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WORLD MARITIME UNIVERSITY

Malmö, Sweden

**THE USE OF DISTANCE LEARNING IN
MARITIME EDUCATION AND TRAINING
FOR MALAYSIA**

by

**LEE TZE KHEONG
MALAYSIA**

A dissertation submitted to the World Maritime University in partial
fulfilment of the requirements for the award of the degree of:

Master of Science

in

Maritime Education and Training

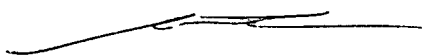
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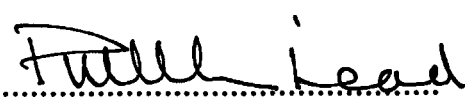
I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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To:

E D U C A T I O N

P E A C E

A N D

H A R M O N Y

Especially for my daughter AIQING

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ABSTRACT

This dissertation considers the application of distance education (DE) methodology in the field of maritime education and training (MET) for the first time in Malaysia. To date, this technique has only been scarcely used universally, within the context of MET. The research examines the sequential structure and origin of MET within the framework of the country's national policies and background, with emphasis laid on maritime issues. The outcome of this examination provides the rationale for the investigation into the need for the employment of DE as an innovative and novel concept in MET while underlining the benefits for the parties concerned.

A general approach introduces this vast DE field. The fundamental concepts of DE are first studied, advantages and drawbacks underlined, and its current application in various areas illustrated, with emphasis on its use in Malaysia. Modern technology is discussed with a view to its possible uses. Various possibilities with regard to DE's untapped potential areas are surveyed. Collaboration with local and foreign DE institutions are compared. The evaluation of the research leads to the design of a proposed course through DE's integration with a conventionally-taught course, that is a hybrid course, for its possible use at the Maritime Academy of Malaysia (ALAM). Special attention is paid to DE's limitations.

An analysis of the research concludes that a powerful policy and a dynamic supportive administration needs to be introduced to back the academic faculty. Various suggestions are offered, citing staff organization structures from a **renowned** DE institution. The concluding chapter discusses policies in **general** terms and an appraisal of their feasibility at ALAM, subject to a number of criteria. Various recommendations are made to support the success of the project.

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ABBREVIATIONS

ALAM	Maritime Academy of Malaysia (Akademi Laut Malaysia)
ASEAN	Association Of South East Asian Nations
CAL	Computer Assisted Learning
CE	Correspondence Education
CMMF	Central Mercantile Marine Fund
DE	Distance Education or Learning
ESCAP	Economic & Social Communication for Asia and the Pacific
ET	Educational Technology
ICDL	International Centre for Distance Learning, at the Open University, United Kingdom
IDS	Instructional design support
IMO	International Maritime Organization
IMSF	International Maritime Simulator Forum
ISF	International Shipping Federation
GBP	United Kingdom Sterling or Great Britain Pound
GMDSS	Global Maritime Distress and Safety System
INMARSAT	International Maritime Satellite Organization
MOT	Ministry Of Transport, Malaysia
MSO	Federation of Malaya Shipping Ordinance, 1952
MET	Maritime Education and Training
MISC	Malaysian International Shipping Line Corporation
OL	Open Learning
OU	The Open University, United Kingdom
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978
TTC	Teacher Training College
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNU	United Nations University
WMU	World Maritime University

Chapter 1

INTRODUCTION

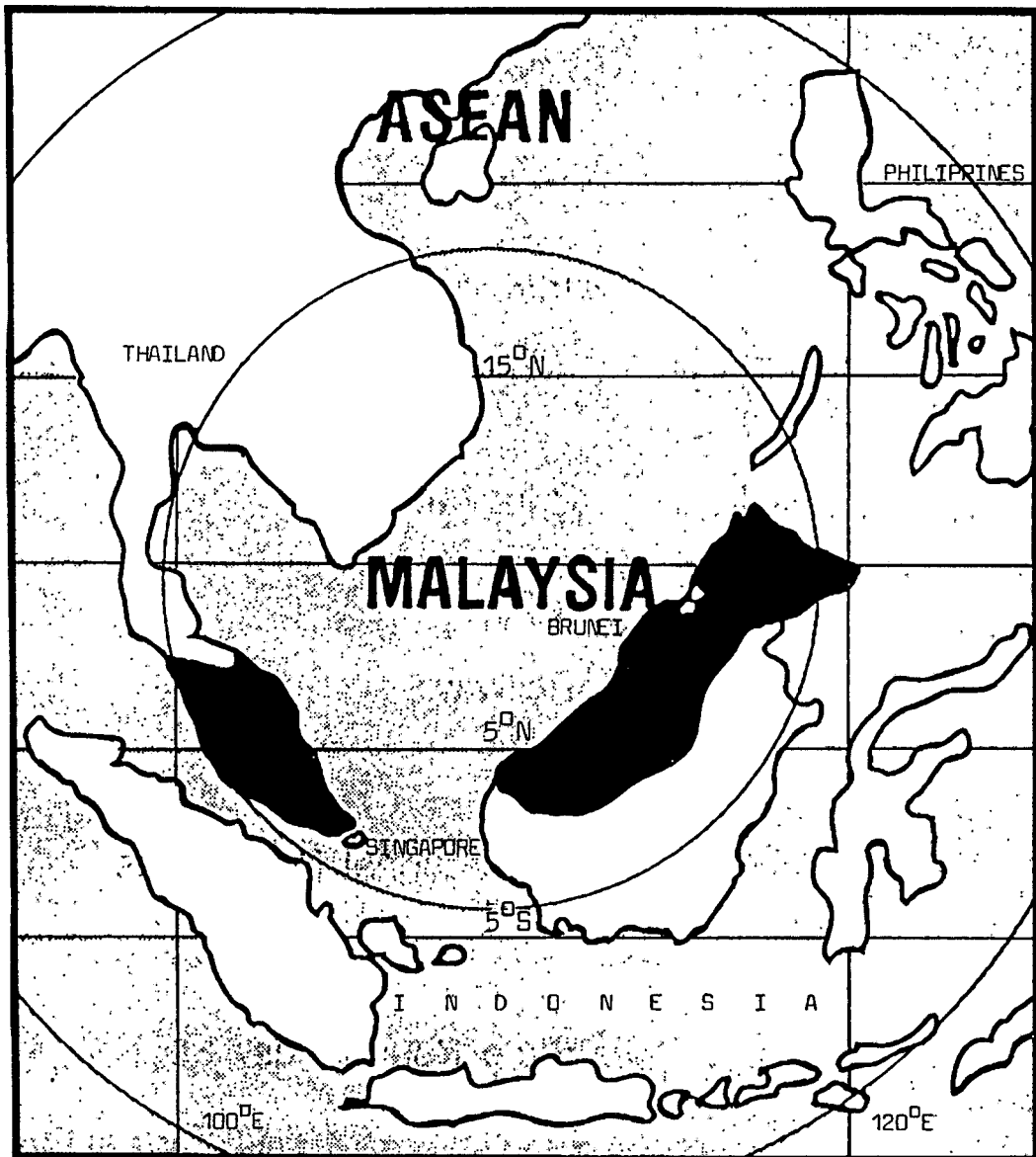
1.1 MALAYSIA AND ITS MARITIME ENVIRONMENT: SHIPPING

1.1.1 Background

The Federation of Malaysia comprises thirteen states which may be classified under two principal regions that are geographically disparate. The country is bounded roughly by one to seven degrees of latitude north of the Equator, and 100 to 120 degrees of longitude east of the Meridian. This establishes the sovereign state in a central location in Southeast Asia. In fact, Malaysia is the only nation within the region that has a common frontier with all the six member countries of the Association of South East Asian Nations (ASEAN). Figure 1, a modified map¹ below, depicts Malaysia's focal position with her neighbors in Southeast Asia and within the context of ASEAN.

West Malaysia is located on the Malay peninsula whereas East Malaysia is situated on the island of Borneo. They are separated by about 550 kilometers of the South China Sea. The East Malaysian states of Sabah and Sarawak are situated on the northern part of Borneo, share common land borders with the neighboring states of Brunei and Indonesia. In addition, a contiguous sea-frontier is shared with the Philippines by Sabah. The remaining states are located on the peninsular mainland, including the Federal Territory of Kuala Lumpur - the capital of the country. Singapore is positioned off the southern extremity of the peninsula but is connected to the Asian

Figure 1: Malaysia's focal position with her neighbors in Southeast Asia and within the context of ASEAN



Source: Malaysian Industrial Development Authority, Ministry of International Trade and Industry, Malaysia.

landmass by a causeway, which leads finally north to Thailand.

The country has a land area of about 330,000 square kilometers and a comparable expanse of exclusive economic zone (EEZ). This effectively doubles its sovereignty over the total area for exploitation. Again eighty percent, of the land contains rain forests, while the remaining acreage is used commercially for agricultural purposes and other necessities such as inhabitation, industries, and so forth.

Each state within the Federation is also a littoral state and contributes to a country with a relatively long coastline of about 4830 kilometers². The seashores of the country extend from the Indian Ocean to the South China Sea. The abundant resources of the EEZ for instance, off-shore crude oil/gas and fishing, have been well exploited economically. The Director-General of the Malaysian Institute of Maritime Affairs, B A Hamzah supports this further. He mentions that the country obtains 631,000 barrels of petroleum daily from the sea and the fisheries support 600,000 people³. In 1992, there is about 37,800 licensed fishing boats with only one percent more than 70 gross registered tons. (Fish is a significant national dietary item. The country has to import fish to meet the inadequate domestic supply).

The strategically located Straits of Melaka situated between the peninsula and the Indonesian island of Sumatra is a very important international shipping route which is also one of the busiest waterways in the world. The National Maritime Council reports that about 200 merchant ships and 1,800 minor crafts use the strait daily⁴. This major passage is further accentuated by the dynamic economic growth environment of countries within ASEAN and the Far East, recurrently with double digit growth rates. In many ways, this rather narrow channel has also supported the development of the western part of mainland Malaysia. The nature of such an advantage also has drawback since many casualties within the waterway and the undesirable aftermath of the costs, the socio-political effects, and the damage to the eco-system, have often to be absorbed by the government; for

instance, the collision of two tankers; the 255,312 ton 'Maersk Navigator' and the 96,545 ton 'Sanko Honour' early this year⁵. There have been many other casualties, such as a cruise ship and a trawler and, a container ship and tanker in late 1992.

Today, the population is estimated to be nineteen million. About eighty percent of the inhabitants reside within Peninsular Malaysia with the remainder living in East Malaysia. This relates to a higher population density in the West, which is about six times that of the East. However, East Malaysia comprises the greater part of the land area, and particularly valuable tropical hardwoods, copper, invaluable mangroves, and natural gas. (See Figure 2 below). Moreover, there exists a national population policy that encourages population growth. This is based on the premise that people are viewed as assets, and takes into account that human resources are considered as forming an essential component for the socio-economic development of the country.

About eighty percent of the population are literate, supported by a national education policy. This rather high proportion may be regarded as a remarkable accomplishment, considering the size and number of indigenous peoples and races and also the inaccessibility of the rain forests, mountainous terrain and the jungles. The government ranks education

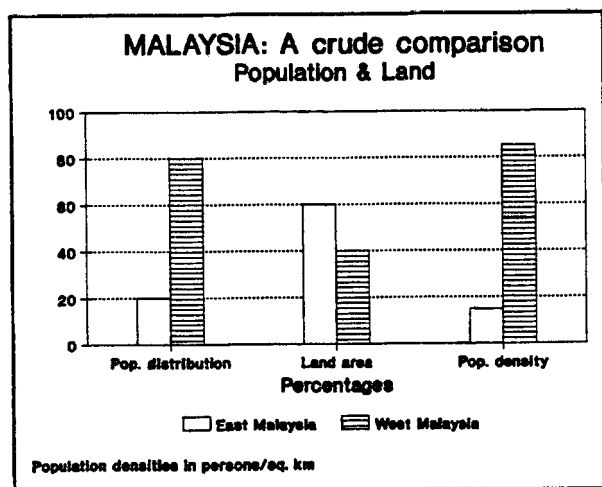


Figure 2: Population and Land

as superior when compared to other interests. This is evidenced by the high annual allocation for education amounting to 17.2%⁶ of the national Budget, just next to the defence apportionment. The national education structure consists of six years primary schooling, and five years of secondary schooling making a total of eleven years. Further

education classes are sponsored by the Ministry of Education for those who are unable to attend the normal secondary schools. (Note the preceding paragraph on the demography and difficult terrain of the country). Pre-university education comprises two additional years usually at secondary school. Tertiary education may last for about three years. A university graduate then has about sixteen years of education in total. Education in the country is free except for tertiary education, where a nominal charge is levied. A growing number of private educational institutions, some collaborating with renown foreign educational establishments, support and enhance the national education system. Correspondence schools are popular in major urban areas.⁷

1.1.2 National policies, economy and shipping

Malaysia has been specific regarding its future direction, especially concerning its industrialization plans. Development schemes have been verified by the Sixth Malaysia Plan (1991-1995) which has been further supported by the Industrial Master Plan (1986 - 1995). The Second Outline Perspective Plan (OPP2) further confirms the longer term goals for achieving the status of a developed and industrialized nation. This approach has been improved in that there is a time-frame for development objectives.

The transport of sea-borne cargoes is vital⁸ for the economic growth of the country and, more importantly for a huge volume of exports of raw materials. Unfortunately, the contract of sales is often dictated by the importing countries, which in their own interests, specify free on board (fob) terms. The shipper, facing stiff competition, therefore has no opportunity to nominate a carrier and name the cargo and freight insurers.

In the transition to an industrialized economy, the socio-economic base still remains with primary commodities, largely attracting low

freight rates when exported. Furthermore, only about ten percent of the international trade cargo can be carried by Malaysian flag ships, but ninety percent⁹ of the nation's exports are by sea. This means that the Malaysian shipping industry is still largely under-developed with specific regard to ship-owning and operations. The entrepreneurs, state or private, need to be able to compete world-wide so that the profits can be reinvested into ship-financing to purchase and operate more efficient modern vessels. Ship-financing, still today, remains a major obstacle to the acquisition of the new, efficient and modern tonnages necessary to compete on the international scene. This means that the country suffers enormous financial losses on freight bills and insurance. Such expenditure amounts to an alarming figure nearing US\$2 billion annually, projected to increase further. The government has recognized this adverse trade imbalance and remedial measures are being taken to minimize this outflow of foreign exchange. However, this outflow continues unabated, largely due to ever-increasing trade volumes being ahead of the national maritime industry.

The scenario, nevertheless, is changing. Strategies have been implemented to reduce the dependence on primary commodities and the country has now moved to high technology manufacturing and multi-nationals which are aimed at overtaking the dependence on primary commodities by the twenty-first century. Malaysia is now the world's largest exporter of semi-conductors. Manufactured goods account for more than half of all exports in terms of value, but not of volume in terms of shipment tonnage. Value added freights, activities and adding value to primary industries have been actively encouraged by the policy-makers. For instance, down-stream industries like the manufacturing and exporting of furniture instead of upstream activities like the felling of logs for the export of semi-processed sawn timber.

Thus it is evident that the government's support for shipping is beyond doubt. Primarily, this is so because of the balance of payments, apart from other motives. Henceforth, many policies have been formulated and the majority have proven to be very effective.

INTRODUCTION

For instance, the policy on shipping has succeeded in saving foreign exchange. Further, it created a major national shipping company in the late sixties. Such strategies have been effective in reducing the drastic impact and difficulties for the shippers of raw materials. This predicament was often caused by the monopoly of the cartels, such as the Far East Freight Conference (FEFC). These shippers were obliged to use FEFC's services, who were induced to use the conference lines continuously, so obtaining rebates on freights and so forth but limiting their choice. The producers had to stay competitive internationally. Commodity prices were unpredictable and subject to numerous external influences which were often beyond the control of the sellers. Another important policy of the Third Malaysia Plan (1976 - 1980) was the intention to make Malaysia a 'Maritime Nation'. This approach extensively aims at shipping in general viz:

- the core of shipping - the merchant navy,
- the ancillary industries like shipbuilding and repair yards,
- the support services such as shipping agencies, banking, ports, maritime law, and
- human resource development and training for the shipping industry from a macro perspective.

This brought about, for instance, the establishment of the Maritime Academy of Malaysia (ALAM), which will be described in the next sub-section. In order to implement this policy, the Ministry of Transport established its Maritime Division to coordinate shipping, maritime safety, ports and domestic shipping. Prior to this, there was only the Marine Department that was basically concerned with marine safety. Even maritime pollution matters do not come under their purview. However, the Department has been authorized by the Department of Environment (DOE) to oversee the enforcement aspects of maritime pollution. Even then, this has limitations in that arrest orders do still need to be issued by the DOE.

Various forms of promotion, direct and indirect, were addressed at the impetus for development of the overall shipping industry. For instance, ownership of Malaysian registered vessels is followed by many privileges such as tax and financial incentives or exemptions. Examples are soft loans, the duty-free import of ships and so forth. Bilateral shipping agreements were introduced to facilitate direct trading nations with favored arrangements for mutual benefit. That is, 'most favored nation status'. Many such agreements are modelled on the United Nations Conference on Trade and Development (UNCTAD) Code of Conduct for Liner Conferences, which has been adopted by Malaysia. There were as many drawbacks as well as benefits in the application of the Code with regard to the pacts and also in general terms.

In the early eighties, the impact of reliance on an agro-based economy was beginning to be felt and was causing concern. Profits were diminishing to such an extent that it was no longer feasible to maintain operations of any kind. For instance, the tin-mines had to be shut and the number of plantation workers reduced. These sectors utilized a substantial portion of the employable population at that time. As such this caused economic difficulties and severe hardship for the laid-off workers. The effects of the recession induced political reforms.

By the mid-eighties, Malaysia was suffering from an international collapse in commodity prices. This fall activated a recession of a scale not experienced by the country before. Subsequently, a confident privatization policy which had been introduced earlier, was being implemented with determination. This endeavor which had been projected, was to reduce the budget and heavy involvement in economic activities of the government. The exercise was also directed at improving government efficiency with dedicated administrative responsibilities. Further, it was aimed at increasing private sector participation in national development and finally at inducing the spirit of entrepreneurship in the upwardly mobile generation. All these contentions and the course of action taken were in the hope of restructuring the depressed economy prevailing at that time. Large

government agencies, such as the national airline, highways, ports, the shipping company (Malaysian International Shipping Corporation Berhad - MISC), a shipyard, an electric utility, a telephone service and others have therefore been planned and commercialized in the name of privatization. All their successes have been enviable and on the whole, have contributed healthily to the economy¹⁰. Hundreds of state enterprises and agencies are expected to be commercialized soon.

Port policies were also designed and ports were strategically located so that cargoes could be handled directly and efficiently, without unnecessary competition from nearby ports within the nation. This has resulted in efficient services in the region for port users. The National Ports Council addresses the implementation and coordination aspects of port development including those of East Malaysia, especially when any large projects are concerned. The Port Authorities Act 1963, with some weaknesses, generally applies only to federal ports within the Federation of Malaya. Seven major ports provide the country with its foreign trade requirements. They are Penang, Port Kelang, Johor Baru, Kuching, Kota Kinabalu and Bintulu. Together, they handled about 77 million metric tonnes of cargo in 1991. Demographically and ergonomically distributed, four of them are situated in West Malaysia. At least two more are being planned. Minor ports do exist to cater for domestic needs. For example, Port Dickson serves as a crude oil refinery port and Kemaman services the off-shore crude oil industry. Bintulu is mid-way in this context and caters essentially for break-bulk which includes the liquified natural gas industry, the purpose for which it was primarily designed.

The gross registered tonnage of Malaysian registered vessels was noted to be about two million tonnes in 1990. The fleet comprised close to 1000 ships. Of these, close to a third were involved in domestic shipping and represents about a quarter of the tonnage¹¹. The country is also one of the premier owners and operators of modern and high-technology liquified natural gas (LNG) tankships. It has

nearly one billion cubic meters of capacity and is expected to swell to one and a half by the mid-nineties.

