility called SOURCE (Kaufman, 1986: 298).

Computers are becoming less expensive, much faster, have larger memories and are capable of handling more complicated tasks, nevertheless, software, which serves as the heart of a system, continues to be a major impediment to the "computer as teacher" (George et al, 1991: 15). Producing software for the special needs of individual learners requires a considerable amount of programming; high costs, inflexibility and problems with student access have, so far, rendered the computer almost impractical as a main means of providing distance education (1991: 15).

Kaufman (1986: 306) predicts that future trends would be: the availability of a personal computer for every distance learner; the Electronic University becoming the predominant model of distance education; greater role of private enterprise in distance education fields; the availability of intelligent computer-aided learning systems for use in distance education; the increasing use of computer and communications technology for multi-media learning systems using print, audio and video message for delivery; and the developments in distance education systems playing a positive effect on traditional education systems.

Computer-mediated communication (CMC) has been practiced in a number of institutions. In CMC computers and telecommunications networks are used as tools in the communication process: to compose, store, deliver and process communication. A number of courses, at the Open University and at Simon Fraser University, for example, provide computer-conferencing; learners are linked together from their home telephones and computers with a modem to a central mainframe. Computer conferencing allows messaging to be shared openly by all members of a conference and it permits each member

in a group to participate at a time convenient to the individual. CMC also covers electronic mail (E-Mail) and access to remote data-bases such as bibliographic sources, sets of abstracts, or details of courses available. E-Mail allows messages to be sent to electronic letter-boxes for named individuals, which can be accessed when the named user logs on.

The basic unit of an electronic mail system is a "message" - a distinct item of text constructed by a sender and addressed to one or more named readers. Messages are routed by the system to the addressee's file on the central computer, and remain there until the addressee logs in to the system. The addressee having read a message may decide to reply to it, forward it to someone else in the system, leave it in the file for later attention, or delete it. Messages can vary in length from a few words to many pages of text. Some electronic mail systems impose an upper limit on the size of an individual message and each message is accompanied by a "header" containing information about the message, such as sender, addressee, time and date sent, title or key words, message size, and status (new, unread, read, answered, and so forth) (Kaye, 1987: 188). In many systems, users can search for messages according to a number of parameters, such as: viewing all messages in a file from a particular person, or received on a specific date, or containing a particular sequence of words in either the message title or text. Some systems prompt the sender that his message has been assessed by the recipient. In group communication, an editor would be responsible for updating (includes deleting and editing messages and providing summaries) a bulletin board (a file for receiving messages on a topic that all members have access to) (1987: 188). Such a system is asynchronous - it does not require members to be present and active at the same time.

Computer conferencing systems are similar to electronic mail, but, in addition they offer more sophisticated facilities, for instance: individual users can join "conferences" on

specific subjects of interest; a given user can join several such conferences; users are able to read and reflect at their convenience on a topic and the accumulated contributions from members are stored for possible use in a subsequent report (1987: 189). Such a system is already used in a number of courses at Simon Fraser University.

3.3.2. Audio-Cassettes

Audio cassettes are extensively used in many open learning systems such as at the British Open University, Deakin University, the University of Waterloo, Open Learning Agency and Simon Fraser University. They are popular among students and teachers and provide a convenient medium to study or work with - the technology is simple and does not inhibit or intrude upon the learning process itself (1987: 175). Educational programmes recorded on audio cassettes can be played and replayed as often as is necessary, at the learners own convenience. The learner can also press the pause button on the player any time he or she wishes. It is cheap to produce and distribute to learners. In Canada, the audio cassettes was first used in distance education in 1968 at the University of Waterloo, which operated courses on three components: (1) formal texts, (2) classroom notes and (3) instructors' lecture comments on audiotapes (George et al, 1991: 13; Leslie, 1986: 235). The distance learning students received all three components for their course. The programme grew from four physics courses, with 252 student-courses, to 303 courses in 1984-85, with 19,722 student-courses (1991: 13). The growing popularity of the programme is due to the convenience, increased course structure, relative low cost and its ability to make the distance education experience as close as possible to the on-campus experience of a regular student (Leslie, 1986: 235).

Audiocassette courses are a popular option among instructors because of their familiarity to live classroom instruction. Instructors do not need to learn new skills to

operate audio cassette courses; students like them because the audio tapes and course notes give a more complete presentation than written material alone (1986: 239). The courses have much lower preparation costs than other distance education media.

The distribution costs can be cheaper than a single radio transmission if the numbers do not exceed 500 students on a course. Most learners who do not already own an audio player can afford to buy the necessary equipment. At the Open University, audio cassettes are used for taking students through parts of the printed materials; taking students through practical procedures (home experiments, computer operations, etc.); providing aural experience (music, foreign speech, sounds); and for discussion of different views or alternative explanations; etc. Rarely are audio cassettes used to carry lectures (Bates, 1990: 102).

3.3.3. Videotapes

Video is very useful when a visual (dynamic) phenomena is the subject of learning or training or when information is needed on phenomena which are hard to describe. (Gastkemper, 1990: 166) The various stages of a cell growing and dividing (biological process), for example, can be better presented on video.

An increasing number of homes have video recorders (VCR). In Canada, over half of the homes have VCRs, and this number is expected to grow to 85 per cent within a decade (George et al, 1991: 7). In Britain, as shown in Table 3.2 in section 3.3.7, approximately 55% of homes have VCRs. In 1985, over half of the distance education students surveyed at Simon Fraser University had VCRs and many others had access to them.

The VCR can assist students in maximising the benefits of broadcast educational TV. A student who is not able to watch a live telecast can record it and watch it at his or her convenience.

The cost of video reproduction can be cheaper than TV broadcasting, and videos can be placed in libraries and learning centres for student loans.

The video can be used as a teaching tool. The British Open University, for example, uses tutored video instruction to argument tutorials, which are often conducted by part-time instructors (George et al, 1991: 7). Other institutions, such as Stanford University in California, use tapes of complete lectures as the main teaching mechanism for groups of students at remote locations. The lectures are then augmented with on-site tutors or facilitators leading discussions and incorporating interactive video communication back to the lecturer at the University. Simon Fraser University first began using video tapes in its distance education programs in 1979, as part of the learning package sent to students. In the United States, the Association for Media-based Continuing Education for Engineers (AMCEE), a consortium of 33 universities, currently uses videocassettes as the primary educational medium in over 500 courses in 16 disciplines (1991: 7). The courses developed by the AMCEE have been used by industrial concerns or in other universities, such as at Simon Fraser University for some of its continuing education courses (1991: 8).

3.3.4. Radio

Radio is capable of reaching a large audience and can provide up-to-date information. It provides learners with an easy indirect contact with teachers and is easy to prepare. It is low in cost compared to television. Receivers are cheap and are readily portable, the principle difficulties being the necessity of ensuring that batteries are available. It can be used as a support medium to printed materials. Students as well as the

general public can tune in to educational broadcasts. It acts as a learning resource and can be used for subjects - talks, discussions, phone-ins - and appeals to a wide variety of students studying similar courses. Radio programmes, although a one-way communication, keep students on track where the material must be studied at a rate in common with other students.

Programmes may be beamed at the public as a whole, or at specific vocational, social and interest groups. Generally, radio is used to inform the public of current events through news broadcasts, commentaries and programmes of serious intent, produced in a manner to attract the widest possible audience and interests. Such programmes are intended to bring about an awareness among the adult public on issues of domestic and international concern and of encouraging frank discussion.

The aims and objectives of radio broadcast include: motivation of students, by increasing their interest in specific topics; introducing students to the information which appears in text books, providing a general framework for the teaching; and to present an interdisciplinary perspective of topics. Some studies, however, suggest that students tend to make less use of radio in comparison with other media (Norquay, 1986: 247; Lacasa and de Leon, 1990: 88). For example, about 50% of the Spanish Universidad Nacional por Educacion a Distancia (UNED) students never listened to their radio (course) programmes in 1987 (Lacasa & de Leon, 1990: 88). In Britain, between 33% to 56% of students listened to radio programmes depending upon the time of transmission (Newport, 1990: 96). One of the reasons given for not listening was the inconvenient broadcast times.

Educational radio can offer many benefits and when combined with other mediums for interaction, as demonstrated in "interactive" radio instruction, has been shown to be as effective as traditional class-based teaching (George et al, 1991: 10). The radio is the most potent of mass education and can serve as an important educational medium in the

developing world, particularly when there is extreme shortage of fully qualified teachers and funds (1991: 11).

3.3.5. Telephone Network

The telephone, because of its two-way communications capability, is an important tool linking adult learners and tutors. Teaching via telephone has been practiced in a number of open learning institutions. At the Open University, for example, telephone teaching takes two forms: one-to-one telephone tutoring; and small-group audio-conferencing. Audio-conferencing enables a number of individuals (usually up to 8 or 9 participants), from separate locations, linked together by telephones to have group discussions. Neither is used to deliver course content. Its use is designed to help students to learn from printed text, to resolve their difficulties, and to provide them with access to tutors and counselors. Audio-conferencing is essentially a small scale, small-group activity which is practiced at a number of open learning institutions such as the Open University, Simon Fraser University, Open Learning Agency and North Island College. Audio-conferencing enables a tutor to conduct continuous dialogue with a group of learners. The students are evaluated on their performance. Another example of educational usage of the telephone is the Educational Telephone Network (ETN) of the University of Wisconsin-Extension, which started in 1965, expanding to a statewide system by the early 1980s, and currently providing 50 weekly programs (George et al, 1991: 12). The system utilises equipment placed at several different sites, linked together to the teacher who may be located at the University, each consisting of speakers and several push-to-talk microphones. The system enables everyone connected to the network to hear all conversations and allows students to learn and to reply to the teacher.

The "electronic blackboard," a device used for graphical enhancement through the telephone, is used by the University of Ottawa in courses that are simultaneously presented to classroom and distance students. The device has a pressure sensitive blackboard that converts writing into signals transmitted through the telephone system for display on a TV monitor at one or more sites.

As John Short (in George et al, 1991: 12) summarised, the advantages of telephone:

- it provides students with the means to respond to and question the lecturer;
- it reduces the amount of traveling time and expenses for both tutors and the students;
- it can provide quality instruction in isolated areas, or instruction where none would otherwise exist; and,
- it provides access to people, such as the disabled, who are not able to attend the normal course of instruction.

3.3.6. Television

Television is a powerful teaching tool in education and can be used to motivate learners. It is able to reach a large audience. It is a powerful medium that can project a variety of situations, of voices, of accents, of themes, of presentation techniques, and of phenomena. The main role for television is as "evidence, whereby showing documentary real world material of scientific experiments being done, classes taking place, industrial processes, people in the work-place, we can in effect take our students out into the real world and show them things happening, so as to bring a real life dimension to the courses and to illustrate the theoretical material in the printed units" (Radcliff, 1990: 116)

The role of television in education is a contentious issue and the case for and against the use of television can be summarised as follows (Rajan, 1987: 428-430):

i) Those Arguing Against The Use of Television

- Television is a medium for entertainment, not for education as it is inherently hostile to thought.
- It is in the nature of the medium to trivialise everything it touches and to free the viewer from the obligation to think.
- All ideas are reduced to a lowest common denominator. Television image is one of "low definition" and offers little detail.
- Television suppresses the content of ideas in order to accommodate the requirements of visual intent, i.e. to accommodate the values of show business.
- Television is a low involvement medium; students watching a programme are committed to do nothing except to view in a state (of alpha brainwave pattern) of relaxation and inattention.
- Television is synonymous with entertainment and commercials, it is difficult to treat it for serious business.
- Educationists may have brilliant ideas of teaching but they have to accommodate them to television and not vice versa.

ii) Those Arguing For The Use of Television

- Electronic communication is a fundamental change on par with previous major innovations such as writing, printing and the telephone and will result in the most far-reaching changes in social progress.
- It is a powerful educational tool that can be as effective as a good teacher when used in the right way.
- Educational methods must utilise the fact that we remember what we see, better than what we hear -- which is one of the most distinguishing features of television.
- The remark on brainwaves and low involvement has not been proven scientifically.

- Television in fact humanises distance education. The human face on the screen establishes a rapport.
- Television generates a sense of belonging among the participants of distance education as it enables the sharing of the same programme with thousands of others similarly motivated.
- Most of the criticism of television is in the context of the social situation in the United States which need not necessary happen elsewhere. Not in all countries, for example, do children spend more hours before a television than in school.
- The debate among educationists is really not "either-or," but the question of how far television can be used with other media. Television cannot solve all problems.
- The format must not become more than the context. The television can take over some of the routine tasks and allow more time for profitable interaction between students and teachers.

Research has shown that students can learn just as well from television, but what they learn, and how effectively, depends on how the programmes are designed (Bates, 1987: 171). In general, print is better for teaching in a condensed way, dealing with abstract principles, where knowledge of detailed facts or principles is important, and where knowledge is clearly defined. Television has an advantage over print when dealing with complex or ambiguous situations, for providing concrete examples to illustrate abstract ideas or principles, and for encouraging students to make their own interpretations and to apply what they have learned in an abstract way to new situations (1987: 171).

Television is rarely used as the primary medium for delivering large quantities of information, but when combined with other media, such as the print, it can provide a

deeper understanding of a subject and for developing skills of analysis and application of ideas (1987: 172).

3.3.7. Satellite Communications

The use of satellite in education has many advantages, such as (Rajan, 1987: 426):

- The entire country can be covered in one step;
- The links are extremely reliable and clear;
- The reach of radio and television can be increased and their round-the-clock quality ensured;
- It offers a medium diversity, where land links are in operation;
- It is flexible since its links can generally be changed as desired;
- Remote areas, islands, mountain regions and difficult terrain can be easily covered;
- The costs are independent from distance; and
- It allows for the simultaneous use of several services like telephone, telex, data and television.

Satellites enable radio and television to reach a much wider audience and cover a much larger geographical area than normally achieved. The satellite is able to connect rural areas, remote centres and backward regions with urban centres. Distance education programmes can be reached by those disadvantaged by distance with the help of satellite link. In Canada, a number of institutions, such as the British Columbia Knowledge Network and ACCESS Alberta use direct broadcast via the Anik-C satellite to beam educational programs to remote populations scattered over a wide region, the "footprint," covering The Yukon Territory, part of the North-West Territories, Saskatchewan, Alberta and British Columbia (Tayless, 1986: 167). The KNOW television signal is being received

by over 250 community receiver sites in Western Canada. Figure 3.3 shows an example of the use of satellite technology in distance education.

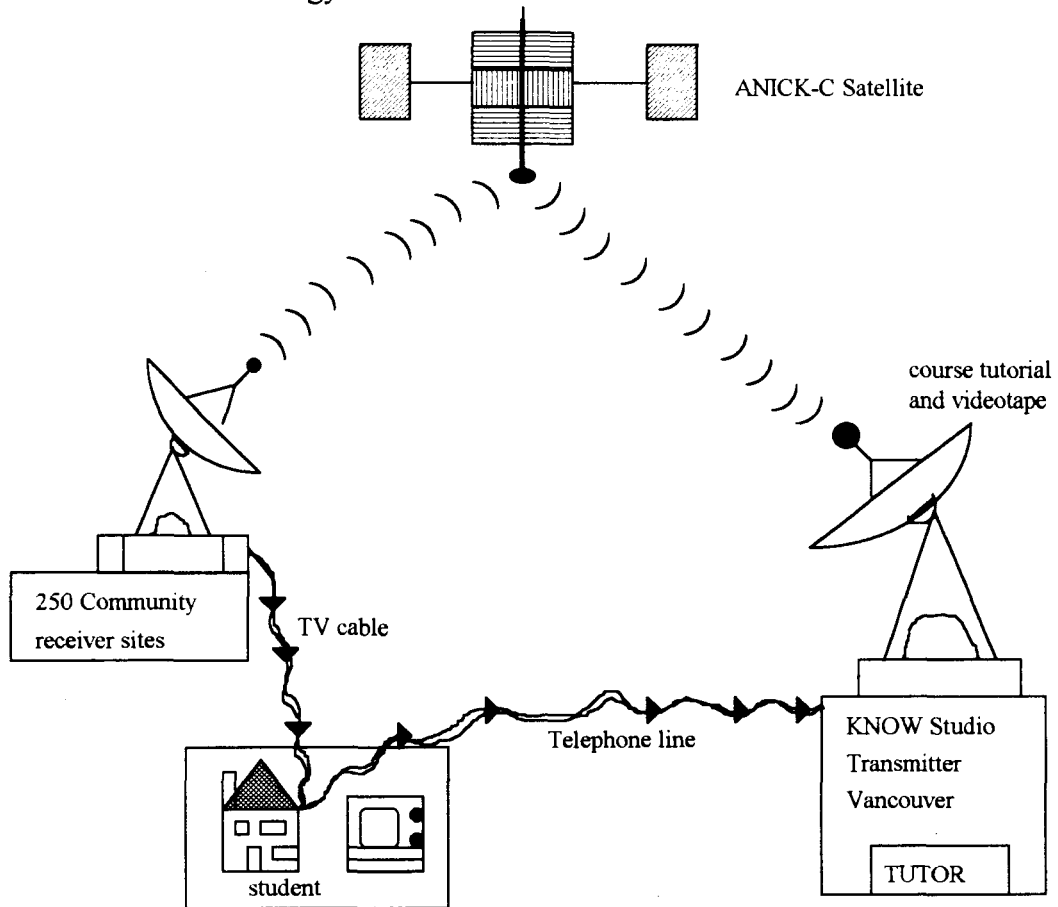


Figure 3.3: ANICK-C and KNOW network
(Mugridge and Kaufman, 1986: 167)

Students are able to view a lecture on television and may consult directly with the tutor in the television studio. Similar systems are available in other institutions over North America such as those at the National Technological University (NTU) that offers graduate programs to engineers at work sites across the United States (George et al, 1991: 8).

More and more homes have items such as TV, video-recorders, computers, radio and audio-cassette as unit costs fall. The fax machine may also be a common item in the

modern home of the future. These technologies will provide better access to home-based open learning or the distance learner. Table 3.2 below, shows the technologies available in the average British home for 1987 and a projection for 1996. Only technologies such as print, terrestrial broadcasting, audio-cassettes, and the telephone are available in most British homes. Home based computing is still expensive for most learners. Therefore the open learning system adopts appropriate media reflective of the technology likely to be available to all learners.

| | 1987 % | 1996 % |
|---------------------------------------|-----------|-----------|
| Print (via mail) | 100 | 100 |
| Terrestrial broadcasts (radio and TV) | 99 | ? |
| Audio-cassettes | 95 | 99 |
| Telephone | 90 | 95 |
| Video-cassettes | 55 | 90 |
| Teletext | 23 | 80 |
| Home computer | 23 | 60 |
| Compact disc | 10 | 50 |
| Satellite TV | 1 | 40 |
| Cable TV | 1 | 35 |
| Video-disc player | 1 | 10 |
| Viewdata | 1 | ? |

Source taken from Paine, 1989: 292

The institutional use of technologies does not depend upon the availability of technology at learners' homes, but can be institutionally based. To overcome problems associated with distance many open learning institutions establish learning centres close to groups of learners, equipped with the necessary technologies. The North Island College of British Columbia is an example of remote learners having access to learning through learning centres established in clusters of communities in remote areas (Tayless, 1986: 163).

Rothe (1986: 17) describes the adeptness of Canadian educators to trying out new technologies to meet the country's communication requirements generally, and especially

to support teaching and learning at a distance. For example, as far back as 1925 and 1926, the University of Alberta Extension Department experimented with radio broadcast of lectures from the University of Alberta. Educational radio began in the 1930s and focused exclusively on the rural and farm population (Norquay, 1986: 247). The first nation-wide educational TV was conducted by the Canadian Broadcasting Corporation in 1954. Also, in times of emergency, radio and TV serve the community well by providing essential educational services. For example, in 1959, when schools were closed during an outbreak of a polio epidemic, CJON-TV in St. John's, Newfoundland, provided free air time to provide educational services to children studying at home.

Despite the existence of technology as mentioned above, the bulk of distance learning is still by correspondence. Where audio, video or microelectronics communication technologies are used, they usually complement or supplement core, print-based course materials. Of 306 Commonwealth open/distance learning institutions surveyed in 1985, 264 (86%) used text, 161 (53%) used audio and only 28 (9%) used television. Table 3.3 below shows the breakdown of media and methods used by the institutions surveyed.

However, the purpose of this section is to highlight the available technology rather than to examine its appropriateness.

| Media/Methods | Total No. of Institutions | % | Rank |
|--------------------|---------------------------|----|------|
| Text based | 264 | 86 | 1 |
| Audio | 161 | 53 | 2 |
| Practical Work | 127 | 42 | 3 |
| Study Centres | 118 | 39 | 4 |
| Telephone teaching | 116 | 38 | 5 |
| Video | 115 | 38 | 6 |
| Computers | 83 | 27 | 7 |
| Residential school | 79 | 26 | 8 |
| Kits | 78 | 25 | 9 |
| Regional Services | 74 | 24 | 10 |
| Radio | 44 | 14 | 11 |

| | | | |
|--|----|---|----|
| Television | 28 | 9 | 12 |
| Data extracted from Coffey et al, 1988: 19 | | | |

3.4 Trends in Open Learning

The policy trends in open learning for most governments are to provide education and training for sustained national economic growth. Most recently, colleges of further education, higher education and adult education, as well as large companies, have become involved in open learning. The trend in education and training is away from control of syllabuses and examinations by central institutions, towards a greater involvement of individual, parent, or employer in control of both objectives and methods. These methods are seen both as being responsive to the needs of individuals and can cost less than traditional methods.

Open learning can serve a wide variety of client groups - students (in traditional learning systems who wish to supplement their studies by enrolling in distance learning courses), housewives, professionals, illiterates, pensioners, etc. The variety of client groups that an open learning system can serve would depend on the available resources and the policies that govern its operations. In Britain, in the early days of the Open University, a large proportion of the learners came from the teaching profession (37% in 1970 and dropping to 23% in 1974), and took courses to upgrade their qualifications to degree level. The National Extension College and the programmes funded by the Manpower Service Commission have a narrow client group, which tends to be the working adults. The overriding concern is the need to produce a skilled workforce that can keep British industry competitively productive. Therefore there are groups within the population that can benefit from a truly open learning system, yet are unable to gain access to reeducation or continuing education.

On the job training is also becoming a new trend. More and more companies are joining collaborative work with teaching institutions in work-based training for their employees. A number of institutions specialise in on-the-job-training. This is where the teaching institution comes to learners in their workplaces and delivers the teaching and training as a synchronized learning package. Most big firms employ training officers, who may hold senior positions within the company and who specialise in looking at the training need of their company and search/negotiate for suitable training packages for their employees.

Programmes of the above kind do not provide access to the unemployed. For example, a housewife, who has left school or work many years ago to raise a family, may decide to go back to work but, is unable to obtain specialised skills required of the modern office or shop floor. Many courses are available for the unemployed adult for a fee, however, this may be a barrier especially to those who cannot afford the fee. The bulk of learners are the employed. Table 3.4 below provides an example of the type of learners registered at the Open Learning Agency for 1980/81, 1989/90 and 1990/91. It should be noted that the number of females enrolled was almost twice that of males in 1989/90 and 1990/91 and that about 54% were between the age of 25 - 39 years old and 60% are employed (Open Learning Agency, Quick Facts: Decade at a Glance). Although the quality of education with open learning systems has improved considerably, no system can be claimed to be perfect when it comes to students' achievement. In the case of the OLA, only 41% of those who enrolled completed all course requirements.

| Table 3.4: Employment Status of Students enrolled at the Open Learning Agency | | | |
|--|----------------|----------------|----------------|
| Employed | 1980/81 | 1989/90 | 1990/91 |
| Full-time students | 3,310 | 8,989 | 8,766 |
| homemaker | 252 | 1,989 | 2,330 |
| other | 813 | 1,159 | 1,145 |
| missing values | 468 | 1,225 | 1,290 |
| Total | 168 | 49 | 2 |
| | 4,845 | 14,538 | 14,672 |

In Britain, the government is putting greater emphasis upon the importance of vocationally related education and training. Therefore the trend for public institutions such as colleges of further education, colleges of higher education, and universities involved in distance education fields is the production of their own specialist courses in particular areas of studies, which are open to selected groups of learners. Also the Government is using the Manpower Services Commission (MSC) for change in education towards a more open learning system (restricted only to certain groups of learners). Despite the major success of open and distance learning in recent years in Britain, there are, however, many who are concerned about too much emphasis on vocational education. The MSC sponsored initiatives, such as the Open Tech programme, and the Technical and Vocational Education Initiative, lead to provisions which offer little control to the user. Groups such as the unemployed and those with low incomes find most difficulty in gaining access to these programmes. The programmes set up for adult continuing education also tend to favour the privileged groups and no systematic approach has been made to meet the needs of less privileged groups. (Coffey, 1988: 234)

Cooperation in open learning initiatives between several institutions is becoming a common scene in Canada and Britain. It make sense, as it avoids expensive duplication of programmes and lowers the unit cost. Materials developed in one institution can be used by other institutions at lower cost as compared to having to develop their own materials.

Open learning continues to grow and an increasing number of the traditional institutions are beginning to offer courses that allow more flexibility and control to the learners. Development of open learning occurs at elementary, secondary, post secondary, degree, higher degree, professional and sub-professional levels. There is also a growing number of part-time adult learners in higher institutions. For example, the ratio of part-time adult to full-time students at Manchester University alone is almost three to one (1988: 234).

In recent years, there is a growing trend toward inter-institutional collaboration: between universities; between universities and colleges; and among colleges of further education. Cooperative activities in the United Kingdom are extremely large and cover bilateral and multilateral exchanges of information, materials, co-operation on training, personnel exchanges, joint course production, and joint programme development. For example, the National Extension College and Worsley Hall made their learning materials available at reduced rates to colleges of further education and schools and they have also cooperated with some colleges in the development of learning materials. The establishment of the Open Learning Federation (OLF) provides interlinks between colleges of further education engaged in open learning activities. For example, material produced in one college can be used by colleges throughout the Federation. The establishment of the Commonwealth of Learning, which is an international agency for open/distance education, may accelerate similar collaboration among Commonwealth countries.

An increasing number of traditional institutions, through their extension services, have programmes that cater for part-time adult learners. In some of the institutions, part-time students already out-number full-time students. Campbell (1984: 14) stated that in 1974-75, adult learners in credit and formal noncredit courses in Canada became the new majority within the university's student population.

3.5 Current Practice in Open Learning

Open learning systems are in a constant state of flux, and are changing their forms to suit the changing needs of society. There is also a growing acceptance among academics and society at large that the way to education is through openness in the system. The increase in access to educational institutions in Britain and Canada, particularly to the geographically disadvantaged, has been made possible by the following developments:

- The improved quality of correspondence education and the reliability of the postal network in delivering learning materials.
- The use of radio and television broadcast.
- The evolution of teaching machines that, while not addressing the geographical barriers to access, encourages independent learning.
- The establishment of an educational credit bank that allows the mobile learner to consolidate credits earned from one institutions for similar courses at another institutions. This has already been put into practice in Canada and Britain. It was also hoped that the creation of the Commonwealth of Learning will enable credit transfer between institutions in different Commonwealth countries.
- The rapid emergence in more recent times of technologies (particularly the computer and telecommunication) which have opened an enormous number of opportunities for open learning.

Of importance in open learning systems are the following process:

3.5.1 Course Design and Development, Production and Distribution

The quality of print-based media is improving and many teaching institutions have their own course design team. It is essential that adults have access to high quality print

materials to encourage them to a learning environment. Course design is an important part in any open learning systems, particularly in systems where independent learning is required. The learning materials must be easy for learners to understand and follow. They would require minimum amount of referral to subject tutors and promote self learning. In open learning the emphasis of instruction is largely transferred from the instructor to learning material. The more established institutions such as the British Open University, Deakin University and the Open Learning Agency have staff working in teams (course team) or a member of staff contracted to design a course.

Mackenzie et al (1975: 69) describes course development at the British Open University. Normally, a faculty would propose a course on some specific topic, and it will be considered and approved by the senate and Planning Board. When the development of a course is assigned to a team (usually known as a course team), they decide the academic content and the way in which the course is taught. The team is an ad hoc group, appointed by the university, with responsibility for a single full-credit or part-credit course. The main consideration of any teaching method is the academic content of the course and the way in which it will be taught must be thought of as a single operation by a single group of people. There is a high degree of integration between the planning of the course content and the planning of teaching methods for each course. Members of the course team work as equal partners. The course team would consider the needs of the envisaged student body, work out details of the content to be covered, and decide how the various teaching methods should be used to attain its objectives. The course team would include a senior member of the academic staff, as chairman, normally nominated by the dean of the faculty, members of his staff who have an interest in the topics to be developed, experts from outside the university when required, and representatives from departments concerned with learning strategies, teaching methods and media production, and the BBC radio and

television producers. Figure 3.4 illustrates a course team of an open learning system if TV broadcasting is used as part of the learning package.