1.2 THE BACKGROUND OF MARITIME EDUCATION AND TRAINING IN MALAYSIA

Forty years ago no prescribed form of maritime training was known in Malaysia. Maritime education and training (MET) standards for seafarers in Malaysia may be considered to have originated along with, and soon after, the coming into operation of the then Federation of Malaya Merchant Shipping Ordinance, 1952 (MSO). The statutory criteria for the manning of ships contained in the MSO naturally stimulated the necessity for some pattern of training. Training became necessary to fulfil the standards for the relevant certificates of competencies. Maritime training, in various forms like sub-centers, was initially developed primarily to train the personnel required. Later, maritime institutions were established to assure the continued supply of certified officers required by legislation.

Table 1 and Table 2 below on deck and engine manning requirements illustrate that any form of training administered would involuntarily converge in the general direction of obtaining these certificates. It was more purely training for the regulatory requirements rather than any form of education. Maritime education was not the criteria, nor was it considered. Quasi-formal instruction was available up to the level of Home Trade Master and First-Class Engine Driver certificates then. See Figure 2 for an overall perspective of the arbitrarily constructed geographical limits of the Foreign-Going, Home and Local Trade zones. The innermost zone represents the Local Trade limits, middle for Home Trade limits and the outermost including all areas world-wide represents the Foreign-Going Limits.

Table 1: Deck Manning Table

Limits	Foreign Going		Home Trade		Local Trade			
	+5	-5	+5	-5	+5	+1.6	+2	-2
Master	MM	MM	MM/*	MH	MM	MH	ML	ML
1st Mate	1M	1M	1M	1H	1M	1H	1L	1L
2nd Mate	2M	3M	1H	1H	1H	1L	1L*	
3rd Mate	3M							

Source: Merchant Shipping Ordinance

Table 2: Engine Manning Table

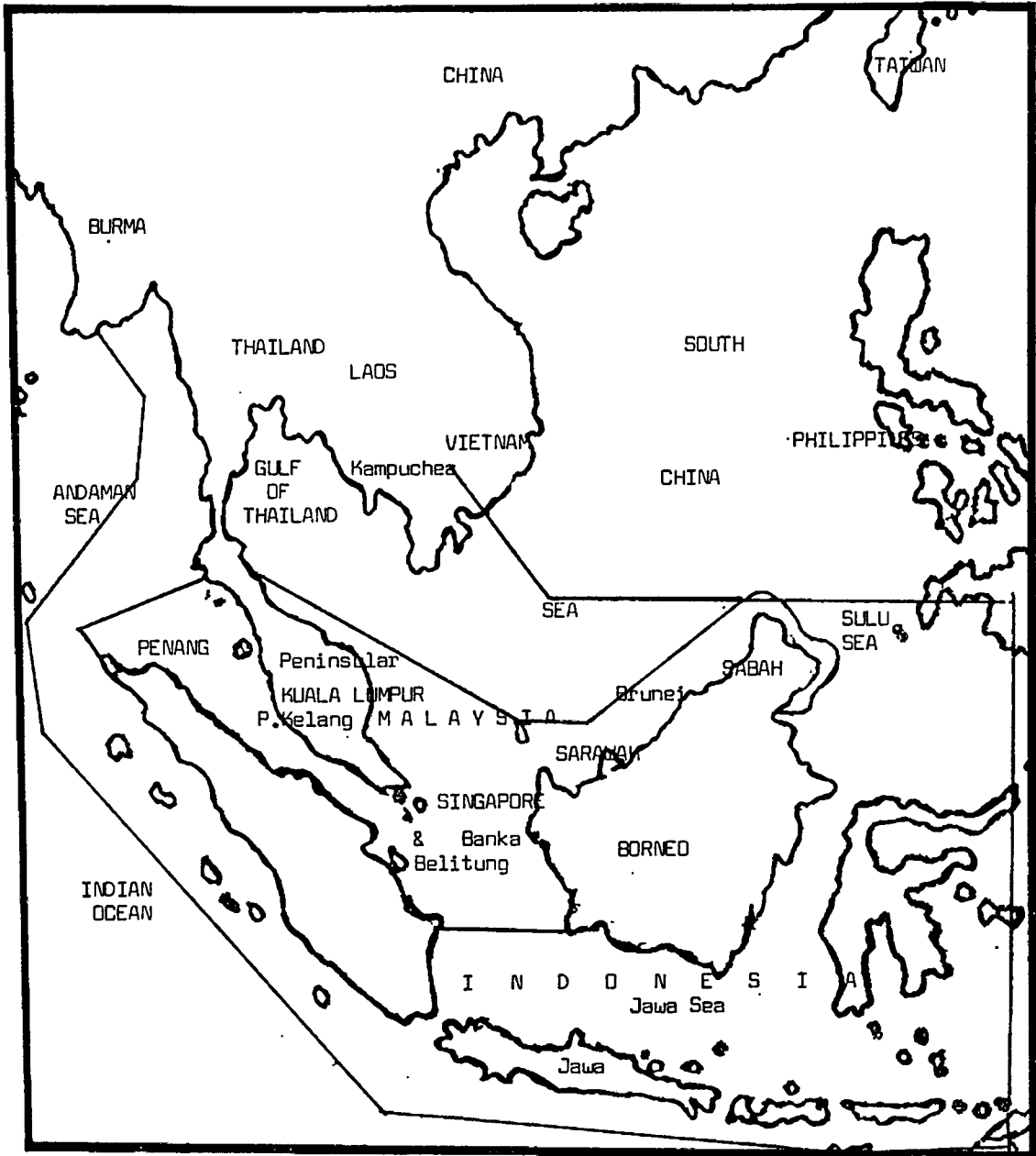
LIMITS	POWER 000kW	<u>ENGINEERS:</u>				Sum
		Chief	Second	Third	Fourth	
Foreign	+3	1E	2E	4E/1D	4E/1D	4
Going	+7.5	2E	3E	4E/1D		3
	-7.5	3E	1D			2
	+3	2E	4E/1D	2D		3
Home	-3	1D	2D	3D		3
Trade	-7.5	1D	2D			2
	-3.5	3D				1
	+3	2E	4E/1D	2D		3
Local	-3	1D	2D	3D		3
Trade	-7.5	1D	2D			2
	-3.5	3D				1

Source: Merchant Shipping Ordinance

Notes on Table 1 and Table 2:

- 1a 1L* means this certificate is required only if the ship plies between East and West Malaysia.
- 1b MM means Master Mariner Class 1 or Master of a Foreign Going Ship issued by the Marine Department of Malaysia.
- 1c 1,2 and 3 represents 1st, 2nd and 3rd respectively.
- 1d 'M' or 'H' or 'L' represents Foreign Going, Home Trade and Local Trade respectively.
- 1e Therefore as an example: 1H means First Mate of a Home-Trade Ship.
- 1f GRT means gross registered tonnage.
- 1g Mechanically propelled vessels and tugs, (meaning any ship towing or dredging) within port limits are required to carry a certificated helmsman only.
- 1h * means a Master Home Trade and a First Mate Foreign-Going Certificate
-
- 2a 'E' and 'D' stand for Engineer and Engine Driver respectively.
- 2b 1 horse-power (HP) = about 0.75 kilo Watts (kW); 1kW = about 1.33 HP.
- 2c A mechanically propelled vessel of more than 25 tons shall carry a third class engine driver.
- 2d Tugs within port limits shall carry at least a second class engine driver.
-
- 3 These tables have been compiled by the writer from Sections 71, 71A, 72 and 73 of the MSO.
-
- 4 Manning exemptions may be granted at the discretion of the Director of Marine.

Figure 2: Merchant Shipping Trading Limits



Source: Merchant Shipping Ordinance

Development of Maritime Education and Training

MET was further promoted by the government after independence from the United Kingdom (UK) in 1957. About five students were sent each year to institutions abroad for tertiary nautical training. They went mainly to the UK and to those Commonwealth countries with the facilities. Currently, such people are serving in senior positions with the government, and also within the maritime industry. On the home front, *ad-hoc* forms of tutelage for candidates were often provided by the major harbor-masters' offices, situated at the larger ports for instance, Penang and Port Kelang. Moreover, many governmental agencies have their own training programs. Some, even possess and operate their own training centers, such as the major ports and police.

On a more national scale, an amendment to Section 467 of the MSO established the Central Mercantile Marine Fund in 1964 *inter alia* to provide for the training of seamen. The Fund offered the support of preparatory courses for nearly all the certificates of competencies. However, this role ended abruptly in 1985, when its functions were provided for by full-time staff at the Maritime Academy of Malaysia (ALAM). In fact, this was planned so that training investments would not be duplicated and managed centrally. The Fund's position was then reduced to providing scholarships for needy seamen.

The Malaysian Maritime Training Centre

Meanwhile in 1968, the Malaysian International Shipping Line Corporation, was incorporated. It was the earliest national shipping line in the country. The corporation experienced rapid expansion in its first decade. This growth initiated the continued gradual need for locally trained nationals. In particular, qualified ratings were required on board ships to man the growing shipping fleets. Thus such training programs were brought into line with the government's Malaysianization program. At that time, the government was also keen to see an expansion in its merchant fleet. This development was in the hope that

trade 'invisibles', for instance freights could reduce the outflow of foreign exchange (Ghani, 1989, p. 171).

Eight years later in 1976, the state enterprise established its first training centre known as the Malaysia Maritime Training Centre (MMTC) in Melaka. Again the government supported maritime education and training (MET), with the view that the national shipping line's (MISC) crews should be adequately trained for the necessary seafaring skills. As described in Chapter 1.1.2 on shipping policies embodied in the **Third Malaysia Plan**, in transforming Malaysia into a maritime nation, the Maritime Academy of Malaysia (Akademi Laut Malaysia) was established, and is described as follows.

The Maritime Academy of Malaysia

In 1981, MMTC was upgraded and expanded to the status of an academy through a charter decreed by the prime minister, enabling ALAM to:

- conduct professional shipping courses and examinations;
- publish reading materials on shipping and related subjects;
- formulate guidelines to control the academic staff and the policy on the selection and admission of students and fees; and
- carry out research on shipping matters.

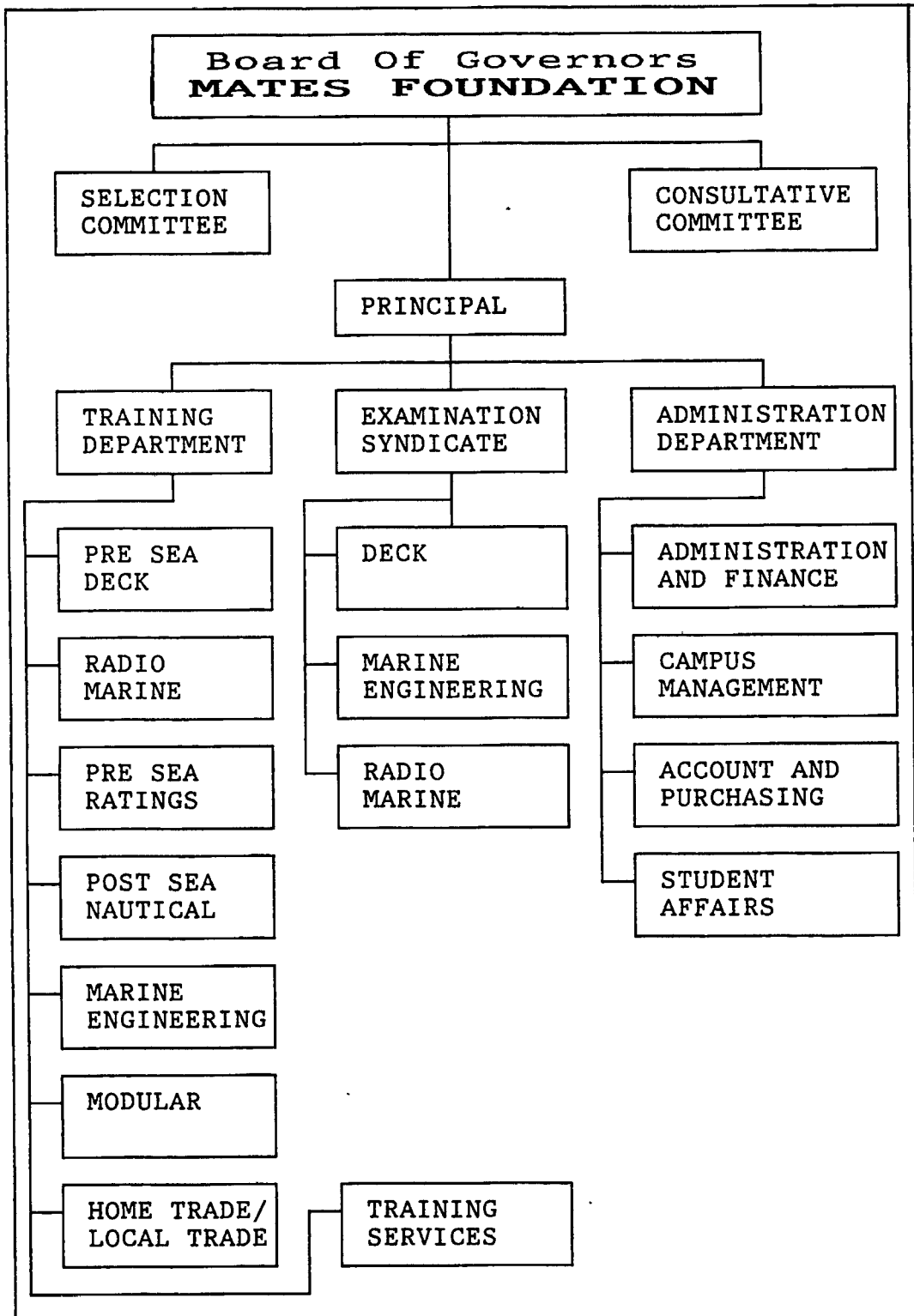
This commissioned ALAM to train all categories of a ship's complement for Malaysian ships, besides promoting other forms of training for shipping in general. ALAM thus became a one-stop centralized agency for the training of merchant seafarers. Other similar institutions did exist as, for example, Ungku Omar Polytechnic in Ipoh, but this institution only conducted training for pre-sea engineering courses. Other minor centers endured, especially for those involved in training personnel for small crafts. Their continued existence could probably be attributed to the large number of new entrants, but these seafarers were more confined to domestic shipping. They were usually

employed by the maritime industry users, for instance, operators of ports, coastal ships, tugs, crafts within inland waterways, and to some extent on ships within the Local Trade Limit. In addition, the off-shore industry remains a constant source of employment for them.

In 1993, ALAM launched its first front-ended pre sea engineering course leading to the award of a diploma in marine technology. Similar courses with integrated training as its central theme are also planned. This approach to MET will finally lead to a professional and academic qualification - deck, engineering or other. Following the debut of the diploma, its demand has led to the planning of degree courses in parallel fields. The quality of MET is the key to ALAM's success. For instance, at the Home and Local Trade level¹² dedicated local staff have translated to, and even produced, nautical texts and notes, in the national language, Bahasa Malaysia. These educational materials (no copyright) appear to be in demand and are widely circulated by former students within Malaysia. Provisions of the MSO allows for the examination of candidates for the certificates of competencies. An examination body has been gazetted for this purpose. This syndicate consists of qualified personnel from the Marine Department of the Ministry of Transport who, as reported are satisfied with the performance of candidates that had graduated from ALAM *vis-a-vis* students from other training centers.

ALAM has progressed and will continue to do so. Presently, it conducts courses for all the compulsory certificates of competencies, modular courses and also ancillary ones for the industry. Additional courses are also conducted from time to time upon request by patrons. They are typically designed to meet the special requirements of sponsoring organizations. See Table 4 for a detailed list of ALAM's present courses offered shown in Chapter 3.1.2 and Figure 4 below for ALAM's management structure and organization chart. Together, the list and the chart verifies the growth and expansion of the institution. The policy planners had recognized well in advance the importance the institution would play in support of its maritime policy.

Figure 4: Management Structure of ALAM



Source: Akademi Laut Malaysia

1.3 THE RATIONALE FOR THE INVESTIGATION OF DISTANCE EDUCATION METHODOLOGY

More than a decade has now elapsed since the Academy's inception. Today, there are still no formal distance learning programs to support its mainline activity of conducting courses primarily for the Malaysian merchant fleet, and also the shipping industry's needs. A brisk inspection of Table 4 on ALAM's present courses offered will reveal that there are no courses offered in the distance learning mode. This state of affairs definitely does not correspond to the fulfillment of the objectives of 'ALAM and the 6th Malaysia Plan¹³, in its policy paper on budget for the period 1991 to 1996. One of the significant fields that was being considered to have priority for implementation is the development of distance learning packages to offer additional avenues of study to seafarers. Therefore, this deficiency provides the fundamental rationale for the investigation of this DE methodology, apart from many others.

Currently at ALAM there are only rather antiquated forms of distance tutoring. Such correspondence courses, are effected largely through project work for the deck cadets on board ships at sea. The objectives here are not clearly defined and feedback and follow-up action present the main problems. Lately, preparatory work to conduct correspondence courses has been initiated for the Home and Local Trade Courses. Why? Perhaps its root causes should be examined. There are many arguments. Twelve years is be more than sufficient to initiate distance learning programs at ALAM.

Obstacles faced by ALAM regarding Distance Learning

At ALAM, a measure of the workload of the training staff has primarily been the hours of the teaching to the students in a classroom. This may be referred to as the face-to-face contact hours with students in the class. Although this time allocation method

appears simplistic, its dispensation is further complicated since the training staff have different backgrounds and experiences. The teaching staff comprises primarily ex-personnel from merchant fleets including related shipping industries, navies and university graduates. Moreover, there are lecturers of various nationalities employed at ALAM. Therefore, they (including locals) tend to project their diverse opinions, confirming that they are indeed the product of their experiences and backgrounds.

The idea of correspondence courses was raised as far back as 1986 at a regular sectional heads meeting where the author was present. The staff contributing to the course would be rewarded with a course fee. Even then, none of the faculty seemed to be interested and willing to work on these new developments, in spite of the compensation, which was in addition to the conventional teaching load. The idea was shelved. Discussions within the Academy led to the view that it was not feasible at that time. Perhaps, this was due to the arguments earlier mentioned.

Thus, many of the above arguments, reasons and facts cause training personnel to resist change, even for improvements. This is only natural unless these key personnel can be motivated or convinced of the advantages of the benefits of employing distance education methodology that the faculty may derive.

From the above discussion, it may also be concluded that motivation at an educational establishment need not necessarily mean financial rewards. Furthermore, the lecturing faculty members themselves need also to perceive positively how they can benefit and or contribute to ALAM and DE in the final analysis. In later chapters, the contents of this paper will also address how such difficulties may be overcome. Chapter 4 for example, includes a section on human resource and its development.

The Need for the Employment of Distance Education.

There are a number of reasons for the employment of distance education (DE). The following examples highlight the emphasis placed on those that apply to ALAM and MET:

- As earlier described in sub-section 1.2 on the debut of diploma and degree courses at ALAM infers that ALAM is taking concerted efforts to ensure professional mobility. Zade (1990, pp. 3-5) underlines the importance of adapting the curriculum to such mobility requirements, whether afloat or ashore. So such curriculum during its planning stage should incorporate an element of monitoring the learning effectiveness and the continuity of the program. Short (1993, p.2) supports professional mobility further, and highlighted the possibility of preparing the trainee for employment ashore through DE.
- Holder (1991, p. 25) supports the need for DE programs to support any possibilities of deficiencies in traditional learning methods on board ship.
- "There appears to be a high demand and viability of such DE courses. Such distance learning packages are to be levelled at the needs of the maritime industry in general, concurrent with new developments," (Shukry, 1989).
- Davis (1993) in his prize-winning article argues that attitudes must change for the better. He clarifies the need for correspondence courses for professional sea-going qualifications. His explanation correctly describes and fits the above arguments propounded by the author.
- One other reason which the author found necessary to employ DE at ALAM was also partly in response and reacting to a survey at the World Maritime University (WMU), in which the

writer was involved in the preparation and analysis of a questionnaire. It was found that eighty-four percent of the respondents to the questionnaire on study habits indicated that they studied at home, school, then library - assuming that the library has conducive facilities (See Appendix A for more information on the details of the survey). From the findings, it appears that mature students prefer to learn in the comfort and expedience of their own residence. In this case, it can only mean, in the open learning mode. This, perhaps implies that distance education may have a strong link, generally so, with adults such as graduates, post-graduates, occupational trainees and other professionals.

Note: This does not mean that distance education for WMU is practical due to the languages involved and various other reasons. Additional information regarding the limitations of DE are underlined in Chapter 3.3.

- The success of the British Open University confirms the quality and possibility of distance education. Therefore, there is a need for the employment of DE in other fields, such as MET.
- Any contribution through DE to the total support of MET for non full-time students will in the long-term be beneficial for the country. So any constitute in the achievement of any successful programs through distance education economically can only result in lifting a Malaysian seafarer's socio-economic status. This is parallel with the government's policy of eradicating poverty so as to correct social and economic imbalances.¹⁴ (Note: the reputation of seafarers in Malaysia has always been dubious).
- The number of students that can be trained in this mode can be immense, considering the demography of the country.

- There is an estimated number of 15,000 seafarers, excluding fishermen, in the country who need some training or retraining.
- Outside of ALAM and the major urban areas, this methodology may be the only possibility. Here, foundation courses need to be developed. This is especially so for inevitable target market clientele, bearing in mind their educational qualifications.
- * • The course participants' age at the time of registering for the DE programs is expected to be around thirty. Considering this specific age group, the DE methodology may perhaps be the only way in which education can be within their reach, primarily in terms of expense and further losses of income.

Table 3 below of an account of expenses incurred by a student exemplifies the real unfortunate relatively high costs of continuing adult education at a maritime institution in Malaysia.

Table 3: Real versus apparent costs incurred by one seafarer

Attending a course for fourteen weeks at ALAM	
Average wage: Ringgit Malaysia(RM) 1,200 pm x 3.5 months(m)	= 4,200
Wage losses to attend ALAM x 3.5m	= <u>4,200</u>
Total losses in terms of income	= 8,400
Fees for Mate Local Trade Course	= 650
Food at RM 15 per day for 3.5 m	= 1575
Accommodation at RM 300 pm x 3.5m	= 1050
Miscellaneous expenses away from home such as telephone, examination fees, transport costs and so forth	= <u>1,325</u>
Grand total losses	= <u><u>13,000</u></u>

Source: Author

Notes on Table 3:

- 1 *Additional expenses will be incurred if the candidate fails the Marine Department's examination on the first attempt. The writer has records in the Local Trade Section at ALAM showing that candidates at this level seldom pass on the first attempt.*
- 2 *The table above gives very conservative estimates, considering that health care¹⁵ and education are negligible in Malaysia. Moreover, seafarers' income, is tax exempt. Employees Provident Fund and Social Security Organization contributions are only about ten percent of wages. Therefore, this refers to a near net income. Victualing and accommodation are the standard benefits provided by the ship-owner employer.*
- 3 *The table confirms that the tuition fees must in some way be subsidized directly by ALAM and indirectly, by the government. Food, accommodation and tuition fees are rather low.*
- 4 *The monthly income is based on a gross domestic product (GDP) based on purchasing power parity (PPP) of US\$6140 per year¹⁶. The exchange rate is US\$1 = RM 2.5..about (31 July 1993).*
- 5 *Consider a Chief Officer attending the Master's Foreign-Going Preparatory Course. Based on a monthly wage of RM 3,000 and similar expenses, a simple calculation can be made. The cost of attending the course would be an astronomical 400% more, that is at least RM 48,000 (Sterling 12,000 or US\$19,200) for a course of 28 weeks duration!*
- 6 *A considerable amount of money could be saved and not wasted! The first to benefit would be the seafarers. DE may reduce their expenditures. Seafarers upon completing their contract of employment on board ship usually receive no wages whilst they are ashore. So these occupational students attempting to*

advance in their careers will be the first to value money when they had attempted to borrow some, even so, for an education as an investment.

7a *Secondly, employers like ship-owners and so forth may save much in study leave payment and subsequently maintaining a reduced number of personnel.*

7b *Finally, it may appear that ALAM may suffer a drawback. Work roles will be transformed, and the faculty will remain as educators. The volume of potential participants are virtually limitless. So the number of students will consequently increase, so will be the need for more jobs including ancillary services.*

1.4 THE RESEARCH METHODOLOGY

The purpose of this research dissertation paper is to investigate the application of DE methodology in MET in a field which has largely been untested. As DE by itself is an immense field, in the next step the study will explore specific areas where DE may be applied to nautical education and training. In fact, the aim of the dissertation continues beyond investigation to bring about suitable analyses and conclusions, interjected at relevant moments in the process of preparing this dissertation.

Having stated of DE's unestablished domain in MET, the paper will attempt to argue that DE has untapped potential and try to convince a specific audience of the viability of this project. The rather controversial issue of DE's application in MET will be presented objectively. The benefits and limitations of DE will be highlighted so as to draw an unbiased conclusion.

The target audience is undeniably persons directly connected with MET institutions such as the faculty, administrators, international legislators and patrons of MET institutions (sponsoring organizations such as shipping companies and therefore, also self-paying students) to be specific. On a more general scale, the dissertation is also suitable for other students and educators connected with DE.

Methods to be Used:

- The study will include interpretation of literature from the relevant field of information. A wide amount of reading will be undertaken of a selection of suitable publications from the WMU library and also other sources so as to attain a proper focus.
- To provide a rationale for selecting this dissertation topic leading to its completion.
- An overview of DE shall be deliberated, that is an approach from the macro, before narrowing down to the practical applications at ALAM. Although DE is largely untested in MET, the writer believes that this hypothesis can be put into proper use.
- It is necessary to explore and investigate possible solutions.
- The aim is to make suitable conclusions with well-documented evidence. Findings and literature from friends and colleagues from ALAM and outside ALAM have assisted in targeting specifics and generalities that will improve the dissertation.

Sources of information

From the writer's point of view, evaluating and using reliable source materials is a very important area in this research as it enables him to focus on his researching efforts. The quality of material is to be carefully appraised as time changes what has been documented and

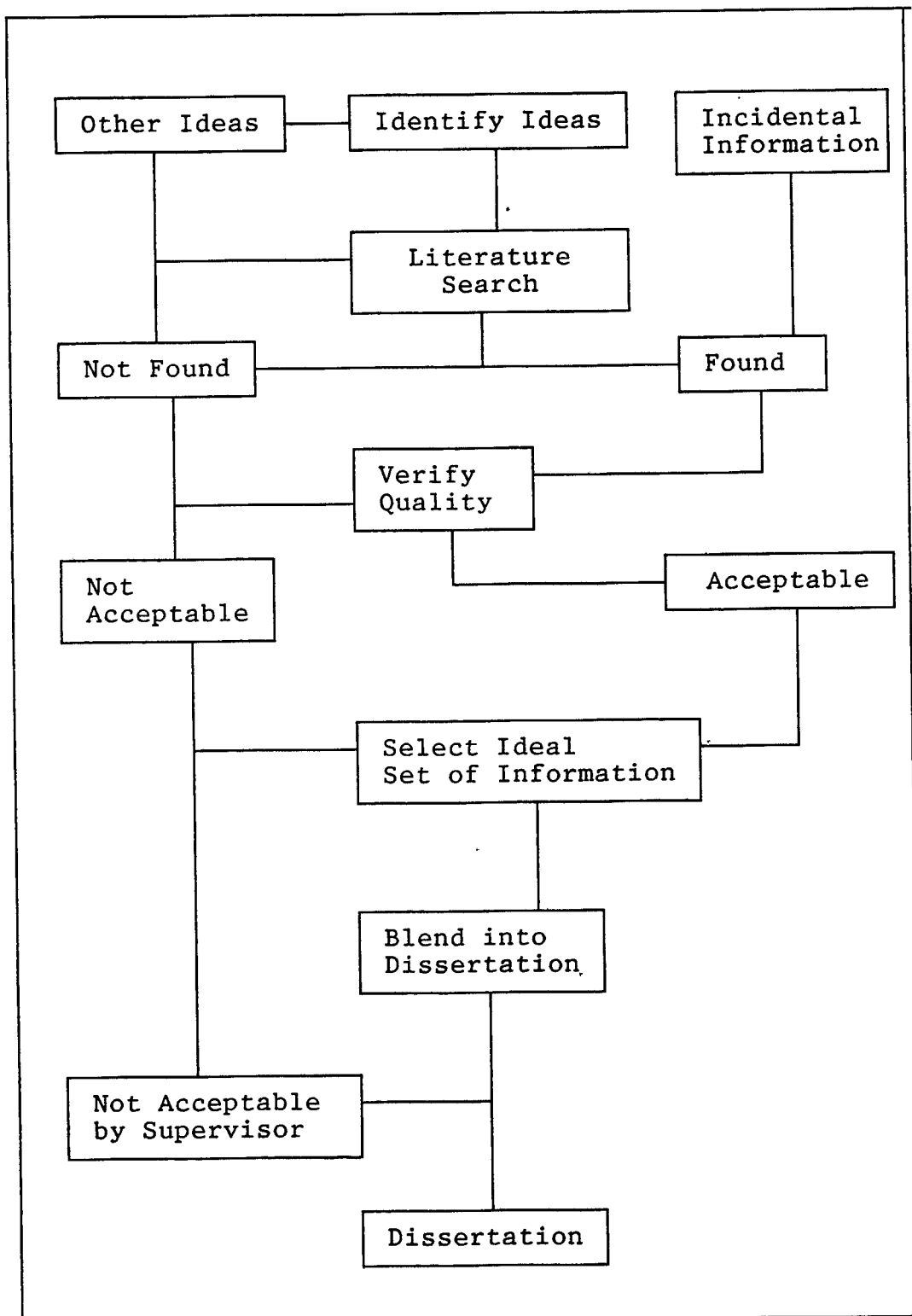
new developments may make certain literature obsolete. The following points are to be noted:

There is ample literature on this topic. However, there are limitations regarding references that will be available concerning DE in MET. Most of the literature that may be found is expected to be of a general nature and therefore does not directly relate to maritime education. Specific quality scholars with regard to DE and MET will be quoted.

- A methodical scheme in noting sources of information will be made, especially regarding the presentation of facts and arguments from authoritative sources. This will be shown by the maintenance of a working bibliography which will make selective reading practical and specific. It will be further illustrated by the bibliography appended.
- Preliminary reading of encyclopedias will assist the writer to obtain a liberal synopsis of the topic. Relevant articles in newspapers, periodicals, reviews, and scholarly publications will be collated.
- The use of a questionnaire on study habits of WMU students has assisted in the advocacy of the feasibility of DE in MET.
- A private visit by the writer to the Open University's International Centre for Distance Learning (ICDL) in Milton Keynes, United Kingdom will be made. The writer will meet the relevant faculty of ICDL involved in this aspect of DE. Semi open-ended interviews will be made so as to gain an overall perspective, particularly with the information staff and academics.

The Plan: The research methodology plan to be followed is shown below by **Figure 5**.

Figure 5: Research Methodology Plan



Source: Author

CHAPTER 1 - NOTES

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4. Michael Richardson, "Potential Disaster as Tanker Burns in Malacca Strait," International Herald Tribune 22 January 1993: 1, 7.
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11. Malaysia, Ministry of Transport (MOT), Domestic Shipping Licensing Board, Malaysian Registered Vessels and Vessels licensed under Cabotage Law (Kuala Lumpur: MOT, 1990).
12. The writer was directly involved in the establishment, management and teaching of these courses in 1985. In 1987, he was made Head of the Section.

13. *Akademi Laut Malaysia, Impact of Changes and Developments on Maritime Education and Training. (Melaka: ALAM, 1990) 24.*
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15. *"Malaysia among few with health policy favouring poor," Bername News Service for Malaysian Diplomatic Missions 7 July 1993: 7. [Source: Adapted from Business Times: 'The World Bank has identified Malaysia.....whose public spending is biased towards the poor...'].*
16. *"Who's the Wealthiest of All," Asiaweek 07 July 1993: 48. [Source: UNDP Human Development Report 1993; IMF International Financial Statistics; Asiaweek Research].*

Chapter 2

DISTANCE EDUCATION

2.1 INTRODUCTION TO DISTANCE EDUCATION

Before distance education can be properly defined, the meaning of education has to be clearly expressed. Education can be considered as the net gain by the learner of the following three prerequisites:

- knowledge
- skills
- attitude

In essence, education is often administered for the purpose of changing or modifying behavior. Therefore, knowledge and skills are indeed essential to produce the end result required by the intangible attitude, - the ultimate objective of education. The Concise Oxford Dictionary (1991, pp. 373), a foremost authority on current English, expresses similar views on education:

development of character or mental powers.

Bloom (1979, p. 18) classified the objectives of education objectives into the following categories in ascending order;

- Knowledge
- Comprehension
- Application
- Analysis

- Synthesis — *Combining*
- Evaluation *judgment*

This taxonomy allows curriculum and course designers to select the behavior required which may range from simple to complex. Two or more simple ones may be integrated to form a more complex outcome. Figure 6 of the hierarchy and integration on the following page illustrates that each learning objective may be divided into various levels, and further sub-divided into unit cells that can serve as building blocks for the desired end objective. This methodology can be applied, from the educational perspective, to all the three domains differentiating the behavior:

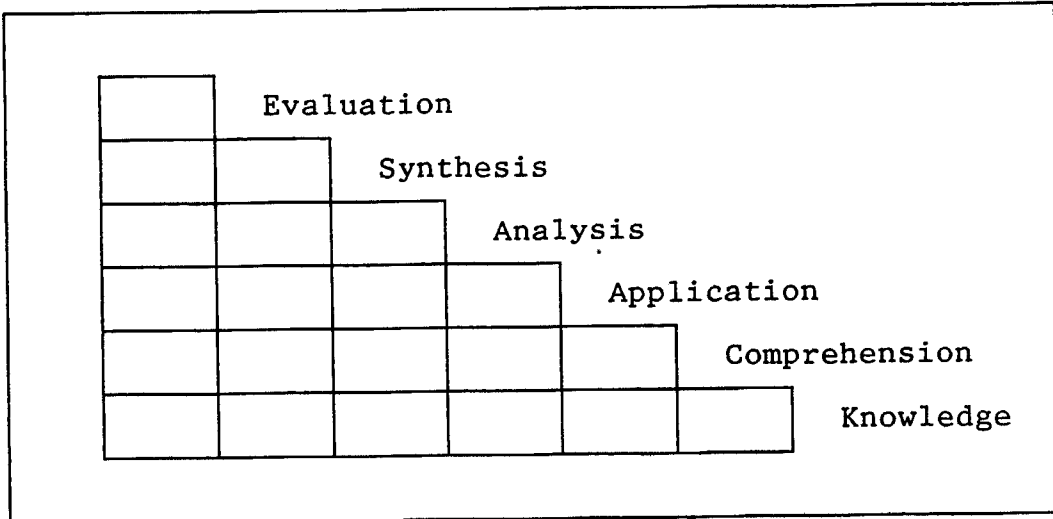
- The cognitive
- The psychomotor
- The affective

Effective education can only be achieved through sound inter-active communications in which the mode has to be selected. This relationship may also be considered to be critical as the interface between the educator and the learner in the educational transaction or learning process.

Figure 7 on the following page of the learning interface on the below illustrates that apart from the learner and teacher effort input increase, a prime consideration is inter-active communications that can enhance the interface matrix by many folds.

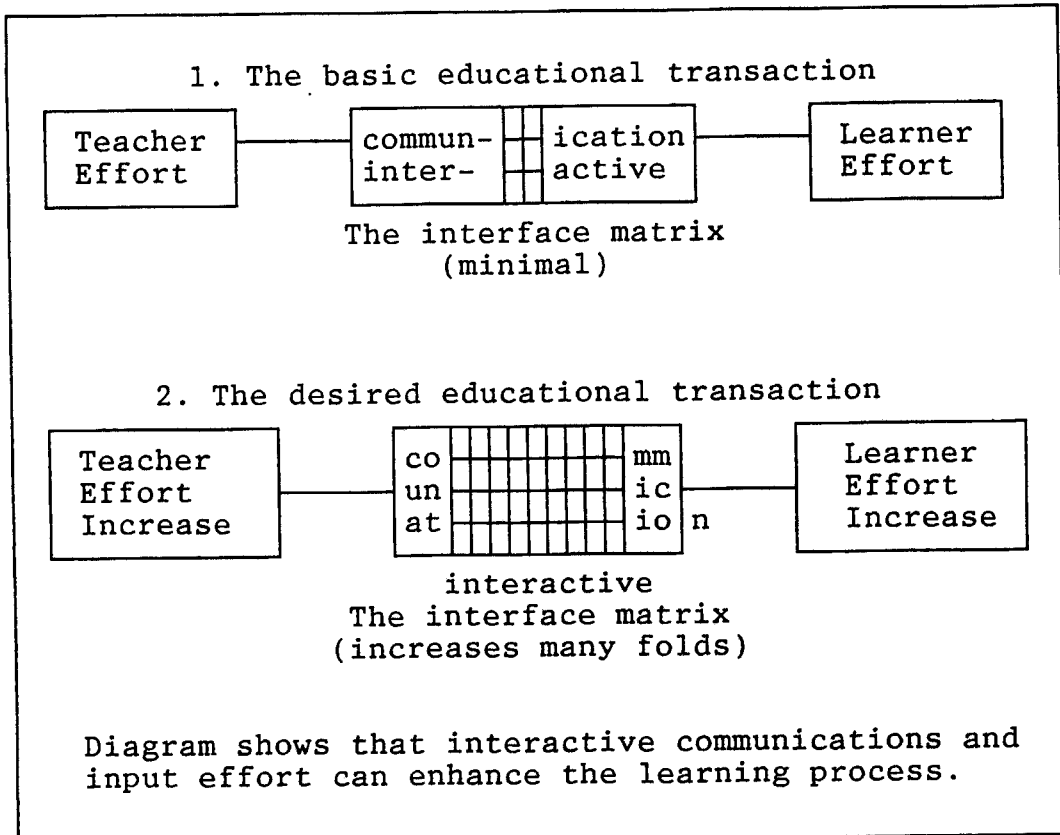
As in practically all closed-loop systems, engineering (control systems and automation), management or otherwise, an acceptable system of *feedback* (see Figure 8 on the subsequent page of the physical aspect of behavioral approach) is the critical element. Such responses are essential to monitor that the transference of the necessary knowledge and skills in the desired direction are effectively taking place.

Figure 6: The Hierarchy and Integration



Interpretation by: Author

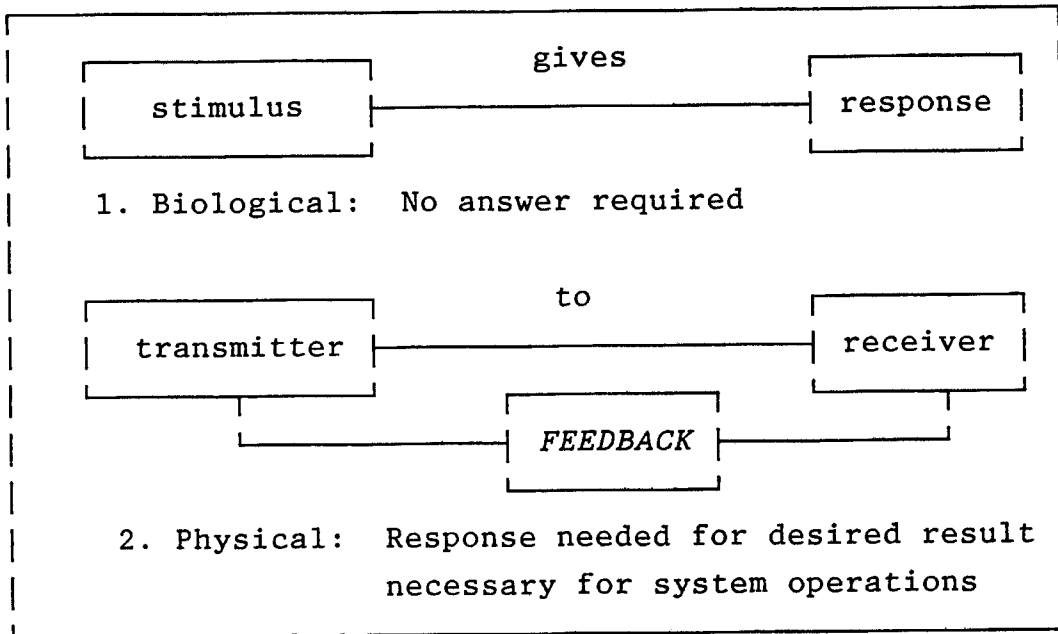
Figure 7: The Learning Interface



Source: Author

This is often known as the behavioral approach and consists of two simple models, a biological and a physical which is illustrated by Figure 8 below. This methodology does not necessarily have to be identified with educational technology. (Harris, 1979, p. 32)

Figure 8: Behavioral Approach



Source: Preparing Educational Materials

So, what then is distance education? The effective transfer of knowledge and skills must occur but need not necessarily be in the 'face to face' mode. Therefore, this implies that the educational and teaching materials must have been prepared in advance, before learning can have an opportunity to occur. There needs also to be some form of self and tutor assessment to provide the feedback, intrinsically and extrinsically.