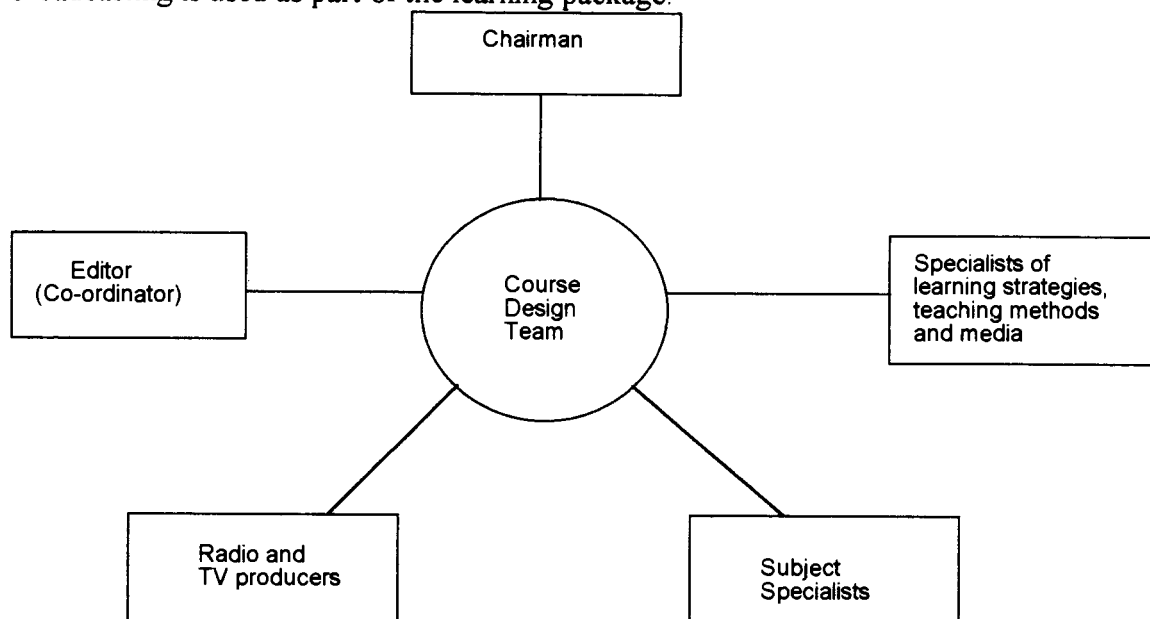


Figure 3.4: Course Design Team (UNESCO, 1987: 47)

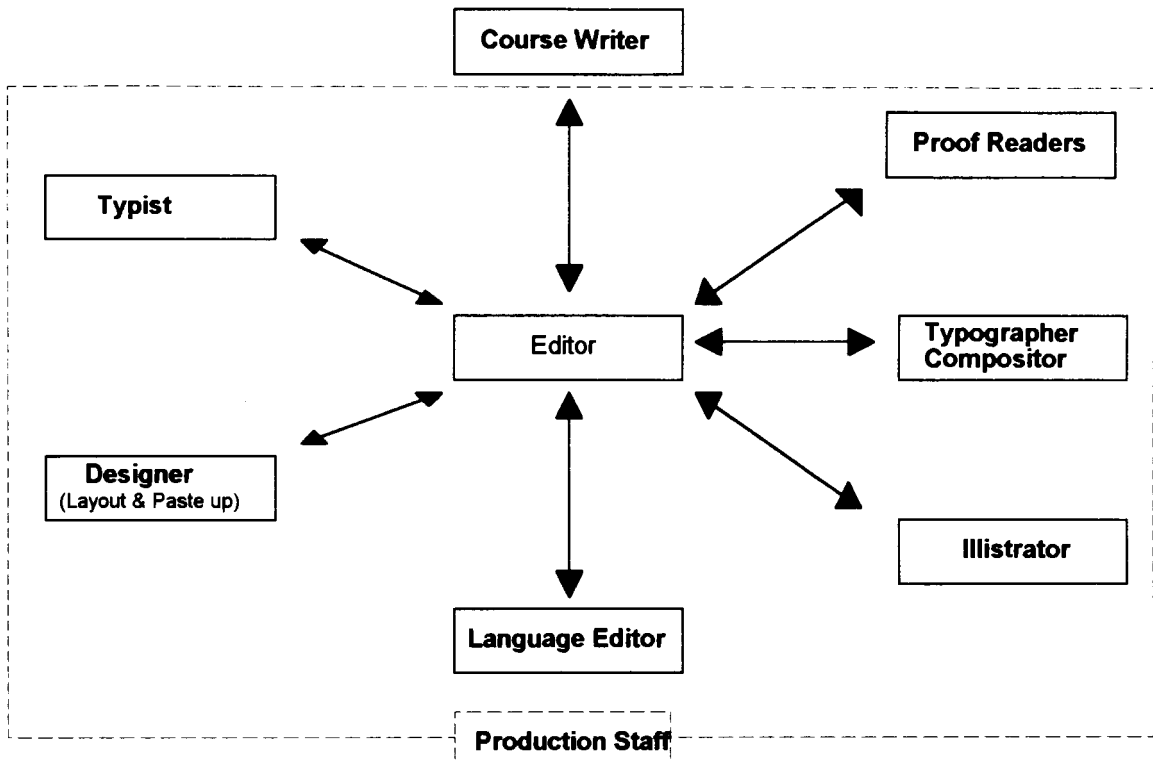


Figure 3.5: Relationship between editor and production staff
(UNESCO, 1987: 47)

Lewis and Spencer (1986: 92) in their Open Learning Guide mention 10 stages in the preparation and production of learning packages. Figure 3.6 is an adaptation of the different stages involved in the production of a learning package. I have modeled the stages in a cycle, with the needs of the learner as central to the theme. The learner as user of the learning material has greater opportunities to influence the development of materials. The cycle is convenient because learning packages have a limited "shelf-life" after which they need to be reassessed and redeveloped, to suit the times and changing needs of the users.

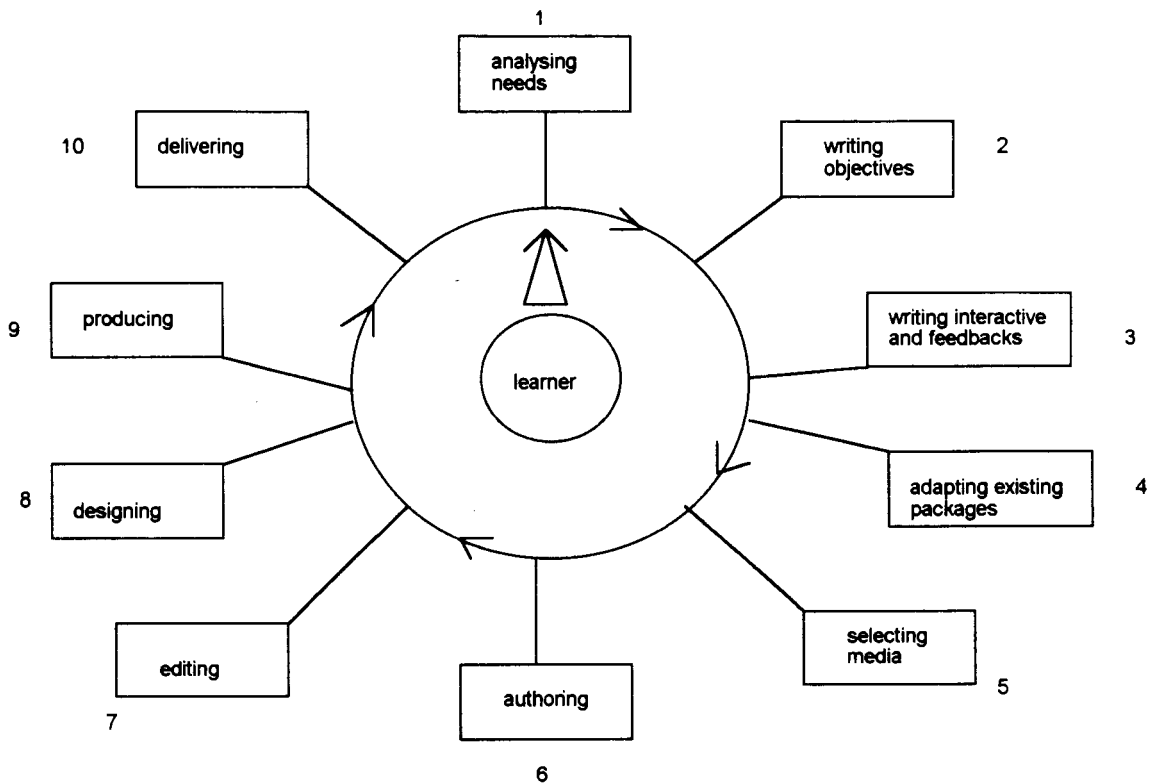


Figure 3.6: Preparing and producing learning packages

Design of educational materials has been greatly aided by the modern electronic desktop publishing unit. Desktop publishing speeds the development of text-based learning materials. It has been estimated that, the time it takes to develop and prepare for production a single page of text, using desktop publishing computer software, has been cut from the usual 120 hours to just 50 hours (Rumble, 1986: 195). For example, some producers are already taking material from writers on disk. Editing, modifying, proof reading on disk are more efficient than the traditional methods of proof reading on actual print. It is now possible to supply material on disk direct to users (the learners) and the products of desk-top publishing direct via on-line networks (provided there is compatibility of equipment).

The production of course material on the scale of the British Open University and the Open Learning Agency requires complex organisation of storage, warehousing and a distribution network. Peak periods, when students register for courses and learning packages are delivered in time for students' use, requires superb coordination between staff involved in registration, tutoring and distribution. The institutions have to ensure that each learner receives the right combination of learning package.

3.5.2 Student Support Services

Not all open learning systems provide their students with support services. Some systems only provide registration and examination services and others provide some form of support such as tutorial, counselling and advisory services. This form of backup may be provided in a number of ways, such as through face-to-face contact, by telephone, and by correspondence with a tutor. Quite often the tutor is only a script marker and in some cases, the tutors have advisory and counselling roles. Services can be provided without face-to-face contact between learner and tutor (such as via telephone or electronic mail).

The nature of student support services in an open learning system depends on philosophy, funding and organisational structure. The support services of the British Open University, based on its organisation and philosophy, has greatly influenced distance learning institutions such as Athabasca University and the Open Learning Agency. A student support system has tutors and student advisors/counsellors to meet the needs of learners, particularly the distance learners. Variation exists at other institutions, for example, the University of Quebec developed the 'animateur' (roughly corresponds to the role of a facilitator), usually a non-academic, whose role is to organise workshops for small groups of students on a regional basis and to support teleconference links between learners; the University of Western Ontario has peer-counselling/community

representatives to assist off-campus and distance education students. The representatives are identified as persons who are willing to discuss problems of university courses with students; knowledgeable about and willing to pass on information concerning the academic channels and contacts on campus; interested in sharing personal experience regarding managing university courses or programmes with students; willing to help identify strategies for academic planning and B.A. programme progression; willing to give faculty of part-time and continuing feedback on issues that relate to off-campus centres; and so forth. A tutor's role will also depend on the organisational structure of the institutions, for example, at Simon Fraser University, the tutor/marker for the Directed Independent Study programme may be the course tutor, another faculty member, or a graduate student; at the University of British Columbia, the tutor is a full-time faculty member (they may also act as supervisor) who developed the courses of the Guided Independent Study Programme (McInnes-Rankin and Brindley, 1986: 64-65).

Working adults taking open/distance courses may require advice or counselling outside the normal working hours (9 am - 5.00 pm). Counsellors are separate from tutors and have a different role to play, but both are first-in-line helpers to the students. Local tutors often arrange for suitable times in the evening for phone in. Students with a computer and modem can communicate via electronic mail, without tutor and learner present at both end of the line at the same time. A group of learners, each from their individual home, can study as a group, via electronic conferencing, provided each of them have a computer. In an open learning system, a student, depending on his needs and circumstances, can select a programme with no face-to-face teaching or some face-to-face teaching or mainly face-to-face teaching (taught in the evenings). Face-to-face teaching or tutorials can be offered to learners at a local learning centre.

In some small open/distance learning institutions, academic staff are responsible for both developing the material and teaching the students. At OU some small guided-study courses are developed by an individual academic who tutors the course and provides reading lists and limited course notes. The number of students are likely to be small (about 20 to 30 students) and they can be distributed all over the country.

3.5.3 The Management of the System

The principal activities involved in running a distance education enterprise, as well as the inter-relationships that exist between them, as described by Rumble (1986: 17), is shown in figure 3.7.

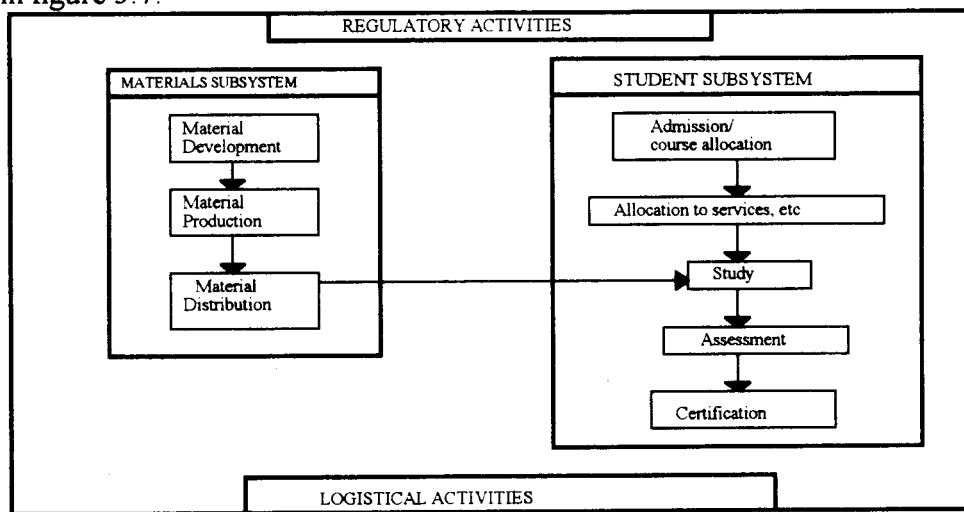


Figure 3.7: A system Model (Rumble, 1986: 17)

The model has two major subsystems: (1) the materials subsystem and (2) the student subsystem. The materials system covers the design, production, and distribution of mediated learning materials. Materials development involves the activities of a number of key players including curriculum planners, teachers, contents experts, instructional designers, media producers and others (editors, graphic designers, and so on) who assist in the production of "media products." The student subsystem has a different role to the

materials system. It has different activities, personnel and resources, all of which focus on the students' learning activities, including the management of their progress through the institution. The two subsystems interact at the point when the students receive the learning materials and begin to use them.

3.6 Limitations of Open Learning

The limitations can best be described under two headings. The first outlines barriers faced by the students themselves while the second will look at institutional barriers to openness.

3.6.1 Barriers Faced by Learners

Most learners, particularly adults, by the nature of their circumstances (shift work; working during the day and studying in the evening and night; family, work and social commitments), spend a large proportion of their study time working on their own. They tend to be more isolated than learners in the traditional system. Therefore they miss out on help from fellow learners in groups. During a lesson a student may ask a question that will also benefit a number of his colleagues who had not known the answer themselves or had not realised the importance of it. In groups learners often contribute useful ideas, solve problems together, compare performances and provide useful feedback. The open learner also misses out on the spark of inspiration that the best lecturers can generate (although this can be compensated by video, audio and tele-conferencing).

Face-to-face learning provides a visual picture, which is an important feedback, of the learners and instructors expression and feeling about a topic, not easily put on paper or explained over the telephone. Communication via the telephone can be frustrating, especially when the learner is not clear about a particular topic or seeks an answer to a

particular question in order to proceed to the next lesson, only to find the lines busy or the instructor unavailable. Therefore, a slow response time between learner and instructor in open learning can be a major limiting factor for some learners.

3.6.2 Institutional Barriers to Openness.

Instructors or tutors, who are not in daily contact with students, can quickly lose their primary student orientation, and that the institution may become less responsive to learners' problems, faculty takes longer to mark assignments, and tutors do not have the same commitment to a learner as they would have in face-to-face situations. Some staff of open learning institutions may be new to the concept of learning system or may have accepted positions based on job availability rather than dedication to the principles of open learning. Such an institution would end up by being less open than was originally intended. A never ending academic year can also be demoralising for staff. There is also a tendency to underfund open learning institutions just because they are perceived as a cheaper alternative to the traditional institutions. This may result in a cut back of resources required for student support. (Paul, 1990: 52)

3.7 Open Learning Models

Institutions are developed along particular models in order to fit particular circumstances and to meet specified objectives and needs. There are numerous variation of models in existance. It is not the intention of this section to describe all the models of open and distance learning systems, however, several open/distance learning models will be described to illustrate the learner-institution relationship.

3.7.1 A Centralised Open Learning Model

In this model, the learner is served by one institution either directly or through a learning centre. Many open universities round the world have model similar to the one shown in figure 3.8, with or without learning centres. The British Open University is a good example of an institution with learning centres. For centralised institutions without learning centres, the services role of the centres are taken up by the institutions themselves.

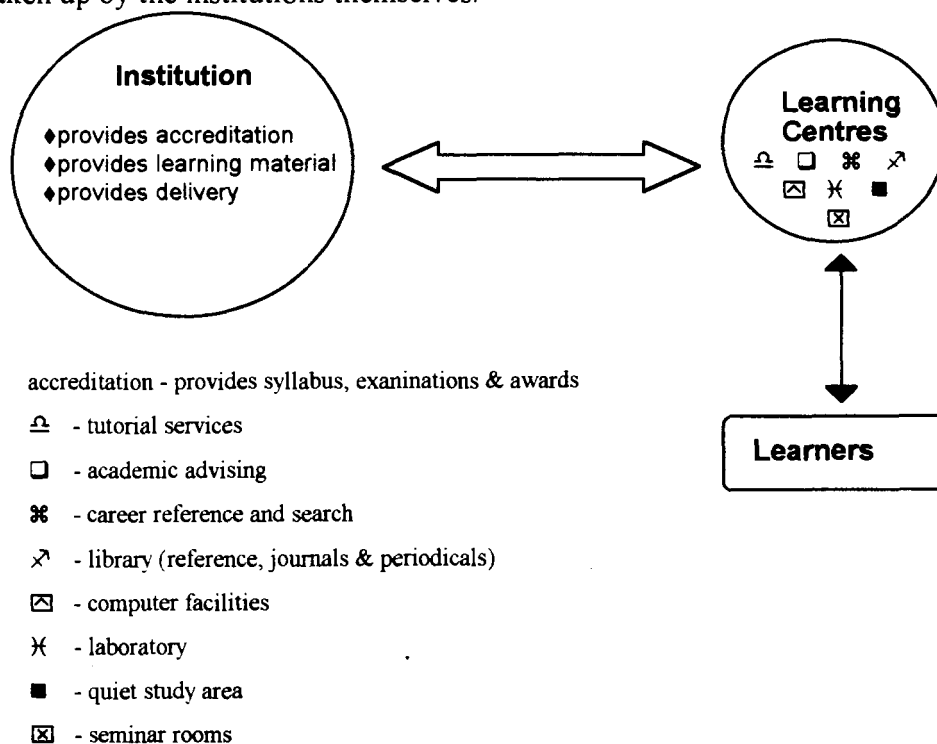


Figure 3.8: Centralised Model (adapted from Coffery's model, in Paine, 1989: 280)

3.7.2 Collaborative Models

3.7.2.1 Collaborative Model #1

Figure 3.9 shows, how one institution is able to utilise materials developed by another institution. The materials from institution A can be used by several institutions and likewise, Institution B can use materials developed from other

institutions. Institution B build its own study program, delivery system and accreditation. The British Open University-University of East Asia collaboration is an example of this model. The University of East Asia, based in Macau, obtains materials from the Open University and from Massey University, New Zealand. The North Island College model is a cross between the models in figure 3.8 and 3.9. The College operates four types of learning centre. Each type of centre is defined by the number of students enrolled. Type I centre has a full range of resources, such as academic advising, career reference and search, quiet study area, computer facilities, a modest laboratory, library, seminar rooms, students room, audio-visual equipment including satellite reception facilities, videotape library, business office training equipment, art studio, and welding shops. Type II does not have laboratories and type III generally has reference library, microcomputer, audio-visual facilities and tutor/advisor. Type I has more than 1000 registrations, type II between 250 and 1000 registrations, type III has between 100 and 200 registrations and type IV are Mobile learning Centres serving less than 100 students. In general, the college acquires materials from other institutions, e.g. with Athabasca University and the Open Learning Agency. Students who registered for degree courses supplied by Athabasca University are considered enrolled at both institutions

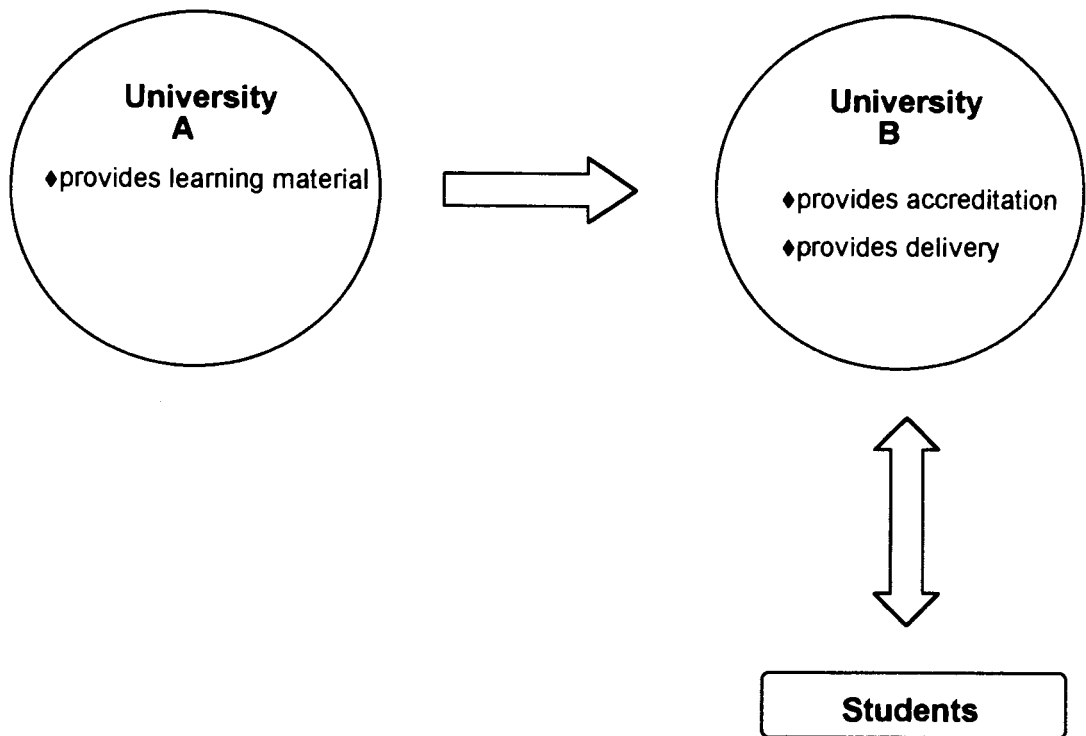


Figure 3.9: Collaborative Model Type I
 (adapted from Coffey's model:in Paine, 1989: 281)

3.7.2.2 Collaborative Model #2

Figure 3.10 shows a model which can serve two client groups (home-based students and overseas students). The collaboration between institutions is much closer and more structured than those in model 3.9. For example the University of Warwick, UK collaborated closely with Worsley Hall, Oxford by offering the Master of Business Administration course for executives world-wide. Warwick University does not have the expertise in distance learning but does have a worldwide reputation in the MBA programme, therefore it provides the accreditation, specialist teaching, selection of tutors and reading list. Worsley Hall provides the distance learning services, including the development and publication

of learning materials, and delivery through local (UK) and overseas centres such as Singapore, Malaysia, Hong Kong and Trinidad.

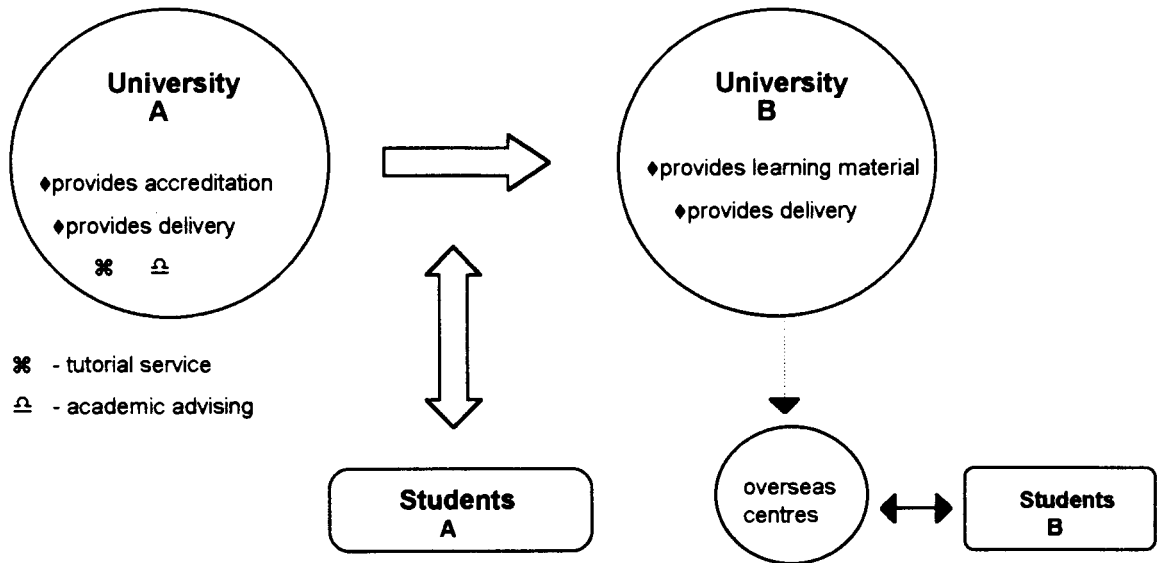


Figure 3.10: Collaborative Model Type 2
(adapted from Coffey's model:in Paine, 1989: 282)

3.7.2.3 Collaborative Model #3

Figure 3.11 is a flexistudy model. The National Extension College in Britain provides a good example of such collaboration. The model here shows that the central institution (A) is linked to several other institutions (B, C, & D). There is no limit on the number of institutions that can be linked to the central institution. The central institutions develop and print materials that are then used by other institutions for preparing students for externally assessed examinations and awards.

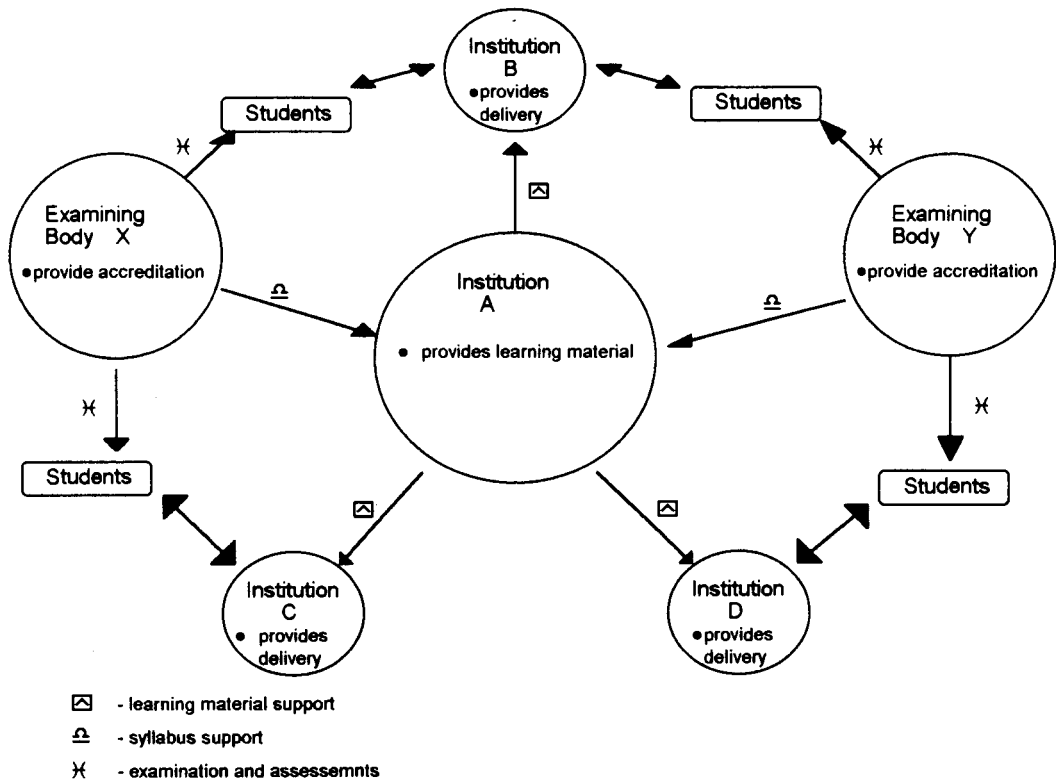


Figure 3.11: Collaborative Model Type #3

3.7.2.4 Collaborative Model #4

Figure 3.12 shows a multilateral network model (Coffey, 1988: 284). Several institutions link up to form a consortium. Each institution is capable of providing its own accreditation, materials, and delivery. Enrollment at any one of the universities is equivalent to enrollment at any other. With electronic delivery of teaching materials, students are able to combine parts of courses offered on other campuses. With this model, students have access to a wider range of courses. With less duplication of courses, each institutions is able to devote more resources to developing specialised courses. Examples of such a model, include the Deutches Institute Fur Fernstudien an der Universitat Tubingen (Germany), the FlexiStudy

system (Britain), the Universita' a Distanza (Italy) and Massey University (New Zealand).

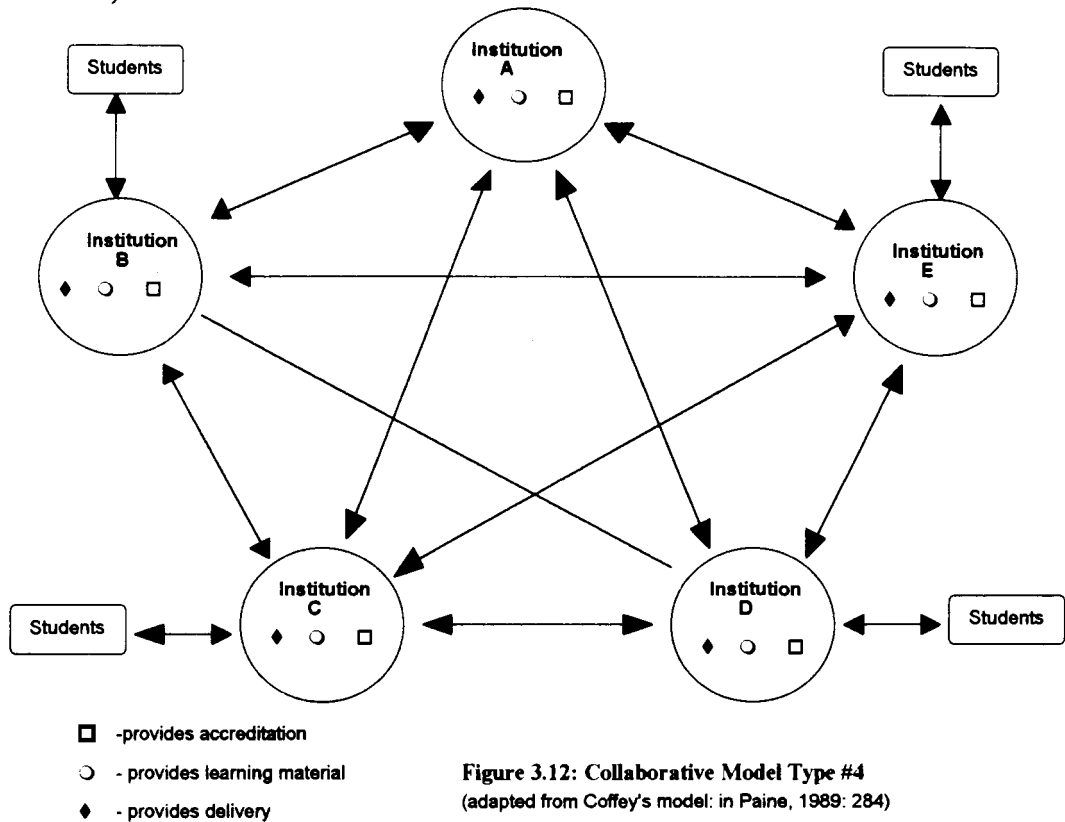


Figure 3.12: Collaborative Model Type #4
 (adapted from Coffey's model: in Paine, 1989: 284)

The above four models are described by Rumble (1986: 103) as falling into one of the following clusters of systems: (1) The classic organisational systems are institutions that are purpose-built for distance learning, developing their own materials, and teaching and examining their own students; (2) The "mixed-mode" systems which teach both conventional class-room based and distance students; and (3) The "consortia" systems that involve a number of hierarchically distinct institutions.

Rumble (1986: 24-39) points out that a particular distance education system may take on any one of three educational models: (1) institution-centred models, (2) person-

centred models, and (3) society-based models. Institution-based models maximise the effectiveness and the efficiency of educational practice, which treat learning as the processing, storage, and retrieval of new information (information-processing). Once enrolled on a course learners cease to be free-agents, in the sense that they are passive recipients of the educational message worked out by the materials producers (1986: 28). In these models, the institutions define the educational aims and specify the objectives, content, and learning tasks required of those taking their courses, the conditions under which learning occurs, and the means of evaluating the learner's achievement. There is a strong emphasis on scheduling such as fixed examination times, assignment cut-off dates, planned study timetables, course start dates, and so forth. The channel of communication between institution and learner focuses on the interactions of a large number of students and a rigid structure of administrative staff (admission and student record clerks and administrators), warehouse operatives (delivering learning materials), and academic intermediaries (tutors, counsellors and assessors) (1986: 28). The materials are often prepared by academics who are separated from the students. Figure 3.13 shows the student within the institutional framework of an institution-centred model. Such a model, according to Escotet (in Rumble, 1986: 28) provides no real and permanent contact between learner and instructor and learner and learner which "distinguishes education (with its implicit social and cultural context) from instruction (the transfer of information without the necessity for dialogue)."