2.1.1 Definitions

The technical aspect of this segment of the total educational process is known as 'instructional design support'. Its purpose and

application will be described in detail in Chapter 4. Nevertheless, the intermediary phase of DE may be effected in various ways:

- correspondence by post
- electronic means by computers (mail)
- fax, telephone, telex
- radio and television.
- interactive video disks
- communications satellites

In the writer's opinion, the most appropriate definition for distance education would be that described in the 'Glossary of Educational Technology Terms' of the United Nations Educational, Scientific and Cultural Organization (UNESCO, 1987, p. 43) prepared on behalf of the International Bureau of Education (IBE):

An instructional system in which the learner is separated from the institution organizing the instruction by space and or time. Communication in distance education uses various media (e.g. printed, audio-visual materials, radio, television, computer software) and includes usually tutors and group sessions.

The above definition may be accompanied by a similar one for correspondence education since without it, the interpretation of DE would not be comprehensive. The purpose is to secure an intelligible differentiation between the two so that they will become readily apparent. The following definition from the same UNESCO source (1987, p. 34) provides such an extensive view:

A form of distance education that emphasizes individual study making almost exclusive use of print material and exchange by post of written communication between tutors and students. Also called 'correspondence instruction'.

Finally for an adequate understanding of distance education to be attained, a note of appreciation on open learning, sometimes referred to as open education, should also be expounded. However, the quandary is that there are numerous variations on the definition of open learning. Having scanned the various themes for a more proper focus, the writer has selected the following description from the National Board of Employment, Education and Training of the Commonwealth of Australia (Johnson, 1990, p. 4):

Open learning is an approach rather than a system or technique; it is based on the needs of the individual learners, not the interests of the teacher or the institution; it gives students as much control as possible over what and when and where and how they learn; it commonly uses the delivery methods of distance education and the facilities of educational technology; it changes the role of a teacher from a source of knowledge to a manager of learning and a facilitator. It justifies these measures by arguments of efficiency, cost-effectiveness and equity.

Further, Race (1989, p. 14) clarifies the difference between distance and open learning. He explains the various choices which the students have in open learning that could also be achieved in the distance learning mode. In addition, he cautions on the importance of *effective learning*. One of the key elements in DE methodology is instructional design support. Richey (1986) defines this groundwork and foundation of the DE faculty as:

the science of creating detailed specifications for the development, evaluation, and maintenance of situations which facilitate the learning of both large and small units of subject matter.

In today's world of technological innovations and daily advances in the field of micro-computers, all the definitions above would not be

able to integrate fully into DE without a brief description on computer based education. Computer managed learning (CML) links the educational transaction locally, within computer - interactive learning, or externally, where modems are used to communicate with the educator. Computer aided learning (CAL) more specifically applies to repetitive learning procedures (instilling) such as drills, exercises, tutoring, simulating and problem solving.

2.2 SOME CURRENT USES OF DISTANCE EDUCATION

Basically from the outset, it should be recognized that DE is being used at almost all instructive levels today. This is evident by examining the list of institutions below, practicing its use. The classification alters from primary to secondary and subsequently to tertiary education with emphasis on the last two. Tertiary necessarily includes occupational and vocational training including continuing adult education required by the various industries. The analysis of the questionnaire in Chapter 1 clarifies and perhaps, confirms its utilization in adult and advanced or continuing education. This survey (Appendix A) further found that 86% of the respondents enrolled at the World Maritime University (WMU) aimed at being open minded so as to keep abreast of developments within their profession. However, at primary education level, face-to-face guidance in teaching is regarded as necessary as crucial and conclusive for young pupils but¹ DE may be used to teach primary education to adults. This means that the possibility of applying DE methodology at ALAM would have more opportunities for success in its application to foundation courses. For instance, teaching to adults (Local Trade Course students) through DE in subjects like elementary mathematics -interpolation, logarithms and so forth.

DE appears to have made its popularity and become the vogue, more so, in business education. This is likely because DE accommodates the vigorous profile of businessmen and professional corporate executives aspiring upwards in their enterprises and career ladders. The unique quality of DE is that it adapts to the learner, not the student conforming with the rigidity of a structured conventional course program. Cole (1991) appears to support the above two rationale arguing that in recent times DE has become trendy as an alternative to the conventional learning institutions. This is especially so for working people who have neither the time nor money and hence, cannot attend regular school on a full-time basis. Their preference for DE cannot give rise to uncertainties, preferring obviously the flexibility offered by DE. According to the Open Business School of the Open University (1992a) in the United Kingdom, DE is the fastest growing area of the university. Additionally, it cites that it helps more managers than any other European school of management through its European network of about fifteen centers from The Hague to Moscow. It received 20,000 course registrations in 1992 and had a turnover of 17 million pounds sterling. Even other non-conventional fields are not spared on the continued practicality and effectiveness of DE. For instance, as far back as in 1989 the Medical Education Department of the University Kebangsaan Malaysia conducted a special survey. This included a study of practicing doctors with the view to producing quality graduates. Pragmatic outputs for the application to the medical profession were required, within the national context. The appraisal of the study identified a need for practical and more responsive learning for those in 'professional isolation, in terms of geography and time.'² This year, it will use DE methodology for its new Master's degree program in Family Medicine.³

Based on the justification mentioned earlier, it may be concluded that DE is generally similar to any other form of education. The unique feature that it does possess is in its style of delivery, and certainly again its method of preparation of the learning materials - an absolute prerequisite. Many such similar institutions across the

globe are fine examples. A list of some of the institutions, and there are many more, practicing the employment of DE in their education programs appears as follows:

- The Australian Maritime College, Australia
- The Open University, United Kingdom
- The University of South Australia, Australia
- Schools of the Air, Australia (secondary education)
- Hermods-NKI Skolen, Sweden (secondary education)
- University of Queensland and Deakin's University in Australia
- University of Wisconsin, United States of America
- Fern Universitaet, Germany
- Central Broadcasting and Television University, China
- Indira Gandhi National Open University, India
- University Sains Malaysia, Penang, Malaysia
- Universitas Terbuka, Indonesia
- National Extension College or Open College, United Kingdom
- College of the Sea, United Kingdom
- Athabasca University, Canada

In addition to the above, there are also private institutions offering DE programs, for instance 'Stamford College' which has become very successful and reputable in Malaysia. In the United Kingdom, the Henley Management College advertise their 'renowned' distance learning courses. Another example, International House of the UK offers an eight month distance training/correspondence course leading to the Royal Society of Arts (RSA) Diploma in Teaching of English as a Foreign Language (Dip TEFLA)⁴. Other examples⁵ employing DE include:

- University of London: MSc in Financial Economics
MSc in Financial Management
- Kingsbridge University: Bachelor's, Master's or Doctorate degree
- Others: See Appendix C.

From the above list of institutions plus private organizations, it will readily be seen that DE's current users are somewhat dispersed and growing. Its expansion is not only horizontal and vertical but also global.

DE's untapped potential needs to be maximized. Further development in DE methodology will be enhanced with modern technology. Briefly, the communications interface will be improved with the advent of very high speed super micro-chips used in synergy with advanced modern radio systems and space technologies. The following sub-section discusses the effects of modern technology on DE.

2.3 MODERN TECHNOLOGY, CONCEPTS, ADVANTAGES AND DISADVANTAGES OF DISTANCE EDUCATION

Only the concepts, advantages and disadvantages in the application of modern technology on DE will be reviewed here. However, where necessary benefits and drawbacks of a general nature may also be included so as to provide a liberal overview. Essentially, the impact of modern technology on DE, will be the competent employment of technical media. Generally speaking use of this media may be considered to be non-contiguous communication in DE.

It appears that communication by post may be out-moded, but it is still widely used and in most cases is still the fundamental carrier. Print will remain the likely media used most, probably due to its commercial viability and obvious practicabilities, like hard copies being available. Table 5 below provides an overall review on the types of media employed and further clarifies their relative importance and subsequent uses.

Table 5: The use of media in distance-education programs⁶

Type of institution [†] (No. of programs)	A (317)	B (291)	C (231)	Overall % (n = 839)
Number of distance-education programs using				
Print only	20	26	30	9
Print + other	297	265	201	91
Radio + other	80	41	26	18
TV + other	60	35	31	15
Audio + other	113	143	110	44
Video + other	64	59	56	21
Kits + other	63	47	41	18

*** Types**

- A: institutions set up to teach at a distance.
- B: conventional institutions with distance-teaching departments.
- C: conventional institutions with some distance-teaching programs, but without a special distance-teaching department.

Source: United Nations University

It must be recognized that less than ten percent of the programs rely exclusively on print. Such other approaches toward DE are pitched more towards the traditional correspondence courses. The majority of courses are almost always accompanied by audio-cassettes, rather costly television, video- cassettes and assembly kits, usually in this order. Newer developments now include the use of toll-free hot-lines providing instant access to students who require counselling, tutoring and so forth. This is further elaborated in Chapter 4.

Presently, communications using space satellite technology are still in their infancy, with regard to DE. The state of the art can only improve with rapid advances in technology, particularly the in-roads

made by the powerful personal computers, data processing and digital technology will give new possibilities. The International Maritime Satellite Organization (INMARSAT) will play a leading role with respect to MET. It already has four mobile satellite communications systems available for global use. Data communications are already at 9,600 bits per second (bps) with higher rates through data compression techniques. High speed data has been reported at 56/64 kilobits per second (kbps)⁷. India, for instance, has been using satellites to beam a number of educational programs like family planning, food hygiene and so forth throughout the large sub-continent land-mass for many years. Their satellite instructional television experiment (SITE) was conducted as far back as 1975⁸. One of the earliest forms of satellite education was the PEACESAT (Pan-Pacific Education and Communication Experiment by Satellite) in 1971. There are many other satellite education systems that have achieved their purpose. They are for instance, in the fields of primary education and are particularly useful for isolated communities. So satellite technology is not really new after all. Only that its untapped potential was not fully realized in the past. In conclusion the hardware technology is not an obstacle but the software aspects are. This state of affairs is glaringly apparent in home-base micro-computers. Development of software is a long and tedious matter requiring hefty investments.

The Concepts

With regard to the use of technical media, Kaye (1988, p. 47) is of the view that:

Distance teaching is, par excellence, mediated teaching. Most of the contextualizing, information-transmitting, and conceptual structuring functions undertaken by live teachers in a class-room or lecture theatre are transferred to various technical media: print, broadcast, cassettes, data bases, floppy disks and so forth. Face-to-face

teaching is reserved for sorting out problems in comprehension, and for group or laboratory work.

Additionally, Kaye has pointed out the encumbrances are the high costs involved in the production and use of quality DE materials in order that the various media can be optimized. Of course, there are equally many complications with regard to the employment of DE as a methodology. In a British Council talk at the International Association of Teachers of English as a Foreign Language (IATEFL), Exeter University, the audience raised the following concerns regarding DE:

- Students often have poorly developed study skills.
- The learner often feels isolated and has difficulty maintaining motivation.
- DE seems to encourage rote-learning of facts.
- DE is perceived as being inferior to traditional forms of education, (there seems to be a need to promote this type of education worldwide).
- Students usually study post-time. Subsequently other obligations often interfere with the learning process.
- The faculty is usually not trained in DE.
- A high drop out/failure rate is common.
- Funding - sufficient resources must be allocated.
- High initial costs infrastructure established, materials prepared and tested and the administration has to be organized.
- Preparing (electronic) materials is time consuming: shortage of trained manpower.
- High technology media enhances the quality of remote methods but significantly raises the costs.
- Difficulties in obtaining spare parts and the problem of power shortages reduce the effectiveness of electronic media.
- Broadcasting schedule difficulties
- A considerable amount of training may be required for the trainers, writers, administrators and management.

From the beneficial viewpoint, several authors have indicated that conditionally, students can learn most things from most media considering that some media are more appropriate to certain learning objectives than others.

Moreover, the production of DE instructional materials can usually be used in the conventional face-to-face mode. Therefore, these materials can be used to an advantage, such as keeping the faculty's writing skills updated and monitored. This is necessary so in local conditions where not many are proficient in writing, especially in the English Language. This utilization of study materials produced may be operated to form some measure of academic work produced by the training staff, at least on paper. A word of caution here - producing and writing study materials need not necessarily be conclusive that is to say some teachers are very effective in presenting and delivering the subject matter but may not have the writing skills. Proficiency in writing may readily be appraised if the faculty submits scholarly publications for professional journals and magazines. So many faculty members prefer conventional teaching, where their own literature or others are distributed to the course participants only. In addition, should there be any deficiency in the product of the script the weakness(es) may easily be resolved by the teacher's oral explanation (face-to-face and direct [viva-voce] interactive communications).

Today, micro-computer based technologies are used in so many fields from space-vehicles to wrist-watches. Even this dissertation has been produced and edited, then conveniently stored in the notebook's hard-disk, with the aid of a word-processor, on a 386 computer processor working on an extremely, and lately rather, fast speed of 16 megahertz. Desk-top publishing for instance is, without doubt, more superior than the traditional type-setting prints. Networking, electronic mail, teleseminars and computer conferencing are other forms of advanced applications. Such uses contrast clearly with respect to the more out-dated computer-assisted learning (CAL) material that

usually accompany DE packages. On teleconferencing, the Distance Education Centre of the University of South Australia uses four types:

- Audio

To provide fast and convenient communication. Employs loudspeaker telephones through the conventional telephone system. Most common and utilized mode. Uses conventional and familiar technology - over 500 million telephones globally. It is relatively cheap and may be set up at short notice. Outlets unlimited.

- Audiographic

To reinforce the above audio with visual support. Fax, slow-scan television, writing tablets, electronic white-boards and computer-generated graphics can be conferenced.

- Video

To contribute to total interaction and visual demonstrations. Uses terrestrial or satellite systems like Technical and Further Education (TAFE) Channel service.

- Computer-text

To assist text conferences to occur independent of time or place of study. Special computer software programs extends the electronic mail services such as AARNet (Australian Academic and Research Network).

The advantages of employing these methods are that they:

- provide multi-point interface
- are interactive
- are instantaneous
- utilize common telecommunication channels

To make optimum use of these modes, the conventional telephone handset is not practical. Hands-free speaker phones are available such as the 'ERICSSON DIALOG 2561' or the cheaper 'Made in Malaysia

SAPURA intelligent hands-free speaker phone' for about US\$160.00 only. The impact of the new technology on MET and DE is occurring daily. The latest media should be considered, then used positively for the best results.

2.4 APPLICATION TO MARITIME EDUCATION AND TRAINING IN MALAYSIA

Even as far back as in 1982, the application of DE in MET had been recognized through deliberations entitled 'Conference on Training and Distance Learning Onboard Ships'. This symposium was sponsored by the following United Kingdom (UK) organizations:

- The Merchant Navy Training Board
- The Nautical Institute
- The Institute of Marine Engineers,

in association with:

- The Department of Trade
- The Department of Industry

The organizations listed above reflect the growing concern of the maritime interests on the practicality of DE over a decade ago.

The British Open University was established in 1972. Its success has to be mentioned again. By the nineties, the University reported a success rate of 114,000 graduates since 1972 and 100,000 students taking their courses annually⁹. The writer is of the view that this Open University has enticed the proliferation of DE institutions on both sides of the Atlantic. Of course, educational

institutions in other regions of the world may have initiated similar learning strategies, following the success of the Open University.

The achievements of DE institutions in the eighties perhaps provided the stimulus for the conference to be initiated. It was the hope that MET may also be modelled on such practical trends. As the maritime community is rather conservative, even in sampling new or trendy modes of MET, DE is still, at best, in its developmental stages.

However, there is no reason why DE cannot be introduced into MET systems. The arguments and explanations mentioned earlier support the use of DE in virtually any field. Moreover, Article IX entitled 'Equivalents of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978' (STCW 78) does not prevent any member state from adopting any other MET arrangements. This includes sea-time, so long as safety and prevention of pollution at sea is not diminished. Thus some countries have used this clause to suit their requirements so as to reduce the total training time. Such substitutions usually occur when trained manpower is in demand and economic pressures to reform are imminent. For instance, a two-week Bridge Watchkeeping course in the United Kingdom can be considered equivalent to six weeks 'at sea'.¹⁰ Korea has a ratio of eight to one. Many European nations practice such requirements. The convention further reinforces this exemption by Regulation II/4, for instance. Sub-section IV (C) of this rule allows training defined by national administrations to replace the stipulated sea-time. Paragraph 'c' of the same regulation proceeds further. It cites:

it will be sufficient for the candidate to prove that he possesses adequate theoretical and practical knowledge about his job functions - through examinations to the satisfaction of the national administration.

In the author's view, at least half of this can be accomplished by simulated based training and DE. Thus the future candidate need

only spend half of his present time at an approved training institution. Appendix B lists the various types of maritime and maritime-related courses that are known to be conducted globally in the DE mode; for instance, coastal navigation for beginners and so forth. The following organizations are involved and worth noting:

- National Marine Correspondence School, United Kingdom
- University of Queensland - Gatton College, Australia
- Maritime Studies Limited, United Kingdom
- Open Training and Education Network, Australia
- Chartered Insurance Institute, United Kingdom
- The Open Polytechnic of New Zealand, New Zealand
- Victorian TAFE Off-Campus Network, Australia
- City of Bath College, United Kingdom
- TAFE External Studies College, Perth, Australia
- Tiller School of Navigation, United Kingdom
- Wheelhouse School of Navigation, United Kingdom
- Queensland Distance Education College, Australia
- Granton Institute of Technology, Canada

The writer proposes that the initial stages of development of DE programs shall make use of the benefits of DE's integration into conventional MET at ALAM. Having examined the rationale of the application to MET in Malaysia, the writer strongly feels that there are practical reasons for its use in the country.

2.5 SAMPLE OF A DISTANCE EDUCATION PROGRAM

Some examples of DE programs

The British Open University lists more than 250 courses and packs to be offered in 1992-1993. They are grouped into thirteen

subject areas, from the arts to technology and also the 'U' courses. The 'U' refers to the broad academic range that can count towards the University's Bachelor of Arts degree. Moreover, the courses are truly open in that there are no entry requirements. The individual courses and packs have been graded according to the variations demanded by the capacities and limitations of DE. Their legend appears below:

Code Remarks

B	book or booklet
C	course with personal tutor and tutor-marked assessment
D	study pack with optional computer-marked assessment
E	available both as a study pack and as a course with personal tutor and tutor-marked assessment
P	study pack with no assessment

Samples

Many individual lessons constitute a section. A series of sections form a course. Therefore, if a sample of a lesson can be illustrated, then this product should be sufficient to resemble a DE program. The sub-section on lesson specification and the writing of self-instructional lessons has been condensed from Rowntree (1990 pp. 79-93). First, a lesson specification needs to be drawn up. This in essence is the target objective and may consist of the following:

- Target group
- Aims and objectives
- Content
- Sequence
- Media
- Assessment
- Evaluation

The learner in isolation has to be considered first whilst writing the study materials. Thus preparation for all the work has to be

carefully thought out and laid down in writing. These study materials are the exact opposite of the conventional lecture notes written with the solo lecturers in mind. Actually it is the study material that is being prepared. Rowntree calls it the *Tutorial-in-Print*. This in the author's view is a transition stage somewhere between face-to-face tutorials and conventional class-room teaching. Table 6 reflects a sample of part of a lesson of which the source has been the Open University and is reproduced with modifications as shown on the following page.

Table 6: Sample Page from Self-instructional Texts

4 Changing an organization's culture

In the remainder of the material 'On cultures and structures' Professor Handy points out that changing environments call for organizations to adapt and considers how it might best be done. He identifies three ways of adapting:

- by *deliberation* - improving planning and co-ordination in a role-culture by increasing thought, talk and liaison
- by *reproduction* - that is decentralization or divisionalization
- by *differentiation* - by promoting different cultures and different structures in different areas of activity within an organization.

Activity J > Can you anticipate which of these forms of adaptation Professor Handy will prefer?

Read on to find out which and why. Read Sections 4.1 to 4.5 on pp 195 - 200, ignoring the boxed items.

Clearly, Professor Handy wants an organization to vary its culture from one type of activity to another. He mentions four types of activity.

Activity K > Which of these activities is most typical of your organization as a whole and of your unit within it? Regardless of your answer to those two questions, which type of activity would you personally most prefer to be involved in? Put one tick in each column below.

DISTANCE EDUCATION

	Organization	My unit	Own
Steady state			
Innovative/Developmental			
Breakdown/crisis			
Policy/discretion			

Again this exercise may enable you to detect any mismatch between your preferences and what is necessary within your unit and/or organization. For instance, you may have found (though I hope not) that your least preferred activities are the main activities of your unit.

So, differentiation is an approved form of adaptation. But, as we said back in Session 9.3, this increases the need for co-ordination, or integration. Charles Handy lists a number of 'integrative devices'.

Activity L > Do any of these remind you of some you read about earlier in the course? Read Section 4.6 on p 201 to find out.

You should have been reminded of Jay Galbraith's mechanisms discussed in Session 9.3. Many of those - rules, routines and procedures, hierarchical referral, improved

Reference Rowntree (1988, pp. 79 -93) quoted from source: Open University

Study Guide Activity

Most DE programs are improved by study guides on enhancing teaching effectiveness. These techniques of study activities incorporated in the guide are vital to support the learning activities of the student. The themes of the instructions are usually of a general nature. They can be reckoned to be general instructions pertaining to the resource material of the study package.

In many ways one can consider these guides to be a form of mini-manual, where manufacturers inform the users of procedures and

so forth of the equipment. For instance, one scans the 'Radar Manual' before operating or using a radar. That is, it supports the effective and proper use of the radar itself. The distance learner very often studies in 'isolation'. So study guides frequently accompany the module. However, there are often miniaturized study guides in the basic resource materials. That is, there may be specific instructions or guides regarding the text of the study materials in the package.

Show extract from a typical page

Study guide items should contain the following prerequisites (Rowntree, 1990 pp. 90-91):

- *guidance on how to approach the materials;*
- *a means of assessing what they have learned from the materials; and*
- *advice on how to get additional help where necessary.*

In addition, the following items have been summarized and appear below:

- topic overviews
- concept maps
- learning objectives
- annotated bibliography
- selected text study area
- appended remarks (text or audio-tape)
- case studies
- paragraph commentary
- section assessment
- model answers
- practicals propositions
- glossary
- self tests

- peer-learning hints
- assignment instructions

An extract from a typical sample page of a self-instructional text with specific reference to Table 6 would appear as below:

This extract comes from a "post-experience" course for managers (P670). It illustrates a low cost approach --a "wrap-around" workbook based on a previously published textbook, *Understanding Organizations* by Charles Handy.

Not all of the textbook is appropriate to the objectives of the course. Nor was it written with self-instruction in mind. So, in a separate workbook from which this sample page is taken, learners are asked to read a couple of pages of the textbook at a time. Each time, they are given one or more questions and are asked to write their answers in the wide margin of the workbook.

After each of these "activities", there is a line across the page -- a "reader stopper", reminding learners not to read on until they have answered the questions. There then follows the course author's answers or comments, to help learners check out their understanding or interpretation of the text.

This fairly basic approach can be applied to any existing material -- from the blurb on a packet of breakfast food to a full length feature film. Essentially, you are asking the learner "What are they saying?" and/or "What do you make of it?". Thus, you can get your learner to engage with you in the detailed analysis of published materials.

Reference: Rowntree (1990, pp. 90 - 91)

Study Guide Summary

Thus, from a DE viewpoint, study guides are essential to the effective use of study materials provided by the institution. The vital value of these study guides, which should be properly prepared and produced, cannot be under-estimated. Imagine, climbing Mount Everest for the first time without a guide. Additional unnecessary difficulties would certainly be incurred.

CHAPTER 2 - NOTES

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Chapter 3

PROPOSALS FOR PROGRAMS

3.1 POTENTIAL AREAS

The obvious and natural extension of DE programs would be to supplement and enhance the present shipboard aspects of training for deck and engine cadets at sea. This additional form of training may then be regarded as a subsequent path for the existing project work, mentioned in Chapter 1. Only now, it will take a more professional and concerted approach to continuing and support MET. Traditionally the only representation of on-board training, which is essentially passive, has often been a form of monitoring known as the 'Cadets Record Book'.¹ This book consists of a series of tasks that had to be performed by the trainee and supervised by a responsible officer on board ship. This method of guidance continues until today.

The communication derived from this methodology is basically one-way in terms of time and in each phase of the training period on board the vessel at sea with respect to the total training program. The academic response time is delayed until the trainee returns to the institution. Consequently, feedback on responses that are delayed do not provide optimum impact for the solo learner at sea. There must be a direct link between the trainers and the trainee. Furthermore, there are implications when shipboard officers are utilized as 'training officers'. The rigid hierarchial organizational structures do still exist on board ships, even of today. This is unlikely to be modified as the command arrangement on board is still necessary to be maintained, basically for safety purposes such as emergencies.

There are not many other known methods of direct monitoring the planned learning outcomes of the trainee by shore-based MET institutions. Highly specialized safety training services on board, usually operated by private enterprises, do exist but they are few and far between. For instance, leaning towards conventional education from a DE's perspective, A I M Safety of the United Kingdom specializes on onboard training, which are in the majority of cases involved in conventional face-to-face instructional events. One of their programs includes an eight hour 'M.E.D.'² (Marine Emergency Duties program - life saving and fire fighting). Brindle (1992, p. 6) highlights what the writer views as their practical strategies:

- Effective safety posters
- Support of certain DE packages
- Defined learning outcomes, learner-biased

Another example is the newly-established On Board University of Sweden, with financial support arranged by Philips International, Industrifonden and Foreningsbanken, working in collaboration with the Maritime Academy of Gothenburg. It focuses more on the distance learning aspects and pioneering in a new instructional strategy known as Compact Disc Interactive (CDI)³. Their programs are:

- Fire Safety on Board
- Tanker Operations
- Global Maritime Distress and Safety System (GMDSS)

Moreover, these MET organizations do not typically fall within the framework of formal MET that are more in acceptance and required by the industry users and the maritime legislators. Change, nevertheless, is transpiring.

Many of the larger shipping companies, but not many, delegated training to an assigned 'training officer' whose secondary duties

included the supervision of the cadets training on board ships. The person was largely ineffective owing to other commitments enhanced by the rapidly changing roles on board, which left the officer little time for additional obligations.

All these situations are not ideal. In the absence of any form of structured and guided training, this mode appears to be the preferred solution. So, there are many weaknesses in the present day MET system from a training viewpoint with regard to the sea-phase.

The vital connection of the on-board or industrial training on-board cannot be overlooked. This, in the author's view is the weakest link in the MET system for a total training concept. So in a paper presented at a Conference entitled 'Towards Twenty-First Century Technology', in Melbourne, Muirhead (1992, p. 2-4) on effective training correctly underlines the relevance on the need for task analysis of on-board training. In which, he raises the importance of **linking** knowledge with practice through skills based assessment. So the question arises as to how this continuity of MET and appraisal of the trainee may occur. Perhaps, DE methodology integrated with the Cadet's Record Book may provide a more pragmatic solution.

Having emphasized such training difficulties, this may be the field in which DE methodology may play a **pivotal** role in competency based training. So DE may have a vast potential area which has not been explored. The scope is unlimited with regard to MET. For instance, ALAM may be able to offer courses through DE in the future, for certificate of competencies (licenses). Current trends tend to witness a transfer of the prescribed examinations to the MET institutions who are then not only able to do the examinations on behalf of the Department, but also to provide the facilities, logistics and some form of continuous assessment for these licenses.

In Malaysia today, with the vibrant economic growth and consequently, expansion in the shipping industry a demand for courses

related to shipping has been generated. Examples are the programs leading to the award of membership of the Chartered Institute of Shipbrokers (ICS), the Chartered Insurance Institute (CII) and the Chartered Institute of Transport (CIT), all based in the United Kingdom (UK). Such are the disciplines in which ALAM may be able to play a role through DE. In addition, collaborating with the Chartered Insurance Institute, UK, which already has the background in DE, may be mutually beneficial.

Home and Local Trade Courses are most likely to benefit from these programs, especially in the initial stages. The majority of Local Trade students are employed on small vessels and in ports. The majority of their employers are not in favor of releasing them to attend the fourteen - week courses currently being conducted at ALAM. Moreover, for these students, their age and family obligations make it necessary to reduce time at school. Additional expenses incurred by the students are not paid by their employers. This dilemma has been explained in Chapter 1. Fortunately, the Workers' Institute of Technology in Port Kelang, Malaysia, founded by the Transport Workers Union in 1971, recognized the predicament faced by workers. Vocational training was provided for their children. Unfortunately, for seamen employed and unemployed, circumstances were not that agreeable. There are two known seamen's associations of which the more established one was the Seamen's Association of Penang and a more recently established one based in Port Kelang, the premier port in Malaysia. These unions did little of consequence with regard to training and in comparison to the Transport Workers Union perhaps due to the insignificant membership (creating one of many rationale for the establishment of ALAM). Lately, the Malaysian Seafarers' Association has been established. The CMMF Fund, mentioned in Chapter 1, made minimal impact on MET - barely meeting the qualified personnel required by the shipping industry.

Titmus, Ed. (1989) recognized the unique MET requirements of seafarers and dockers. The former endures long periods at sea whilst

the latter suffers from deplorable work shifts. Both concerns were raised at many national, regional and international symposia. Moreover, he emphasized:

There is a need to include labour education in existing shipboard training programmes, in which distance learning systems can play a part.

In addition, seafarers' unions have also performed a role in MET on professional advancement in a range of courses, especially on health, safety, maritime law and transport economics. For instance, the See Berufsgenossenschaft (SBG) conducts safety training in association and through the seamen's training school, Schleswig-Holsteinische Seemannsschule, both in Germany⁴.

Training of port and shipping personnel are also likely to be effected. For instance, ALAM is also well prepared and confident in securing the TRAINMAR Resource Center, which was recently instituted by ESCAP, as a regional training center⁵. This has been the focal point for the training of port personnel at all levels. Particular emphasis may be levelled at the supervisory and managerial levels, noting ALAM's faculty resources.

The off-shore industry is also a sector with vast untapped potential. Malaysia has recently signed production sharing and exploration contracts with her neighbors in petroleum technology, in which it plays a leading role. So specially conceived courses through DE may be necessary to support some of its activities and its necessary spin-offs.

In conclusion, to support the possibility of application of DE to various fields bounded by MET, new and perhaps rather radical concepts in education are making inroads into the learning process should be considered. Wolff (1993) reports on the trends toward Do-It-Yourself (DIY) education observes the popularity is gaining

momentum citing that, apart from various reasons, education may also be effective at home. In addition, she mentions that parents (sponsors) are becoming aware that education is compulsory but not schooling. A parallel concept on training has been described in Chapter 2.4 with regard to the STCW Convention on MET.

3.1.1 Collaboration and consortiums

Collaboration, is necessary not only with local institutions, but also with foreign ones, for expertise and a wider clientele. For example, University Sains Malaysia, University Technology Malaysia, Australian Maritime College (AMC) and so forth. The first preference here would be the AMC as the institution possesses a similar maritime background and is also skilled in DE methodologies. The debut by the University Kebangsaan Malaysia (UKM) in offering their Master's degree in Medicine through DE may tie in well (learning their teething problems) with ALAM's decision to tap the DE market.

From a nautical and technical education and training viewpoint, ALAM is healthy and competent with regard the delivery of its education and training programs. However, ALAM will be making its debut in an untested field, from its conventional base, to an alternative form of education, that is DE. This is the intermediary stage where many obstacles will be encountered and have to be resolved amicably and timely. The target date for ALAM to be fully established in DE will be about five years from today, that is in the year 1999. This year is chosen because by then all ships would have to carry the INMARSAT transceiver equipment in compliance with GMDSS requirements. Such space communications, coupled with microcomputers, will enhance the significance of DE.

So during this phase of consolidating DE at ALAM, cooperation and support from local organizations needs to be encouraged as they are definitely more economically, geographically and nationally

advantaged and time-frames for experimental projects will be shortened. Collaboration with these institutions for expertise and educational technology transfer needs to be initiated for mutually beneficial objectives.

Changing concepts in education, arising largely out of economic necessities, tend to transform traditional educational establishments into a consortium of private enterprises, carefully masked to retain the expected integrity required of them by clients. Such consortium concept is akin to the shipping consortiums, whereby even the multi-mega shipping enterprises due to fierce international competition in their trade, pool their resources so that better services could be provided for their clients. For instance, Maslen (1993) reports that the Australian Broadcasting Corporation and Australia's Open University have collaborated with the consortium of nine universities, led by Monash University (the largest) known as the Open Learning Agency in marketing their higher education programs to Asia through DE using satellites. The author interprets that similar philosophies in DE and open learning are practiced by the agency, stating that those who pay fees become university students and quality of education assured. Use of media other than satellite has been focused on Malaysia. The system has been supported with a budget of A\$28 million by the Australian government, and a similar amount just to establish 'tele-cottages' in rural areas with a view to provide communications link through computers, modems and fax machines. The agency expects 20,000 enrollments, and more if marketed abroad, by 1995.

The list of support organizations⁶ in Malaysia with condensed and relevant information listed below may be able to cooperate and provide the necessary assistance:

- **Educational Technology (ET) Division:**
(formerly Educational Media Service) of the Ministry of Education, has 240 members of the staff.

PROPOSALS FOR PROGRAMS

Development:

- Planning, production, dissemination and utilization of the nation's ET such as Education Television and Radio, Audio Visual Aids (AVA) materials, Resource and Library Services for schools and Teacher Training Colleges (TTC), with emphasis on improving quality of teaching and learning in rural schools.

Educational Programs:

Services	Broadcasts	Level	Target/Remarks
- TV	21	Year 4-13	Schools & TTC's
- Radio	76	Year 1-13	" "
- AVA:	Production/distribution of multi-media kits and teacher guides; film and video lending library, audio and video dubbing services and conduct of in-service training in production and use of AVA		
- ERC:	Management of Educational Resource Centers at the state, district and school levels		

Research and Development Projects:

- Use of solar-powered TV sets in rural schools (Many Malaysian seafarers are domiciled in rural areas)
- Effects of educational TV and radio in schools
- Establishment of video dubbing systems located at State Education Departments (Their assistance would assist ALAM in reducing dependence on foreign-produced training videos)
- Computer Assisted Instruction Training Project (ALAM may send some faculty members for attachment training)
- Development of off-air audio and video programs
- Establishment of School and District Resource Centers (Similar establishment of such resource centers at the major harbor-masters' offices and the smaller port offices).

Educational Planning and Research Division:

(EPRD) of the Ministry of Education, is a coordinating agency for school education. This agency often initiates innovations in educational

and instructional technology to be implemented by other agencies in the Ministry. (Arrangements may be made to conduct in house seminar/workshops on the design of instructional materials at ALAM).

• Center for Educational Technology and Media:

Universiti Sains Malaysia aims *inter alia* to assist all sectors of the university with advisory and consultancy services on the application of educational technology and production of media materials. The Center is also an 'APEID' Center (Asia and the Pacific Program of Educational Innovation for Development) under the auspices of UNESCO Regional Office of Asia and the Pacific, Bangkok.

ADVISORY AND CONSULTANCY SERVICES

Teaching Functions:

- Provision of ET courses to undergraduate and post-graduate students under teacher education programs

Academic Support Services:

- Provision of theoretical and production experience for students taking courses in communications
- Planning and producing non-print teaching materials in support of academic programs offered by the School of Off-Campus Studies

Research and Development:

- Conducting studies in the area of computer literacy, media attributes and the application of ET in the teaching and learning process both at tertiary and secondary school levels

Training and Diffusion:

- Offering of one-year Certificate program in ET for teachers and officers from the Ministry of Education; short courses and attachment program for personnel from government agencies and the private sectors; dissemination of information and materials on

educational technology to various faculties on campus, teachers' colleges and secondary schools

Research and Development:

- Computer-video Interface for Interactive Instructional system
- Audio-tutorial systems for matriculation science, with about 650 students
- Interactive tele-lecture systems to cater for large classes of about 700 students
- Computer-assisted tutorial system (CATS) laboratory, accommodating 30 persons at any one time, in support of computer education and to promote computer literacy among staff and students at the University

Staff:

- Academics - 8, Administration Officer - 1, Engineer - 1, Technical and Administrative staff - 43

Fields:

- ET and curriculum development
- Instructional design and development
- Educational technology/video production
- Computers in education
- Media production

Publications:

- *Microcomputer courseware development for Science and Mathematics Education* Report of the UNESCO Workshop (1985)
- *Determinants of computer awareness among teacher trainees: A case study* Malaysian National Computer Conference (1985)
- *Tele-lecture as Information Technology: How well received* (In Bahasa Malaysia), Report of National Seminar on Training and New Technologies, Penang

- **Computer-Based Instruction and Training Bureau, COMBITS:**
Bureau, Universiti Sains Malaysia has initiated projects related to computer-aided instruction (CAI) development and its implementation in agencies involved in teaching science as a major.

Services:

- Regular in-house training programs for the faculty involved in CAI to improve the use of computers in teaching and for the staff of the administration to improve productivity
- For private agencies, COMBIT provides courses on office and plant automation and computer literacy courses.
- Provides software consultancy for business and educational problems

Research and Development:

- Development of interactive authoring systems for IBM-PCS and other popular microcomputers
- Development of videodisc-based CAI system, optical Mark Reader based Questions Bank system

Publications:

- *Computer Based Education - A Resource Book (1986)*, CAI systems for Malaysian secondary schools and matriculation schools, published in *Proceedings of International Conference on Computer Applications*.

- **Off-Campus Studies Center:**

Universiti Sains Malaysia is the only institution renowned nationally for its Distance Education Programs. There was about 2,800 adult home-based students in 1989/1990. There are currently 122 courses on offer of which 54 are science. Media courseware include print, audio and broadcast with the video component on-hold. Thirteen nationwide study centers support the students with library facilities, mentors, counselling and teletutorial assistance. Teleconference sessions will be augmented by a newly implemented 'electronic writing board' plan. The

DE Program is staffed by a director in charge of a full academic and support staff who write, develop, evaluate and counsel. Where necessary staff from the six university faculties can be called upon.

- Teaching-Learning Advisory Unit, Universiti Sains Malaysia.

Aim:

- To improve the quality of teaching-learning through faculty development programs and teaching-learning workshops especially on student learning techniques and lecturer's teaching material production, both on and off-campus.