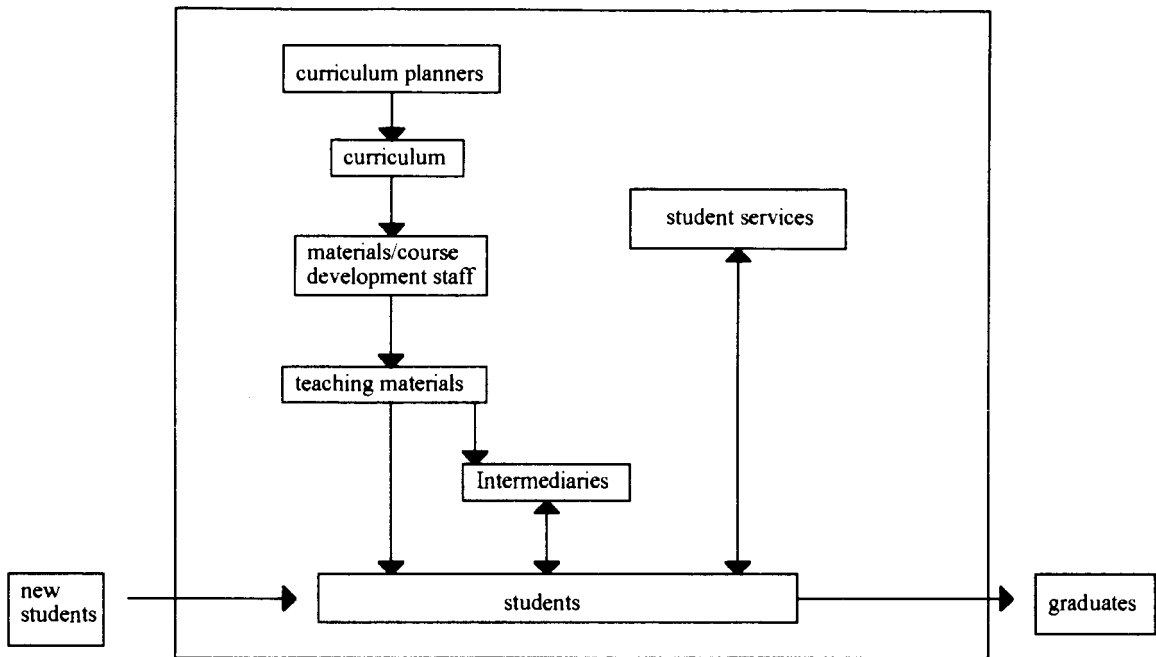


Figure 3.13: Institution-centered distance education model
(Rumble, 1986: 29)

Person-centred models analyse education from a humanistic perspective, putting the main emphasis on individual growth, the meaning and significance that a person places on his or learning experience, and on the motivation of the learner (1986: 30). The learner becomes an "independent" consumer of the products of the system, be they educational materials or services. The learner enters into a stage of negotiation and agreement of individualised programmes of study that are incorporated into a learning contract. The learner is then given a mentor or tutor. Programmes tend to be personalised and the materials produced by the institution will tend to be regarded as a source from which students can pick and choose, rather than as something which they must study. More emphasis may be placed on existing resources such as text books and less reliance on the development of purpose built materials. The tutors are likely to have greater responsibility for negotiating study programmes with learners. The pacing mechanisms are likely to be flexible and subject to renegotiation between tutor and learner. This model allows distance

teaching methods based on the use of materials as one among a number of options that enable students to study. These may include independent study. Such a model was described by Cirigliano (in Rumble, 1986: 31) as an "open education" where it "transcends face-to-face and at a distance methods and implies that the student endowed with his own set of instruments, through the possession of a method or design, organises his own learning situation having recourse to many sources of knowledge, and that the institutions utilise the educational potential of the social environment that offer many routes to knowledge."

Figure 3.14 shows that: (1) learners as independent users of educational materials; (2) learners as users of an educational service; and (3) learners in a contractual relationship with the teaching institution, having access to its materials where this is felt to be necessary, but essentially determining what they learn.

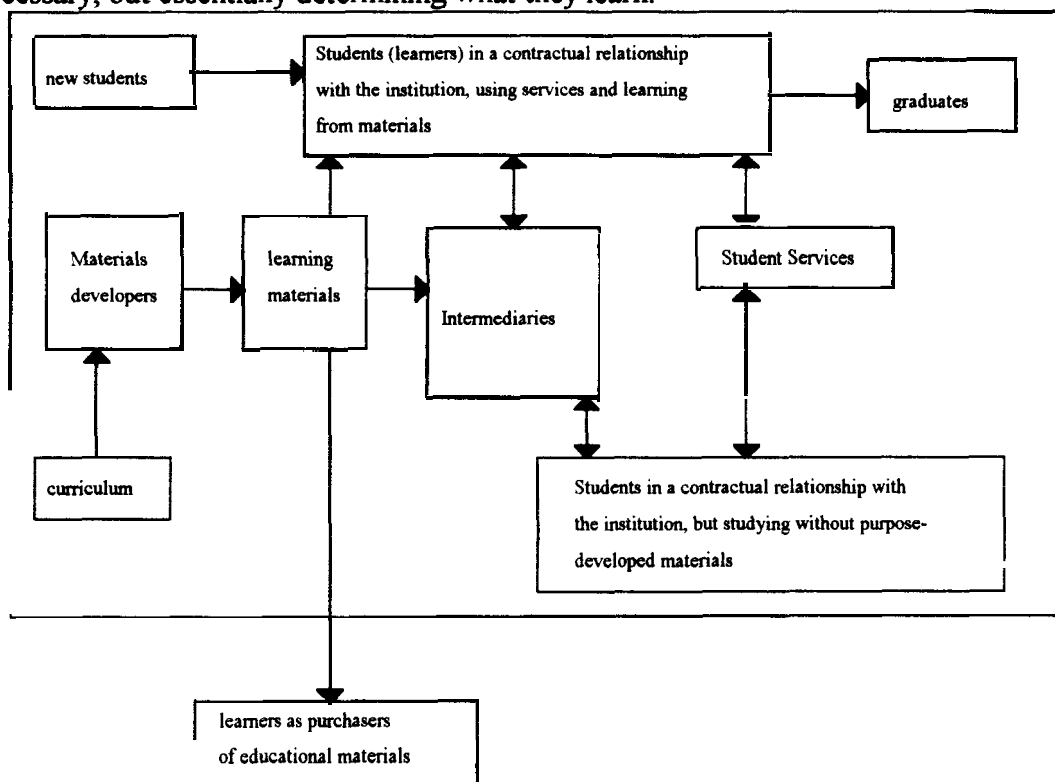


Figure 3.14: Person-centred distance education models

The society-centred models are based on social action and social interaction, where the major role of educational activity is to bring about change in society, and in social structures and institutions.

The institution has to emphasise to the public that it serves the flexibility of its programs, as well as the openness of access which it provides. The course developers have to work out a balance between independent study and face-to-face classes, lectures and seminars. When distance education materials are used in society-based educational projects an appropriate group organisation is set up to help learners use the materials as a resource within the context of a community education project rather than as something that is isolated from the community (1986: 33). The aims of the educators are to help whole communities meet their needs. Learners meet in groups but have an interest in institutions and individuals outside the group. The purpose of the educator is to help the group to identify what is to be learnt, to find the sources for learning, and to evaluate what has been learnt.

In social interaction, where activities are intended to bring about social change in society, the role of the adult educator as a change agent is important. He or she organises people to learn and, through learning, alters society by individual or group action. The adult educator acts as a facilitator or "animateur" to the group and helps them with the mutual clarification of situations and the identification of action to effect change (1986: 34). Such activities were carried out by the Canadian Antigonish Movement which in the 1920s and 1930s established "study clubs" and "kitchen meetings" to engage large numbers of adults in a wide ranging educational programme linked to social action. The Movement utilised mass meetings, conferences, short courses, and radio discussion groups (1986: 34). The "animateur" in Latin America works as an equal partner with the learner, to achieve change through consensus. The institution involves the group identifying

problems and relating these to the personal experience of its members before there is any resort to texts and secondary facts. The range of intervention from the institution may be little or very involved. For example, local groups may produce their own materials for their own use and for inter-group exchange or the educators may intervene with centrally produced teaching materials to help educate the target population to solve some social problems. Figure 3.15 shows the group learning process in a society-based model.

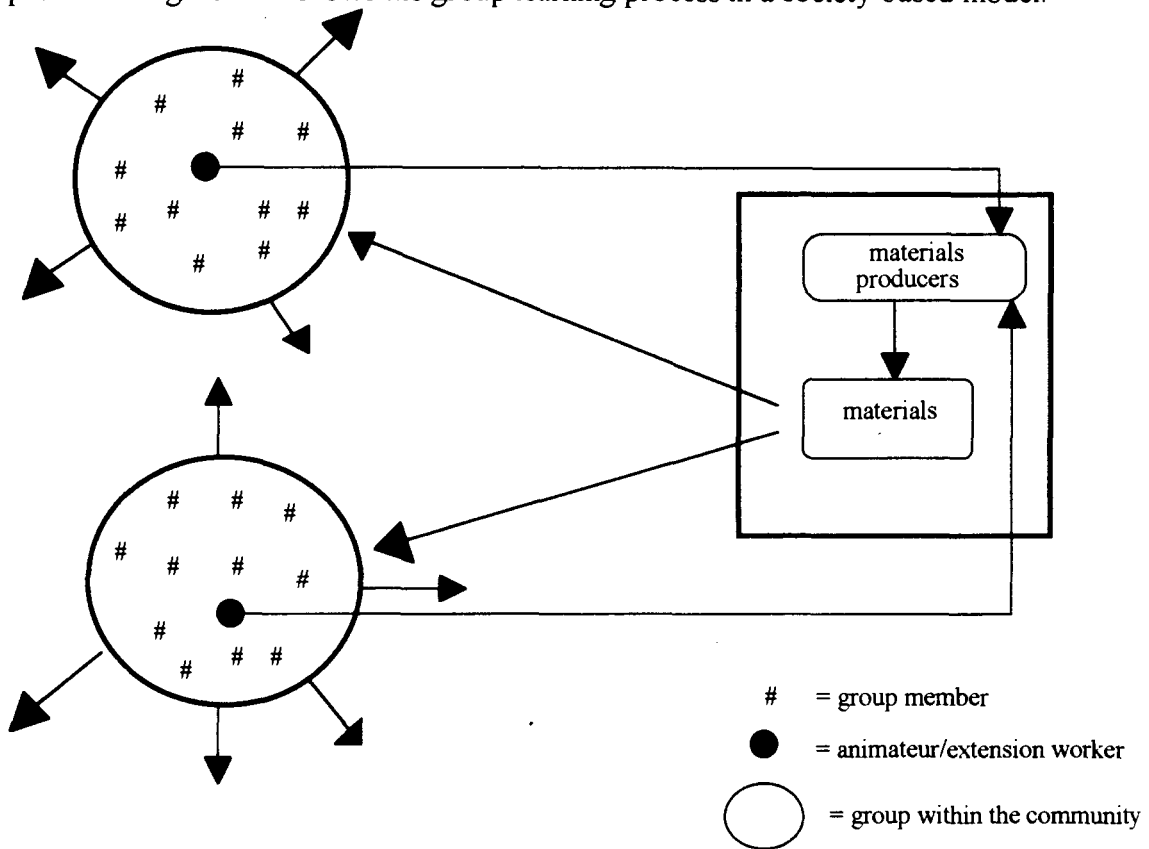


Figure 3.15: Society-based model of distance education system

3.8 Costing of Open Learning Systems

Whenever an educational system is development, the cost becomes an important issue, whether it is public money well spent or if the outcome is going to justify the

amount of money used for developing such a system. Are there other alternative, which are just as cost effective?

Important criterias in the development of an open learning system should include: the system must be effective and efficient. Rumble (1986: 69) stated that:

An organisation is effective if it achieves its objectives: it is efficient if it does this with the optimum use of resources. It follows that it is possible to be effective without being efficient but it is not possible to be efficient without being effective.

Open learning requires considerable investment before a single student can be enrolled - in both the development and production of course materials, and the design and implementation of an institutional infrastructure. An open/distance learning system may cost more in absolute terms than the conventional systems with which it is being compared, but it can be more cost-efficient because it has sufficient students to bring the average cost per student down below that of conventional systems - thus making it more cost-effective. What volume of students are required to make an open learning system cheaper than conventional systems?

Calculating the cost-effectiveness of open learning systems is be a very difficult task, especially when there are many other factors that cannot be measured in term of cost. For example, the benefits, to the nation, of turning illiterates into skilled workers and the cost of training housewives, who would otherwise not have the opportunity to attend traditional college, in areas that they can replace foreign workers. The benefit of individuals to better quality of life, careers, promotion and satisfaction. Also, the benefit to a company because it is able to train better and more efficient workers, therefore, ensuring its survivability in a competitive world.

Comparisons of the average cost per student and per graduate in open/distance and conventional learning systems usually make the assumption that the quality of teaching and

of the outputs (those who graduates) is the same. This is not always the case and academic standards do vary even between institutions of the same type. In Britain, it was estimated that the average annual recurrent cost of an Open University student is about a quarter (in 1973) that of conventional universities, given that the output of both types of universities is of similar standard (Rumble, 1986: 70).

The cost of open/distance education very much depends on the number of students enrolled on any open learning/distance courses, the kind of open learning models and the blend of media used. The Commonwealth Secretariat (Rumble, 1988: 267-282), provided a framework for costing open learning projects. Two methods were mentioned i.e. the economist's approach and the accountant's approach. The economist's approach takes into account variables and invariable or 'fixed' costs, and includes the capital costs of an open learning project. Capital costs are generally amortized¹ over the life of the equipment; and in some cases the depreciation value is account. The accountant approach looks at capital (or investment) expenditure and operating recurrent expenditure. Investment expenditure is looked at as a sunken cost and amortization charges are not normally included in the operating budget.

The cost of an open learning system can be broken into six areas:

- the capital cost of the institution (physical buildings, equipment, and so on).
- the recurrent costs of running the institution.
- the cost of developing and producing materials and courses.
- the cost of teaching of a course (e.g. transmission, tuition, variable print and delivery).
- the cost of support services such as counseling.

¹to write off (a wasting asset) by transfers to a sinking fund.

- the cost of equipping a student to study, such as computers, audio-visual equipment, experimental kits, and so forth

The following formula was used (Rumble, 1988: 256):

$$AC = \frac{C_{\mu} + F}{S} + \pi,$$

where "AC" stands for *Average Cost Per Student*, "S" stands for *volume of student*, "F" stands for *fixed costs*, "C" is the *number of courses* or *the volume of material*, " π " is the *unit cost per student*.

The total cost to an open learning system also depends on the combination of media used. The following are factors, based on the British Open University experience, that should be considered when costing the use of media (Rumble, 1988: 252-255):

3.8.1 Print

The cost of development, text setting (fixed print), printing (variable print), and distribution.

3.8.1.1 The Cost of Development

The cost of writing, editing and graphic design would vary considerably. It would depend on the hiring of full-time academics to develop the materials, or contract the work to a consultant. Full-time academics cost much more but the results one obtains tends to be better than those obtained from consultant. A team of full-time academics working on course materials produces superior work when compared to individuals but brings the cost up.

3.8.1.2 The Cost of Text Setting (fixed print)

This depends on the method of printing used. Offset lithography from typed originals is generally cheaper than letter printing from hot metal typesetting. Word-processing instead of typewriters are easier and cheaper in the long run. Handwritten text, such as the use of calligraphers at Allama Iqbal Open University, Pakistan are much more expensive.

3.8.1.3 The Cost of Printing (variable print)

Costing would depend on the price of paper from country to country. In general offset litho process is cheaper than metal plates if not more than 500 copies are needed.

3.8.1.4 The Cost of Distribution

Distribution would depend on the amount of materials to be distributed and mode of distribution. Materials can be distributed in bulk to learning centres, where they are collected by students or they can be mailed direct to students.

3.8.2 Television/Video-tape Lectures/Closed Circuit Television/Film

Production cost of video-tape lectures and closed circuit television is much cheaper than broadcast quality television. For a four year course, it is cheaper:

- to transmit an hour's material on the open-air network of the BBC (at 1984 prices) if there were more than 936 students over the 4 year period;
- to give students a video-cassette, including its copying, and one-way postage to the student's home, provided there were less than 526 students over 4 years;

- to loan students cassettes - including the cost of buying in a stock of cassettes, copying them, and paying the two-way postage to a student's home, if there were 527 to 935 students over 4 years.

However, use of video-cassettes are found to be educationally more effective, and can be replayed many times by students in study centres or in their own home, but they are expensive to duplicate if the number of students is large.

3.8.3 Radio and Audio-Cassette

Cost of radio production is cheaper than the cost for TV production as well as transmission costs. If the student number is less than 1000, then it is cheaper to provide students with non-returnable audio-cassettes than to broadcast by radio.

Like video-cassettes, the audio-cassettes are more educationally effective than radio, students can replay them many times, and they can be used effectively in conjunction with print (listen and look).

3.8.4 Computer-based Instruction

Although there are insufficient data available at the moment to generalise the cost of using computer-based instruction. However, cost per hour of student contact is generally high. With advancement in computer technology occurring at a rapid pace, they need replacement, on average, within a five year cycle. The same goes for software development.

Table 3.5 shows the costs and success rate in some open/distance learning systems.

| Institution & country | Educational level | Measure of success | Rate | Open/distance teaching costs relative to conventional |
|---|-------------------------------|---|-------------------|--|
| ACPO, Columbia | Primary equivalent | Number taking end of course examination | 53 - 56% (1962-6) | O/D is cheaper |
| Radio Santa Maria, Dominican Republic | Primary equivalent | Number taking promotion examination | 56 - 69% | O/D is cheaper |
| IRDEB, Brazil | Secondary | Examination passes | 37% | O/D probably more expensive |
| Radio ECCA, Canary Islands | Upper primary/lower secondary | Number promoted | 72 - 75% | O/D is cheaper |
| Correspondence Course Unit, Kenya | Teacher Training | Teachers promoted following course. | 90% | O/D is more expensive |
| Air Correspondence High School, South Korea | Secondary | Examination passes as % of enrollments | 13% | O/D more expensive than day schools, cheaper than boarding schools |
| Open University, UK | University | Graduates | 54% | O/D is cheaper |
| Everyman's University, Israel | University | Graduates as a proportion of enrollment | 37% | O/D is cheaper |
| Athabasca University, Canada | University | n/a | n/a | Costs are within the range of comparable Albertan Universities |
| Doncaster Institute of Higher Education, UK | Professional qualifications | Final examination passes 52% | 52% | O/D is cheaper |
| South West London College, UK | Professional qualifications | Final examination passes | 35% | O/D is cheaper than evening classes, more expensive than day-release classes |

Source: Granville Rumble. (1986) *The Planning and Management of Distance Education* New York, St. Martin's: 72

3.9 Open Learning System Meeting the Needs of Adult Learners.

Open learning therefore is increasingly seen as an alternative system for adult learners. It has come to prominence in many developed and developing countries. The British Open University, the British Open College, the Open Learning Agency in Canada, and Deakin University in Australia are good examples of initiatives taken to fulfill the growing needs of the adult learners.

Also, many governments, faced with a growing population that outstrips available resources, see open learning as a solution to providing more access to education for the population. In Southeast Asia, recently established open institutions include; the Universitas Terbuka of Indonesia, Sukhothai Thammathirat Open University of Thailand with about 0.5 million students enrolled, the Open Learning Institute in Hong Kong, and the Open College of the University of East Asia in Macau. In 1991 the Singapore Government also announced its intention to establish an Open University in Singapore. Some institutions molded in the traditional system are now engaged in open/distance learning or have developed open learning programmes. Table 3.6 below shows the number of institutions engaged in distance learning.

| Region | Institutions | | | Total |
|---------------------------|---|---|--|-------|
| | Founded for Distance Learning Primarily | Founded as Conventional and Now Doing Distance Learning | Conventional Institutions Developing Distance Learning | |
| Africa | 10 | 4 | 2 | 16 |
| Asia | 6 | 10 | 9 | 25 |
| Australasia | 13 | 20 | 7 | 40 |
| Europe (East) | - | - | - | - |
| Europe (West) | 57 | 27 | 17 | 101 |
| Middle east | 1 | 0 | 0 | 1 |
| North America | 30 | 41 | 31 | 102 |
| South and Central America | 7 | 5 | 7 | 19 |
| Total | 124 | 107 | 73 | 304 |

Data taken from Distance Education in Asia and the Pacific (Asian Development Bank) p.62

Open Learning Systems can meet most of the learning needs of adult learners. Open learning systems have been developed in many countries that cater for adult learners. For example, of the 1986 cohort at the British Open University, only 1.4% were below 21, the median age of new undergraduates tends to be 32 or 33 years and 70% to 80% are in paid

employment. From 1973 up to the late 1980s about 69,000 adults had graduated. The main form of study is by correspondence texts (estimated as 65%) supported by one-week summer school on almost a third of the courses, home experiment kits for about half the students, audio-video packages, radio and television programmes (10% of learning materials). (Molyneux et al, 1988: 273) The Open university is an example of how a flexible learning institution is able to attract adults to continuing education.

Open learning has provided greater access to education for adults who would otherwise not have had the opportunity to pursue their interest in learning in the more traditional systems. It is a system that provides a second chance for those who missed out on education earlier on in life. Because of the flexibility of open learning systems, adults are able to enroll in courses and study at their own pace and at a time convenient to them. Open Learning systems do not confine their teaching hours from 9am-4pm. when most working adults are not able to attend, but are open most evenings. Systems like the British Open University, the Open Learning Agency and other institutions that modeled themselves after the OU assist adult learners to overcome most learning barriers such as affordable tuition fees, low cost learning materials, accessibility to tutors and learning centres, strong student support including counselling when needed, an outreach programme that informs adults of what courses are available, flexible study time including self pace learning, group learning to encourage socialisation among learners, independent learning, and wider a choice of courses because they are organised in modules. The learner has more control over content and structure. An open learning system provides adults with the means to continue learning as a lifelong activity.

It must be noted that the open learning experiences mentioned in this article are in countries with a huge population or large geographical size - Britain, Canada, Thailand, Indonesia and the United States. Countries with a large population using distance or open

learning are able to take advantage of economies-of-scale. The high cost of setting up an open learning system with extensive media network can be expensive but with a large number of students the unit cost (per student learner) can be lower than the traditional system, as in the case of the Open University.

The description of the various aspects of open learning systems in this chapter is intended to show what is currently used in a number of open learning institutions. It is not intended to suggest that the setting up of an open learning system must include the arrays of technologies and as well as the practices used in an ideal open learning system. Each open learning institution has its own characteristics, depending on the needs of the clients that it serves. For example, one open learning institution may find the use of distance teaching technology as an advantage while another may not find it necessary because the needs of its clientele are all face-to-face.

Countries with smaller populations that are not able to justify putting up the large initial cost of establishing an open learning system may collaborate regionally to set up a cost effective distance learning system. For example, the University of the South Pacific serves about ten island nations, and the University of the West Indies serves a number of independent Caribbean nations.

Recognising the very broad needs of various groups of learners, ranging from preschool children, youth, adults in mid-life and those retired, most governments are faced with the problem of allocating limited resources that cannot possibly meet the total national needs. National policies have to be formulated that prioritise which groups should receive the most funding. For some governments the provision for funding for learners aged between 5 and 19 years is given top priority and they hold the belief that employers should pay for the training of their employees. Some governments are not able to provide sufficient funding for all school age children and therefore do not have the resources to

fund adult education (or large proportion of resources used to fund higher education); while others may provide an infrastructure that is out of reach for the ordinary people except for those who are able to afford the high fees. In Singapore and possibly several other countries, the government has legislated that companies must pay towards a Skill Levy Fund Scheme, which is then used for the training of employees. The policy process in the development of an open learning system should therefore begin with needs assessment of the society and individuals that it is intended to serve. Having considered the overall needs, other factors need also be considered such as resources and key groups in the policy process.

When national and economic development are the top priorities of a nation then the government has to play a leading role in the promotion of education, particularly in the recurrent education of adults. The general education of the population should be raised, from early youth to late adult life, if they are to participate in national development. There should be a clear national policy on adult education and life-long learning should be the cornerstone of such a policy. The translation of policies into action must be followed by sufficient resources, as well as innovations in education to overcome the barriers faced by most adults.

CHAPTER 4

LEARNING NEEDS OF ADULTS IN BRUNEI DARUSSALAM

Synthesis of this Chapter.

This chapter provides an overview of Brunei Darussalam and examines its problems and learning needs of adults. A brief description of the history, the social and employment patterns, economy, its government and political system, demographic trends, and education, provide a useful background for the examination of problems and needs and a synthesis of adult learning needs in Brunei Darussalam. The section on education examines the education system, the policy on adult learners, and current provision of continuing education.

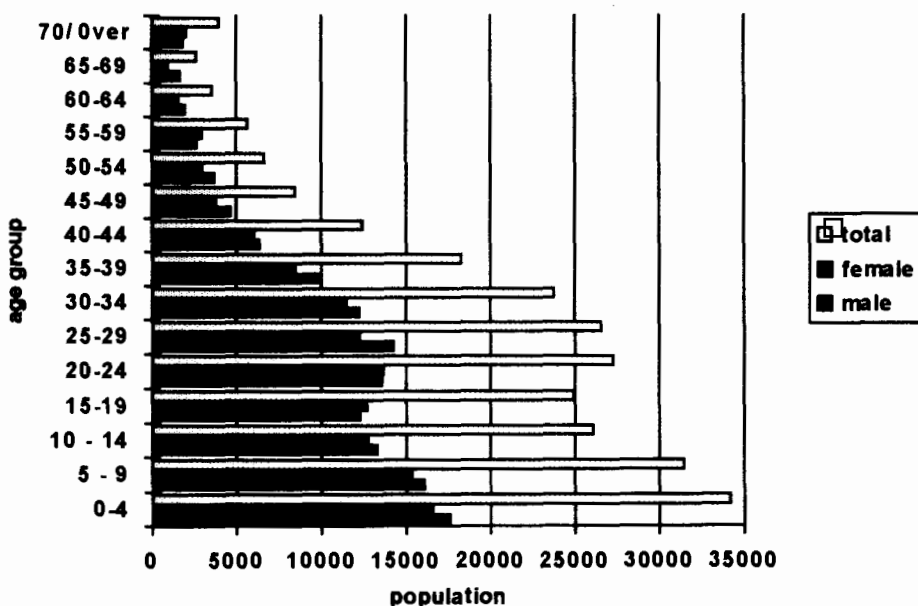
4.1 General Introduction

Brunei Darussalam, a sovereign nation, is situated at the heart of Southeast Asia (see map - Appendix A) and is small in comparison to its ASEAN (Association of South East Asian Nations) neighbors. Bandar Seri Begawan, the capital is some 2 to 3 hours flight time from the other ASEAN capitals and is the seat of the government of Sultan Sir Hassanal Bolkiah, the ruler of the sultanate. The size of the country is roughly 5,760 square kilometers with 70% of its area covered with tropical forest and swamp. It is situated on the north west end of the island of Borneo. It has about 160 kilometers of coastline, facing the South China Sea. The country is divided into four districts, namely Belait, Tutong, Brunei-Muara and Temburong (see map - Appendix A). The district of Temburong is separated from the other districts by Limbang, a district which is part of

Malaysia. The principal means of communication between Temburong and other districts of Brunei Darussalam is by river. The country is surrounded by two Malaysian states called Sabah and Sarawak. The largest district is Belait (2,724 sq. km) followed by Temburong (1,304 sq. km), Tutong (1,166 sq. km) and Brunei-Muara (571 sq. km).

In 1989, Brunei Darussalam had a population of 249,000 (Economic Planning Unit, 1990: 24). The number of males and females are roughly equal. The population is predominantly Malay (68.79%). Chinese, indigenous groups and other races constitute 17.83%, 5.3% and 8.1% of the population respectively. About 57,000 are temporary residents (mainly migrant workers). The Brunei-Muara district is the most populous district (61.52% of total population) followed by Belait (23.33%), Tutong (11.49%) and Temburong (3.65%). The estimated annual rate of increase in population is 3.1%. Approximately 45.8% (114,100) of the population are below the age of 20 years. Figure 4.1 shows the population distribution by age groups for 1990 (EPU, 1991).

Figure 4.1: Population Estimates for Brunei Darussalam by Age Group and Gender for Mid Year 1990



The terrain in the western region of Brunei Darussalam is predominantly hilly lowland below 91 meters, but rising in the hinterland to above 300 meters. The eastern region of the state, consists of predominantly rugged mountain terrain, rising 1,850 meters above sea level at Bukit Pagon. The coast has a wide, tidal and swampy plain. The country has an equatorial climate with uniformly high temperatures, high humidity and heavy rainfall.

Malay is the official language in all government agencies. It is the national language and a requirement of all citizenship. English language is the most frequently used foreign language and is taught as a second language in all schools. It is widely used in the commercial sector.

4.2 Brief History

Brunei Darussalam became a British protectorate in 1888. In 1906, a British resident was nominated as a representative of the British Government. His role was to advise the Sultan in all matters except Malay customs, traditions and Islam. With the establishment of the Resident System, the British set up government departments, beginning with customs, and begun to take charge of executive and administrative responsibilities. The 1959 Agreement established a written constitution which gave Brunei internal self government. In 1971 the agreement was amended and revised to assert full internal independence except for defense and external matters.

Before 1984 the country was simply known as Brunei. The longer name was adopted at the time of independence, and means "abode of Peace". During the 1960's Brunei was invited to join the Malaysian federation. However in 1963, it decided against this move, opting to remain a protectorate of the United Kingdom. In 1975 the United

Nations General Assembly called for general elections and for British withdrawal from Brunei. Negotiations in 1978, followed by assurances from Malaysia and Indonesia that they would respect Brunei's sovereignty, led to a 1979 agreement that Brunei would become fully independent within five years. Brunei Darussalam became independent on the 1st January 1984.

Brunei Darussalam became a member of the Association of South East Asian Nation (ASEAN) in 1984 as well as a sister organisation known as the South East Asian Ministers of Education Organisation (SEAMEO). SEAMEO is a collaborative organisation in the field of education and training with full membership comprising of eight nations, namely, Brunei Darussalam, Singapore, Malaysia, Philippines, Thailand, Indonesia, and non-active members Kampuchea and Laos. Vietnam has shown great interest in rejoining the Association. Associate members include Canada, Australia, New Zealand and Germany. Brunei benefits in many ways by being able to send in-service students to SEAMEO training centers such as the Innovation Technology Centre (INNOTECH) in the Philippines, the Regional English Language Center (RELC) in Singapore, and the Regional Center for Science and Mathematics (RECSAM) based in Malaysia. Soon the region will have a Center for Vocation and Technology based in Brunei Darussalam.

Politically, Brunei Darussalam is a sovereign, democratic, Muslim monarchy. At present its government has 12 ministries. The appointment of ministers and the creation of new ministries are directly controlled by the Head of State, His Majesty the Sultan and Yang Di-Pertuan.