Activities:

- On-the-job training on programmed instruction (PI) techniques
- Implementation of paper-programed instruction (PPI)
- Slide-tape instruction (STI) modules and computed-assisted instruction (CAI) courseware locally produced
- Staff development residential workshops for new faculty members
- Conducting 'Study Clinics' and 'Study Skills Workshops'
- Development of action research techniques
- Instilling time management skills and designing course evaluation questionnaires

Services:

- Active cooperation in local, national, regional and international workshops and conferences in media use and instructional technology as well as consulting services

Research and Development: (All projects on-going)

- 'Program' Plan: - (Plan for Re-Orienting Guidance of Remedial Aids in Mathematics and Science)
- 'Grips & Grasps': - (Games, Research Inquiry, Problem Solving & Guided Reinforcing Academic Simulation Programs System)
- CAI & CAL projects; 'IMPETUS' (Interactive Multimedia Program English Teaching at University Sains) with two subjects 'READS'

PROPOSALS FOR PROGRAMS

(Reading Easily, Actively, Dynamically & Speedily) - CAI Speed Reading programs 'WRITES' (Word Reprocessing Interaction Targeting for Efficiency and Speed) - CAI Essay Writing Programs.

Fields:

- Faculty development, academic counselling, AVA, CAI, science remedial education, communications, science education, remedial education, instructional technology

- Technical Teachers' Training College:

Pre-service courses for training teachers for technical and commercial subjects in academic secondary schools which also includes study of curriculum development. Conduct of in-house courses for technical teachers and others on demand.

- Disted Services Sdn Bhd:

A private enterprise collaborating with higher institutions from Australia, Canada and the United Kingdom. The agency makes available to the locals, and delivers, programs in the external study mode from these institutions - student support systems.

Services:

- Recruits students for the principal institution
- Organizes and provides suitable tutorial support services
- Provides proctors for examinations and collects assignments
- Monitors student progress and offers counselling services
- Establishes Regional Centers

The use of DE, presently and in the future, may in some way be applied to many areas at ALAM and is categorized under the following:

- existing courses presently conducted
- proposed courses intended to be offered
- suggested courses for the future

3.1.2 Existing Courses

The percentages shown in Table 4 are the author's estimates and are only academic forecasts. Allowances of up to twenty-five percent should be made on either side. Such high allowances have to be applied because the writer does not actually have the experience of the management and operation of a distance learning program. Examples are shown in Table 4:

Table 4: List of Present Courses at ALAM

No	Course Name	Time W/D	Max /Co	Co /Yr	Percentage		
					25	50	75
<u>Basic</u>							
01	Pre-Sea Cadets	42W	35	2			x
02	Marine Radio	42W	24	1		x	
<u>Ratings</u>							
03	Deck	14W	24	3	x		
04	Engine	14W	24	3	x		
05	Catering	28W	15	3	x		
<u>Nautical</u>							
06	3rd Mate (FG)	14W	25	3		x	
07	Second Mate's (FG)	14W	30	3			x
08	First Mate's (FG)	28W	30	2		x	
09	Master's (FG)	28W	30	2	x		
10	Mate Local Trade	14W	30	3		x	
11	Master Local Trade	14W	30	3			x
12	Mate Home Trade	14W	30	3		x	
13	Master Home Trade	14W	10	3			x
<u>Marine Engineering</u>							
14	2nd Class Pt.B (Motor)	14W	20	1	x		
15	2nd Class Pt.B (Steam)	14W	20	1	x		
16	1st Class Pt.B (Motor)	14W	20	2	x		

PROPOSALS FOR PROGRAMS

17	1st Class Pt.B (Steam)	14W	20	2	x
18	Engine Driver Class III	06W	30	3	x
19	Engine Driver Class II	08W	15	3	x
20	Engine Driver Class I	10W	15	3	x
	<u>Modular</u>				
21	Basic Personal Survival(Sea)	04D	15	6	x
22	Basic Fire Fighting at Sea	05D	20	10	x
23	Basic First Aid at Sea	05D	20	10	x
24	Proficiency in Survival Craft	06D	15	11	x
25	Radiotelephony Restricted	05D	15	11	x
26	Radar Observer's	03W	15	4	x
27	Electronic Navigation Aids	03W	12	5	x
28	Radar Operator	02W	15	2	x
29	Ship Captain's Medical	02W	10	3	x
30	Radar Simulator	05D	12	3	x
31	Shipboard Management	05D	20	3	x
32	Oil Tanker Familiarization	06D	20	3	x
33	Electric Arc Maint Welding	05D	08	6	x
34	Watch Engineer Class 4	05D	30	3	x
	<u>New Courses:</u>				
35	Diploma Marine Engineer	04Y	30	1	x
36	Shipping Practice				
37	Training of Pilots				
38	Ship Surveyors				
39	GMDSS Operator's				

Source: Akademi Laut Malaysia

Notes on Table 4:

01 Cadets: Future course

02 Marine Radio: See below

This is an area of uncertainty especially with the introduction of the Global Maritime Distress and Safety System (GMDSS). However, the following observations and recommendations are

open for commentary. For instance, the use of Marconi Marine's "CheckMate" a radio traffic logging system package.

03 Deck Ratings: Future Course

04 Engine Ratings: Future Course

05 Catering Ratings: Future Course

06 Third Mate's: See below

Having experience of the large number of repetitive exercises in class-room activity, at least half could be transferred to DE. Successful completion of DE courses may be accredited to the final award of the certificate of competency. Certain stand-alone exercises in subjects like Stability, Navigation and the principles of Cargo and Tanker operations could be put on a trial basis. These students are generally computer literate and use of software programs should not pose a problem for them on board at sea. For collision regulations, a software program like 'RULES' produced by the United States Coast Guard (USCG) may be used. Videotel's 'Ships Lights and Shapes' may also be used. Some form of monitoring by the ship officers must be effected.

07 Second Mate's: See below

An area which lends itself to tremendous input of DE to the joy of the student, shipowner and maritime nation-building. Subjects like Mathematics, Physics and Principles of Navigation at this level, and without laboratory work and practicals, may effortlessly employ DE. Fine examples are a number of universities that offer courses and study packs that count towards the award of a degree, if successfully completed. Moreover, new developments in software programs are influencing today's education as reflected by the article 'Redefining teaching and learning mathematics in the real world'. For instance, on mathematics as reported by Nigoyi (1993):

The PACKETS program consists of classroom-based performance assessment activities that challenge students to think mathematically by using a wide range of reasoning skills as well as reading, writing, and oral

communication skills. The program enables teachers to see students' strengths and weaknesses as they work as well as in their written products.

08 First Mate's: See below

There are still a fair number of repetitive exercises although considerably less especially on subjects like Stability and Ocean Navigation. For Stability, the 'Mariner' software program may be utilized - a 'replica' of a real ship. The Business and Law, Shipboard Operations and Electronic Navigation Aid subjects may also receive a reasonable portion of DE's input.

09 Master's Foreign Going: See below

Practicals like magnetic compass adjustment obviously cannot be utilized here. Navigation and passage planning is also difficult to be employed. As the competency level proceeds higher so do the educational objectives. That is no longer knowledge, comprehension and application. Subjects like Navigation Planning requires analysis, synthesis and evaluation. Topics like Integrated Bridge Systems and Navigation Systems would require analysis of the various instruments, bridge layout, ergonomics, cybernetics and so forth. At this level of responsibility, the author having teaching experience in this area supports the view of the late Yakushenkov (1993) on the meaning of training of a seaman:

The profession requires implantation of a high sense of responsibility, overcoming natural weaknesses, ability to deal with people in conditions of limited space for a long time. This demands direct contact with an experienced teacher having authority over students.

10 Mate Local Trade: See No.11

11 Master Local Trade: See below

The above are conducted fully in Bahasa Malaysia. Many new distance educational materials have to be developed. Foundation courses in elementary mathematics, signals and nautical

knowledge must be introduced. The examination is in Bahasa Malaysia.

12 Mate Home Trade: See No. 13.

13 Master Home Trade: See below

Officially, these courses are in English, but in actual practice, they have often been conducted in Bahasa Malaysia. The external examinations may be in English but the candidate may respond in either language.

14 - Engineering: See below

20 The author is unable to make any comments.

21 - Survival, fire-fighting, firstaid, survival craft, radio-telephony:

25 For the remaining courses that last less than one week's duration, the relative impact of DE may not be appreciably felt. DE will, of course, play a role in supporting these short courses. Especially so, will be a self-assessment type support activity where students arriving a few hours late for the course may be accepted for the course if they can show proof that they had successfully completed the relevant DE program or support program. For a short course, three hours can mean ten percent of the contact hours. Therefore, arriving late may mean that the potential course participant misses a significant portion of the total contact teaching hours. The course requirements and international convention obligations make it necessary to justify the 'time; actual or correlated.

26 Radar Observer: See below

Videotel's program designed to appraise the student's understanding of radar will support DE. For instance the program consists of the following eight sections, which should suffice for most of the DE aspects of training:

- 1 Basic Principles
- 2 Radar Components and Radar Operation
- 3 Display Control and Procedure
- 4 The Radar Beam and Performance Specifications
- 5 Target Response and False Echoes

PROPOSALS FOR PROGRAMS

- 6 *Effects of Weather and Installation*
- 7 *Collision Avoidance*
- 8 *Position Fixing by Radar*

The results of individual questions are available to an instructor that enables analysis and comparison with other tests. This has to be supported by DE study materials and study guides from ALAM.

- 27 *Electronic Navigation Aid: See below*

Will be discussed separately in the next sub-section.

- 28 *Radar Operator: See below*

The present high failure rate of these course participants reflects that DE methodology ought to support the effectiveness of the course. So before enrolment, candidates are to have completed a DE program on basic radar and its principles. This will reinforce the teaching. The medium of instruction is in Bahasa Malaysia. There is just a sufficient pool of local lecturers to provide the tutoring. Assessment by ALAM is performed on behalf of the issuing authority: the Marine Department.

- 29 *Ship Captain's Medical Training: See item 21-25*

- 30 *Radar Simulator:*

Minimal application of DE methodology. However, at least some form of familiarization, such as use of the manufacturer's "study guide" and familiarization with navigational instruments, may be effected through DE supported by the following items:

- *Instructor instructional design support (IDS) resource materials and study packs*
- *Software use of computer-based simulator with the computer representing own ship as demonstrated in the Poseidon Navigation Simulator. The diskette(s) containing the elementary functions of the program can be dispatched to the student at sea. As the trainee progresses and responses are monitored, with records kept, more advanced programs are to follow.*
- *The Norcontrol Simulation a.s B.E.D. System is a Computer-based information system for the trainees that manages the Briefing,*

Evaluation and Debriefing part of the Simulator exercise. The aim of BED is to ensure that the trainees are achieving their learning objectives. The system is part of the Simulator intended to relieve the workload of the instructor. However, some instructors are intelligent and add another step to relieve their workload through a simple distance-learning package. The instructor mails the study materials to the potential course participants before the course begins. The simple courseware supports familiarization of the simulator trainer control panels. On a field study visit to a maritime institution in Norway, the writer found that the instructor could save about half the time during this introduction and familiarization with the rather sophisticated control panels.

31-34 Management, Tanker, Welding and Watchkeeper: See 21-25.

39 GMDSS Operator's Course - Application of 'Poseidon-GMDSS' software program would assist in DE.

3.1.3 Planned Courses

The following courses planned with possible DE input are listed below:

- 1 Degree in Nautical Studies - available this year.
- 2 Similar front-ended courses - deck, engine or commercial
- 3 Maritime Electronics Officer (SOLAS 74)
- 4 Revalidation Courses for all Certificates of Competencies
- 5 Special Courses for marine personnel of government agencies
- 6 Advanced Fire-fighting
- 7 General Tanker Safety Induction
- 8 Advanced Oil Tanker
- 9 Advanced Chemical Tanker
- 10 Liquefied Natural/Petroleum Gas Tanker(Basic and Advanced)
- 11 Bridge Management Teamwork
- 12 Maritime Search and Rescue Coordinator (Surface and Mission)

- 13 Dangerous and Hazardous Cargoes
- 14 Marpol Annex I (Maritime Pollution) - Oil
- 15 Marpol Annex II (Maritime Pollution) - Chemical
- 16 Planned Fleet Maintenance
- 17 Automatic Radar Plotting Aids (ARPA)
- 18 Shiphandling Simulator
- 19 Port State Control
- 20 Marine Accident and Incident Investigation
- 21 Basic Stability

3.1.4 Suggested Courses for the Future:

The following are courses that have been suggested for the future where DE may play a role.

- 1 Pre-Sea Deck Cadets Foundation or Nautical Knowledge Course: Introduction of a distance learning package for secondary or high school students and school leavers. There will be a heavy emphasis on Mathematics, Physics, English and all the theoretical aspects and principles of nautical knowledge. The successful completion of this DE course would enhance the students' selection by prospective employers. They would also be required in large numbers to support the shore-based maritime and shipping industry, if the distance-learner decided not to embark on a sea career. Such developments would also assist ALAM in modifying MET styles as sponsors are continuously pressured to reduce operating and training costs. This is essentially to suit market clientele.
- 1a Pre-Sea Engineering Foundation Course: as above.
- 2 Basic Ratings Foundation Course: Deck, Engine or
- 3 Catering: along the same lines as the
- 4 Cadets' Foundation Course: See below
minimal input on science subjects but increase in Maritime English.

- 5 Maritime Safety - Offshore
- 6 Cargohandling
- 7 Human relationships
- 8 Maritime Law
- 9 Educational Technology
- 10 Shipping Management/English
- 11 Ship Administration
- 12 Port Management
- 13 Human Resource Management
- 14 Fleet Safety Management
- 15 Oil Pollution Liability
- 16 Cargo/Ballast Handling Simulator

3.2 DEVELOPMENT OF A COURSE OUTLINE: AN EXAMPLE

As an example, a short course of three weeks duration presently conducted at ALAM has been selected. Such a modular course that is to be supported and enhanced by DE has been preferred because:

- it is less complex than courses of a longer duration
- the impact of DE can be evaluated within a shorter time frame and therefore provide an early review for essential modifications with, if necessary, subsequent follow-up action
- it provides the launching base for the debut of other DE programs. Furthermore, it serves as a form of articulation for the final consolidation of DE at ALAM. This is especially important when the first DE course has been proven to be an immediate success and a viable and beneficial venture for all the parties concerned:

- distance learners
- distance educators

PROPOSALS FOR PROGRAMS

- staff's cooperative body⁷
 - institution
 - industry user
 - nation-building
-
- the module generally consists of less literature and therefore development, mid-course review, redevelopment and preparation time and the subsequent chain of events can be expedited
 - rewards for participating staff involved in DE programs can be made early. This course of action is fundamentally to influence, motivate and solicit the faculty to participate and support DE in other courses.
 - it provides a reasonable length of dissertation material for:
 - the convenience and time of the reader and
 - the writer to sufficiently propound the viability of DE in MET

The writer was formerly involved in the teaching, application and practical operation including the examination aspects of this specific course; the Electronic Navigation Aids (ENA) - Operations course. Moreover, he has taught in this field on the ENA course itself, the Radar Observer's and Operator's courses which have the same base, the Pre-Sea, First Mate's and Master's Foreign Going level from 1987 to 1992 . The repetition of these courses was rather frequent being about half a dozen per year. So it can be concluded that the writer is qualified and experienced to deliberate on this topic. In addition, this particular course was chosen as it comprises various features required to illustrate its possible application in DE such as:

- various topics, subjects or systems
- theoretical and practical knowledge
- understanding

- application
- interaction with equipment
- interaction with facilities
- theoretical and practical skills
- application of computers
- instrument simulators
- use of the navigation aids laboratory
- level of fundamental knowledge required

Note: For any given course, the examiner is not allowed to teach and vice-versa - ALAM's Examination Syndicate Rules: conflict of interest.

Moreover, this course possesses an interesting history and development. When the course made its debut in 1984, the course duration was only two weeks during the first five years it was offered. Thereafter, the pass rate began to drop to about 65% for about three years before alterations to the course duration was made.

Most of the course participants were from the shipping companies with a trickle from governmental agencies, who attended the course purely to support their operational efficiency requirements. Naturally, the sponsors were alarmed at the failure rate which was accentuated by the increasing shortage of trained and qualified personnel not only on a national scale, but also globally. This scarcity is being felt still today and renown organizations, for instance BIMCO (The Baltic and International Maritime Council) have projected that it will worsen unless remedial measures are effected.

Discussions were held and eventually the course was extended by another week to three weeks. Various reasons were claimed but there was no substantial study to verify them. For example, the first batch of pre-sea cadets that underwent training in ALAM from 1981 had two years of nautical education compared with a year's duration in later batches, when its effects were beginning to be felt. Other

reasons included that the later batches were no longer the 'cream of the crop' when other fresh opportunities were emerging and careers and career prospects in other fields readily available.

Regarding the increase to three weeks, later analysis showed that the success rate improve marginally by about another 15% from the last known percentage of about 60% pass level, before the extension of the course. Comparing this figure of 15% to 33.3% or one third increase in course duration, this marginal improvement is not justified in terms of cost economics.

So the question that arises is whether the course duration increase, justified or not, may be reduced by the support of DE. All in all, the intention is not to remove jobs but to find a more efficient method of achieving the same objective for all the parties affected.

3.2.1 A Conventional Short Modular Course

The general course information appear as below:

Name:	Electronic Navigation Aids (Operations)
Number per year:	Five courses
Total Duration:	Three weeks
Available hours:	96 (3 x 32 per week)
Contact hours:	about 77 conventional teaching
Contact hours %:	about 80% of course duration
Assessment:	about 20% examination time (very high due to viva-voce orals-type) including other activities such as registration, introduction, and certificate presentation (about one hour only)
Capacity:	At least eight and not more than twelve

PROPOSALS FOR PROGRAMS

Examination:	By ALAM's faculty on behalf of the issuing authority (the Marine Department)
Sea-time:	At least twelve months service in the deck department
Initial course:	commenced in 1984 (output 17 students)
Average output:	70 per annum for the last three years
Methodology:	Lectures, course notes, practicals, revision, demonstrations and tutorials
Equipment:	<u>Live</u> Global Positioning System Receiver Transit Satellite Receiver Gyro-compass <u>Simulators</u> Decca, Omega, Loran and radio-direction finder and echo sounder with actual instruments
Learning environment:	Conducive with air-conditioning
Class period:	One hour with interval of five minutes between two consecutive periods
Tuition Fees:	About RM600 including board and lodging (Extremely low) but high for a deck cadet after having spent only a year at sea
Timetable:	See Below
Library:	Open until 2200 hours on weekdays. Saturdays 0800 - 1500 hours. Sundays closed
Facilities:	Swimming pool, tennis and badminton courts, sports and so forth
Faculty:	Professionally qualified and experienced (local and expatriates)

PROPOSALS FOR PROGRAMS

Timetable for conventional ENA course

Time	Mon	Tues	Wed	Thur	Fri	Sat
<u>Week 1</u>						
0810	Regn	Decca-T	Echo-T	GPS	GPS	Exam
0915	Pro	Decca-T	Echo-T	Echo-T	GPS	Exam
1015	B	R	E	A	K	-
1035	Pro	Decca-T	Decca-A	Echo-T	Rev	Exam
1140	Hyper	Decca-T	Decca-P	Echo-P	-	Exam
1245	L	U	N	C	H	-
1400	Hyper	Decca-A	Decca-P	Echo-P	-	-
1505	Hyper	Decca-A	Decca-P	Echo-P	Exam	-
1605	E	-	N	-	D	-
<u>Week 2</u>						
0810	Loran-T	RDF-T	RDF-T	HSD-T	HSD-P	Exam
0915	Loran-T	RDF-T	RDF-T	HSD-T	Rev	Exam
1015	B	R	E	A	K	-
1035	Loran-T	Loran-A	RDF-A	HSD-T	Exam	Exam
1140	Loran-T	Loran-P	RDF-A	HSD-P	-	Exam
1245	L	U	N	C	H	-
1400	Loran-A	Loran-P	RDF-A	RDF-P	-	-
1505	Loran-A	Loran-P	RDF-P	RDF-P	Exam	-
1605	E	-	N	-	D	-
<u>Week 3</u>						
0810	Omega-T	HSD-T	NNSS-T	NNSS-T	Rev	Exam
0915	Omega-T	HSD-T	HSD-P	NNSS-T	Exam	Exam
1015	B	R	E	A	K	-
1035	Omega-T	Omega-A	HSD-P	NNSS-T	Exam	Exam
1140	Omega-T	Omega-P	HSD-P	NNSS-P	-	Cert
1245	L	U	N	C	H	-
1400	Omega-A	Omega-P	HSD-P	NNSS-P	-	-
1505	Omega-A	Omega-P	HSD-P	NNSS-P	Exam	-
1605	E	-	N	-	D	-

Source: Akademi Laut Malaysia

PROPOSALS FOR PROGRAMS

Notes on conventional ENA time-table:

<u>No</u>	<u>Abbreviation</u>	<u>Meaning</u>
1	Regn	Registration of students, payment of fees, and introduction to the staff
2	Pro	Theory of propagation of radio waves
3	Hyper	Principles of Hyperbolic Navigation
4	GPS	Global Positioning System
5	NNSS	Navy Navigation Satellite System or Transit Position-Fixing System
6	T	Theory
7	A	Application - Generally taken to mean the interface between theory and practice (like tutor demonstrating the use and application of navigational instrument tables and the instrument itself). Note that some instruments have no application hours; gyro-compass, speed logs, GPS and Transit
8	P	Practicals - Students operate on the equipment supervised by the tutor
9	Echo	Depth measuring device by echo sounding using sonar energy
10	Rev	Revision and Tutorials
11	Loran	<u>Long Range</u> Position Fixing System
12	RDF	Radio-direction Finding System
13	HSD	Heading, speed and distance measuring instruments (Gyro-compass and speed logs)
14	Omega	Omega Global Position Fixing System
15	Cert	Certificate presentation to successful candidates

Note: Records indicate that about 25% are unsuccessful in obtaining the certificate at the first attempt.