4.3 The Changing Economy

The per capita GNP of Brunei Darussalam for 1985 stood at US\$17,570 (1987:289 World Bank estimates). It is among the very few countries in the world that does not have personal income tax. Brunei's economy is dominated by the oil and liquefied natural gas industries and the Government's offshore investment policy, consequently the economic well being of the country is very much dependent on the world oil market. Brunei Darussalam was once a net exporter of raw rubber, sadly the rubber estates have all but gone, abandoned or turned into housing estates. Before the discovery of oil, the population was mainly rural based with farming and fishing as the main occupations. In recent years people have relocated to urban areas in increasing numbers.

Economic growth, when measured according to the gross domestic product (GDP), increased by 14.3% per annum for the period 1975 - 1984 with 1980 recording the highest growth of about 73% (EPU, 1990: 186). Since 1975, the economy has undergone slight structural change. Although oil and gas continued as the country's largest contributor to the GDP, its share declined from 86% in 1975 to 74% in 1984. The downturn in oil prices after 1984 resulted in shrinking further the share that oil and gas had on the GDP; the estimated figure for 1988 was approximately 46% of the total GDP (EPU, 1990: 183). The services sector for the period 1975 - 1984 grew at an average rate of 17.7% per annum. During the period 1984 to 1988 the GDP fell sharply from 8 billion in 1984 to just under 6 billion in 1988.

The Government's 5th Five-Year Development Plan (Economic Planning Unit, Ministry of Finance: *Fifth National Development Plan*, 1986-1990: 19) has nine stated long term objectives. They are as follows:

- To improve the quality of life of the people.
- To maximise the economic utilisation of national resources.

- To develop new export-oriented industries as well as import substitution industries.
- To accelerate human resource development so as to meet the country's demand for an increasingly sophisticated economy.
- To maintain full employment and increase the level of productivity.
- To maintain a moderate rate of inflation.
- To foster a dynamic, disciplined and responsible society with its citizens as agents for progress and development.
- To encourage and nurture the development of "Rakyat Melayu," Brunei citizens of the Malay race, as leaders of industry and commerce.
- To have a clean and healthy environment.

To complement the long term objectives the government incorporated within the National Development Plan, a set of policies, as a framework for development, which include: policies on petroleum; employment; financial institutions; government expenditure & budgeting; human resource development, particularly in higher education and technical and vocational training; industrial development, including the level of government intervention on the participation rate between the government and the private sector; agriculture; social, cultural and welfare development; and policies for the control of environmental pollution.

Although, there is no clear statement of the need to diversify the economy within the nine objectives, the introduction (Economic Planning Unit, Ministry of Finance: 1) in the 5th Five Year National Development Plan makes it clear that the government recognises the urgent need for diversification from the oil and gas industries, the country's principal export. The emphasis is on establishing an infrastructure that will promote the development of new export oriented industries as well as import substitution industries.

The downturn in the economy during the period 1984 to 1990 also resulted in the indefinite shelving of some of the more ambitious objectives within the 5th Five-Year Development Plan. The Government recognises that previous plans have failed to diversify the economy, which is reflected in the relatively small growth in manufacturing, agriculture, forestry and fisheries sectors; total GDP for these sectors accounts for only 1.1%. Self sufficiency in strategic food items such as rice and meat products is an important consideration in the government's development plan; and in times of external conflict, when food cannot be imported, the country should be able to survive comfortably on locally harvested produce.

The establishment of a new Ministry of Industry and Primary Resources, in January 1988, charged with the responsibility of promoting local industries indicates the firm commitment of the government to diversifying the economy. Much of the fund earmarked for the 5th Five-Year Plan was utilised for building an adequate infrastructure for the creation of new industries. There are, however, several major constraints to industrial development, namely, difficulty of obtaining lease land from the government for industrial purposes; too many agencies responsible for business licenses resulting in lengthy delays in building permission and labour recruitment; the reluctance of local entrepreneurs to invest (may be due to the unfavourable business environment and poor incentives); comparatively (as in South East Asian region) high labour costs; lack of security for employees (very few companies offer pension schemes) in the private sector as against the government sector; shortage of a skilled local labour force; and insufficient job training and exposure (EPU, 1986: 23).

The Government believes that the effect of these problems on economic expansion can be dealt with by a move towards export oriented industry, developing a skilled and efficient workforce and eventually creating a large international financial services sector

within the country. A large proportion of the labour force are expatriates, particularly in the private sector. The recommendations in the 5th Five-Year National Development Plan (Economic Planning Unit, 5th National Development Plan, 1986: 23), therefore, is to surmount the above mentioned constraints, such as; adopting a cohesive land policy for facilitating industrial development; the setting up of an authority in the government responsible for promotion of industry; the formulation of programmes for the development of Malay citizen businesspersons and entrepreneurs; the establishment of a development bank to provide the necessary funds for industries, trade and commerce; encouragement of mechanisation and automation and non-labour intensive industries; the setting up of either a National Pension Scheme or employees provident fund, to provide security for retirement in the private sector; an employment policy to provide incentives for private sector development; the setting up of a National Training Scheme to promote full local manpower; privatisation of some of the present government services; establishing public corporations and holding companies to participate directly or indirectly in joint ventures and transfer of technology; and the encouragement of research and development in various industries. The proposed National Training Scheme would involve the government and employers working together to train Bruneians to work in areas of commerce and industry at skilled levels covering a wide range of professions, such as junior technician, advanced craftsman and sub-professional (EPU, 1986: 25). The scheme would provide systematic on-the-job training programmes for officers in the public and private sectors.

Several of the eleven recommendations in the 5th NDP have been acted upon, namely, the setting up of the Ministry of Industry and Primary Resources, with responsibilities that include policy on land code for commercial and industrial use; the setting up of a development bank; the establishment of a loan scheme under the Economic Development Board for local entrepreneurs wishing to start small businesses and the

setting up of an Employees Provident Fund (announced in June 1991). To date, no government services have been privatised.

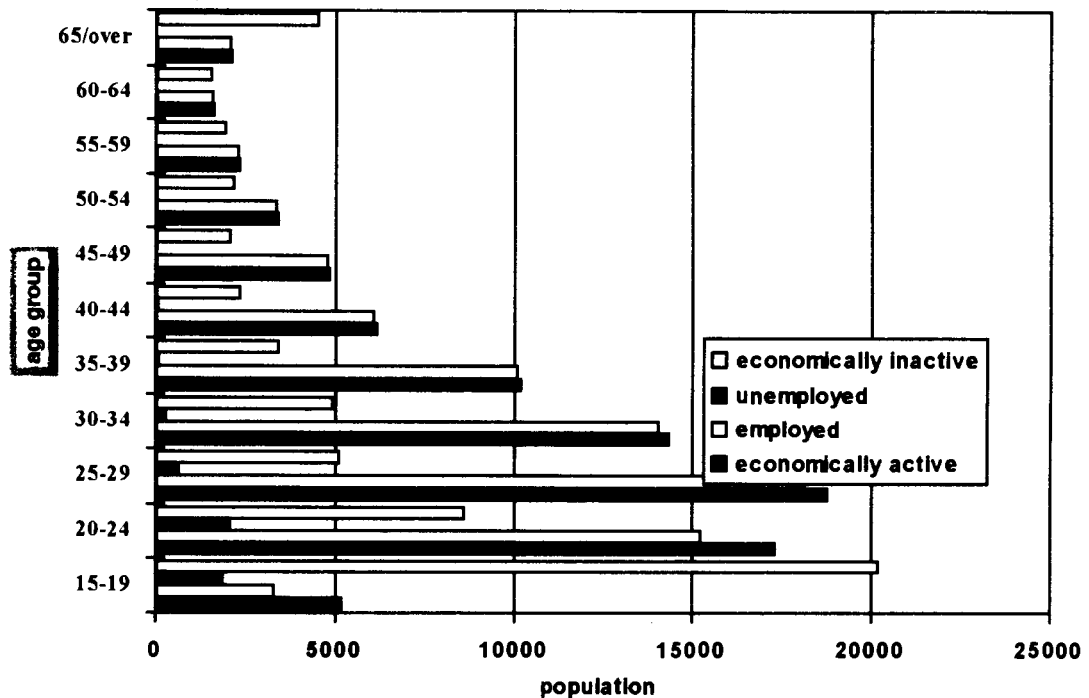
Although, the Fifth Five-Year Development Plan officially ended in 1990, many projects earmarked for that period have not been completed and some are in progress at the present time. For example, two new vocational schools budgeted in the Plan are being developed now and are due for completion by mid-1993. The 6th Five-Year Development Plan has not been officially been announced but my speculation is that the new plan will continue with the same general theme of "socio-economic development" as its predecessor.

Until now, Brunei Darussalam has had little success attracting sufficient investments into the manufacturing industry, though there have been some in the garment industry for export. Such industries are labour intensive and face stiff competition from countries like Hong Kong, Malaysia and Thailand, with cheaper labour. However comparative advantage can be made available if low energy costs and low taxation can be provided as incentives. The ultimate route could be for high technology products, that are less labour intensive but requiring highly skilled workers. The educational system could be adapted to meet such a demand. The services sectors have grown remarkably in the last decade, which is reflected by the number of workers, for example, in production, construction and other related fields. From 1978 to 1989, the average annual rate of increase in employment in the private sector was approximately 9.6% (EPU, 1990: 59). Over the same period, employment in sales and services increased by 52.36% and for administrative, managerial and clerical the increases were 184%.

4.4 Employment patterns

In 1986, 57.57% (143,354) of the population were economically active (15 years and above) of which 60.3% were registered as employed (EPU, 1990: 52). The economically active population (or labour force) for 1986, the bulk being between the ages of 20 and 40, are shown in figure 4.2.

Figure 4.2: Economically Active Population. 1986 (EPU, 1990: 52)



Forty eight percent (119,500) of the population is between the age of 20 to 54, of which 78.41% (93,700) of those are between the age of 20 to 40 years old. The compulsory retirement age is 55 years old for males and 50 years for females. Brunei Darussalam therefore has a fairly young population. (EPU, 1990) The country is succeeding fairly well in preparing Brunei citizens for senior positions in government enterprises, but still faces problems of providing for the commercial and manufacturing sectors. How to fill the lower levels of the economic structure with willing workers is a far

more serious problem. Most students who complete secondary education prefer to enter what they consider as high prestige occupations, ones they feel are equal to their educational level. White collar jobs are the preference over laboring with ones hands. The general public understand that the country needs workers at all levels of the job structure, however, when people are faced with the question of who should fill which jobs, invariably the preference is for the so called respectable white collar jobs. They expect "others" to take the manual-labor jobs. Since jobs within the government departments represent job security, carry annual bonuses and other perks such as a generous retirement pension, it is not surprising that jobs in the private sector are snubbed in preference to a government jobs.

The unemployment rate (Economic Planning Unit, 1990: 51) for the work force aged 15 years and above in 1986 was 6.1%, a dramatic increase when compared to 3.6% in 1981. The bulk of the unemployed falls on the 15 to 24 age-group. However, the figure above is rather misleading if one also considers the high proportion of foreign workers employed in the commercial and public sectors. Several factors may contribute to the high unemployment figure such as; vacant positions requiring specialized skills for which Brunei citizens are not trained, the high expectations of school leavers and the incompatibility of skills to job requirements. In 1986, 32% of the workforce were foreign workers: 24.26% of professional, technical and related jobs and 42.7% of production and transportation jobs were filled by foreign workers (calculated from data extracted from EPU, 1990: 55).

The Hykin's report (1982: 9) estimated that there was a shortage of eleven thousand people at craft level. The report also stated overwhelming evidence (from interviews and data analysis) of a serious shortage of middle level skilled manpower in the government and private sector. One has to bear in mind, however, that the report was

made at a time when the economy was growing at an unprecedented rate as a result of huge surpluses in government revenue from its oil royalties (due to a tripling of the world crude oil price). The requirements could be smaller and somewhat different now, with a downturn in the economy, since the mid-80s. However the gap (Labour shortage) was temporarily plugged by importing large numbers of migrant workers from the neighboring states. The Brunei Darussalam Statistical Yearbook (Economic Planning Unit, 1989: 2) stated that "Brunei Darussalam's small population is insufficient to provide all the manpower needed to implement the targets in its development plans. Figure 4.3 below shows the growth of employment in the private sector from 1978 to 1989 (EPU, 1990: 60).

Figure 4.3: Number of Employees in the private sector by major industry

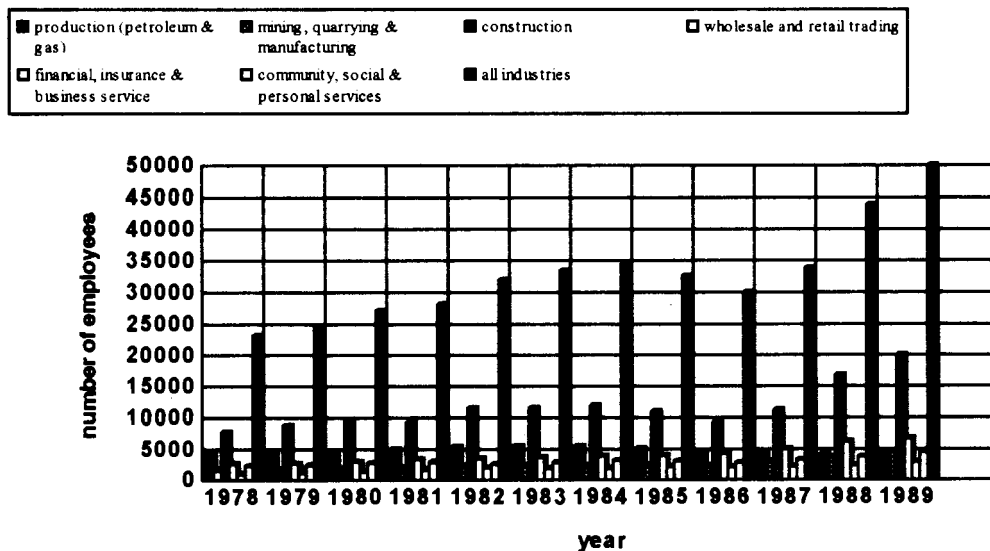
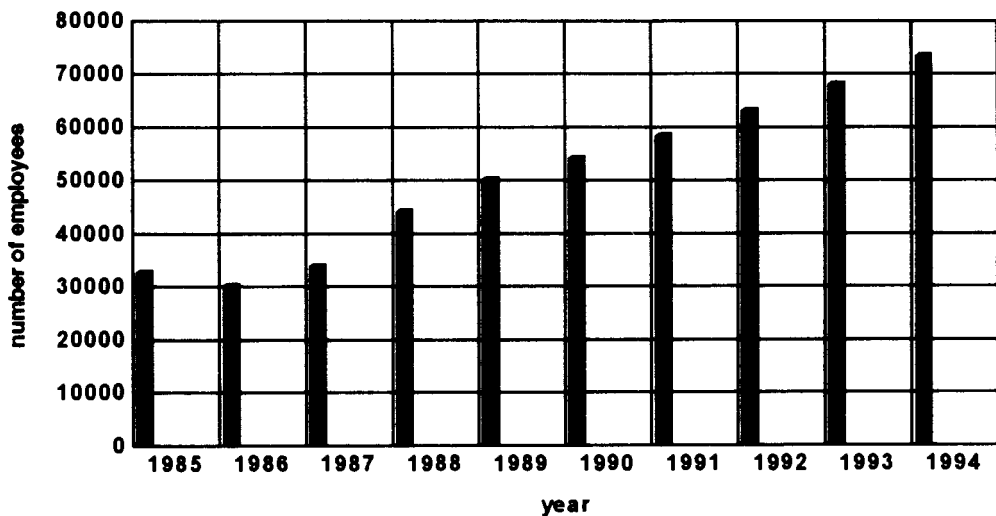


Figure 4.3 shows a strong employment growth of about 79% in the construction industry between 1987 and 1989. The overall growth in the private sector over the five years from 1985 to 1989 was about 53%. Using the 1978-1989 employment growth, the average annual growth rate of 7.90% was calculated and the projected number of

employees in the private sector of the labour force is estimated as 73,095 by 1994. Figure 4.4 below shows the projected growth up to 1994. This is a fairly high growth contributed largely by the growth in the construction (79.2%), community, social and personal services (38.7%), and wholesale and retail trading (34.8%) sectors from 1987 to 1989 (EPU, 1991: 60). Based on this projection, an additional 23,116 jobs may be created from 1990 to 1994.

Figure 4.4: Number of Employees in the private sector



The cost of labor in Brunei Darussalam is high compared to its Asian neighbours. This is due to labor shortages and the fact that most of the labor has to be brought from overseas. This also affects production costs and makes Brunei an unattractive investment destination.

The present scenario may seem rather rosy, with ample job opportunities for Bruneians with the right qualifications and attitudes, however, without careful planning and the right developmental strategies, the picture may not be so bright, particularly if one takes into account that the impact of high unemployment is cushioned by the Government

creating more jobs within the government ministries. The Government cannot continue to sustain employment by bureaucratic growth. A British Council Study (Colclough and Godfry, 1982: 49) stated that the government "has lost control over the size of its labour force." The study also found that over three quarters of citizen employees worked for the government (1982: 49) and that the norm should be around 12,000 (620 per 10,000 population) public employees rather than 32,000 (1,660 per 10,000 population), even with its high Gross National Product per head (1982: 47). The report recommended a reduction in the government payroll. It has to generate jobs for its citizen within the commercial and private sectors. Based on Colclough's and Godfry's formula, the number of public employees for 1989 should be about 15,500 for a population of 250,000 people but, the actual number exceed 41,000.

In 1989 there were approximately 20,000 secondary school students and 1287 technical/vocational students in the state, not counting those studying abroad. Annually 180 - 200 enter the national university. Within the next five years, the national university in Brunei will be able to absorb about 1200 students, including some mature students. By simple deduction, at least 20,000 students will "pour" into the labor market by 1994.

Another way of estimating labour growth is to analyse the annual registration of job vacancies at the Labour Department. The labour statistics (Economic Planning Unit, 1990: 61) indicate that annual registration (vacancies notified) at Employment Exchanges is between 2,300 and 2,600 in government departments and the private sector from the years 1978 to 1988. Assuming that these figures remain constant for the next five years, then a total of 11,500 to 13,000 new vacancies will be created. This is far short of the projected labour growth, calculated based on employment growth from 1978 to 1989, and inadequate to meet the number of school leavers expected to join the labor market in the next five years. Many of the school leavers can be trained to fill existing positions held by

contract staff, particularly in the professional, skilled and semiskilled areas. Once those positions are all taken by Brunei citizens, what then are the employment opportunities for the next 10 years? Will the job market expand to meet future demand, taking into account the population breakdown of 0 - 4 years - 34,200, 5 - 9 years old - 31,500 and 10 - 14 years old - 26,000 (1990 population estimates, Economic Planning Unit) joining the labour market in increasing numbers?

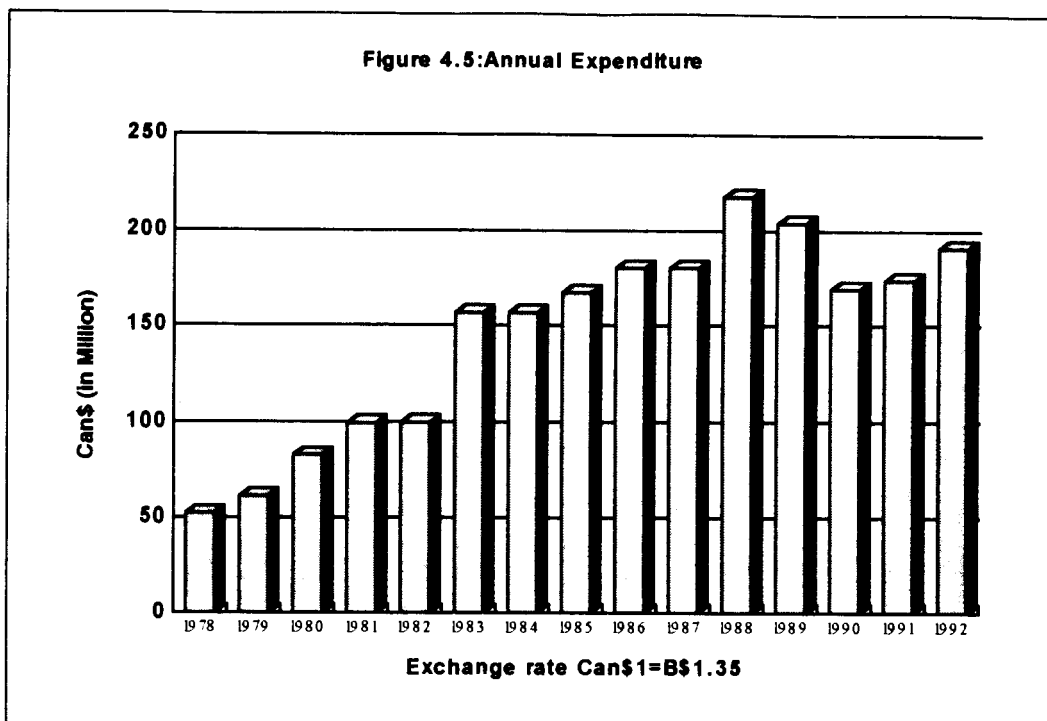
4.5 Education

4.5.1 General Introduction

Brunei Darussalam is small and atypical, it has so far attracted little attention from comparative educationists. This is regrettable, for the country has much to contribute to wider debates (Attwood & Bray, 1989: 70).

Education, in the western sense, is a recent phenomena. The school system is essentially inherited from the British system. The first Malay vernacular school was established in 1912, with a total enrollment of 53 boys. Between the period of 1912 and 1929 the enrollment increased to 756 boys. The first Chinese medium school was opened in 1916; and then an English school and an Anglican Mission school in 1931. A Malay school for girls was established in 1930. Prior to 1975, a large number of students were sent abroad by the government, the majority to British schools, to study "A" level courses leading to higher education. In 1975 the Sixth Form Center was opened with an enrollment of 501 students. Upon successful completion of their "A" levels, many proceeded to higher institutions in Britain. A few took courses in Australia, New Zealand, Malaysia or Singapore. In 1985, The University of Brunei Darussalam was established, with an initial enrollment of about 185 students.

Brunei Darussalam has achieved an approximate 95% primary school enrollment rate with roughly 93% entering into the first year of secondary school (1991), although a high percentage drop out before reaching the fifth year of secondary education. These figures, however do not match up to the enviable record of Singapore (95% complete sixth grade and 95% complete the fourth year of secondary education) in retaining a large percentage of students until the completion of their secondary education. The enrollment rate is however surprisingly high when it is realized that primary education is not compulsory. The high rate of attendance could be due to the increasing importance placed on education as a means for social mobility, and the fact that the government has established schools in remote areas and villages so that a child does not need to travel far to reach a primary school. The annual recurrent expenditure on education was Can\$224.5 million (including Universiti Brunei Darussalam) in 1989 compared to Can\$61 million in 1979. This figure does not include development costs (which are kept in a separate fund - the 5th Five-Year Development Plan budget). This represents about 15% of the governments expenditure. Figure 4.5 below shows the budget allocation from 1978 to 1992.



There are three "bottleneck" stages in the flow of students from one level to a higher level, namely the Primary Certificate of Education (PCE), the Brunei Junior Certificate of Education (BJCE) and the Brunei General Certificate of Education (BGCE). Students are retained if they fail the PCE but are promoted if they fail on their second sitting. At BJCE and BGCE, those who fail the second sitting are required to leave school. The 1991 PCE statistical analysis showed a mean of 74% pass rate for all schools in the state. However there seems to be differences in the pass rate between urban and rural schools. One rural school (Menunggul Primary School) obtained a pass rate of only 13 %. There is also a significant difference between government run schools (72.21% pass) and privately run schools (96.67% pass). In the same year 3,583 students sat for the BJCE and 14.46% failed. The pass rates between government schools and non-government schools were 87.55% and 81.74% respectively. The percentage failure of private candidates (including adult learners) was 68.75%. Further studies may determine in which subjects students failed or why adult learners performed badly, however, this would be out of the scope of

this thesis. A comparison between Brunei and Singapore students' achievements in the 1980 and 1981 BGCE 'O' level examination indicated that only a small proportion of Brunei children were achieving their full potential. Table 4.1 below shows the achievement at 'O' and 'A' levels for 1980 and 1981 of corresponding cohorts of students entering each education system in Brunei Darussalam and Singapore.

Table 4.1: Brunei and Singapore Students' Achievement Rate in the 1980 and 1981 GCE 'O' and 'A' level examination.

| | 1980 | | 1981 | |
|-------------------------------|-------------|---------------|-------------|---------------|
| | Brunei | Singapore | Brunei | Singapore |
| Group Size(all groups) | 4659 | 52,710 | 4929 | 51,390 |
| % taking 'O' level | 42.3 | 62.0 | 45.0 | 65.0 |
| % obtaining 3+ passes | 18.6 | 42.0 | 15.3 | 45.0 |
| % obtaining 5+ passes | 6.2 | 25.0 | 5.9 | 25.0 |
| Group Size(all groups) | 4257 | 56,302 | 4365 | 54,733 |
| % taking 'A' level | 9.9 | 10.0 | 9.9 | 14.0 |
| % obtaining 1 pass | 8.1 | 9.4 | 7.6 | 12.8 |
| % obtaining 2+ passes | 5.1 | 6.8 | 4.4 | 8.5 |

The above table shows that at 'O' level, 4 times as many Singaporean students obtained passes proportionally to each Bruneian student. The percentage of Brunei citizens participating in further education is approximately 8% (Hykin's Report, 1982: 76). Hykin stated that the norm for Western Europe is about 14% (1982: 76) and in Germany 20% of cohorts go on into higher education (Striner, 1971: 41).

Although no similar data on more recent cohorts reaching 'O' and 'A' levels were available at the time of writing this thesis, the success rates are likely to be similar to those presented by Hykin. Based on my experience, less than 10% of students succeeded in obtaining places at 'A' level in 1991 and the number of students obtaining 3 credits or more in the GCE 'O' and 'A' level examinations for 1991 has not improved significantly over the 1981 results.

On closer examination of data (EPU, 1990: 158), the percentage of males in primary schools ranges from 51.09% to 52.48% from 1978 to 1989, however, during the same period the percentage of secondary level male students steadily declined from

50.22% in 1978 to 48.03% in 1989. This indicates that more males dropped out of school and that females tend to stay longer at the secondary level. This contrasted with the percentage (average of 51.11% of school going age) of males in the population. It would be interesting to study this phenomena, however, that would also be outside the scope of this thesis. Figure 4.6 below shows the pattern, from 1978 to 1989, of male and female students' enrollment at primary and secondary levels.

Figure 4.6: Number of students according to gender at primary and secondary levels

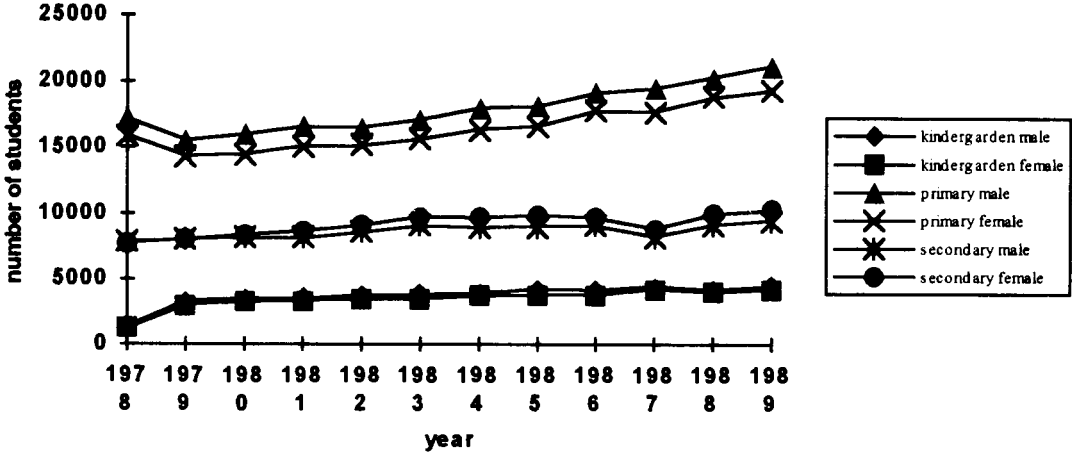
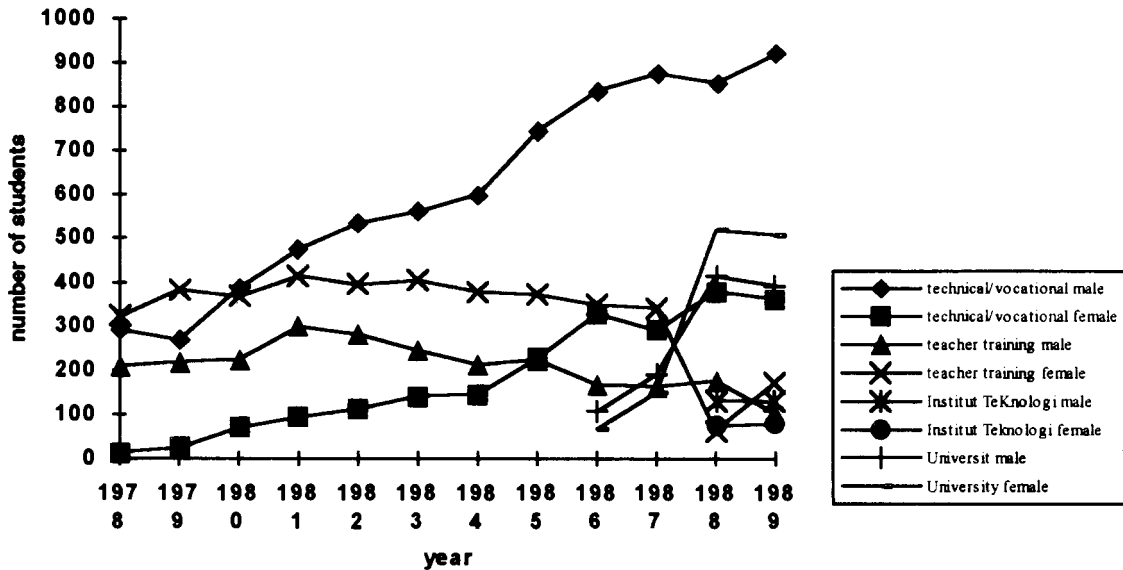


Figure 4.7 below shows the student numbers at post-secondary levels. The number of females taking technical courses are lower than males but the numbers at university and teacher training levels show significantly more females taking higher education courses in 1989.

Figure 4.7: Number of students according to gender at post secondary levels



People's attitudes regarding which occupations carry the greatest prestige and reward, have influenced the output of schools in two ways. For example, most families sufficiently ambitious to urge their children to complete secondary school do not want them to stop at that level. They want their children to continue on to college, although more often for the sake of the diploma than for the interest in the knowledge that such a diploma is expected to represent. Therefore, very few secondary school graduates, upon finishing the secondary level are interested in entering middle-level technical and management positions. Instead, they want to go on to "something better". When the first technical and vocational school was established, it accepted most of the dropout students from the secondary schools. As a consequence, parents are left with the impression that those schools are only meant for dropouts i.e. those who are less able academically. A certain stigma is still attached to these schools today. In increasing numbers, parents,

whose children fail to do well in traditional schools, are sending their children abroad to attend likewise traditional boarding schools.

The number of schools being built has not kept up with population increases. Many schools are now becoming overcrowded and most have resorted to operating double sessions (one group of students uses the school during the morning and another group uses it in the afternoon). For example, the enrollment of students has increased by 37.58% from 1978 to 1989 (EPU, 1990: 155), however the number of schools has only increased by 18%. Many of these schools are housed in "temporary" buildings and are not conducive to learning. In 1987 to 1989 only two schools were built compared to the peak of 10 in 1985/86. This could be due partly to budgetary constraints and the government's austerity drive.

Student enrollment in 1989 (Economic Planning Unit, 1990: 158) for the vocational schools in Brunei Darussalam was 1,287 (924 males) and 1,573 in 1991 (Ministry of Education, 1992: 139). Nine hundred students enrolled at the University of Brunei Darussalam, the majority in humanities courses. The classical curricula in humanities, social sciences, and advanced sciences continues to carry more prestige than technical or business curricula. A vocational school simply does not attract the quantity or quality of applicants that are attracted by the traditional academic institutions. Part of the problem also lies with the fact that the salary structure, on entering employment, does not favour students taking such courses. The rewards may not be worth it in the long term. Limited places available in technical and vocational schools is another problem. The cost of building and maintaining technical and vocational schools is much higher than for traditional schools; machines have to be replaced often to keep up with technological changes in the workplace. Those entering technical courses are required to have a good mathematics and English language background, of which, the majority of school leavers

are lacking. Many school leavers have little option, but to enter the less popular craft level courses (carpentry, bricklaying, painting, etc.) or go straight into the job market. Once they enter the job market, it becomes difficult or almost impossible for them to enter into a vocational or technical school, as newer school leavers join the queue for places.

Brunei Darussalam faces severe manpower shortages in many areas. With economic expansion followed by rapid population increases, the education system has to constantly increase its enrollments. The number of English, mathematics, science and technical teachers needed by the country increases every year but the numbers graduating each year can barely keep pace with demands. Shortages are most severe in some technical courses such as aircraft engineering and computer science. This is because of stiff competition from the private sector and the fixed salary structure within the government system which does not attract many people. A shortage of trainers could in the long term also restrict the economy of the country. It will be difficult for the government to achieve the objectives of human resource development and industrial diversification.

4.5.2 National Education Policy and Objectives.

The Government of Brunei Darussalam sees education as a continuing endeavor to develop the all-round potential of the individual. The system is designed to bring into being an educated and devout, as well as dynamic, disciplined and responsible people. Their virtues should be complementary with the needs of the state and founded on spiritual values which are noble in the sight of Allah.

The National Education Policy has seven main aims (Ministry of Education, 1992: 4):

1. To promote and sustain an educational system in which the Malay Language will play a leading role and to ensure the continued use of the English Language.
2. To provide for the teaching of Islam, including Islamic values and way of life, within the curriculum.
3. To give all Bruneian children every opportunity to achieve at least an upper secondary or vocational education.
4. To provide a common curriculum with standardised public examinations of uniform type for all schools and colleges in the country.
5. To provide opportunities for all children in Brunei Darussalam to develop to their full potential so that they may play a useful role in the development of the country.
6. To cultivate in each individual the values and cultural norms of Bruneian society, centered on the principle of a Malay Islamic Monarchy.
7. To provide access to higher education, to those capable and qualified, according to the needs of Brunei Darussalam.

While decisions on routine procedural aspects of the Ministry's operation may be taken at almost every level of the system, these decisions which are deemed to concern 'policy' must carry the authority of the Minister or Deputy Minister. Apart from major and obvious issues, however, interpretations may differ among less senior staff about what should or should not be classified as policy or procedure.

Once a clear decision is taken at the highest level, implementation is effected through a hierarchical system. It would not normally be seen as appropriate for decisions to be questioned from below, though there is sometimes scope for individual decisions about the promptness of handling instructions.

Senior staff have a clear preference for a consensus style of decision-making. Consultation would normally occur within a particular sphere of the hierarchy, or within one level above or below, in order to establish a coalition of support, although this is still possible.

There is also a tendency for heads of departments to refer major decisions, and at times minor issues related to finance, to the Permanent Secretary, Deputy Minister or Minister. This may be in the form of a memorandum to the Permanent Secretary or a working paper presented at Education Planning Council meetings.

Policies on education are formulated by the Education Planning Council (chaired by the Minister), however, before a policy can be implemented, the minister seeks consent for its adoption from the Head of State. In many cases, a series of consultations between government departments regarding the intended policy are required. Occasionally, the Ministry will conduct public debate on policy issues. A paper on proposed educational policies may also be presented at Cabinet meetings, when the support of other ministries is required.

4.5.3 The Education System

Brunei Darussalam has a 6-3-2-2 system of primary, secondary and upper/post secondary levels with pupils entering the system at 5+ years at pre-school level for one year. The organization chart showing the formal system of education is presented in Figure 4.8. At the end of the six year primary cycle, pupils sit the Primary Certificate of Education examination before proceeding to the secondary level. Students sit for examinations in mathematics, Malay language, English language and there is a general paper (science, history and geography). Students must obtain passes in all subjects and those who fail can be retained once. A fail at the second sitting results in automatic

promotion. The secondary level lasts seven years: lower secondary lasts three years, the Ordinary Level course lasts two years, and another two years are spent in higher secondary (pre-university or "A" level course) level. Students who complete "A" level courses with adequate and relevant credits may be eligible for entry to the local university, Institute of Technology or awarded scholarships to study abroad.

Some children in private institutions enter pre-school at age three for two years of pre-schooling before proceeding to primary education. The duration of each level thereafter is the same as the government system.

The school term starts in January and ends in December of each year. There are three school terms in a year with the long holiday, occurring during the month of Ramadan (Muslim fasting month) lasting for about 6 weeks. The university semester starts in September and ends in July the following year.

Schooling, tuition, textbooks and transport are all free for citizens in government institutions. Hostel accommodation, for students from the rural areas, is also free for all citizens as are snacks in urban and suburban schools and lunches in remote rural schools. Non-citizens are charged a nominal fee for secondary tuition.

At the post-secondary level several institutions provide specialized training. They include the Mechanical Training Center in Senaut, the Jefri Bolkih College in Kuala Belait, the Saiful Rizal Technical College, the Institute Teknologi Brunei (ITB), and the Universiti Brunei Darussalam (UBD) in Bandar Seri Begawan. The university has four faculties that offer degree programmes of four years and Certificate in Education programme of three years. Due to limited places available, the university is presently open to citizens only. ITB provides a two and a half year Higher National Diploma program based on the British Business and Technical Education Council (BTEC) examination. However by 1996, Brunei Darussalam will have its own awarding council in place of

BTEC. The technical and vocational schools provide basic craft and technician programs. Two new vocational schools have been planned; the first, modeled after the community college, will be completed in 1993 at Lambak Kanan in the capital.

4.5.3.1 Mandated Change

A bilingual system of education was introduced in 1985 to all government run schools in Brunei Darussalam under the Ministry of Education. The schools were integrated from two separate systems into a single system. Before 1985, the Ministry of Education had a Malay medium and an English medium system. Malay medium students were required to learn English as a foreign language and the medium of instruction was Malay for all subjects. For the English medium students, Malay language was a compulsory subject among the core subjects of English language, mathematics and science at both primary and secondary levels. Malay medium students who had completed their secondary education were then required to sit for the Singapore Cambridge General Certificate of Education Examination (SGCE) at Ordinary then Advanced level while English medium students were required to sit for the Brunei Cambridge General Certificate of Education (BGCE) examinations. The SGCE were set and marked in Singapore and the BGCE in Britain. The SGCE, for Malay medium students in Singapore, was already being phased out by that time and a special arrangement had been made, to enable Brunei Darussalam, continued use of the facilities of the SGCE Board for the Malay medium examination.

In 1985, mandated change affected only government run schools, The privately funded Chinese school system and the Arabic medium system, (which includes all religious schools) which came under the jurisdiction of the Ministry of Religious Affairs, were not required to nor did they switch to a bilingual mode. It should be noted here that a few

non-government schools adopted the change voluntarily. The Arabic system, which also used the SGCE Examination Board, was similar to the Malay medium system except that the Arabic Language was taught as their second language. Students, who successfully completed the Arabic medium system, would either continue on to a Middle Eastern country or would enter the Malay medium stream, at the Sixth Form Center, for advanced courses.

4.5.3.2 The Outcome of the Mandated Change

The purpose of educational change, presumably, is to help schools accomplish their goals more effectively by replacing some structures, programs and/or practices with better ones. (Fullan, 1982: 15)

The Ministry of Education mandated that, as from 1st January 1992, all non-government schools must follow the National Education System. Before this mandated change, non-government English medium students completed their primary education in six years. Whereas, government students would initially attend Malay medium schools for the first four years and then become eligible for transfer to English medium schools for the remaining 3 years of primary education. Non-government English Medium students could however apply to transfer to government English medium schools after completing year three, in effect gaining one year.

Figure 4.8 shows the present education system in Brunei Darussalam.

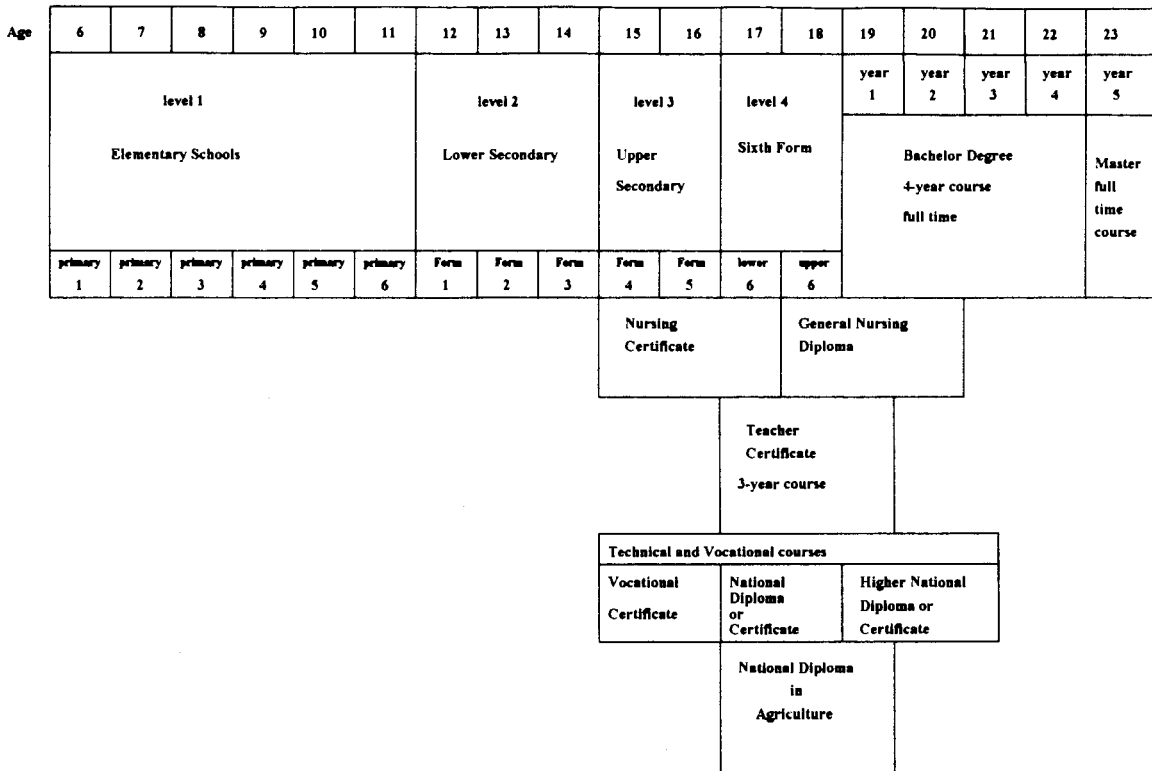


Figure 4.8: National Education System of Brunei Darussalam, 1992

The new policy, requiring the first three years of education to be delivered in a Malay medium and thereafter in English, resulted in fewer problems for the English government schools than the Malay government schools. The English schools merely recruited extra Malay medium staff to cover the first three years while the Malay schools faced a severe shortage of English medium teachers and a large surplus of Malay medium teachers.

The mandated change in the English medium schools involved only the first three years of primary education. The long term implication for these schools, is that some students now have a lower command of the English language in year four, compared to when English was the medium of instruction from year one. Repeatedly, the Primary School Certificate Examination (PCE) which all students sit at the end of their primary education, indicated that the English medium schools had a better track record than the

bilingual schools. The examination is in English, with the exception of the Malay language paper, and this would indicate that English medium students, who had a 3 year lead (more contact hours) in English language, were indeed at an advantage over the bilingual students. Parents, who saw this advantage, began to register their children with non-government schools and waiting lists were often as long as 3 years. Even between government run schools, a discrepancy was noticed between the PCE results of rural and urban schools. The rural schools generally, had significantly lower pass rates, than the urban schools and the majority of those students who failed, failed in either English language or mathematics. Some rural schools in the 1991 PCE had a pass rate as low as 13%. In those schools, 30% to 80% of the final year primary students had to repeat another year. Clearly for students in these groups, our system has failed to adequately motivate them.. What could have caused this poor performance? Is it because we post the better teachers to urban schools, or could it be, that motivated teachers who are moved into rural settings, become less motivated, as a consequences of poor support and limited resources (difficulty in getting textbooks, teaching materials, chalk, photocopiers, no electricity, poor housing, etc.)? Could it be that, rural students have a lower self esteem or is it merely that they cannot relate their school work to the local environment? These discrepancies certainly merit some form of study. Is there a significant primary school dropout rate, between urban and rural schools and between gender? Data of this kind needs to be collected and brought to the attention of policy makers, administrators, teachers and the community, as an indicator of the effectiveness of schools. A combination of several factors may have contributed to the poor achievements of those students, among which, I suspect, would include, leadership, teachers attitude and competence, the remoteness of the schools and the associated communication problems and resources.

As mentioned, the Malay medium schools had to make the biggest adjustment when adopting the National Education System, although the transformation was done in stages beginning with the year one intake of students in 1985 and following it through to 1997. Many of the Malay medium teachers, who had taught general subjects with the exception of English language as a subject, were not able to switch their medium of instruction from Malay to English. As civil servants, they were permanently employed by the government. Therefore, some were sent for inservice/upgrading courses and some assigned to non-teaching duties.

The switch to the National Education system was not totally accepted by all quarters of the population. Parents, who had their children registered or enrolled into the English medium schools, saw the bilingual mode as eroding further the school system in the state and taking away from them the element of choice. Many felt that their children, with 6 years of English medium instruction would have a head start over those with only 3 years of English medium. Contrary to this belief, studies have shown that in some cases, second-language learning of English appears to be remarkably successful when students are initially instructed in and gain their first literacy in their native language, with later introduction of systematic English as a second language(ESL) (Rosier and Holm in Toohey, 1985: 289). Rosier and Holm reports that a bilingual program of this kind promotes more successful second-language learning than a program which utilises only English as a medium of instruction. Before the change over to the new system, students from the Malay medium schools were assessed and the high achievers selected for transfer to English medium schools. With the introduction of the bilingual system, some English medium schools were concerned with overall achievement if they were required to take in academically low achievers, who would normally have remained in the Malay medium system. The Malay medium advocates saw this as an erosion of the Malay values and a

threat to their sovereignty. The Chinese school system, which was already switching to a somewhat trilingual system (Chinese and English with Malay language as a subject), was concerned at not being able to teach the Chinese language within the new curriculum. One possible objective of the government, when the National Education System was imposed on all schools in the state, was an attempt to bring all the communities closer to the mainstream of the Bruneian society through one common language, that is, the Malay language as the national language and a medium of communication among all races.

The outcome of the above changes will not be known for some time, not at least after the implementation is completed in 1997. It is generally known that government schools in Brunei Darussalam have not served learners well. However, to improve the standard of education in government schools the government has introduced several programmes, which include the following:

- Recruitment of better qualified English language teachers.
- Providing frequent in-service training for teachers and administrators.
- Encouraging teachers to upgrade their academic qualifications to degree level.
- Conducting workshops, by subject specialists, for practicing teachers.
- Implementing a new reading scheme through the Reading and Language Acquisition (RELA) project in 1989. The aims of this project are to raise children's proficiency in English language and to foster their interest in books.

iii. Why choose English as the second language?

English has always been the traditional second language. It is a legacy from a former colonial period. It is considered as a language that acts as a "bridge" to higher learning, and better access to institutions of higher learning within the Commonwealth and the English speaking world. By narrowing it down to just the Malay language, access to

higher education for Bruneians would be limited to only the Malay speaking world such as Malaysia and Indonesia.

English is perceived as the language of "development". The following quote was taken from an article, presented at an education seminar organised by the Brunei Malay Teachers' Association in 1981, by Pehin Dato Dr. Hj. Jamil Al-Sufri, Chairman, Brunei Education Commission (1982: 16):

Taking into account that the present state of our development requires knowledge and that the sources of knowledge are not readily available in books written in Malay. When new knowledge becomes available in books, they needed total translation into the Malay language, which not only requires a considerable amount of time, but also requires many people with the ability to translate them. Therefore, foreign languages such as English are still required. The more knowledge that is required, the more reference books are required, especially in an era where new knowledge is rapidly expanding. The pace of translating a new discovery into our language is slow and therefore the expansion of new knowledge far outpaces the rate that it can be translated into the Malay language. If the foreign language (English) is not mastered, and if the condition is allowed to continue, then our knowledge of a subject, as we continue to teach them in the Malay language, cannot expand.

4.5.4 Current Provision of Continuing Education

4.5.4.1 Adult Education

After the second world war, came growing awareness of the importance of adult education in the state. Prior to 1958, there were a number of separate voluntary organizations providing literacy or language classes and conducting lectures and meetings on topics of current interest. At the end of 1958 the government set up the Lembaga Gerakan Pelajaran Dewasa Brunei (The Brunei Council of Adult Education) under the jurisdiction of the Dewan Bahasa dan Pustaka (Language and Literature Bureau). An ordinance (Lembaga Gerakan Pelajaran Dewasa) was passed by the government in the early 1960's, soon after the establishment of the Brunei Constitution in September 1959,

aimed at promoting the movement of adult education throughout the state. In 1968, adult education came under the responsibility of the Adult Education Unit of the Department of Education. From 1958 to 1968, 14 Adult Education Centers were established throughout the state and from 1968 to 1978, the number of centers grew from 14 to 41 and enrollment grew from 6,347 to 14,163 (Department of Education, 1978: 93; EPU, 1990: 166). In 1977, for example, women enrolled on adult evening courses outnumbered men by the ratio of four to one. The number of adults enrolled on evening courses declined steadily since 1978 and by 1989 the total number of learners was 8,737 (EPU, 1990: 166). In 1989, the bulk of the learners were enrolled in commercial and domestic science (home management) courses.

Most centers were placed in existing schools, operating during the evening and weekends, and staffed by part-time teachers. If a center was in a school, the supervisor of that center would usually come from the school staff, having been nominated by the school principal. Classes were conducted mainly in the evenings or weekends.

However most efforts to date have been devoted to the provision of remedial education. Courses offered are; academic studies at elementary (primary) and secondary levels, foreign languages, Malay language, religious studies, basic literacy, home economics, commercial studies and typing.

The concept of adult education is vague to many people and educators in Brunei Darussalam. It is perceived by the majority as intended only for dropouts and illiterates. Most of the activities are thought to be the 3 R's (reading, writing and arithmetic) The dropout rate is high among participants and the achievement rate is poor; due in part to staffing problems and limited resources. There is a high turnover rate of staff (all part-time teachers) and poor support from the traditional school systems. The fee structure for staff does not attract many teachers to come forward to work the unsociable hours. Budgetary

allocation for adult education has been dwindling over the past several years, yet the need for adult education is greater now than ever, as increasing numbers of students leave school and enter the job market without the necessary skills for the world of work.

Presently the Adult education Unit is referred to as the Continuing Education Unit to emphasize a shift from mainly literacy programmes towards improvement of general education, the acquisition of technical skills and programmes for the enrichment of leisure activities of the adult population. In 1989, of the 8,737 enrolled in adult evening courses, 4,879 registered for commercial subjects (Typewriting, shorthand, book-keeping, and accountancy), 1926 took domestic science courses, 781 took secondary level courses and about 800 in English language/Malay language/Mathematics courses (EPU, 1990: 166). Basic literacy courses among adults dropped from 2,007 in 1978 to only 41 students in 1989 (1990: 166). The drop in enrollment in adult literacy courses does not mean that illiteracy has been eliminated, particularly other statistics (1990: 168) show that there are 12,567 (12%) adult illiterates among the 20 to 54 age group. There could be number of possible reasons, such as a hard core of illiterate adults, because of time constraints, no transportation, unaware of the existence of adult programmes, family commitment, support are not able to take up literacy programmes. A change in strategy may bring about an increase in participation rate among those adults, such as bringing the adult literacy programme to them via TV broadcasting. In 1977, three thousand eight hundred and twenty three adults enrolled in typewriting courses. With the introduction of computers and wordprocessors in most offices, the trend is for more courses about computers usage.

4.5.4.2 Centre for Continuing and Professional Education

In September 1991, the Centre for Continuing and Professional Education was established in Brunei Darussalam. The Government of Brunei Darussalam provided the

capital funding and operating costs for the buildings. The Commonwealth of Learning provided some equipment (13 computers installed in September 1991 and an order for an audio/video tele-conferencing package to be installed before November 1992) and seconded a specialist to assist in the development of the Centre.

Details of the Centre's programmes and funding have yet to be agreed upon and many issues are left unresolved. It is however, too early to say exactly what direction the Centre will be heading.

In general, the Centre will facilitate professional and continuing education in the fields of professional, technical and vocational education and when appropriate to utilise distance education methodology to obtain educational services from external institutions and agencies.

The Centre will place high emphasis on (Ministry of Education, 1992: 58):

- Implementation of needs assessment in both the public and private sectors.
- Developing programmes to meet identified needs.
- Establishing linkages with all public and private training institutions in the state.
- Establishing linkages with appropriate educational and training institutions within the Commonwealth.
- Developing appropriate delivery systems that utilise the various systems of information distribution available in Brunei Darussalam.
- Utilising appropriate educational technology and media for the delivery of courses and training programmes.
- Developing the infrastructure that will support distance education in Brunei Darussalam.
- Establishing student support structures and tutorial networks.

- Providing training in the writing of curriculum for modularised distance education courses.
- Evaluating the effectiveness of the programmes delivered by the Centre.

A complete feasibility study has yet to be carried out to determine the cost effectiveness of some of the Centre's aims, for example, the cost of developing an infrastructure for distance education.

Some form of rationalisation needs to be considered when developing the centre, to avoid duplication of programmes with other national institutions, especially when the University of Brunei Darussalam is beginning to develop a continuing education department. There are also a number of new institutional developments in Brunei and the Association of South East Asian Nation (ASEAN) region which will provide greater access for the working adults to a number of continuing education programmes. For example, the recent agreement of the Brunei Government to host two regional centres; the Association of South East Asian Nation-European Economic Community (ASEAN-EEC) Management Centre¹ and the South East Asian Minister Education Organisation (SEAMEO) Regional Centre for Technical and Vocational Education (VocTech). The government is also setting up a civil service institute, aimed for the training (non-award) of personnel of all levels in the civil service.

4.5.5 The Ministry of Education

4.5.5.1 Overall Organization

A Ministerial structure was created at the time of Independence. Education was administered by a Ministry of Education and Health. In 1986 the two functions were split,

¹A joint project funded between ASEAN and the European Economic Community, with Brunei Government paying for the capital cost.

and the Ministry of Education is now a separate entity. The structure of the Ministry is shown in Figure 4.9. At the apex of the Ministry are the Minister and Deputy Minister. They are responsible for decisions on all policy matters. The Minister of Education was until August 1991, the vice-chancellor of the Universiti Brunei Darussalam. The current vice-chancellor holds the rank of permanent secretary.

The Permanent Secretary is the Administrative head of the Ministry and concurrently the Director of Education having responsibility for professional matters. The Permanent Secretary also heads his own section, consisting of officers with special responsibilities for ministerial, administrative and international affairs, including public relations. The author is currently employed in this section.

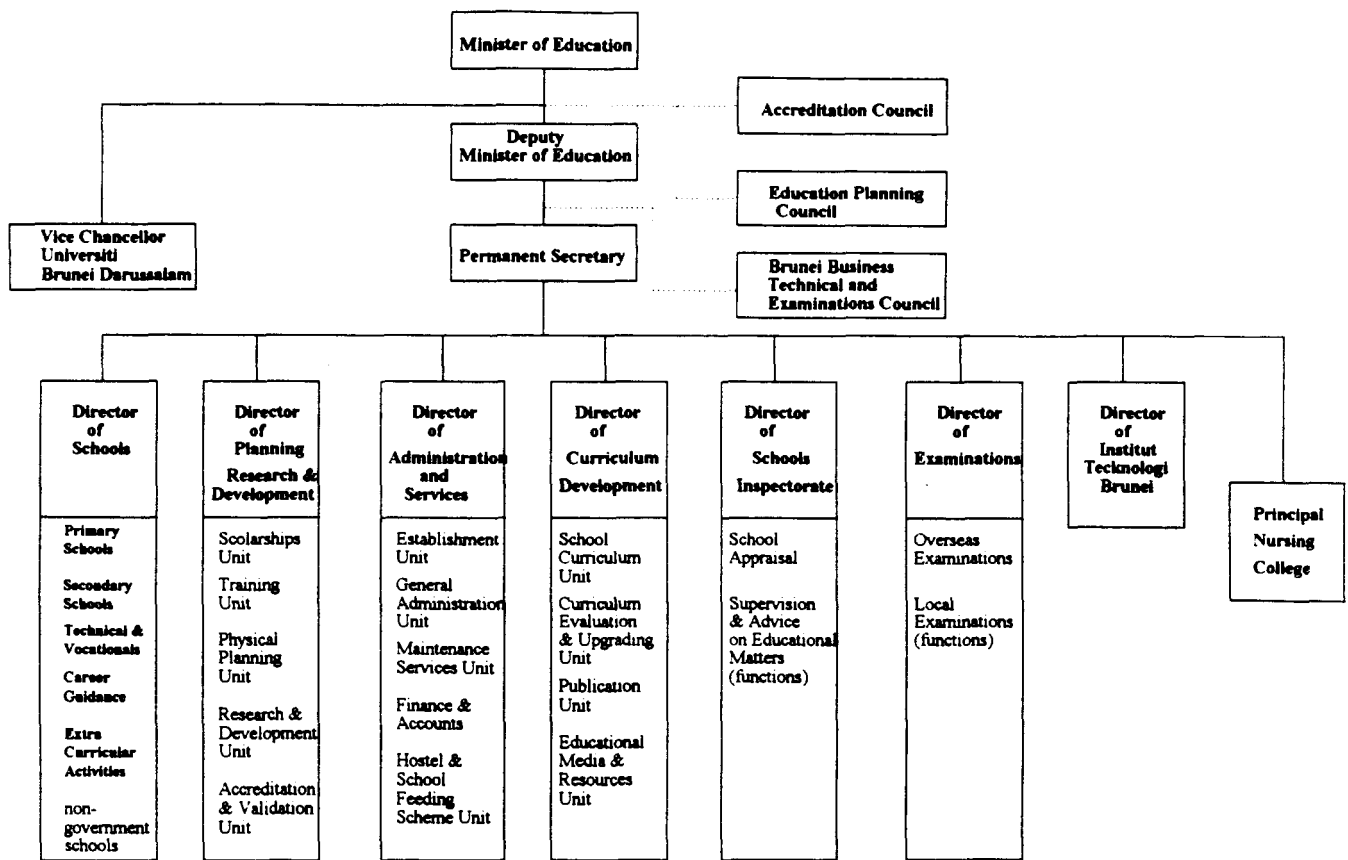


Figure 4.9: Organizational Structure of The Ministry of Education, Brunei Darussalam

The Ministry has six major departments, within each are a number of sections. The directors of each department are responsible to the Permanent Secretary. The departments are titled:

- Schools,
- Planning, Development and Research,
- Curriculum Development,
- Schools Inspectorate,
- Administration & Services, and
- Examinations.

The Education Planning Council consists of: the Minister, Deputy Minister, Permanent Secretary, vice-chancellor, all directors and three Special Duties Officers. The Minister chairs all meetings and provides a forum for discussion of major policy and planning issues.

There is a high degree of centralisation in the system particularly in curriculum, finance, and staff recruitment. The degree of centralisation, however, is not generally perceived as an administrative issue, given the small size of the education system and the country as a whole.

In terms of the procedures adopted by the administration, there is a high degree of standardisation. This is to some extent linked with the requirement to follow general government procedures on budgeting, purchasing etc.. For example, if the ministry recruits an administrator, a particular salary has to be paid and there is little flexibility to discriminate between the more able recruit with more responsibility and the less able with a more routine job. The process of recruitment and of work appraisal also have to follow standardised government procedures.

4.5.5.2 The Departments of the Ministry

4.5.5.2.1 The Department of Schools

The Department of Schools is concerned with the direct administration of the schools and colleges. It has seven sections, covering primary schools, secondary schools/sixth form, vocational and technical schools/colleges, further education, extra-curricular activities, non-government schools, and career counseling and guidance.

4.5.5.2.2 The Department of Planning, Research and Development.

This department has six sections, covering scholarships, in-service training, physical planning, research and development, management information system (Statistics), and accreditation and validation. Responsibilities of the department include:

- monitoring and identifying issues and problems, and making appropriate recommendations;
- collecting, organizing and preparing education statistics and data;
- supervising of school building projects including staff housing;
- coordinating internal and external courses, seminars and workshops for officers and staff of the ministry; and
- administering internal and overseas scholarship awards.
- conducting educational research;

4.5.5.2.3 The Department of Curriculum Development.

The department has four units entitled the School Curriculum Unit; the Evaluation and Upgrading Unit, the Publication Unit, and the Educational Media and Resource Unit. Curriculum development for the technical and vocational schools is the responsibility of a unit under the Department of Schools. The roles of the department are:

- to study, plan and prepare curricular programs for schools in accordance with the National Education Policy;
- to prepare and produce books, including textbooks, workbooks, teaching aids, educational media programs and curricular materials such as school syllabuses and teachers guides (much of the activities are focused on primary and lower secondary levels);

- to carry out assessment of various curricular programs and materials by conducting experiments and tests in the classrooms;
- to assist teachers in the use of the prepared programs and teaching aids so that they are properly oriented in the use of these materials;
- to disseminate information relating to the innovation and implementation of the curricular; and
- to review, evaluate and recommend basic textbooks, supplementary and reference books, as well as other teaching/learning aids for use in schools.

4.5.5.2.4 The Department of Schools Inspectorate

The department has three main functions, namely:

- to keep the Ministry informed on the condition of schools and educational institutions;
- to inspect schools in order to ensure that adequate standards of teaching are developed and maintained; and
- to advise principals, headmasters and teachers on matters pertaining to current trends in teaching method.

4.5.5.2.5 The Department of Administration & Services.

The department has six sections covering establishment, general administration, maintenance services, finance and accounts, the hostel and feeding scheme, and school canteens. Responsibilities of the department include:

- establishment, increment, promotion, discipline, confirmation of post, retirement, appointment and recruitment of daily-paid staff, and renewal and termination of contracts;

- advertisement of vacancies and interview of non-professional staff;
- staff records (including school teachers);
- finance (including salaries and loans);
- housing for all education staff;
- tenders and write-off;
- maintenance of all building & government schools under the ministry of education.