3.2.2 Introduction of a DE program to the modular course

The newly introduced DE program (with the aim of replacing one week of conventional face-to-face teaching time) information appears as follows:

- Course Title: Electronic Navigation Aids (Operations) Foundation
- Number per year: Unlimited but subject to ALAM's human resource capacity and availability (student to staff ratio guidelines)
- Total duration: The DE program (as a separate entity which is to replace a week at ALAM) shall not be completed in a period of less than six months to maintain continuity of learning and not longer than ten months to allow for inevitable delays prior to the student enrolling for the course proper
- Course modules: The program shall comprise of ten individual modules which are further subdivided into groupings:

Fundamental

- 1 Theory of Propagation
- 2 Principles of Hyperbolic Navigation

Hyperbolic

- 3 Decca Navigator System
- 4 Loran Position-Fixing System
- 5 Omega Global Positioning System

Satellite

- 6 Global Position System (GPS)

Heading, Speed and Distance

- 7 Gyro-compass
- 8 Speed and distance logs

Others

- 9 Radio-direction finder (RDF)
- 10 Depth sounder

PROPOSALS FOR PROGRAMS

Program

Sequence: There are a total of five blocks. Each grouping shall be completed in not more than two months. To ensure practicality, a lapse of two additional months may be acceptable so that continuity in dispatching the next block can be effected in time. Block one is of critical importance and must be submitted, tutor-assessed before the next block can begin. Upon completion of the pre-sea deck cadets course, some registered DE course participants shall be able to bring with them the course materials before they proceed for sea-service as the topics are theoretical in nature

On Board Ship

Assessor: Minimum qualifications - a duly certificated officer and also in possession of the ENA (Operations) course certificate. If the same or similar equipment is available on board this link-person shall oversee and validate that the trainee is able to operate the equipment satisfactorily. Appropriate forms shall be designed for this purpose

Contact hours: Flexible to suit the isolated student learning in difficult conditions

Assessment: Continuous and articulated with feedback to student informing the person of their progress. Assessment will be graded and recorded for the use of the examiner during the final examination. Ship-board assessor's remarks shall be given due consideration and weight in the final analysis

Methodology: Distance education mode

Courseware/
study-pack: Course notes, study guides, programmed instructions, self-assessor question bank, videos, audio cassettes, manuals of the specific equipment used for examination at ALAM

PROPOSALS FOR PROGRAMS

Caution deposit: RM200 (high by local standards when a normal course caution money is only RM50) - expensive copyrighted videos and so forth may have to be bought

Equipment: Shipboard equipment links reality with theory

Learning environment: Conducive and learner oriented at own pace and time

Class period: None! to the learner's surprise

Program fees: RM200 but saves the learner one week at ALAM, therefore additional week's income of about RM200

Library: List of selected reading and reference texts will be attached with course materials

Faculty: Professionally qualified possessing at least a Master's Foreign Going Certificate with a minimum of three years teaching experience

Timetable: See scheduling below

Month	01	02	03	04	05	06	07	08	09	10
Week 01	B	2	3	4	5	6	7	8	9	10
Week 02	1	2	3	4	5	6	7	8	9	10
Week 03	1	2	3	4	5	6	7	8	9	10
Week 04	1	2	3	4	5	6	7	8	9	E

Notes :

- * *B - course begins*
- * *E - course ends*
- * *Each numeral corresponds to the topic listed in the course module of the newly introduced distance learning program designed to replace a week of conventional face-to-face time at ALAM*

3.2.3 Outcome of the Integration of DE with a Conventional Modular Course

The course participant, having successfully completed the course, may be exempted from the normal three - week ENA course at ALAM. However, modifications to the final timetable will have to be made. This three-week timetable is also important especially during the transition stage and when the exact situation is uncertain. The timetable is as shown below:

Time	Mon	Tues	Wed	Thur	Fri	Sat
<u>Week 1 - Theory</u>						
0810	Regn	Decca	GPS	Loran	HSD	Omega
0915	Pro	Decca	Echo	GPS	HSD	Omega
1015	B	R	E	A	K	-
1035	Pro	Decca	Echo	RDF	HSD	Omega
1140	Hyper	Decca	Loran	RDF	-	GPS
1245	L	U	N	C	H	-
1400	Hyper	GPS	Loran	RDF	-	-
1505	Hyper	Echo	Loran	HSD	Omega	-
1605	E	-	N	-	D	-
<u>Week 2 - Application and Practicals</u>						
0810	Regn	Decca-P	Loran-A	Loran-PA	Exam	Exam
0915	Decca-A	Decca-P	Loran-A	RDF-P	Exam	Exam
1015	B	R	E	A	K	-
1035	Decca-A	Echo-P	Loran-A	RDF-P	Exam	Exam
1140	Decca-A	Echo-P	Loran-P	RDF-P	-	Exam
1245	L	U	N	C	H	-
1400	Decca-P	Echo-P	Loran-P	RDF-P	-	-
1505	Decca-P	Echo-P	Loran-P	Rev	Exam	-
1605	E	-	N	-	D	-

PROPOSALS FOR PROGRAMS

Week 3 - Application and Practicals

0810	Omega-A	Omega-P	HSD-P	GPS-P	Exam	Exam
0915	Omega-A	HSD-P	HSD-P	GPS-P	Exam	Exam
1015	B	R	E	A	K	-
1035	Omega-A	HSD-P	GPS-P	GPS-P	Exam	Exam
1140	Omega-P	HSD-P	GPS-P	GPS-P	-	Cert
1245	L	U	N	C	H	-
1400	Omega-P	HSD-P	GPS-P	GS*	-	-
1505	Omega-P	HSD-P	GPS-P	Rev	Exam	-
1605	E	-	N	-	D	-

Source: Author

Notes on timetable

* GS - Guided Studies

Week One

All the theoretical aspects of the full course will have to be in this week for those who opt not to use DE as a learning mode. This is essential to maintain the freedom to choose the mode of learning that the student prefers and further to prevent disharmony and discontentment among the tightly knit student population at ALAM. No examinations will be conducted this week so that all teaching can be done in the full 32 - hour week.

Week Two and Three

Four instruments will be examined each week. Examination time has dropped by about a third to fourteen hours and there is more revision time and more time on practicals. This timetable will be beneficial for those students who had successfully completed the DE program. If implemented, this course outline could provide a feedback that is necessary to improve the methodology in DE and for MET in particular.

3.2.4 A Comparative Analysis of a Maritime Course established by a DE-teaching institution

- Course Name: Royal Yachting Association Coastal Skipper/
Yachtmaster Offshore
- Institution: Maritime Studies Limited
- Course Level: Certificate, further education
- Course Program: This advanced course teaches the theory of Navigation, Meteorology and Signals needed to navigate a cruising yacht on coastal and offshore passages
- Course Subject: Chartwork - Position, course and speed, dead reckoning (DR) and estimated position (EP), tides and streams, passage planning
Seamanship - Anchoring, rule of the road, safety, navigation in fog
Pilotage/Nav aids - Buoyage, lights, soundings, radio direction finder, deck logbook
Signals - Morse code, code flags, VHF radiotelephony
Meteorology - Beaufort Scale, weather systems, cloud types, land and sea breezes, sea for forecasts, weather reports
- Textbooks: Holford, Ingrid, The Yachtsman's Weather Guide, Chinery, Mik, Simple Electronic Navigation
- Assessment: Examination
- Entrance
- Qualifications: Students should have completed the Day Skipper certificate before enrolling on this advanced course. However, if they are experienced yachtsmen or women they may be able to go straight on to the Coastal Skipper course
- Language of Instruction: English

Media/Methods: Printed texts prepared by/for institution, textbooks, charts, flip cards, audio cassette, tutorial support, face-to-face tutoring, telephone tutoring

Administrative

Information: The RYA Coastal/Yachtmaster Offshore Shore-based Course completion certificate is awarded on successful completion of this course

Course Duration: Normally completed in 6-9 months

3.3 LIMITATIONS OF DISTANCE EDUCATION

Most maritime academies that are known world-wide are generally rather conservative. DE methodology has not been the traditional mainstay of their activities. As a rule, these institutions prefer to continue along the same lines. The majority of administrators, many of whom were former seafarers, have earlier experienced rigid hierarchies with well-defined job functions on ships. This, perhaps verifies that management policies of maritime institutions frequently conforms with the out-moded, well-defined organizational structure on ships a decade or more ago.

Furthermore, numerous interpretations of the STCW Convention 1978 views face-to-face teaching and sea-time as an obligatory outcome. However, many developed and industrialized countries are able to stifle the sea-time requirement aspects. This is done by considering the course time at a radar, navigation and/or shiphandling simulator training course at an approved MET institution as equivalent sea-time equated to their advantage. So this 'equivalence' has been justified by the country's national maritime administration as having met the minimum requirements of the convention. Then, completion of DE programs should also be considered, at least, pro-rata time or otherwise, as time spent at an approved MET institution.

Even the writer, with a marine and additionally a MET background, was highly skeptical in the beginning. This sceptism is with reference to this dissertation, before the decision to embark on the project was concluded. Therefore, until most of the staff has been trained in DE and the infrastructure instituted, many obstacles will be encountered. Especially so, in the implementation of a successful DE program.

G. Zade (personal communication, December, 1992), Course Professor of MET (Nautical) for the year 1992 and also the Vice-Rector and Academic Dean of WMU, in response to the writer's contemplation on DE and deliberations on its possible approaches immediately recognized the difficulties involved, whilst drawing attention to its benefits and an overview of the topic. He added, for instance, even attempting to implement foundation courses like Mathematics had its fair share of restraints. Postal services operate differently on a global scale, with a certain country taking two months for the mail to arrive. So a simple conclusion can be made that it will take another two months on the mail's return leg and some inevitable response delay time - nearly half a year! So some students nominated or found eligible for admission into the first year at WMU were thus delayed so that enrolment could not be effected. This chain of events is further complicated by the involvement of national administrations and international agencies that interact upon one another, adding to further delays, especially on nomination, selection and admission of students into the first year at WMU. Perhaps, such difficulties can be overcome by modern communications technology, if costs are not a parameter. Other factors that limit the capacity of DE appear below:

- Limited choice of subject field

Magnetic compass adjustment on a devia-scope (a device to measure deviation of the magnetic compass) would definitely be impossible to employ here although other aspects of the subject proper on Pure Magnetism and theoretical considerations limit the subject field. Basically psycho-motor skills-based objectives are difficult to be used

here, for instance, lifeboats and rafts, fire-fighting and training simulators (for which it was designed).

- High costs: large support staff

Such operating costs are evident by reviewing the staff complement of the Center for Educational Technology and Media of the Universiti Sains Malaysia in Chapter 3.1. The faculty consists of not more than 10 whilst the support staff comprises of 43 members showing a staggering 400% expansion.

- Mass production concept for economic viability

Holmberg (1989, pp. 202-203) provides a balanced view of cost-benefit relations of distance education that a large-scale system such as the Open University system (mass education systems reaching hundreds of thousands), where the costs per student are typical low. However, some small-scale projects have also proven to be cost-effective.

- Preparation of DE materials - time versus faculty

Woodcock (1990, pp. 120-121)⁸ having encountered problems in developing the first stage of an open learning package suggested the following:

One rule-of-thumb measure suggested ...at least 15 hours for every one hour of lecturing which is being turned into a distance learning package...about right for initial creative writing, but did not cover any of the subsequent and essential activities relating to the physical production and revision of the drafts and the preparation of the material for desk top publishing.....necessary to spend about eight and half hours in learning about distance learning, before... could even start work.

In addition, she underlines the importance of being creative in designing these study materials citing that creativity does not occur to order, the process is difficult and slow - tempting to allow other

'work' to take priority and exhaustion, harassment and so forth tends to make creative output very low.

Therefore in conclusion, to design, prepare, evaluate, distribute the courseware and so forth may take months or even years (patience is required), depending on the course duration and staff size and strength.

- Physical separation - loss of the personal touch and the human relationship element, especially in motivation.

The nature of DE requires an efficient student support services unit to deal with the distance-learner's problems especially motivating the student to learn and to complete the course successfully. In addition, courseware material must be professionally produced so that the student will be able to perceive the spatial reality.

There is a need to provide many additional facilities and services such as:

- regional counselling
 - support for self-help groups
 - external library loans
 - study skills advisory services
 - office hour advisory services
 - toll free and 24 - hour message services
-
- Power failure in remote areas for modern communications
- As described in Chapter 3.1, the Educational Technology Division - Ministry of Education, Malaysia initiates research and development programs to overcome electrical deficiencies in rural areas, viz:
- Use of solar-powered TV sets
 - Development of off-air audio and video programs

- An absolute must for efficient management

Within the same sub-system, two critical fields need to be created. The first is the courseware production and the second is student learning and support services. So such addition naturally leads to new problems. Rumble (1986, p. 181) underlines the importance of the management of the interface between the academic and operational and administrative areas of distance education systems:

Management, it is suggested, needs to ensure integrated decision making across a range of functionally distinct areas...It is also most likely to be achieved by rational and possibly hierarchical approaches to management, rather than by approaches which tolerate collegiality, politicization and organised anarchy...but the overall management of the institution must be both stronger and more rationally orientated than is necessarily the case in conventional educational institutions.

- Chronological time more than normal tuition time

Due to the above, DE may not be appropriate for very short courses.

- Delays caused by mail, students, teachers and unavoidable circumstances

The above problems appear to be major obstacles in the success of DE systems to the extent that Prideaux (1990, p. 82)⁹ discussed further research into support systems. His strategy focused on improved learning, reducing drop-out rates, satisfied clients and cost economics.

- Costs involved with modern high-technological communications and media

The first consideration is the equipment costs which prohibits purchase of the hardware until it becomes cheaper.¹⁰ Moreover, software development and communications (satellites and terrestrial) costs are still very high. The situation, mentioned earlier, may improve with the worldwide implementation of GMDSS in 1999.

- Interaction with media often means the student with the media directly, and not with the teacher

This situation often leads to depersonalization that will result in a negative impact on the student.

- Need to motivate faculty

Especially so in conventional institutions to support DE - otherwise nobody will work for and with it.

- Cannot be used at very high academic levels

The educational objectives at this level are more complex, for instance doctorates, although a minute number of institutions offer these programs.

It was underlined in Chapter 2, that feedback is critical for learning to occur. Therefore, response time to communications must, at least, be near immediate in order to reinforce their learning. The limitations are also endless to be discussed fully, so only the important ones have been selected. Further, as the DE pupils are relying largely on themselves, they may face many hindrances. So, the quality of DE packages must be beyond doubt. If substandard DE materials are circulated, it will not only bring DE into disrepute but also the institution as well. Thus Chapter 4 highlights the importance of administration and instructional design support.

CHAPTER 3 - NOTES

1. IMO's *International Cadets Training (Sea-Phase) Record Book*, ISF or the Merchant Navy Training Board's record books.
2. C. A. Brindle, "On Board Training," Proceedings of the Second International Manning and Training Conference, (Singapore: Lloyd Ships' Managers, 1992) 6-10.
3. G. Slotte, "A new strategy," Proceedings of the Second International Manning and Training Conference, 2.
- 4a Die See Berufsgenossenschaft informiert: Trainings- und Fortbildungslehrgänge für Schiffssicherheit (Lubeck: SBG) 1.
- 4b Schleswig-Holsteinische Seemannsschule, Seemannische Berufsschule, Überbetriebliche Ausbildungsstätte, Fortbildungs- und Trainingsstätte (Travemünde: SHS) 1.
- 5 Paul E. Kent, "Asia's port sector: the need to institutionalize training," Marine Policy September 1992: 372.
6. C. W. Osborne, International Yearbook of Educational and Training Technology 1990 (London: Kogan Page, 1990) 419-424.
- 7 There must be found an equation to reward non-member expatriates; presently 12/22 lecturers [50% faculty], or [25% teaching force], or [20% Training Department], or [6% entire staff] at ALAM who are not members of the common society.
8. Ann C. Woodcock, "Practical Problems Encountered in Producing Distance Learning Materials," In Making Learning Systems Work, ed., Diana Eastcott, Bob Farmer & Brian Lantz (London: Kogan Page, 1990) 120-121.
9. Tony Prideaux, "Research into support systems for open/distance learning," In Making Learning Systems Work, 82. (see above No. 9).
10. Chris F Reynolds, "Moving Information Technology Research from the Laboratory to the Classroom," Making Learning Systems Work, 226. (see above No. 9).

Chapter 4

FACULTY NEEDS

4.1 STAFF AND STAFF TRAINING

First, the writer wishes to concur with the views of Slotte (1992, p. 2) in his paper on training at sea 'A New Strategy' on human resources - a resource and asset that can never be replaced by machine or computer. This means that people are invaluable and are to be regarded highly, with an immense capacity and capability to perform better than those two items - very good at repetitive tasks! After all, the human race created them.

Adequate staff, existing and new, must be readily available to support the management, operation and conduct of DE programs. Such a form of back-up is vital, especially in its developmental and experimental stages. The present teaching staff at ALAM are already overloaded with face-to-face contact teaching hours which occupies about half of their working week. New staff or existing ones have added responsibilities and duties, for instance taking charge of off-campus library loans and so forth. Other duties are abundant particularly for the more senior staff. Meetings, relief for teachers on unexpected medical leave and training staff proceeding on training courses, counselling, development of new courses and so forth virtually takes up all the time. So Rumble (1986) correctly explains that academic staff take on more responsibilities with career progression.

As Perry and Rumble (1987, pp. 23-24) explain:

classroom teachers have a great deal of control over the day-to-day activity of teaching in conventional institutions. Teachers working in a distance education system have to rely on a large number of other people if anything is going to happen at all.

They go on to conclude that success in DE systems is dependent on the quality of the non-teaching staff managing and executing the system and also on the quality of academic staff, as well.

Teaching and effective tutoring need also to be appraised by the quality of materials and follow-up action. Staff need also to be trained in the production and designing of DE material, off-campus or distance counselling and other aspects of DE, which are rarely heard of in conventional educational systems.

For the overall MET system to improve at ALAM, the human resource base, and the recruitment of the faculty, needs to be enhanced by basic and additional qualifications. Further requirements are for instance, teacher's certificate, writing skills certificate, advanced computer use and applications certificates and so forth. However, such additional prerequisites should also be supported by a powerful employee retaining and development policy to reduce further wastage. The attrition rate of professional staff at ALAM may be considered to be on the high side. This may probably be due to professional mobility, national expansion of its maritime base, high economic growth rates and the other familiar employment reasons. Moreover, it may no longer be accepted that the newly inducted teacher with a Master's Foreign Going or Chief Engineer's Certificate be placed in a classroom to teach, without undergoing some form of teacher training.