4.5.5.2.6 The Department of Examination

The Department is mainly responsible for coordinating all examinations in the state. Its main concern is with three types of examination, namely the Primary Certificate of Education (PCE), the Brunei Junior Certificate of Education Examination (BJCE) and the Brunei Cambridge General Certificate of Education "O" and "A" level examinations. The PCE and BJCE are set internally, but the GCE examinations are set and administered jointly with the international branch of the University of Cambridge Local Examination Syndicate (UK).

The administration and management of the Department is divided into three units, namely the Development, Research and Printing Unit, the Examination Services and the Management Unit. Together those units examine and assess the results of examinations under its jurisdictions, analyze statistical data and provide feedback to schools and colleges.

4.5.6 Challenges in Education and Training

4.5.6.1 School Leavers and Dropouts

A number of challenges face the education system. For example, with school dropouts, the issue is how to reduce the amount of human wastage. Of the 5203 student

cohorts who sat the Primary Certificate of Education (PCE) examination in 1988 only about 3,500 sat for the Brunei Junior Certificate (BJCE) examination in 1991. Between 1988 and 1991 and assuming that a small number of students managed to enter courses in training education, approximately 30% of lower secondary students dropped out of school without any formal qualifications for employment. In 1988, 784 (17.38%) students failed to pass the PCE examination, 690 students (13.26%) in that batch were repeaters of which 41.16% failed for the second time. The 1991 PCE examination results show an increase in the number of failures (25.38% of cohorts). As this group climbs up the educational ladder many will fail to reach the higher rungs, some will go as far as to take the BJCE examination before dropping out, some will stay in school long enough to sit GCE 'O' levels and a few, normally 300 to 350, will be accepted to take 'A' level courses. It would be interesting to follow this group to 'A' level to determine whether the higher failure rate at PCE will result in a raised failure rate at each successive level. Only about 3500 sat for the Brunei Junior Certificate of Education (BJCE) examination in 1991. Do we develop a system that is able to keep more students in school for a longer period thus raising the educational standards of the majority? What about those who drop out early? Should alternative education be provided to prepare students for joining the workforce? It would seem logical to address both issues at the same time. To provide vocational school places for all dropouts is not economically feasible when one considers the large numbers involved; nor is it the solution. Many of the skills presently in short supply require persons with higher academic credentials. Therefore there is a need for students to continue in the school system longer so as to qualify for entry to some courses, especially in the technical field, where knowledge of science and mathematics are prerequisite. Those who drop out at an earlier age, between year one to year three of the secondary school level have little

chance of acceptance into technical courses, as their attainment in the two subjects is insufficient to qualify for entry.

The total number of students taking technical and vocational courses in the technical and vocational schools and colleges was 1287 (71.79% male students) in 1989; this translates as between 400 and 500 new students entering technical and vocational courses annually. About 4500 to 5000 students will leave the school system annually in the next five years. Clearly the capacity of the present system of education in Brunei is insufficient to meet the demand for skills training.

We can, however, use the experiences of others to guide our future actions. For example, in Germany, the economic miracle of the modern world, the underlying philosophy was "training for Stock" and that almost 70% of those over 15 years of age enter apprenticeships and over 20% of the age cohorts go on to higher education. Employers bear 80% of the total cost of apprentice training and 20% by the government. The employers play a key role in determining the content. Japan has similar trends and as a result 37% of students continue into higher education.

Research is therefore required to understand the dropout phenomena for appropriate responses to reduce the amount of human wastage in Brunei Darussalam. The British Council Report (Colclough and Godfrey, 1982: 66) suggested that the priority within Brunei is to improve substantially the quality of education in general and raise teaching standards which are considerably lower than in non-government schools. For example, in 1978, 42% of teachers in government primary schools had less than five years of secondary education, compared to less than 20% of the teachers in Mission and Chinese schools); 57% of government secondary school teachers had not completed beyond "O" level, compared with less than 20% in non-government schools (1982 August: 65. Often, these teachers are themselves weak in mathematics and science and have low proficiency

in English language (medium of instruction). In some instances they are required to teach students at levels that they themselves have not academically achieved. To break the vicious cycle of failures, the government must take the early step of raising the academic standard of the teachers. A systematic system of training and retraining must be instituted for teachers and better quality teachers must be recruited.

4.5.6.2 An Informed Society

Brunei Darussalam, like many other developing countries, is undergoing social change, complementing changes in its economic structure. Advancement has both its economic and social facets, and both must be catered for. Individuals should be given every opportunity to make their fullest contribution to life, no matter what their circumstances, mode of living or level of education, they must be given both vocational skills and a chance of understanding the society and the total environment in which they are living.

Newer technology is constantly coming to use, in offices, farms, schools and in factories. Individuals and society require the knowledge and skills to use; maintain and understand their limitations and impact on the environment. For example, when a new pesticide comes on the market, the public has to be aware of its dangers and scope of use. The farmer may be required to learn new skills to understand and use it safely. In 1988, during an Agriculture Department briefing I heard the story of fishermen using pesticides for catching fish. Numerous deaths have been reported as a result of mistaken consumption or poor handling of weed killers (gromoxin - freely available in many small shops). Education can play a role by bringing about a greater awareness in people of the danger of chemical products, such as, dioxin and gromoxin (both highly toxic products)

and other pesticides. An informed society can make better decisions as to the use and control of chemical products that affect our lives and the environment.

4.5.6.3 Agricultural productivity

Brunei Darussalam has a small land area, of which little is suitable for agricultural use. For the country to maximise the use of available land resources, modern agricultural techniques must be utilised to obtain maximum yield. The Agricultural Department has set-up a number of schemes to attract young people to farming. The Ministry of Industry and Primary Resources also provide some incentives for entrepreneurs venturing into agricultural production. Of importance, however, is the level of education of the farmers. Basic training in farming (a three year programme leading to a Diploma in Agriculture) is provided by the Senaut Agriculture Training Centre. In 1989, the Centre had 50 students registered. Farming does not attract many young people as it is considered by many locals as a low status profession with poor returns. But it is seen by the government as a key area for development.

Continuing improvements in both education and mass communication also correlates with a continuing increases in productivity.

Williams (1989: 24) describes the American farmer today: as being perhaps the most productive in the world; is most probably more knowledgeable than his counterpart in a third world country; has accumulated a large database of information on farm management, and is able to apply the latest technology in his farm for higher productivity. If he is a livestock farmer, he'll know about hybrid cattle, antibiotics, and may run a computer to optimise feeding routines. He would also know about fertilizers and soil conditions, hybrid seeds and crop rotation, insecticides and weed killers, what machinery to use on his farm, operate and maintain farm machinery, haggle with commodity speculators who will pay him for his crop before he

plants it, keep records and accounts, organise co-operatives to build storage silos, follow the latest technological development, and so forth. Williams (1989: 24) stated the importance of education for the farming community:

An educated workforce learns how to exploit new technology: an ignorant one becomes its victim. It is also true of Third World Farmers (Financial Times, 18 August, 1980). Farmers with four years of primary education produced about 13 percent more than those without education. Between 1950 and 1975 adult literacy in middle-income developing countries rose from 48 to 71 percent. The fastest developing countries all had above-average literacy rates. Literacy contributes to increased output per worker and increased investment.

4.5.6.4 The Electronic Age

The computer has become an important tool in the office and the work place. It is now common to find computers in banks, commercial offices, some government offices, medium and large businesses and the oil industry. Computers are frequently used for word-processing, desk-top publishing, preparing spreadsheets and to a lesser degree data management. Upgraded software constantly floods the market leaving users spoilt for choice. Computer appreciation was introduced into Brunei schools within the last five years yet most students leaving traditional institutions (primary and secondary) are still not familiar with computers. They are not equipped with skills to handle word-processing or other software packages, common in the workplace. Many of these school leavers are afraid of computers; seeing them as too complex to attempt mastery. Computer courses in word processing, Data Base, spreadsheet, and desktop publishing are run by technical institutions. Large companies and banks provide their own in-house training and some small computer vendors arrange short courses for individual customers of personal computers. The increasing sophistication of each new release of a software package or hardware requires a person, trained in an earlier version, to retrain in order to use the new product. Therefore, a person already trained in the use of the computer will need regular

training to keep up with the pace of innovation in computer technology. However almost all courses uses English as the medium of instruction. Keeping up with translating the computer courses from English to Malay, is a problem when faced with the rapid pace of change in the computer world, especially in software. Unfortunately there exists a large number of adults, who left school before the introduction of bilingualism, and who are literate only in the Malay language. Language skills have to be acquired before this group is capable of learning new skills such as the computer.

4.5.6.5 Women in The World of Work

In recent years, more Bruneian women have joined the workforce. In 1971, 16.76% of the workforce were women, increasing to 23.81% in 1981 and 30.67% in 1986 (EPU, 1990: 51). Women are under represented in the labour force. A large proportion of females occupy the lower unskilled work level, such as cleaning, catering and general labouring, with the exception of the teaching profession (51.73% are females). Senior management levels in private industry and the government are predominantly male dominated with the exception of education and nursing. Women form a major source for human resource development and they can be major contributors to the nation's development. By tradition, most Brunei women put their own careers on hold while raising families. Qualifications become outdated and many find difficulty re-entering the job market where they compete with male counterparts for better paid jobs. In literacy, women still lag behind men, as shown in the table below. Although a significant gap exists between the male and female literacy rate - 57% of the male population vs. 41% of the female population in 1971 and 70.43% of the male population vs. 62% of the female population in 1986 - the rate of increase in female literacy is faster and the gap between the two groups is closing in as shown in Table 4.2 below. The British Council Report

(Colclough and Godfry, 1982 August: 55) stated that the unemployment rate for women in the 15-24 age group is as high as 23%, particularly for those who left the school system after secondary Form 3, and the poor participation rate for older women may conceal a large number of "discouraged workers." There is no tendency for married women to return to work after their families have grown up.

| Table 4. 2: Literacy rate in Brunei Darussalam by sex | | | | |
|--|-------------|-----------------------------|---------------|-------------------------------|
| | Male | % of Male Population | Female | % of Female Population |
| 1971 Census | 72,772 | 57.69% | 63,484 | 41.88% |
| 1981 Census | 102,942 | 65.32% | 89,890 | 54.17% |
| 1986 Survey | 116,779 | 70.43% | 109,550 | 62.34% |

Analysed from data obtained from Economic Planning Unit, 1990: 33 and 170.

Table 4.3 below shows that women are under represented in most occupations, with the exception of the clerical and related workers category. Only about 11.27% of women occupy management and administrative positions.

| Table 4.3: Percentage breakdown of females employed by major occupation 1986. | | | |
|--|--------------|---------------|-----------------------|
| Major Occupation | Total | Female | % of workforce |
| Professional, Technical and related workers | 13,326 | 4,698 | 35.25% |
| Administrative and Managerial Workers | 2,927 | 330 | 11.27% |
| Clerical and Related Workers; Transport and Communication Workers | 10,453 | 6,068 | 58.05% |
| Sales Workers | 3,852 | 1,403 | 36.42% |
| Service Workers | 20,584 | 8,270 | 40.18% |
| Agricultural, Animal Husbandry and Forestry Workers, Fisherman and Hunters | 3,829 | 778 | 20.32% |

| | | | |
|---|---------------|---------------|---------------|
| Production and related workers | 24,477 | 1,896 | 7.75% |
| Others(undeter mined) | 1,656 | 445 | 26.87% |
| Grand Total | 81,104 | 23,889 | 29.45 |
| Data obtained from EPU, 1990: 54 | | | |

Many women are reluctant to travel overseas for higher education and local institutions are not able to meet most of their needs.

4.5.6.6 The Elimination of Illiteracy

Brunei Darussalam has achieved remarkable success in raising literacy among its population. In 1947 the total literacy rate was 26.0% of the population but by 1986 the rate had climbed to 87% of the nine years and over population (EPU, 1990: 168). About 42% of the nine years and over population are bilingual (a combination of two languages from English-Malay-Chinese). This success is largely due to the Adult Extension Program and the work of the Brunei Council of Adult Education (formed in 1958, under the auspices of the Language and Literature Bureau to tackle the problem of adult literacy). Among the working age group of 20 to 54 years, the proportion of illiteracy was 12.1% in 1986. Although there are no figures at present for 1990 and 1991, I suspect, however, that these figures may not have improved very much. One would speculate that figures for the rural areas would be higher than in the urban areas. Tackling the problem of illiteracy is an important one for the country, as it affects the implementation of development programs. If workers are illiterate then the acquisition of skills would be severely hampered. However, the problem of illiteracy is, to a certain extent, compensated for by the availability of mass-media, especially transistor radios and in the last decade and a half by televisions. This has helped in the dissemination of information to the population, particularly in the rural areas, on current events and development programs, including modern techniques of agricultural production, nutrition, health habits, and sanitation.

The literacy rate of 87% as quoted above is based on persons of nine years of age and over, who are able to read and write in either English, Malay or Chinese. If it is broken down to the two main languages of Malay and English, then the literacy rate is significantly lower, with those literate in Malay of 27% and English of 5.3% (EPU, 1990: 168). Adults are the disadvantaged group (those 20 years and over) with only 6.70% literate in English and 25.70% literate in Malay. Therefore there is a need to improve further adult literacy programmes nationally to encourage more adults to come back into a learning environment.

4.6 Conclusion: A Learning System that Meets the Needs of Adult Learners in Brunei Darussalam.

There is strong pressure for students to leave school and join the workforce to earn money. As time passes they often become stuck in a rut and would almost certainly welcome the chance of acquiring new skills in pursuit of better careers. Therefore, a door should be left open for them should they wish to come back to "school". Another point to mention is the need to train adults who are already in the workforce. Adults are poorly served by our educational systems and adjustments are required to accommodate them. Fulfilling their need is important if Brunei Darussalam hopes to keep its industries competitive. An educated work force would better attract investments from overseas.

Recurrent education for the adult involves overcoming several obstacles. The most obvious is the time constraints. It is difficult, or even impossible, for a wage-earner to stop working in order to further his/her training. Some employers are not keen on further education for their workers as they see it as encouraging workers to leave for better pay and positions due to their additional paper qualifications. Most adult workers have families, and this further restricts the time they have for training. Thus a flexible education

system for up-grading or updating one's education is highly desirable. What kind of flexible system is most suitable for Brunei Darussalam?

Clearly, the need is not just to change the activities and focus of the Adult Continuing Education Unit of The Ministry of Education, but rather a broad range of issues, involving national policy, commitments from the government and employers, attitude changes towards adult learning, support systems and allocation of essential resources. An adult will quickly dropout of a course if he/she does not get the support (moral and/or financial) of his employer or if his new qualifications are not recognised by his employer. Employers will be less inclined to allow workers time off to attend courses if the government does not take a keen interest in the welfare of its workforce. The adult learner will be easily discouraged if he/she does not get the support of the educational system i.e. flexible study time, access to books, access to a tutor and access to all the necessary learning tools. Gaining additional knowledge is often not a sufficient enough reward for the adult learner, who has to see that there is an incentive, such as the prospect for promotion, relevance to his work, personal esteem in the eyes of the community, salary increment, etc. Institutions and employers need to cooperate and be committed to working together in developing the right kind of education and training that the adult requires. The adult on completion of a course, would then have the necessary skills for handling new technology which could then be applied to his work environment. Adoption of appropriate national policy on adult continuing education will mobilise essential government agencies and key institutions to put their act together and introduce a package of programs suitable the adult learners.

Clearly there is a need for a more developed form of adult education. Adult education would assist in the realisation of some of the nine long-term objectives of the government's 5th Five-Year Development Plan. Examples are as follows:

- objective no. (i): To improve the quality of life of the people,
and

- objective no. (ix) To have a clean and healthy environment.

Adult education constitutes greater self-awareness amongst individuals and assists them in making choices that maximise their human potential. Better education leads to improved lifestyles with individuals taking more control of their lives and an increased knowledge of health matters, the environment and so forth.

- objective no. (ii): To maximise the economic utilisation of national resources.

When given the opportunity for recurrent education such individuals are able to apply their newfound knowledge in the use and management of the nation's limited resources, such as in the management of its forest products (timber, mangrove, rattan, and so on) and petroleum products.

- objective no. (iv): To accelerate human resource development so as to meet the country's demand for an increasingly sophisticated economy.

and

- objective no. viii) To encourage and nurture the development of "Rakyat Melayu"² as leaders of industry and commerce.

The development of human resources would be more economical for Brunei Darussalam in the long term than the present practice of employing large

²Meaning Brunei citizens of the Malay race.

numbers of foreign workers. As the economy develops adults skills would be kept relevant to changing job requirements and opportunities would arise for adults with new skills to make financially rewarding career moves.

- objective no. (v): To maintain full employment and increase the level of productivity.

With the raising of educational standards more and more adult Bruneians will fill skilled positions currently held by expatriates. Adult education assists in the promotion of productivity by enhancing individual performance (as in human resource development) as a means toward increasing organisational effectiveness and economic growth due to attainment of human skills and knowledge through education (Beder, 1989: 41-42; Stonier, 1988: 20). Adult education can play an important role in personal development of workers in Brunei Darussalam and it can have an impact on their productivity; that education should seek to maximise organisational effectiveness through the enhancement of employee or member competence.

- objectives no. vii) To foster a dynamic, disciplined and responsible society with its citizens as agents for progress and development.

Adult education in Brunei Darussalam can assist in informing and developing the critical skills of adults to make judgment based on known facts, to resist prejudices, and to permit intellect to rule over feelings; develop adults as informed, critical-thinking citizens; assist adults to participate competently and intelligently in the affairs of the various institutions that constitute democratic society; assist in bringing together groups of people within communities that are able to identify common problems and participate in problem solving; promote equal economic opportunity for all

Brunei Darussalam, as it develops into a modern country, faces many challenges similar to those faced by some developed and developing countries. The relative affluence of the country from its oil wealth, has provided its people with a better lifestyle than those in neighbouring states, and transformed a society which was largely rural and agricultural to an urban and mobile society. The changing economy, changing employment pattern, growing number of women joining the work-force and advances in technology are testimony to the rapid changes facing Brunei Darussalam.

Problems associated with those changes are: the growing unemployment among young Bruneians, skilled labour shortage, high school dropout rate, inadequacy of the present system to meet the needs, educational accessibility for adults, the large number of school leavers joining the workforce without any employable skills, inadequate training facilities for school leavers, job creation fails to match up to the number of school leavers, low participation rate among women, low level of educational attainment of major parts of the labour-force, fairly large number of academically poor teachers, a high proportion of the labourforce works for the government, and little provision for adults to retraining or acquiring new skills. The problems concerning modern society, as described in Chapter one, are similar to the problems faced by the society in Brunei Darussalam. For example, the expansion and diversification of its economy will lay increased emphasis on a labour force with specialised training and skills; the rapid obsolescence of knowledge and skills means that many workers need retraining to upgrading skills or to acquire new skills.

A large proportion of the adult population in Brunei Darussalam does not have the basic academic skills (such as the ability to read and write) necessary to acquire further skills, and the present system of adult and continuing education is unable to meet most of the needs of the adult population. A new policy on adult education can be adopted to provide better resources and incentives for adults to return to a learning environment and

a system should be established to overcome the problems and barriers faced by adults in Brunei Darussalam. Adult learners in Brunei Darussalam face barriers similar to those described by a number of researchers mentioned in the early part of Chapter 2, e.g. access to education, time constrain, family commitment, and financial constraints. The development of an alternative learning system for adults in Brunei Darussalam should then have the same characteristics as mentioned in part three of that chapter.

There are factors that favour the establishment of an alternative learning system for adults. Rumble (1986: 86) suggests a number of key indicators that help to determine if there is a need for establishing an alternative system, similar to open learning systems described in Chapter 3. Based on the suggested indicators, this chapter demonstrates that the existing educational system in Brunei Darussalam fails to meet the needs as follows: (1) there is a large pool of school leavers joining the workforce ill prepared for the world of work and the present system is unable to cope with the current demand; (2) there are similar demands from adults and the present system largely caters for only children and youth; (3) there is a large number of disadvantaged persons unable to enter conventional educational establishments for geographical, social or economic reasons - most schools are concentrated in urban areas, particularly those beyond elementary level; (4) there are large scale needs for training or retraining in professional, technical and vocational fields, and (5) current allocation of government funds to education are insufficient to meet present demand - annual increase of funding is inadequate to cover maintenance requirements and increases due to inflation.

CHAPTER 5

THE DEVELOPMENT OF AN OPEN LEARNING SYSTEM IN BRUNEI DARUSSALAM: KEY ISSUES

Synthesis of Chapter

It is divided into four major parts. Part 1 analyses the level of needs. Based on the statistical data available from chapter four, a number of estimates were made. The estimates include the number of adult learners requiring access to education and the cost of providing for them. The data is used to support the establishment of an open learning system. An assumption was made as to the client groups that requires access to education. Part 2 discusses the suitability of an open learning system for Brunei Darussalam. Part 3 discusses the features that would be appropriate for an open learning system in Brunei Darussaalm, such as the technology, management, models and costing. The features would be based on these described in Chapter 3. Part 4 examines other important elements, such as; use of technology, resources (funding and institutional support); student services and the problem of dropout; the monitoring of teaching standards and training of staff; infrastructure for open/distance learning and the organisation models. Ideas presented in this chapter act as a prelude to chapter six.

5.1 Support for an Open Learning System in Brunei Darussalam

Chapter 4 establishes that there are educational needs in Brunei Darussalam. The conclusion to that chapter suggests the development of an alternative learning system for adults. To develop an appropriate learning system for adults, it is important to establish the level of those needs, such as: the number of adults requiring access to a learning

system, the cost of providing them with such a system, the client groups and the appropriate groups that should benefit most from the system.

As part of the government's long term national development objectives, the acceleration of human resource development is a key step in the development of the country. Adults in Brunei Darussalam could play a vital role in national development by remaining productive through all phases of their adult lives, young adulthood, middle age and after retirement. The educational system should be in a position to help society by training its adult citizens to meet the country's demand for an increasingly sophisticated economy.. To foster a culture of individual development among its citizens, the educational system must also develop strategies for large numbers of adults to participate in organised studies throughout their lives. The concept of lifelong education should be enshrined in the lives of adults in Brunei Darussalam.

Few countries have profiles similar to Brunei Darussalam - high GNP (per capita of about US\$17,000), small population (under half a million), small land area (about 2 to 4 thousand square miles), fairly good communication, oil based economy, a developing nation and a British type of educational system. Within the Commonwealth's 48 member states, 28 have populations under two million of which 19 are below half a million (Farrugia and Attard, 1989: 17-19). Hardly any literature is available on open learning systems developed for these small countries with the exception of those served by the University of the South Pacific and the University of West Indies. An example, although not entirely alike is the Open Learning Institute of Hong Kong, developed to serve a population of over 5.8 million people concentrated on a land mass smaller than Brunei Darussalam. Unless Brunei Darussalam joins a regional collaboration along the lines of the University of South Pacific or the University of the West Indies, that serve a cluster of countries, with a combined population of several millions, such models are not appropriate

in this context. A better example would be an open learning institution with a small "footprint," a term suggesting a small client group and geographical area similar to Brunei Darussalam. A number of colleges in British Columbia, may be suitable examples, such as the North Island College, the Northwest Community College, Selkirk College, East Kootenay Community College and the Northern Light College. They each serve a designated area and segment of the British Columbia population. For example, North Island College, as described in the early part of this chapter, serves a population of 110,000 people within a area comprising the northern three-quarters of Vancouver Island, the archipelago to the east and the north of the community of Campbell River, and the mainland north to the Bella Coola Valley. These systems have been tried successfully on a small scale and therefore indicate that open learning systems could be applied in small countries like Brunei Darussalam.

The reasons for supporting the development of open learning system in Brunei Darussalam, are: (1) adults do not have to leave their job to take up part-time studies, (2) the system is flexible to overcome some of the time constraints of adults (3) the system in its basic form without the full range of technology as described in chapter 3, can function at reasonable cost, (4) that there are materials already available that can be adapted for local use at reasonable cost, (5) learning takes place within one's culture and course content is relevant to local requirement, and (6) the cost of educating an adult, at a local open learning institution, is most likely to be much cheaper than sending him or her to an overseas institution, particularly when, in the absence of that person, another person must be contracted to do his or her work.

Studying outside one's own country, while providing certain advantages, such as, an opportunity to study first hand different cultures and customs can have many disadvantages, especially when an entire family has to be uprooted from a familiar society

to one that is alien in terms of culture, beliefs, climate and so on. Children have to adjust to new school systems and make new friends. Those who choose to leave families behind often find themselves isolated in a foreign land. The bureaucratic process, such as application for visas, registration for children's education and health plan, can seem daunting in many instances. Unexpected problems often occur which can act as barriers to learning. Studying abroad in some instance can be a disincentive for adults who wish to update their knowledge, gain new qualifications or acquire new skills.

An open learning system can provide greater access to education for a wider group of adult learners. It can help to support and maintain good social order, promote productivity and enhance personal growth. It will assist in the objectives of the Government's development plan, which was discussed in greater detail in Chapter 4.

5.1.1 Needs Analysis

Chapter 4 establishes that 4500-5000 school leavers will join the labour market annually for the next five years. Roughly 500 of these students will enroll into technical and vocational training programmes. Using Germany's example of job training, where 70% of student cohorts on leaving the school system enter into apprenticeship programmes, the number of students who require training should be between 3150 and 3500. On the basis of the per student cost of training for one year at the Institut Teknologi Brunei, the total cost would be approximately Can\$26 million annually. Accommodating the additional students would require the construction of approximately four new medium sized technical/vocational schools would need to be built, each costing somewhere in the region of Can\$25 million. The costs of sending students to Britain for further studies would be three times that of students attending local institutions. Ideally an open learning system in Brunei Darussalam to include the training of these students in its mandates. However, the

government is presently establishing several vocational schools that would meet most of the needs of school leavers who have not yet joined the workforce. The courses are expected to be full time programmes and would not cater for working adults. It may take a policy decision for vocational schools to function as open learning systems to provide access for working adults.

In 1986, some thirteen thousand workers were categorised as professional, technical and related workers and another three thousand as administrative and managerial workers out of a workforce of over eighty thousand workers (EPU, 1990: 55). Based on the estimates of the Open Learning Agency (The Open Learning Agency, 1992: 6), the average worker will have to be retrained at least five times during his or her employable life, which is approximately once every five years. If the open learning system initially serves mainly the professional, administrative, managerial and technical workers, then those requiring retraining, upgrading or seeking new skills should be about 3000 annually. Based on the calculated size of the targeted client groups, an open learning system would have adequate student numbers to justify its development. It is important, however, to ensure maximum participation from the target groups. When barriers to learning are many, the participation rate among adults will, in all probability, be low.

An open learning system can be cost effective and enable the government of Brunei Darussalam to train more of its officers for the same amount that it presently spends on inservice. The cost to each student studying at a local open learning institution may well be substantially lower than if that person were to study in an overseas institution. An important criteria for educational planners is the selection of programmes that would attract a large number of adult participants. The larger the number of students on a course the more cost efficient it becomes, which can be lower than that of conventional system. If the system is to adapt UBD's programme for adult learning, then it would help lower the

unit cost of the University's programme. Take a typical middle management government officer, on full in-service, studying in the United Kingdom. The government has to cover the cost of travel expenses, accommodation, tuition fee, full salary, overseas subsistence allowance and cost of hiring a temporary replacement staff. It costs the government over Can\$130,000 to train one officer for a year. Private companies who send workers abroad likely spend a similar amount.

Over Can\$20 million per annum is allocated by the government for the in-service training of government employees at lower, middle and higher management levels and yet that amount is insufficient to meet the total demand for the civil service sector. For example, based on the above figure, the fund is sufficient to send for a one year period roughly 150 middle management officers to institutions in the United Kingdom. In 1991, the annual operating cost of the Institute of Technology, with a student population about 250 students, was approximately Can\$2.4 million (Ministry of Education, Annual Budget, 1991) and this works out to be around Can\$10,000 per student. The average cost per student at the Universiti Brunei Darussalam is about Can\$21,000 per annum. Certain programmes would be difficult or unsuitable to develop in Brunei, such as, courses for medical officers in specialised fields. Although there will always be a necessity to send officers abroad for specialised training, it is however expected that an open learning system would reduce present numbers substantially.

The Ministry of Education recognises the need for upgrading teachers in their profession, and that they should have a minimum qualification of a first degree. As an incentive for obtaining a degree qualification, a teacher in Division III salary scale would automatically move onto Division II and receives an increment of between 30 and 50 percent. In 1989, for example, there were 5,165 teachers (EPU, 1990: 158). If on the assumption that teachers need upgrading every five years, a 1000 or so teachers will need

to undergo professional development annually. Colclough and Godfrey (1982: 65) stated that in 1978, 42% of the primary and 57% of the secondary school teachers in government schools never got beyond "O" level (5th year of secondary education). Hopefully these figures have improved slightly over the years but a good guess is that at least 3,000 teachers are still in that category today. A substantially higher proportion do not hold a first degree. If the 3000 teachers, who have not gone beyond "O" level, are required to upgrade academically within the next five years in an open learning system, then approximately 600 need to be trained each year. It should be noted that presently the total intake of students at Universiti Brunei Darussalam, including those intending to be teachers, is about 180 students annually. Therefore, the first group of adult learners in an open learning system should be teachers, that is, for the purpose of improving the quality of the teaching profession, as was recommended by Colclough and Godfrey (1982: 65).

The majority of teachers in Brunei Darussalam work from 7.30 am to 12.30 pm or from 1.00 pm to 6.00 pm. It would be relatively simple to arrange part-time degree programmes or professional development courses at local learning centres to fit in with their schedules and with minimal disruption to family life.

Full time programmes pose a problem in that large numbers of temporary replacement staff would be required to cover for approximately 600 teachers entering 3 or 4 years courses at UBD annually. At its peak 1800 teachers will be away from the classrooms at one time. The cost, based on tuition fees, full salary payments, and staff replacement may be astronomically high and it is estimated to be somewhere in the region of Can\$397.2 million spread over a seven year period (see table 5.1 below). It should be noted however, that the per student cost would be less than the estimated Can\$21,000 as the volume of students increases. On the other hand part-time degree courses provided by the open learning system would enable more teachers to be upgraded at a reasonable cost.

that is roughly Can\$189 million or less spread over a longer period. The estimated figure, however, contrasts to the allocation sum of only about Can\$640,000 for adult education for 1992 (Government of Brunei, 1992: 23).

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---------------------------------|---------------------------------|---------------------------------|-------|-------|-------|-------|
| 1st student Intake | 600 (2nd year Degree course) | 600 (3rd year Degree course) | 600 (4th year Degree course) | | | | |
| 2nd Intake | | 600 | 600 | 600 | | | |
| 3rd Intake | | | 600 | 600 | 600 | | |
| 4th Intake | | | | 600 | 600 | 600 | |
| 5th Intake | | | | | 600 | 600 | 600 |
| Total | 600 | 1200 | 1800 | 1800 | 1800 | 1200 | 600 |
| number of replacement teachers required | 600 | 1200 | 1800 | 1200 | 1200 | 600 | 600 |
| salary ¹ cost (Can\$ million) | 15.43 | 30.86 | 46.29 | 38.57 | 38.57 | 23.14 | 15.43 |
| tuition fee ² (Can\$ million) | 12.6 | 25.2 | 37.8 | 37.8 | 37.8 | 25.2 | 12.6 |
| Total cost (Can\$ million) | 28.03 | 56.06 | 84.09 | 76.57 | 76.57 | 48.34 | 28.03 |
| Grand total (Salary & Tuition Fee)= Can\$397.28 million | | | | | | | |
| Cost of part-time degree programme (tuition only)=Can\$189.00 million | | | | | | | |

Based on 1982 - 1992 annual budgets, the projected rate of increase for the coming ten years is expected to be approximately 8% annually. Table 5.2 and Figure 5.1 show the projected annual expenditure on education from 1993 to 2000 and the expected budgetary increases if 600 teachers are to be trained annually beginning in 1994. Implementing a full time degree programme for teachers will increase the government's budget allocation on education by approximately 22% in the first year, 18% in the second year and 16% in the third year (see Table 5.2). A part-time degree programme will result

¹Based on the average salary of teachers on Division III pay scale.

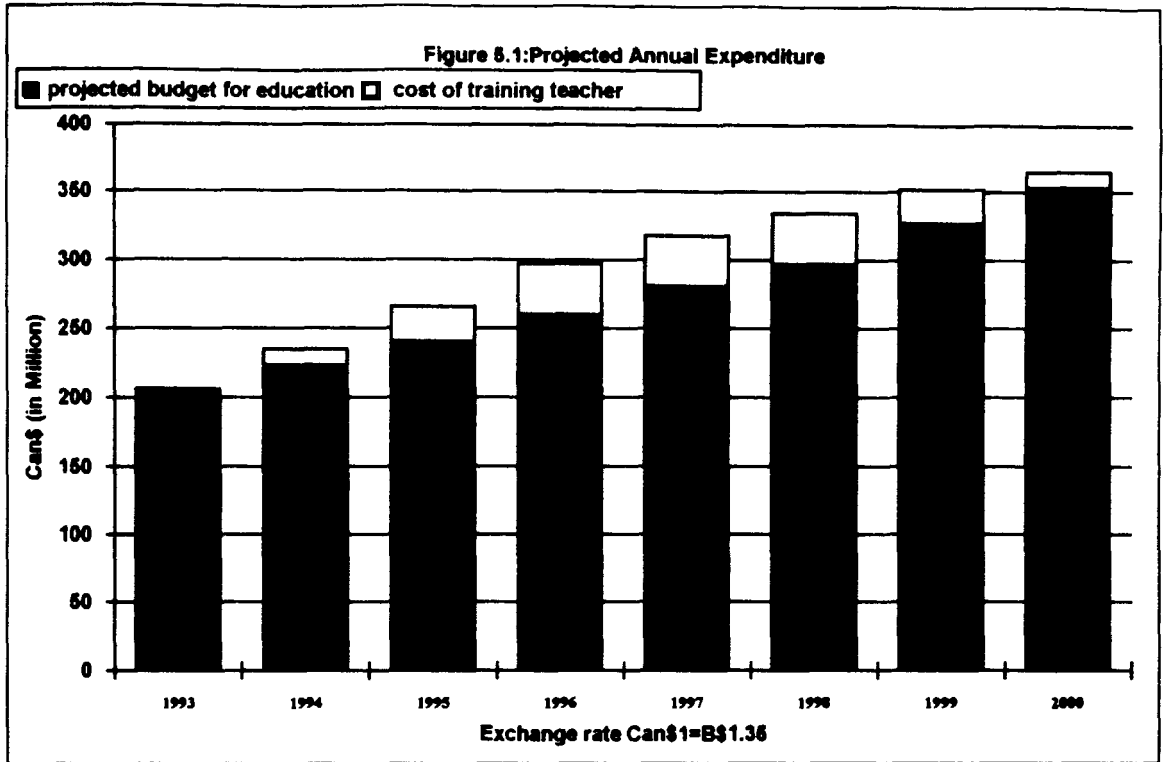
²Based on the average cost (Can\$21,000) of educating one student per annum at Universiti Brunei Darussalam.

in a significantly lower rate of increase. The increase is approximately 14% in the first year, 13% in the second year and 12% in the third year. The cost of training or upgrading 600 teachers represents 5.3% in the first year, 9.5% in the second year and 12.7% in the third year of the annual education budget. This amounts to a saving of approximately Can\$189 million over a period of seven years. With such a large number of adults taking courses, the cost per student may likely be lower than the estimated figure. This seems a reasonable price to pay, if the country is to make significant gain through a skilled labour force. If the open learning system, from the beginning of its inception, is to cater for a wider client group, to include other professionals such as engineers, managers, supervisors, and so forth, the cost to the system would obviously increase proportionally. It is clearly important to maintain or increase the funding level for the open learning system after the third year for the benefit of other client groups.

Table 5.2: Projected annual expenditure on education from 1994 to 2000

| | Year | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|
| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Annual expenditure ¹ on education (Can\$ million) | 222.4 | 240.2 | 259.3 | 280.3 | 296.7 | 326.9 | 353.0 |
| Cost of training/upgrading 600 teachers on part-time programmes (Can\$ million) | 12.6 | 25.2 | 37.8 | 37.8 | 37.8 | 25.2 | 12.6 |
| Total cost (with part-time programmes) | 235 | 265.4 | 297.1 | 318.1 | 334.5 | 352.1 | 365.6 |
| Annual increase (%) (with part-time) | 14.0 | 12.9 | 11.9 | 7.1 | 5.2 | 5.3 | 3.8 |
| Percentage ² allocation for training/upgrading of teachers on part-time programmes | 5.3 | 9.5 | 12.7 | 11.9 | 11.3 | 7.2 | 3.4 |
| Cost of training/upgrading 600 teachers on full-time programmes | 28.0 | 56.1 | 84.1 | 76.6 | 76.6 | 48.3 | 28.0 |
| Total cost (with full-time programmes) | 250.4 | 296.3 | 343.4 | 356.9 | 373.3 | 375.2 | 381 |
| Annual increase (%) (with full-time) | 21.6 | 18.3 | 15.9 | 3.9 | 4.6 | 0.5 | 1.5 |
| Percentage ³ allocation for training/upgrading of teachers on full-time programmes | 11.2 | 18.93 | 24.5 | 21.5 | 20.5 | 12.9 | 7.3 |

¹Based on an increase of 8% annually excluding the cost of professional development of teachers.
²Based on total cost (with part-time programmes for teachers)
³Based on total cost (with full-time programmes for teachers)



5.2 Suitability of an Open Learning System in Brunei Darussalam

Chapter 4 described how the present system in Brunei Darussalam is not able to provide for the educational needs of adults. Though there may be a large number of adults requiring access to education and training, the number of adults requiring specific programmes may probably be low in comparison to other institutions such as the Open Learning Institute of Hong Kong and the British Open University. For example, the number of adults wishing to take business/commercial courses may be higher than those taking agricultural courses. Is open learning suitable for Brunei Darussalam?

If we consider the development of a learning system for adults which systematically removes one or more barriers to learning for adults, and incorporates the widest range of teaching strategies, the learning system would then be considered an open learning system

as defined by Jeffries et al (1990: iii). Adult learners in Brunei Darussalam face a number of barriers, such as, time constraints, high entry (academic) requirements for many courses, employers support, financial constraints, family commitments, and so forth. Many adults have the ability and academic qualifications to pursue higher education that may be unavailable locally, but are unable to enroll in foreign institutions because they cannot afford the cost of studying abroad. The task of the open learning developer, therefore, is to work to remove as many of these barriers as possible. The cost to the students will be less than if they are to study abroad. Barriers such as high academic requirements for entry to degree programmes would be more difficult to phase out completely because the degree programme would be seen as of a lower standard. Presently, qualifications obtained by distance education have not been fully recognised by the government, partly because of the perceived views that distance education accepts students of academically lower standards. However, attitudes are changing and the accreditation Council is willing to consider recognising qualifications on the merit of each case. There are known cases where local institutions are willing to accept the life experience of an adult to support his or her application. For example, UBD would normally require applicants to have the minimum of three 'A' level credits for the BA programme in Education, but would accept a limited number of teachers with 10 years of teaching experience and one 'A' level credit. Part-time courses that enable students to study in the evening or independently at home can be developed. This would allow adult learners to continue working and pay their own way through college.

Chapter 3 describes how many countries established distance learning in response to demands of the growing populations. It must therefore be noted that the examples used in previous chapters were based on the experiences of institutions in countries that serve large populations and/or vast geographical areas. The fundamental issue that needs

addressing is the transferability of systems, developed to serve such countries, to Brunei Darussalam, a country with a small population and small land area.

There may be those who would question the appropriateness of distance learning in a Brunei Darussalam context since distance and communication between major population centres may not pose significant problems. In response, imagine an adult learner living in Kuala Belait, a daily distance of some 214 kilometres, who enrolls for a course in Bandar Seri Begawan (the Capital). The person, in all probability, will withdraw from the course stating reasons such as (1) the inconvenience, (2) the large amount of time spent in traveling, (3) difficulty fitting lectures into his or her work schedule, (4) the financial strain of tuition fees coupled with transportation costs, and (5) family commitments. Without distance learning a farmer from a village in Bangar or Ulu Belait would, because of poor roads and/or unreliable transport, find it difficult, if not impossible to enroll in and then complete a traditional course available only in major urban centres. Because of the small population base, many institutions find it uneconomic to provide for a full range of courses to the community, especially when each course is required by only a small number of participants at any one time. For example, courses in commercial studies attract large numbers of learners (about 4,800 adults in 1989) while foreign language classes may attract a much smaller client group (209 adults in 1989). Based on these figures a number of institutions may find it feasible to offer commercial courses but a course in German for a dozen learners may not be economically viable, especially if an institution is to consider the cost of development. For example, if the Foreign Office requires half a dozen officers to study the German language each year, the factors that should be considered are: the cost of sending officers abroad for specialised courses may be cheaper; or that the officers' services are required and cannot be released for an extended period of time. It may then be

a political decision for the government to absorb the high cost of a locally developed programme for small groups of learners who are then able to continue working.

A distance learning institution, with an extensive range of media support, based on the British Open University or the Open Learning Agency model would not be a viable proposition. It will not be feasible and cost effective because of the small number of learners involved. The cost of developing learning materials, as described in Chapter 3, and integrating television broadcast with print would not be practical. For example, television broadcast learning may be possible for learners in the urban areas, but impossible for learners in the rural areas without electrical supplies and no access to television. The cost of operating such a system will be prohibitively high. Establishing learning centres in rural areas, with all the paraphernalia of modern technology, would be difficult, though not impossible in the absence of electrical supply. A generator could be installed and a mobile learning centre, similar to that operated by the North Island College (Tayless, 1986: 163), may be possible in areas where villages are connected by a good road system. A large proportion of the population, however, live in urban centres. Any programme for adults could only be reasonably established in these areas.

Rumble (1986: 86) stated:

The existence of educational needs that can be satisfied by distance methods does not automatically mean that distance education is the best way of satisfying them. Distance education is not, for example, the most efficient way of meeting a demand from relatively small number of people for courses where the target population needs considerable guidance and support in their studies (in the form of distance teaching materials), although it may meet the needs of small numbers of students who are able to study independently, working from pre-existing textbooks with the minimum of materials specially prepared to support them. It is not the most efficient way of meeting the needs of a fairly concentrated but small population of learners able and willing to attend class-based instruction,

but it is the only way of meeting the needs of such a population in cases where they have difficulty in attending classes regularly.

If it is thought feasible to develop an open learning system catering for the small client groups in Brunei Darussalaam, then it could be based on the models of existing institutions with experience in serving similarly sized client groups. The North Island College (NIC) in British Columbia, for example, serves a population of 110,000 people within a area comprising the northern three-quarters of Vancouver Island, the archipelago to the east and the north of the community of Campbell River, and the mainland north to the Bella Coola Valley. The economy of the region is based on logging, copper mining, fishing and tourism. The College acquires most of its course materials (those considered not culturally bound to a particular society) from other institutions (Tayless, 1986: 162). It established a number of learning/resource centres and, similarly, the open learning institution in Brunei Darussalam can establish its own learning/resource centres in major population areas. NIC obtained courses from the Open Learning Agency, the BBC, The British Open University, Seneca College in Ontario, Coast Community College in California, and The University of Maryland. Students can study for two years with NIC, continue their third and fourth year at the Open Learning Agency and obtain their degree while remaining at home (1986: 163). A student can also enroll at NIC in a course supplied by Athabasca University. Athabasca University provides the summative grades by marking the final exams, thus fulfilling the role of an external examiner. NIC provides the local tutorial support and supplies Athabasca University with the formative grades. Courses are offered in subjects that have the greatest demand and commercial viability (1986: 162). An open learning system in Brunei Darussalam can form a similar collaborative network with local and regional institutions. For example, students could enroll at the Centre for Continuing and Professional Education in a course supplied by the Institut Teknologi Brunei (ITB) or Universiti Brunei Darussalam (UBD). ITB or UBD

would provide the summative grades by marking the final examinations, and CCPE would provide the local tutorial support. CCPE could similarly collaborate with other institutions, such as Deakin University (Australia), Universiti Sains Malaysia (Malaysia), Hawthorn Institute of Technology (Australia), Massey University (New Zealand), and so forth.

5.3 Infrastructure for Open/Distance learning

In Brunei Darussalam, there are a number of delivery facilities which support the development of an open/distance education. The popularity of telephone and its fixed charges, regardless of the frequency of usage within a district, renders it a favourable communication medium in an open learning system. The system is linked internationally via satellite and undersea cables to most major cities in the world. This feature greatly reduces the cost of joining and operating distance education courses.

The postal system is fairly cheap by local standard and efficient. A local letter costs about 15 Canadian cents (delivery normally within one or two days) and to the United Kingdom (ordinary air-mail - delivery normally within a week) only 58 Canadian cents. This would allow quick feedback for learners, greatly facilitating their study.

Television sets, radios, cassette recorders and video recorders are accepted as basic living commodities by Bruneians. Therefore video tapes, audio cassettes or radio broadcasts can be used as the media for delivery of courses. As already mentioned, the use of television broadcast will be too costly and impractical, especially during prime time.

5.4 Major Features of An Open Learning System in Brunei Darussalam.

Distance learning may not be a major component, although some distance learning would not be totally ruled out, particularly if an overseas distance learning institution is

involved in courses that are not locally developed. The system would eliminate many barriers to adult learning, such as time flexibility, relaxed criteria for entry to courses (such as using a person's life experience as a possible alternative to academic requirements), part-time evening courses, credit transfer, modularised courses, and so forth. Whenever possible, it will employ a variety of teaching strategies, including face-to-face, by telephone, computer conferencing, audio and video-conferencing, independent and individualised learning.

Using Lewis's and Spencer's open-closed continuum model (see Chapter 3), the Brunei Darussalam open learning system would develop as follows:

(1) The scheme would, during its early stages of development, be open to selected groups only, such as, teachers, professional, managerial and technical workers. A variety of formal qualifications as well as work experience would be considered for entry to courses. The scheme would be regularly marketed to target client group.

(2) Pre-entry counselling would be available for all adults wishing to take open learning courses. Employers have an important role in the development of its employees in open learning courses. Tutors will also help learners through the programmes.

(3) Employees, programme developers and professional bodies draw a suitable syllabus, which will then be approved by the Brunei Darussalam Accreditation Council, for credit courses. The role of the Accreditation Council is important especially when salary grading is based on qualifications that are recognised by the Council. The acceptability of a programme, therefore, would depend on its recognition by the Council as well as the employers. The programme would use a wide range of materials drawn from many sources. Courses would be modularised allowing learners to choose between different modules to suit individual needs. Learners will be helped by counsellors or tutors as to the selection of the content of the course. Some credit will be given for past experience.

(4) A wide variety of learning methods/styles, as well as appropriate activities will be employed, such as: conventional face-to-face learning with regular attendance with negotiable times and dates; and the package will use a variety of media - audio, video and/or computers. Learning will be largely print based, with regular face-to-face teaching and strong tutorial support.

(5) Learners will study at a number of learning centres, located in local school buildings, community centres, at the work place, a mobile learning centres, and so forth. Learners will also have to do some independent studies at home.

(6) After deciding which of the limited starting dates is most convenient, the learner will be given a final date when the programme must be completed. Because of previous work experience a teacher taking a Bachelor Degree in Education may be exempted from first year course work and given four to seven years to complete it. Learners, particularly teachers, wishing to complete their programmes in a shorter time should be able to take full time course during the long school holiday (six to seven weeks) and accumulated annual leave. For example, government officers in Division II and above are entitled to 48-60 days leave which can be accumulated up to three years.

(7) There will be competency based assessments on each module with frequent feedback on performance and where appropriate examinations will be set.

(8) Learners should have access to support in the form of face-to-face with teachers, instructors, tutors or other professionals engaged in the programmes or by way of telephone or correspondence.

(9) Courses should be linked, allowing for credit transfers between programmes.

5.4.1 Appropriate Technology for Adult Learning in An Open Learning System in Brunei Darussalam.

Chapter 3, sections 4.3 and 4.8 describes the range and cost of technology currently used in many open learning systems. Television presently broadcasts to the general public between 4.30 pm to 11 pm weekdays and 8 am to 12 midnight on weekends. Some adult educational programmes are broadcast on Malaysian channels. Unfortunately they are not advertised and consequently of little use to Bruneian adults. The number of students in some courses, at the sub-degree level, over a period of four years may be sufficiently large, based on the criteria suggested by Rumble (more than 936 students) in Chapter 3 to warrant the use of TV broadcast. For example, it may be possible to transmit an hour's material, for large numbers of teachers, on RTB between 8 am and 4.30 pm, when there is no broadcast for the general public. When courses have less than 526 students over a 4-year period, video-cassette and audio-cassettes could be used as part of their home kit. It would also be cheaper, for example, to provide students with non-returnable audio-cassettes than to broadcast by radio.

Computer-aided learning has potential in adult learning in Brunei Darussalam, particularly when the per unit cost of hardware has gone down in recent years. Electronic communication, such as, E-mail, and computer conferencing have yet to be used in any of the educational institutions. With modems, a suitable UNIX environment and other appropriate communication software on main frames, located at ITB and UBD, students and staff should be able to communicate with one another and access data stored on the main frame.

5.4.2 Resources - Funding and Institutional Support.

The availability of funding is the prime factor for any project. In the establishment of an open learning system for adults, it is essential that the financial resources come, either entirely or partly, from the government. An institution that has total funding from the government will encounter fewer problems. The capital expenditure would be borne by the government, the recurrent expenditure would be borne by the students and subsidised by the government at a level that ensures learners are able to afford the tuition fee. Buildings, equipment and other facilities, the production of course materials, staff costs and current expenditures would all be met from public funds, at least for the foreseeable future, until a "skills levy fund" can be implemented. Some courses intended for adults should be part of a National Training Scheme, that was proposed in the 5th Five-Year Development Plan (EPU, 1986: 25), involving the government and employers working together to train Bruneians in the fields of commerce and industry at skilled levels covering broad areas from junior technician and advanced craftsman, to sub-professional. Employers contribute towards skill training for their employees by paying a fixed sum equivalent to about 6% of the workers annual salary into the Skill Levy Fund controlled by the government.

Good relations have to be established with companies to help provide job opportunities for graduates and to encourage companies to sponsor their staff for updating and up-grading studies. Courses can also be held in the premises of companies to save learners the inconvenience of traveling long distances to a learning centre. The recognition of qualifications for employment purposes or for further studies is of vital importance. Credit recognition arrangements have to be made with other institutions for transfer and further study. The standard of courses has to satisfy the established criteria of the government and conform with any guidelines set by the Council of Accreditation or

the Brunei Business Technical Education Council (BBTEC). There should be no problem in the recognition of credentials or for qualifying for employment with the government.

The development of course materials is expensive as described in Chapter 4. It may therefore be possible to adapt for adults, and with minimal modification, some of the many courses available in existing educational institutions throughout the country. If they are to be readily acceptable to adult learners, course materials have to be suitably designed to support self-directed independent learning. Course materials can also be purchased from established overseas institutions, but such practices have to be carefully considered to take into account the differences in culture, values and other factors.

Any course developed for Brunei Darussalam, because of its small population, cannot achieve the comparable cost effectiveness of larger institutions, such as the British Open University or the Sokothai Thammathisarath Open University in Thailand. Certain sacrifices or compromises have to be made, such as the range of technology that should be used, the range of courses that are available to students, and the higher costs incurred because of small student numbers. A higher student number is desirable, because it lowers the production cost of course materials and the bigger the program, the more flexibility in pacing and course-duration may be provided. A number of other considerations have to be taken into account by employers and employees, such as: the cost of studying abroad, the cost of employing a temporary replacement worker, the loss of income to the employee when doing a full-time course abroad, the relevancy of course contents to skills requirements, and so forth.

5.4.3 Student Service and the Problem of Dropout

The Centre For Continuing and Professional Education would provide a number of services to help students deal with their academic and/or personal problems, in addition to a tutoring service.

A counselling service is important to help students overcome the barriers normally associated with independent learning. The role of counselling in Brunei Darussalam is generally confined to career advice, unlike in many countries, such as Canada and Britain, where it implies a much bigger role. A counsellor there, for example, can assist a learner build up a profile of courses according to the interests and vocational aspirations of the student, and provides guidance throughout the program. Counselling helps the individual learner to recognise the nature of his or her learning difficulties and achievements, and to become more articulate (and thus more deliberate) about what to do next. The role of the counsellor is (Grugeon, 1987: 196) is:

- To provide information in an unbiased way in order that a learner may be better equipped to weigh up a situation and choose between alternative courses of action for him/herself.

- To help a learner, it is necessary for the counsellor to view life through the eyes of that learner, to enter into that individual's understanding of reality, and to be able to use the learner's frame of reference. The counsellor can then use the knowledge to help the learner to find better ways of coping.

- To be able to tolerate uncertainty about the appropriateness of the help which he is giving and the difficulties associated in the process of relating to a learner.

Books of academic interest are not easily obtainable and are generally expensive in Brunei Darussalam. The few libraries accessible to the public are inadequately stocked and cater for the general interest of the public. Institutional libraries such as those found in the

university, colleges and schools are closed to learners other than those who are currently enrolled in their courses. The CCPE library has to be well stocked to sustain the interest of its learners and an inter-library-loan system should be negotiated so that students may acquire books that are available from other libraries in the state through the CCPE library.

A study centre is an important element of the student service. It provides a venue for tutorials, self-help group meetings, operation of teleconferencing, TV. or video tape program viewing and reference library services (where a local library is not available). Facilities of this kind have been successful in many distance education institutions, such as those at the North Island College in Vancouver Island (Tayless, 1986: 163). Other services, such as student newsletters, student activities and study camps should be organised whenever possible, to encourage social interactions among groups of learners.

Tutorial contact can have a major role to play in open learning programmes at the Centre for Continuing and Professional Education. Students in the open learning schemes may be studying with a variety of teaching media including printed texts, computer assisted learning, video and cassettes and may, for much of their time, be engaged in independent studies. Depending on the course, there may also be some face-to-face teaching. The experiences of the British Open University shows that there is strong student demand for opportunities to discuss course issues with fellow students and a tutor; and that they view tutorial contact as an important and valuable component of the OU teaching system (Thorpe and Grugeon, 1987: 275). Studies by the OU of student group tutorials show that students welcomed the increased access to education but those who had limited educational backgrounds or had not studied for many years lacked confidence and skills and were unfamiliar with modern teaching techniques. A well thought-out tutorial programme gives students access to their tutor and others taking the course, enabling them to compare progress, share experiences, problems and ideas and to discuss

matters of group and individual interest. It allows students a more extensive discussion of issues of interest than those offered by the course units. Group tutorials help to establish interaction between learners and the tutor and help to sustain motivation and inject fresh enthusiasm for study. Tutorials can help learners integrate the different elements of a course package and relate individual topics to the principal course themes. Student self-help or study groups are a valuable source of mutual support. Studies of OU students revealed that the principal cause of dissatisfaction with face-to-face tuition at higher level courses was the lack of sufficient tutorials to provide adequate coverage of courses. Tutorials were also considered to be more helpful than television or radio (1987: 284-285).

5.3.4 Organisation and Institutional Model that is Appropriate for Brunei Darussalam.

It would be too early to propose a detailed organisational structure for the Centre of Continuing and Professional Education operating within the context of an open learning system, but, it may not be presumptuous to draw an outline to reflect its major functions. Major functions would include: curriculum planning; materials development, production, storage and delivery; student recruitment, admission and counselling; the organisation of study facilities and support services; the tutoring, assessment and examination of students; the monitoring of student progress; general and specialist administration and management (direction, personnel, finance, management services, purchasing, estates and maintenance, and so on); research and evaluation. Currently, the Centre has a director-designate, a senior programme officer and a support staff to assist in planing and development. Since the director-designate is away on a one year course and is expected to return in December

92, the Senior Programme Officer and the Technical Education Advisor continue to work on the blueprint.

The way in which the Centre should be structured will be determined by its basic functions and the level of resources it is able to get from government and private sources. The model could be any one of those described by Rumble (1986: 103) and (Coffey, 1989: 277-284) in Chapter 4. There is a growing interest in the establishment of a "community-based" college in Brunei Darussalam, developed along the lines of Canadian community colleges. A Canadian, from British Columbia, is currently employed as a technical education advisor at the Ministry of Education to help in the development of two vocational schools, based on a Canadian Community College model. Four Canadians are employed to conduct detailed needs assessments and develop competency-based courses while another Canadian, formally a senior member of the North Island College, has been seconded to the CCPE to advise on its development. I envisage the activities of the CCPE will be broadly based on The North Island College model. It would be a "community-based" college providing traditional as well as non-traditional clientele with traditional and non-traditional services through non-traditional delivery systems. This community-based institution will analyse the needs of various communities in Brunei Darussalam and will join forces with other agencies in meeting those needs. It will re-evaluate its programme priorities, take the institution to the communities, and will set the pace for the institution's thrust into human services providing lifelong learning to all adults.

Chapter 3 describes a number of open learning models. What would be the appropriate model for Brunei Darussalam? A collaborative model seems appropriate, but it would require a number of traditional institutions involve in activities that support open learning, such as in course development. There are advantages in an open learning system, based on the collaborative model, making use of materials and expertise already available

locally. The cost of providing programmes to adults can be minimised. A large physical infrastructure may not be necessary because the system utilises spare capacity of existing institutions, such as during the evening when most institutions are normally closed. It should examine courses currently offered at the various local institutions, such as ITB, UBD, MTSSR, JBCE, the SEAMEO Regional Centre for Vocational and Technical Education, the ASEAN EEC Management Centre, the Institute of Civil Service, and utilise them for the general public, particularly, for the targeted client group mentioned earlier. The technical and vocational institutions however run courses that are validated by the British Business and Technical Education Council (BTec). A local validating body for business and technical awards will be fully functional until 1996. Therefore, the courses for adults, would utilise the British BTec awards and at a later date have the certification recognised by a local validating body. External evaluators would ensure that qualifications awarded by a local validating body are recognised by other awarding bodies. This would enable learners to continue on to higher programmes at foreign institutions. Figure 5.2 below shows an ideal model of the relationships between institutions within an open learning system.

The open learning institution may have to negotiate with BTec to revise as much of the syllabus to ensure the contents are relevant to local needs. For example, a brick laying programme should require that students to learn skills of house building in a tropical environment, such as cooling systems, rather than the required skills to build chimneys, which they are not be able to put into practice in their work.

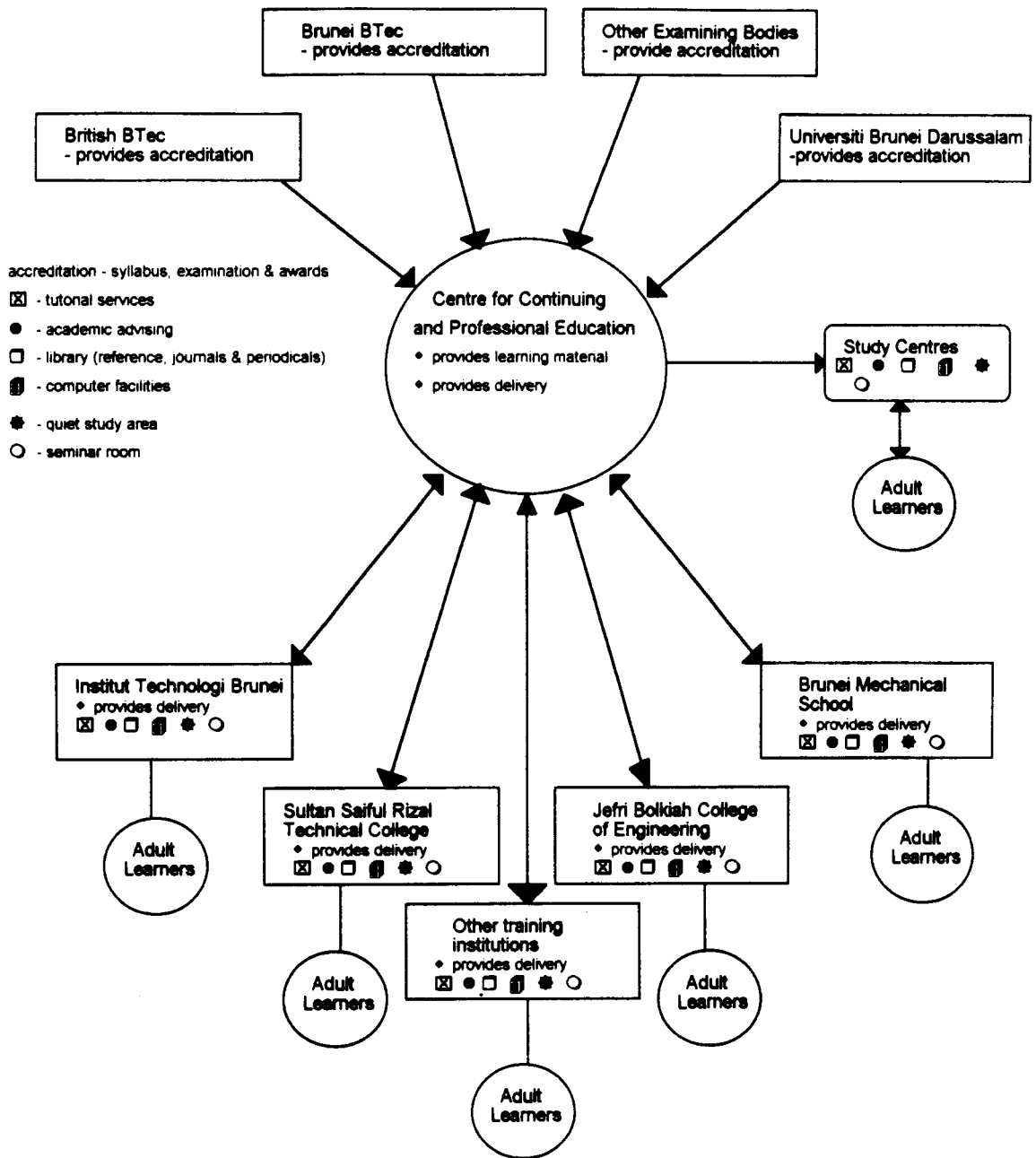


Figure 5.2: Model of an open learning system for adult learners in Brunei Darussalam

Open learning is therefore feasible in Brunei Darussalam, that a large number of adults can benefit from such a flexible learning system that allows them to choose:

- what they learn (contents relevant to their needs and related to local situation)

- how they learn (method; media; routes)
- where they learn (they can spend more time learning at home and that face-to-face teaching may occur in learning centres close to their home)
- when they learn (flexible time that allows them to continue working)
- how quickly they learn (pace)
- who to turn to for help (tutorial support)

5.3.5 Monitoring Teaching Standards and Training of Staff

It is important that the CCPE maintain a fairly high standard of student performance and to monitor the teaching standards to ensure that any qualifications awarded to students are acceptable to employers or to other institutions. Tutors perform a bridging function between the student and the institution. Their teaching standards would be monitored by a full-time academic and another examiner in a relevant discipline. Most tutors/staff would be recruited from academic or professional fields bringing with them little or no experience of open learning or distance education. Staff development has to be initiated to ensure that all those involved in the institution have an understanding of the fundamental aspects and key functions of open learning, and are able to perform adequately in an open learning system.

A number of key personnel, particularly those new to open/distance education, would require specialised training. The Commonwealth of Learning (1990: 72) suggests four strategies: (1) training workshops; (2) self instruction and distance learning; (3) training fellowships and internships; and (4) special training institution/units. There are already a number of courses in distance education, within the Commonwealth, available to the those who wish to work in distance education.

The Commonwealth of Learning (1990: 67-71) suggests that **professional and technical staff** need to follow an orientation programme covering: **distance education** (philosophical issues); socio-economic considerations; cost-benefit considerations; **major models and institutional systems**; teaching and learning at a distance; **media options**; and recent developments worldwide. The training would cover the following category of staff:

(1) Senior administrators and academic staff

They require:

- an understanding of the value, purpose and contribution of **distance education**;
- an understanding how the system works;
- the ability to reflect critically on the institution's systems, objectives, options and effectiveness; and
- the ability to manage and modify the system to achieve goals and effect improvements;

They would be required to study:

- strategic analysis and planning;
- financial management - cost, budgeting and economics;
- student records management - enrollments and database management;
- management of materials production and delivery - planning, systems and resourcing;
- student support services - management and operation;
- course management - institutional (management of course profile, programme budgeting and control);
- course management - course controller level (handling assignments, tutorial staff, regional travel, contact sessions, student assessment, and so forth);

- organisational environment and organisational culture; and
- promotion and advocacy of distance education.

(2) Course planners requirements

They are required to:

- know how to respond to analysis of needs;
- evaluate the information about costs in the light of identified needs and the resources available;
- be able to present and justify the courses/programmes;
- to be able to prepare the schedules of course/programme preparation;
- to be able to put in place the organisational structure for purpose of materialising the courses/programmes;
- to be able to identify the content, specify the media-mix and the course teams for particular courses;
- to be able to specify aims and objectives, assessment procedures and media use for each and every course/programme, and
- to present the costing of a course/programme.

(3) Course Developers requirements.

They are required to:

- plan units allotting proportions to appropriate media;
- search for and collect relevant materials to be used for developing the materials - also suggest readings;
- write self-instructional units;
- edit the self-instructional materials;

- pre-test the self instructional materials; and
- prepare media notes, briefs and scripts.

(4) Production Staff

They are required to learn the techniques in publishing, such as, the design and lay out self instructional texts, copy edit, illustrate, proof-read, clear copyright, and organise production schedules. They need to know about non-print production such as: prepare production scripts; identify and contract presenters, commentators, and so on; organise recording, edit, design graphics, manage production and clear copyright.

(5) Course Implementers

They need to study how to: coordinate course delivery, organise tutorials, organise assessments and examinations, develop monitoring schedules, manage tutors and articulate with external examiners and other reviewers.

Chapter 6

FRAMEWORK FOR AN OPEN LEARNING SYSTEM IN BRUNEI DARUSSALAM

Synthesis of this Chapter

Chapter six is divided into three parts: Part 1 describes the development process: (1) the pre-planning phase, and (2) the planning phase. Part two provides an overview of the thesis and discuss the three issues raised in Chapter 1. Part 3 concludes this thesis by presenting a number of recommendations.

6.1 Process of Developing a system

6.1.1 The Pre-Planning Phase.

6.1.1.1 Needs Assessment.

The provision of a service has to meet the demands of the community. Prior to the actual planning of an open learning institution in Brunei Darussalam, there must be a preliminary study to identify the demands of the society and the potential market, as well as what type of education is lacking or should be expanded based on the present needs or the projected needs. Other factors need to be taken into account, such as the capacity of existing institutions working in relevant fields, the size of the demands, and the availability of local teaching staff.

The need for education in Brunei may well be enormous. There are factors favouring the establishment of an open learning system, which were described in Chapters 2 and 4. Chapter 2 also establishes that there is a need for greater access to education and training for adults and that: (1) Increasingly large numbers of ill prepared school leavers are increasingly joining the workforce, and the present system is unable to cope with the current demand; (2) adults already in the workforce require retraining in the professional, technical and vocational fields yet are largely overlooked by the present system that caters

mainly for school aged learners; (3) there are a large number of disadvantaged persons unable to enter conventional educational establishments for geographical, social or economic reasons - most schools are concentrated in urban areas, particularly those beyond the elementary level; and (4) the current allocation of government funds for education is sufficient to maintain the present traditional system, will require some readjustments if adults are to be included.

All of the above issues and concerns require that the educational system gears itself to meeting the need to train more people for the workforce. I see the need in two distinct areas. First, the need to train school leavers in skills that prepare them for the world of work. Some of these needs have already been met by the present system of technical and vocational schools. However, the needs of the working adult are not fully met at all levels. For example, at the Universiti Brunei Darussalam, there are no undergraduate programmes available for the part-time adult. The University has however offered a part-time Masters programme in educational management since 1989. The Institut Teknologi Brunei offers a part time Higher National Certificate programme for a limited number of working adults and in September 1991 introduced a pilot program for bank employees leading to an Institute of Banking Examination. The building of two new vocational schools, due for completion within the next two years, will address some of the needs of school leavers.

The Government through the Ministry of Education has expressed its intention to develop adult professional and continuing education. The Centre for Continuing and Professional Education was established in September 1991 but lacked the infrastructure to function as an institution. To date, the Centre has not registered any students and no concrete programmes have been proposed or developed. Funding has not been allocated for programme development. The centre has no formal administrative organisation,

however a governing council chaired by the Permanent Secretary of Education, with representative from government departments, the university, the technical institutes and private organisations, has been appointed. The governing council is further assisted by an advisory committee.

Individuals in Brunei Darussalam have taken the initiative to register for distance learning courses offered by foreign institutions, for example, the MBA programmes from Warwick University through centres in Singapore, or Master's degree at University Sains Malaysia, or secondary level courses from New Zealand Correspondence School. Most of these courses were followed by expatriates, working on contract in Brunei Darussalam.

6.1.1.2 Adequacies of Present Policy to Support an Open Learning System in Brunei Darussalam.

It is important to examine present policy on adult education and its adequacy in meeting present and future needs of Brunei Darussalam.

The aims and objectives of adult continuing education in Brunei Darussalam are:

- to provide remedial and basic education for those who have not gone to school or for those who have gone to school but did not profit by the experience and those who left school prematurely;
- to give adults a broad opportunity to further their intellectual and cultural development with or without reference to conferring of academic credentials;
- to provide occupationally-related courses for relevant groups;
- to provide courses designed at promoting good citizenship through the encouragement of a popular educational movement.

The National Education Policy as outlined in Chapter 4 is primarily aimed at school aged children and overlooks the adult who wishes to go back to school for whatever reason. Clearly, the present policy inadequately caters for the educational needs of adults in Brunei Darussalam. If the education of adults is to gain a firm footing and play an important role in the development of the country, provision should be made to incorporate it as one of the main objectives of the National Educational Policy. The role of adult education should be clearly recognised by the government and all those who participate in it: that it facilitates change in a dynamic society; that it can be used as an instrument to support and maintain the good social order; that the education of adults promotes productivity; and enhances personal growth.

The concept of lifelong education should also be incorporated into the philosophy of adult education in Brunei Darussalam. A number of reasons can be put forward for such a proposal. As described in Chapter 4, Brunei Darussalam, like most recently independent and developing nations, is undergoing rapid economic and social changes. As the pace of change accelerates, individuals in the work-force are having to cope with technological changes in their working lives. Adults must be given every opportunity to adapt themselves to the changing skills requirements resulting from new technological innovation in the workplace. Frequent cycles of training and education for adults, throughout their working lives, are essential to improve their productivity and efficiency if Brunei Darussalam is to become economically competitive in the world market.

Any new national education policy that incorporates the concept of lifelong learning and adult education should also be reflected within the primary aims and objectives of the Ministry of Education. It would heighten focus on the needs of adults and accelerate the development of the Centre for Continuing and Professional Education and other agencies responsible for adult education. The development of a learning system, such as the open

learning system described in chapter 4, that is able to meet the characteristic needs of adults in Brunei Darussalam, would provide a means for achieving national goals.

6.1.2 The Planning Phase

An open learning institution must choose from the established needs to plan its own educational objectives. Market research and needs assessment are the earliest steps in the planning process of an education system as shown in Figure 6.1 (Rumble, 1986: 89). Rumble (1986: 88) stated that planning is the systematic development of activities aimed at reaching agreed objectives, by a process of analysing and selecting among the various strategies and opportunities that have been identified as being available.

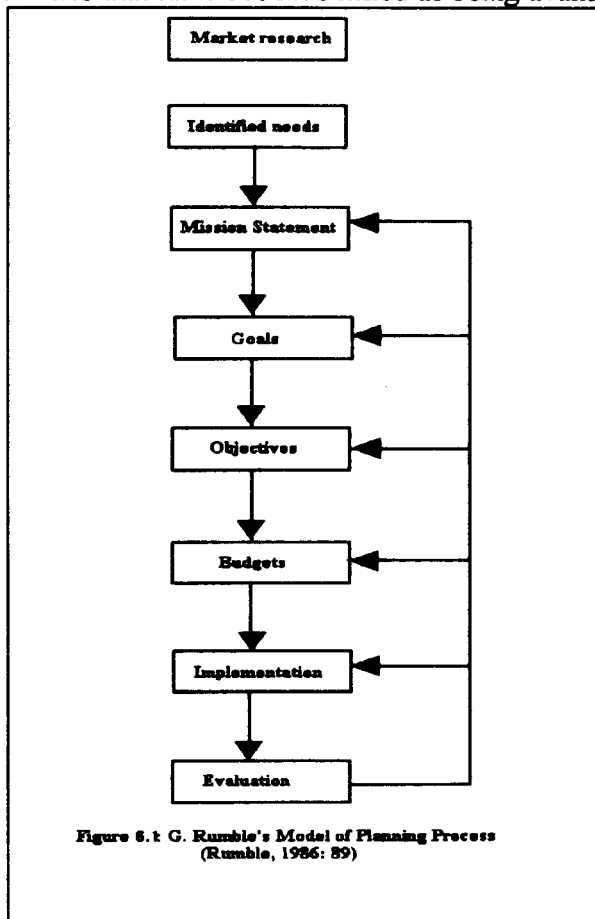


Figure 6.1 G. Rumble's Model of Planning Process (Rumble, 1986: 89)

The above model by Rumble illustrates the basic planning process, and sets it within the context of the need for information derived from market research and evaluation. Needs data may be gathered from a variety of sources such as: Census reports; statistics from public examination boards, the Economic Planning Unit, the Labour Department, National Bankers Association, Chamber of Commerce, and so on. Other than information derived from available data, market survey may be used. These surveys can be conducted by professional agencies using phone interviews, mail questionnaires or personal interviews. Needs assessment helps to decide what programs to provide, how, where and to whom. It helps planners to work on programmes that have the greatest needs and priority.

6.1.2.1 Fundamental Role (Mission) and Markets

The decision to establish an open learning system should be justified in terms of a broad statement of the fundamental role or "mission" which the proposed institution will have. An institution's "mission" expresses the expectations which society has of it. It is also a broad statement of the conditions on which its continued existence is predicted. Mission statements usually have their origins in the political aspirations of those setting up the institutions or system. It ought to include statement of the system intended (formal or non-formal), its educational level, the nature of the target audience and the kind of academic programmes that are to be offered. As stated in the Chapter 2, the Centre for Continuing and Professional Education will enable people within both public and private sectors of the economy to upgrade their skills and knowledge without having to leave their employment. Its mission is (Ministry of Education, 1992: 58):

"To facilitate professional and continuing education in the fields of professional, technical and vocational education utilising distance

education methodology to obtain educational services from external institutions and agencies. In addition, the Centre will conduct in-service training for key personnel in Brunei Darussalam."

Of the stated roles of the centre (1992 January: 58), those important to the development of an open learning system, include: establishing linkages with all public and private training institutions in the state; establishing linkages with appropriate educational and training institutions within the Commonwealth; developing appropriate delivery systems; utilising appropriate educational technology and media for the delivery of courses and training programmes; developing the infrastructure that will support distance education; provision for training in the writing of curriculum for modularised distance education courses; and the establishment of student support structures and tutorial networks.

The Centre can also assume a coordinating role in an open learning system, consisting of a network of schools and colleges working collaboratively in the delivery of courses. The Centre would have its own program objectives. As a coordinator it has to work closely with other agencies, such as the adult education unit, local technical institutions and other regional institutions, to ensure that learners are able to progress from one level course to another. As an institution, it has to provide university-level courses, as mandated by the government, and other non-degree professional level courses that are intended for updating or up-grading education for adults.

It is important to establish program objectives as a base for development. The process of program development may be different according to the scale of provisions. For example, it may be practical, financially, for the Centre to use the best available courses from around the world. If there is no problem in the language of the course (medium of instruction - English or Malay), using available courses with appropriate modification,

whenever necessary, may be desirable. Rogers (1987: 38) stated that it is possible for one person or a group of people to use learning materials (text, videotape, audio tape, and so forth) produced by other people, for a teaching purpose other than that for which they were originally designed. For example, materials designed for an undergraduate study can be adapted for vocational training; and materials used for nursing can be used to train social workers. The above description may be common practice among institutions within a country or in countries which share a common culture and settings (language, system of education, and so on), but can be more problematic when used in another country that has a totally different cultural setting. There is no sure rule to determine if a learning material can be easily adapted, without much modification, from one country to another. The Open Learning Institute of Hong Kong and the Open College of University of East Asia (based in Macau), for example, have successfully used materials, developed overseas, for many of its courses (Dhanarajan, 1990: 48-52; Jenkins, 1988: 47 and 225). Nevertheless, owing to cultural or societal differences, some courses may have to be developed locally. Courses have to be designed with specific objectives in mind, such as: the provision for face-to-face learning, self-paced learning and a considerable amount of time for independent learning; when and where it is practical to hold the courses and the offering of part-time courses to enable adult learners to continue working with the minimum disruption and inconvenience to their family life.

Instructional design is essentially concerned with three areas (Koul, 1990: 25):

- The issue of predisposition towards learning and teaching, which is concerned with the individual's or society's susceptibility to learning. Factors that need to be considered include: the individual's level of study skills, and the level of instruction required for a certain type; the societal attitudes of the people towards intellectual

activity of various types; and the personal, cultural and motivational influences (on their desired instruction).

- The optimal design of instruction which includes the most effective arrangement (sequence) of content for optimal learning. This refers to materials that are designed to be simple, effective and appropriate for the learner type - age group, rural-urban, and so forth. The contents are arranged in a sequential manner, that the learners are able to follow easily.
- The regulatory mechanisms in the processes of teaching and learning - programme implementation. This includes issues of two-way access (instrumental, geographical, cultural, pedagogic, andragogic and linguistic) and resources (technological, sociopolitical, human, material and financial).

At the degree level, a number of courses can be developed collaboratively, using available materials that have been tried in other regional collaborations, such as: the business courses, between the Open College of the University of East Asia and Massey University (New Zealand), for students in Hong Kong; and courses in Law, between the University of South Pacific (USP), the University of Papua New Guinea and Massey University, for students registered at USP (Bewley, 1988: 225-226).

Small-scale programme development plans have to be created, which includes: programme planning and recommendations initiated within the institutions involved; approval by a governing body of the Centre; course preparation and writing; delivery and tutoring and evaluation and course revision. The whole process of course development will be handled by a small course development team, consisting of an academic content expert, head of a department and an editor. The experiences of other institutions, such as the British Open University and the University of Victoria (Canada), in large scale course development, suggest that other specialists are involved: course writer, course consultant,

course designer, copy editor, visual designer, graphic artists, photographers, audio specialists and word processing editors (Mackenzie et. al., 1975: 68-73; Seaborne and Zukernick, 1986: 44-46; Paul, 1986: 134-135). The practice may vary from one institution to another. Given that the client groups in Brunei Darussalam are small, course development on a large scale seems unnecessary. The centre could provide orientation courses, similar to those provided in institutions such as the University of Manitoba (Seaborne and Zuckernick, 1986: 44). Orientation workshops are held to provide an orientation for course writers as well as new members of the team in order to understand their roles.

As the telecommunication networks in the Pacific region improve it may be feasible for courses to be run jointly between a number of national institutions. For instance, students from Hong Kong and a number of South Pacific Islands could in the future receive from New Zealand via the satellite network a short course for pharmacists. Brunei Darussalam with only a small number of pharmacists to be trained annually may gain regional access to satellite audio facilities linked with teleconferencing equipment shared between institutions and their students. The Centre of Continuing and Professional Education (CCPE), with the assistance of The Commonwealth of Learning (based in Vancouver), will have audio- and teleconferencing units in place as from November 1992.

6.1.2.2 Planning Committees

A **planning committee** may need to be established to plan for the development of an open learning system in Brunei Darussalam. The committee should have the full support of the Minister of Education who will have a great interest in its establishment. Rumble (1986: 91) highlights the main features of setting up a planning committee, which includes: (1) the crucial importance of political backing, (2) a tendency to isolate the committees

from the normal bureaucratic processes of government, (3) the often highly specific terms of reference which they had, charging them with establishing a system and not with questioning the need for it, and (4) the prestige of the committee members.

Rumble (1986: 41) emphasises the importance of political support and he cited a number of cases where proposals put forward collapsed. In the mid-1970s, the proposal for a national distance teaching university in Columbia foundered because the proposer lacked essential support from the Columbian Ministry of Education. In 1981, the proposal for an Open University of Nigeria was blocked by the Nigerian Senate even though it had the support of the President (1986: 42). In Britain, however, the establishment of the Open University had the full backing of the Prime Minister (Harold Wilson) and, in Israel, the establishment of the Everyman's University owed much of its existence to the Labour Party Leader Yigal Allon who, as Deputy Prime Minister and Minister of Education and Culture, pushed for its establishment in near record time (1986: 41). Rumble (1986: 91) also cautions those setting up a distance learning institution of the likely opposition and hostile bureaucracy of government.

6.1.2.3 Goals and Objectives

The goals of an institution are a reflection of the aspirations it has (or, perhaps more accurately, those held by the individuals and groups within it) and normally express the general philosophy of the institution : objectives are much more specific than goals and are commonly held to be commitments to action (Rumble, 1986: 92). The goals of the Centre for Continuing and Professional Education can be established by its planning committee, which include: what should be taught, how it should be taught, to whom the institution should address itself, how the institution should be run, and so forth. It would have a

number of proposals about structure of courses and the kind of technology that will be integrated into each course.

The Centre should be clear about its general philosophy, for example, whether its activities are predominantly institution-centred, individual-centred or society-centred as described in Chapter 4. The decision to be institution-centered, for example, would enable the Centre to focus more on technical media (print, broadcast, electronic messaging, and so on) which will transfer messages to the learner and assess that learner's understanding. In society-based model, the focus is on group learning, on the interaction between its members, and their interaction with the community beyond the group.

The Centre would develop general objectives, which are more specific than goals. The objectives ought to be realistic, appropriate to the time and place, and not too overly restrictive. Rumble (1986: 94) suggests that there should be some room for unplanned growth and development - allowing for the emergence of new objectives.

6.1.2.4 Strategy

The planning of the Centre should not separate the conceptualisation and justification of the project from a fundamental and realistic assessment of the ways and means of achieving the aims. The aims of the Centre should extend down to a series of subordinate objectives that are clear, mutually consistent, and form a hierarchy such that the objectives (ends) at subordinate levels become means by which higher level superordinate objectives are achieved. This would include: the specification of academic programmes in terms of the numbers of courses involved, the likely use of media including the volume of output, the medium of instruction, the range and level of support services to be available to students, the number of students that each course is likely to attract, levels of admission, and so forth.

The choice of method and media and the design of course materials will have to take in to account the situation and environment that learners in Brunei Darussalam are faced with. In independent learning, where learners are required to study with minimal face-to-face contact with teachers and tutors, various methods and media are used to overcome the weakness of teaching using written words alone. The following criteria can be used in planning a program: the media must be easily accessible to learners; students should not be required to use the media at a fixed time and location; media used should be cost-effective; methods and media used should fulfill the requirement of the teaching objectives and the needs of the groups involved.

Based on the above criteria, the printed word should continue to be used as a major delivery method for learning at the CCPE. Inexpensive audio cassettes should be considered the second most useful media in distance teaching since they are affordable to most students and easily controlled for pacing and reply. The use of TV broadcasting would be too costly to implement in Brunei Darussalam. Video recorders are however available in most learning institutions as well as in many homes and it would be feasible to establish a number of learning centres with adequate facilities where learners would go to view video tapes. Video libraries could be established whereby students would loan tapes for viewing.

6.1.2.5 Development Process

The Centre's curriculum and institutional planners would need to determine the nature and size of the academic programmes which will be offered. They should work within the institution's agreed mission and goals. Key considerations should include: (1) the nature of any awards offered; (2) the level of competence of the target population; (3) whether or not admission will be open to those without formal academic qualifications; (4)

the number of courses, including policy on course levels, prerequisites, mandatory core courses and options; (5) whether to develop the materials or use existing materials produced by other local institutions; (6) the range of media that is going to be used and how to integrate it into a learning package; (7) the facilities that are available to the learners either in their homes or within the community, (8) the degree of pacing (schedules governing registration on courses, return of assignment, broadcasts, examinations, and so on) that is required, and so forth. It is important to bear in mind that the planning must be done in the context of the environment in which the centre is going to operate.

The development process should yield a plan which would show for each academic programme a list of the number of courses that will finally be presented in an academically creditable programme. Each academic programme will have a coherent group of courses leading to a particular academic qualification such as a degree, diploma or certificate, or within a define area of study. The number of courses would depend on the coherent grouping of materials and activities which can be studied either on its own or for credit towards an academic qualification. At some stages the Centre's planners have to review the relevancy of each courses and may have to replace aging courses.

6.1.2.6 Implementation

The system described in Chapter 3 for the development, production and distribution of materials and for the administration, teaching and support of students provides a useful focus for the planning of an open learning system in Brunei Darussalam. The two subsystems described in Figure 3.7 in Chapter 3 can be used and analysed in terms of the resources required to support them and to get an overall idea of costs involved. In this way, the crucial inter-relationships between the various component systems can be established and a proper equilibrium between them may be achieved.

The planners may need to check at each stage of its implementation that the emerging structure is pedagogically, administratively and financially feasible, and can be achieved in the time available. A blue-print should be drawn up showing detail of all activities (development, production and distribution of materials, and design, testing and implementation of student administrative and teaching systems) and how they are inter-related. Of strategic importance is the identification of experts and the need to bring them on board at a crucial points of the critical pathway (or time line) and the need to train key personnel, as described in Chapter 5. Rumble (1986: 99) suggests three possible alternatives to setting up a programme : (1) to mount a small pilot project, evaluate the results, and then decide whether or not to expand the system to a major project; (2) to implement a full-scale project immediately; and (3) to adopt an incremental approach in which the basic infrastructure is fully implemented from the start but volume rise year by year as the number of academic programmes, courses and students are increased. In implementing programmes for Brunei Darussalam the CCPE planners should consider only one of the above options. Implementing a pilot project or an immediate full-scale project would not be feasible for a number of reasons. The needs assessment presented in Chapters 4 and 5, suggests that an open learning system be established as soon as possible. A pilot project may take too long to be of any benefit to the many adults presently in need of access to education. Because of the high starting cost it is not feasible to undertake a full scale project immediately. There will not be sufficient qualified local staff, therefore, foreign instructors may have to be recruited. More time would be required to train local staff require to manage an open learning system. In my opinion, an incremental approach would be the best route to take for Brunei Darussalam. The development cost could be spread over a number of years and allows for the integration of suitably qualified local staff into the system.

6.2 Overview

This thesis develops an open learning system for Brunei Darussalam by following a number of steps beginning with a brief description of the needs of present day society and the stated role of education. Much of that description is based on the problems faced by adults in a modern society and leads on to the notion that the updating of knowledge and skills are essential elements for adults to survive and cope in a world that is constantly and rapidly changing.

The second step is to establish that traditional educational systems are unable to meet many of the needs of adults. This is then followed by examining some countries that provide alternative systems for large numbers of adults at reasonable cost. It then examines the fundamental principles of adult education, lifelong learning and other factors that influence adult learning, such as: childhood experiences of school and the effect they have on adult views, on education in later life; the profile of adult learners and the barriers to learning.

An understanding of the principles of adult education help support the argument, in later chapters of the thesis, for an open learning system. The basic purposes of adult education can be described under four major categories: (1) to facilitate change in a dynamic society, (2) to support and maintain the good social order, (3) to promote productivity, and (4) to enhance personal growth. Adult education is therefore useful in bringing about changes in adults: to comprehend changes and to adapt to change. It is a useful vehicle in the continuous updating of adults in rapid change in knowledge needed to perform specialised tasks. One of the essential roles of adult education is promoting democracy. The notion that in a democratic state, where the electorates are adults, the purpose of adult education is to: assist in informing and developing critical skills of adults

to make judgment based on known facts, to resist prejudices, and to permit intellect to rule over feelings; develop adults as informed, critical-thinking citizens; assist adults to participate competently and intelligently in the affairs of the various institutions that constitute democratic society; assist in bringing together groups of people within communities that are able to identify common problems and participate in problem solving; promote equal economic opportunity for all. Vast social gain can be achieved by those from the working class who are able to benefit from adult education to provide leadership to their fellow workers. Adult education at the organisational level provides: the personal development of workers which has an impact on their productivity; an education that seeks to maximise organisational effectiveness through the enhancement of employee or member competence. Adult education is to facilitate personal growth; the growth of a person capable of rational and critical thinking, who has high moral character, and so forth.

Three groups of adult learners were identified: undereducated adults, who have not acquired many of the basic skills and knowledge through other forms of formal education; adults, who wish to undertake training, retraining, and continuing professional education for career development and economic sufficiency; and adults who wish to learn for leisure and enrichment. Adults who require basic education are generally regarded as those seeking to learn to read and write. The second group of adults need continuing education to gain knowledge and skills in order to function within the economic domain of adult living. It is a form of lifelong learning that provides for: self-determined improvement and enrichment of individuals' lives; concurrent education for adults who are involved in earning a living; employment-related preservice and/or inservice education; and pursuit of learning in an intentional and systematic fashion.

Having developed a profile of the problems, needs and common characteristics of adults learners, the next step is to establish the fact that open learning systems meet the needs of adults learners. A profile of open learning systems are described. It includes features, such as: history of open learning, the technology used in open learning systems, the management of the system, its limitations, institutional model and cost. The thesis also examines the growing trend for adult education in many countries towards more open learning systems. Open learning systems are described as flexible, cost effective and cheaper than traditional systems when a large number of participants are involved. The underlying principle in open learning is to expand the freedom of learners by removing many of the traditional barriers to learning, such as prerequisites, credit transfer, time, and distance. Any educational or training scheme that systematically removes one or more barriers to learning can be regarded as open learning and that an open learning system, that incorporates the widest range of teaching strategies (such as independent and individualised learning), is one in which the restrictions placed on students are under constant review and removed wherever possible. Using the experiences of a number of countries, such as Britain, Canada, Australia and Hong Kong, in open learning systems, this thesis describes the key characteristics of open learning systems. These characteristics are then considered for their suitability in a Brunei Darussalam context.

Chapter 4 provides an overview of Brunei Darussalam by describing the following: history of the country, the changing economy, employment patterns, education, problems and needs. It describes the country undergoing some changes and associated with that are the needs of the country, of the people, of individuals. Education for adults is a need identified. It then establishes similarities between the learning needs, barriers, the characteristics of adult learners in Brunei Darussalam and the general needs of adults in present day society, the general characteristics of adult learners and barriers to learning

described in the early part of the thesis.. The similarities include: barriers to learning; study and learning difficulties; personal and family difficulties; situational difficulties (as in lack of money, time, childcare, transportation, family support); institutional difficulties (inconvenient schedules or locations, high fees, high academic requirements, inappropriate courses), and dispositional (lacking confidence in one's ability to learn). The high dropout rate in the traditional school system also suggests that many adults have negative experiences of their school days and it would be inappropriate to expand on the present traditional system for adult learning because the participation rate of adults could be low. Since Brunei Darussalam's needs and problems are similar to those described of other countries, the notion that open learning systems, developed for other countries to overcome their problems and needs can also be adapted for Brunei Darussalam.

To establish that Brunei Darussalam needs an open learning system for adults, the thesis describes the level of needs; determines that the present system is unable to meet the needs and provides an estimated cost of providing access to a number of client groups. To determine that it is feasible to establish an open learning system this thesis establishes that the number of students is sufficient to justify its development. Other criterias, important to the development of an open learning system in Brunei Darussalam, were also discussed, such as, resources, support systems (such as the communication system), local expertise, students services, monitoring of standards, staff development, organisation, appropriate model and the planning process.

The thesis concludes by providing a number of recommendations essential to the development of an open learning system.

6.3 Recommendations

Adults in Brunei Darussalam should be provided with more opportunities for access to education and training. An educated workforce is able to increase productivity, participate in the democratic process of government and help in the development of the country. A national policy on adult education supported by an appropriate level of funding should be adopted by the government. The policy should be included in the 6th Five-Year National Development Plan and the National Education Policies of the Ministry of Education with a plan of action clearly laid out. The development of human resource should also embrace the philosophy of lifelong education. The Ministry of Education should play a key role in the planning and development of a comprehensive National Training Scheme. The scheme would use open learning strategies. A plan should be drawn out with a time line that indicates a target date for its full implementation.

The budget for inservice training must be raised from its present level of Can\$21 million to an amount that reflects actual need. During the plan's first year, funds for adult education should be increased to Can\$12 million from the present (1992) allocation of only Can\$460,000. A further sum of between Can\$17 and Can\$25 million (based on the capital cost of developing the Lambak Kanan Vocational School and the Brunei Institute of Technology) should be allocated for the initial phase of developing an open learning institution. The capital expenditure should be the responsibility of the government but the operating cost should be the joint responsibility of the government and employers. Cost sharing can be accomplished through the provision of a Skill Levy Fund. Funding would come partly from the government and through a mandatory tax on all private firms. Each firm would be required to pay a percentage (ranging from 3 to 6 percent annually - half of that to come from workers' salaries and the other half from the company's income) of their workers' salary into the fund. The fund should be controlled by a board, with members

comprising of a wide representation from commerce, industries and the government. There should be legislation to set up a "Skill Levy Fund" to ensure that employers have a role in the development of a skilled labour force.

Based on present and future needs, an open learning system is feasible in Brunei Darussalam. It should be developed to provide for the learning needs of teachers, professionals, technical, managerial and administrative workers in Brunei Darussalam based on a collaborative model. The open learning system should enable adults to enroll in part-time or full-time post-secondary programmes. Teachers should be among the first group of adults to benefit from an open learning system.

An open learning institution should work with other organisations, such as, the adult education unit, the various technical schools and colleges, and the University, to improve access for adults to post secondary education. There should be collaboration among local institutions in the development of programmes for adult learning.

Post secondary courses should be developed collaboratively with local and foreign institutions and coordinated with various agencies to ensure that students on these programmes are able to transfer or proceed to higher programmes. The system should also allow for credit transfer.

Degrees and diplomas awarded from locally registered institutions using open/distance learning should be recognised by the Government of Brunei Darussalam. Accreditation agencies should begin framing a general guideline for certification from an open learning system to ensure that an acceptable standard is maintained.

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