Hence, the question that arises now is how to train or teach when one has not been taught to do so. The same applies to the implementation of any DE programs. Then teaching may now be

evaluated by the quality of materials and follow-up action within the system. To support an efficient DE system the following factors need to be considered:

- the staff themselves need to be counselled on DE.
- The employment of areas of training where workshops or seminars may be utilized economically. Such events can be conducted in-house enlisting the assistance of external experts and or consultants. Teachers demonstrating exceptional writing and effective communication skills may be selected for attachment or further training with institutions skilled in DE. These personnel may be sent to established DE institutions as described in Chapter 3.1.1, both locally and abroad.

Finally, much dissatisfaction on the distribution of workload hours that transpires in most educational establishments, has to be mentioned and overcome. Some way of establishing equivalent workload hours needs to be found, at least as a guideline. This must be agreed by the majority of the faculty members. Of course, the pitfalls of such a formula has to be noted with caution. Many factors need to be taken into account:

- staff's job description including his/her abilities - some write less well but perform other functions very well and vice versa
- seniority of staff - more pay, therefore ability to teach more subjects (more versatile but new problems like being drawn into management) compared to new staff who may have to research more and learn him/herself
- motivation versus financial benefits

Staff Development

Since distance learning is one of the components of open learning McNay (1987, pp. 12-13) emphasizes and cautions on the key issues of staff development in this style of educational approach:

Open learning, at the extreme, can turn an institution upside down. For a start, it blurs the distinction between those two groups of staff (teaching and support). It can invert the control mechanisms in teaching and learning, putting decisions more in the hands of the student than the teacher. It can shift the whole budget of an institution from a staff intensive service industry profile nearer to a production industry capital intensive model. It can abolish timetables, exams and all the other familiar maps and milestones of institutional topography. It changes roles; it demands new skills and attitudes; it threatens vested interests; it clashes with developed norms for measuring workload or allocating finance, and with established administrative practices. In two words it can be disruptive and revolutionary.

Staff development in conventional educational institutions is often well documented and therefore does not lend itself to further research. Parer and Benson (1990), after a comprehensive research project recommend the following:

- Policy

The provision of an explicit and documented policy on academic professional development for DE at the institutional level, which acknowledges the importance of, and which rewards, good DE practices.

- Responsibility and Communication

The establishment of clear lines of responsibility addressing issues such as the relative responsibilities of External Studies Units and Academic Departments, particularly Heads of Schools, in implementing the process, and the arrangements for communicating the details of the institutional program to all staff. In delineating responsibilities, there is evidence to suggest that External Studies Units could be given primary responsibility for orientation programs and for technical and

administrative matters, and could act on a consultancy basis in relation to Academic Departments for ongoing professional development.

- Resources

The commitment of adequate resources to provide for academic professional development for distance education, including the administrative infrastructure for coordinating the process.

- Selection of Appropriate Staff

The selection of staff who are sympathetic to, and willing to respond to, the special demands of distance education.

- Induction Programs

The implementation of a formal induction program to orientate new staff to distance education and the consideration of distance education techniques in delivering part of that induction program and in the provision of on-the-job training.

- Ongoing Professional Development

The offering of ongoing professional development programs in a school rather than on an institutional basis in a manner which takes account of the experience of the academics and the practices that have been found useful in the particular institution. However, consideration should be given to:

- Non-traditional Approaches:

utilizing, where appropriate, non-traditional approaches such as course teams, instructional designers, staff relief, and small group collaboration on actual tasks;

- Traditional Approaches:

the use of print resources, and of traditional workshops and seminars for developing specific skills organized on a School basis with experienced academic staff as seminar leaders;

- Academic Collaboration:

providing for encouragement of formal and informal opportunities for peer review and support, including staff meetings, modelling of materials and practices, and in-house conferences; and including measures to draw together External Studies staff and Academic staff, particularly through working side by side on projects which will encourage each to have respect for the professionalism of the other and appreciate the complementary skills which have potential for enhancing the teaching process.

• Institutional Collaboration

The development of communication channels between institutions through visits and exchanges of personnel and jointly developed study materials with an emphasis on rationalization and coordination between institutions.

• Evaluation of Staff Development Methods

Methods of professional development which can be monitored using measurable criteria and which are formalized, communicated and implemented through the designated lines of responsibilities.

Methods of Design, Production and Delivery of DE materials

In addition to staffing and staff development, the DE system needs also to consider the following:

- content of course and therefore quality
- presentation and therefore the control of the production
- delivery of the course and coursewares

On methods of design¹:

- the appropriateness of the objectives
- the relevance of the content in relation to the objectives of the course unit
- the balance between topics/units/sections of the course unit

- the appropriateness of the level of materials (eg bachelor, graduate diploma, masters level)
- whether the writing and the content treatment reflect an equal opportunities stance: whether the content and activities affirm the experiences of all students studying your materials
- the degree of support (ie - the appropriateness of the readings, the number of expert sources) available to explicate the content of the course unit
- whether students felt that they achieved an understanding of the content and met the aims/objectives for the unit
- whether students were able to link the content of this unit with other units of the award, or whether the study of the content of the unit generated interest in other areas of study

On production and presentation:

- the quality of the course material (layout, graphic design)
- the ease with which students can access information from the materials (use of headings, clear outline of the conceptual structure, use of organizing and signalling devices)
- the appropriateness of language/expression in the print materials
- the use of appropriate non-print media
- the opportunities of interaction within the materials (eg the use of self-assessed questions with answers)
- the extent to which the materials personalize the learning process

On delivery:

- student workloads in studying the unit
- how students worked through the course materials, and whether their approaches were those anticipated by the staff teaching the unit
- the effectiveness of telephone contact and teleconferencing
- the role of the 'assignment information sheet' in assessing learning and reporting results of assignments; student perceptions of the type of feedback that they receive

- the actual interactions (form and quality) for students studying the course unit
- the availability of resources and other support services
- the administrative arrangements involved in studying the unit (dispatch schedules, assignment schedules, turn-around time for assignments, ease of contact with the Distance Education Centre and academic staff, counselling)

4.2 FACILITIES

Telephones

The potential use of the telephone as an instructional device in external studies² needs to be considered. At Murdoch University in Western Australia, the institution operates on a two-mode system of internal and external tutorial-based courses. It was claimed that the flexibility of the simple and humble telephone had a radical effect upon their enrolment.

The telephone was used traditionally in DE for administrative counselling. However, in North America the tuition fee has been designed such that students may make collect calls (reverse-charge) using the telephone to the institution or tutor. Potter categorizes telephone use into four modes viz:

- teletutoring and teleconferencing
- teleteaching
- dial access
- teletutoring

Teletutoring may be considered as one-way amplified lectures and teleconferencing as two-way. Teleteaching is often used for home-bound and hospitalized school children where the students can 'hear'

actual classroom activities. Dial-access systems consist of ten-minute cassette tapes that often cover the most frequently asked areas. Teletutoring - a single tutor-student process.

Library

The library at ALAM is centrally located within the campus and equipped with modern facilities. It is also well stocked and a premier maritime resource center in the region. About half of its budget is spent on periodicals subscriptions reflecting ALAM's sensitivities on current issues, especially maritime ones. As mentioned in Chapter 3.1.2, it is opened daily from 0800 - 2200 hours except Sundays. On Saturdays, it closes at 1500 hours.

The use of other libraries near the student's home needs to be considered. So ALAM needs to offer library services internally and externally to its distance learning students. Within ALAM, basically there will be no major obstacles for its potential students, who reside within reasonable distances. However, externally will be where the problem is. So the idea of a postal library³ and means of obtaining pre-payment for postage both ways should be realized and not overlooked. Since postage is being paid for by the student, the duration of the loan needs to be increased. Photo-copying facilities through pre-payment needs also to be studied.

The first is to identify a or other suitable geographical location(s) for ALAM's agencies or it could be assisted in a mini-library format through a network of ERC's (Educational Resource Centers) strategically distributed based on enrollment demography. In simple terms, this means that some form of branch libraries and or 'distance-education library' need to be established.

So all this means that there will be two basic categories of library users: internal and external students. So the base decision here is which group of students shall have priority, especially when

certain books are on demand? But should not distance students also be entitled to similar privileges? Are they to be treated on par, below, above and so forth in terms of status? Are they also full course paying students? All these questions need to be answered and a policy guideline introduced. Right or wrong, decisions must be made and fast - the key word of distance educators. Charges and caution money will have to be made or the books will disappear.

Textbooks

The intention is to minimize the use of text-books with the DE materials largely incorporating the necessary reading materials. Moreover, Rowntree (1990, p. 66) rationalizes this by considering the learner to help them learn first:

Don't just follow the traditional "logic of the subject" as enshrined in the textbooks or training manuals. That would be the logic of people who are already expert in the subject. It might or might not appeal to newcomers.

However, most of the courseware specially prepared materials will be based on textbooks prescribed for the course. In addition, he expounds that lecture notes are not written with the solo learner in mind and that textbooks are more for the teachers and students working closely with the teacher (p. 82). Further he suggests at least 50 hours of development time per hour of learning time (and maybe more if they involve computers) - that is in lieu of textbooks. Stated simply:

quality learning materials need thoughtful planning, writing, testing and rewriting until they work.....inferior materials omitting some of these stages.....what happened with programmed learning in the 1960's, when bad (but cheap) materials.....leading to discrediting.....of programmed learning

Computers

In Malaysia, personal computer ownership is encouraged by the government, through reducing import taxes and so forth. ALAM's support of this policy is evidenced by the creation of a computer laboratory and the provision of interest-free loans for its staff members to purchase these personal computers. As ALAM is rather advanced in the field of computers led by the present Radio Section, electronic mail (e-mail), networking, compression data, teleboxes, on-line and off-line, autorecording and so forth could easily be introduced. This will enable the students to link up to ALAM and also to fellow students thus enhancing the learning process and also reducing administrative and improving cost-effective benefits.

The microcomputer is a very powerful tool and all available means shall be made to avail its benefits to students. New fields are being invented daily, such as information technology, graphic nodes, interactive databases, optical discs, multimedia resources, networking, on-line and so forth. Moreover, with rapid advances in technology and international competition, hardware costs are plummeting to unbelievable levels. The microcomputer will and already is in many countries a household word, just like the television or washing machine. Its widespread growth is encouraging from a DE viewpoint. However, its application to DE is largely untapped.

4.3 ADMINISTRATION

This is an area which will ultimately decide the success or failure of DE. ALAM's traditional form of academic administration may be used in the management of a DE system only as an interim measure or it should provide non-conditional full support to back up the essential services necessary.

Kaye and Rumble (1981, p. 177) explain clearly that DE systems exhibit a range of features not found in conventional ones which make their management qualitatively different. Rumble (1986, p. 163) proceeds further by clarifying the specific characteristics of DE systems. He adds that, for instance, additional specialist staff were required for the quasi-industrial processes of production and distribution of instructional media, considering the distances involved necessarily requires access to a reliable and rapid means of communication.

There are so many parallel developments that have to be considered simultaneously. An information data base unit has to be set up just to monitor all the students, addresses and changes, sea-time, enrolment, production of study materials, pre-packaging, date materials left and returned, telephone calls to and from students and so forth. As a guide, the University of South Australia's Distance Education Centre has been chosen as an example that provides the necessary logistical support⁴ for DE:

Student Administration & Services

- pre-admissions counselling
- admissions and enrollments
- dispatch of course materials
- monitoring of assignment traffic
- maintenance of student records
- on-going administrative counselling
- geographical registers
- teleconferences
- tuition fees administration
- workshops and other learning supports

Materials Production (Print)

- production scheduling
- advice during course planning

- advice during materials design
- course team assistance
- wordprocessing
- graphics art-work
- transformation
- editing
- typesetting
- copyright clearance
- arranging printing

Material production (Non-Print)

- producing audio and video tape masters
- master cassette dubbing
- multiple copying
- labelling and packaging tapes
- ensuring tape return

Support for Academic Staff

A number of the functions above also serve to support academic staff in day-to-day matters. Other functions include:

- development of external study policies
- staff development at both group and individual levels
- course team and editorial support
- support in routine materials preparation and administrative tasks
- organization of teleconferences and examinations
- support in evaluation exercise
- funding for off-campus visits and teaching

Support for students

- publications, e.g. External Studies Guide, External Studies Handbook.
- toll-free and 24 hour message services
- office hour advisory service
- regional counselling

- inter-institutional cooperation for library services and examination arrangements
- support for self-help groups
- advertising directed to identifiable or disadvantaged groups
- study skills advice
- advice on course regulations
- geographical registers
- tuition fees advice and administration
- library (external loans)

And last but not least, the administration needs to study copyright issues with respect to Malaysian copyright laws of the Berne Convention.

Delivery of Packages

Adapted from the Distance Education Centre of the University of South Australia's Guide to Distance Teaching⁵ (1991, pp. 55-57), delivery means:

Dispatch of external learning material:

- warehousing and stock control and subsequent
- delivery to students and staff.

Most study materials are printed compared to other media. A *person* (technician) from the support services should be responsible to stock up all these materials as they arrive to them for production that is printing or otherwise. These materials have to be mailed out at the commencement of each course.

Students shall not be allowed to call in to collect the packages as this will disrupt the intricate process of inventory and its subsequent chain of events. Such one-off deliveries are to be discouraged, as this will also mean an additional work-load for the staff and finally the need for a person to handle this. This is not

likely to be so as ALAM is situated in a remote area, however students, having attended short courses may wish upon their return to pick up their pre-packed packages.

Pre-packed study materials will have to be delivered on time. This time element should be adjusted, where necessary, to the particular student's needs and not the institution's (Holmberg, 1989, p. 131). This is only possible if the administrative support machinery is very large and efficient.

Moreover, students of DE may enrol at different times for the same course. A policy decision has to be made on this. Even, if it is made, it is unlikely that the assessments and so forth will work like clock-work. There are bound to be delays from students, staff, institution, and other inevitable factors.

A calendar of events pertaining to the course schedule and program will be mailed to the students.

Evaluation:

Management skills promote that any administration should be evaluated, more so technically instead of generally. This will ensure objectivity and therefore tangibility. The International Maritime Organization (1989) supports technical evaluation regarding it as an administrative tool for enhancing relevance, effectiveness and impact, and defines evaluation as follows:

a learning process and an action-orientated management tool. It tries to improve both current and future planning by harnessing the lessons of the past.

Administration would also necessarily include a distance education evaluation, as an example, with regard to performance of tutors shown by Figure 9 below:

Figure 9: Criteria which can be used in monitoring a tutor's script marking

A tutor marked assignment can be assessed for

Efficiency:	returns marked script within the period required by the system writes legibly Completes associated record/forms in full and accurately
Grading:	accurate/lenient/severe correct use of marking scheme (if there is one)
Relationship with learner:	tone friendly and sympathetic Comments likely to encourage continued learning Further contact suggested, where desirable

Overall appraisal of learner's work

- : praise on achievement
- : reasons for the grade given
- : suggestions for what would have been necessary to get a higher grade
- : improvements needed for next assignment
- : assessment of progress in course as a whole

Detailed comments

- : corrects any errors
- : suggests improvements in approach/structure as necessary
- : suggests course pages or components learner needs to revise
- : tells learner what she is doing well/adequately
- : comments on any irrelevance by referring to wording of the assignment
- : show where marks have been lost (if relevant)
- : picks up over/under length, poor presentation
- : points to the relevance of materials/developments outside the course for development of ideas the learner has expressed.

Source: Open University

Thorpe (1988, pp. 199-200) encourages excellence beyond quality control through the dynamic process of continuous evaluation. In addition, she underlined the importance of any system of monitoring, such as the table above of the Open University in proving their obligations to excellence in certain areas of DE/OL.

4.4 INSTRUCTIONAL DESIGN SUPPORT

As the world gets more sophisticated, things get more specialized. For instance, in times gone by, philosopher Socrates in 399 BC devised a method in which the truth could be obtained by a series of questions and answers. He was the producer, director, counsellor and so forth. Not so any more. Today, disciplines are specialized and the sub-division continues so that experts in each field is necessary. Laurillard (1988, p. 216) on the 'age of communication' observes the shifting trends toward DE methodologies, proof of non-traditional educational media is impinging on the traditional institutions. Therefore, teaching now consists of at least two elements:

- the process of teaching
- the preparation of materials to support teaching. This is where instructional design support comes in. Holmberg (1989, p. 20) underlines that:

its purpose is to develop validated recommendations for the structuring of effective teaching.

So is it cybernetics? Does the faculty need to have specialized human resources that are able to achieve these new and unique skills? This is where Chapter 3.1.1 provides the linkage to tap the expertise from local national educational institutions and also certain divisions of the Ministry of Education, Malaysia for the technical know-how and furthermore transfer educational technology to the maritime field. All this will take time, effort and organization.

However, the student is expected to note that even the best of study materials provided need at least a minimum amount of input study time. Therefore, the time element during which the student is expected to study the materials, revision, self-evaluation and returned assessments is vital. The student will be further expected to input at

least one hour of study per day, considering the numerous other commitments that the distance-learner has, mostly still having a full-time job, family and other social obligations.

The courseware of study materials will consist of the following:

- study guide
- resource materials
- program notes, if any, such as broadcasts or other forms

Assessment

Students who wish to successfully complete the course are expected to return all assessments, homework, essays and so forth by mail. The nature of assessment will depend on the course program. Travelling times to select examination centers nationwide will be arranged so that they will be reasonable.

CHAPTER 4 - NOTES

1. *University of South Australia's (U.S.A.) Distance Education Centre, Guide to Distance Teaching. (Adelaide: U.S.A., 1991) 99-100.*
2. *Geoffrey Potter, The potential use of the telephone as an instructional device in external studies, (Perth: Murdoch University, 1991) 95-107.*
3. *Monash University, University of New England, University of South Australia, Deakin University, Griffith University in association with the Australian Broadcasting Corporation, Open Learning: Student Prospectus (Melbourne: TV Open Learning Australia, 1991) 9.*
4. *See above No. 1.*
5. *See above No. 1 [Resource Paper on Dispatch].*

Chapter 5

CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

ALAM's culture and history is unique, considering its evolution, with training personnel from diverse backgrounds who have expedited its progress. So, the implementation of any DE programs has to be carefully appraised and properly planned, otherwise, much could be lost from what has already been achieved. This is especially so for the continuing education programs, particularly within the MET context. At least in the developmental phase, DE is to be complementary to the MET system, and therefore, not to replace the conventional face-to-face education (Perry & Rumbles, 1987, p. 20).

There are also training personnel of various nationalities employed at ALAM. On the one hand, many come from different disciplines, they have disparate academic backgrounds and freedoms and, therefore, multi-faceted opinions. As mentioned in **Chapter 1.3** they are indeed the product of their experiences, which may defy any form of change, even total improvement. This refers to oneself and also to the organization. Of course, all is not lost. On the other hand, Altbach (1987, pp. 36-37) argues that optimum teaching occurs when there is some level of autonomy and academic freedom. These two conditions should be preserved. Further, he adds that academies with superior performance are those with some self-respect and autonomy.

CONCLUSION AND RECOMMENDATIONS

Staff-student ratio (SSR) or rather 'cost per student' has not been a parameter for planning teaching load hours. Such considerations integrated into the distribution and assessment of contact hours are paramount for ALAM's success in the educational arena. This is reflected in the government's trend to privatize. In determining any form of development of DE materials (many of which are the direct manufacturing outputs of organizations designed to do the job, where the profits is), print and non-print, a professional and tactful approach needs to be addressed. ALAM at present, may be defined as a conventional teaching institution. The information researched in Chapters 3 and 4 is synthesized with regard to the preparation and development of DE materials. Note that both the resource persons referred to, excluded follow-up time on priming and redevelopment of the materials after its initial use. Consider the figures given in the table below:

Table 7: Rationale for time required to develop DE materials

<u>Chapter</u>	<u>Page</u>	<u>Author</u>	<u>Preparation time</u>
3.3	90	Woodcock	15 hours per hour of <i>lecturing</i> time
4.2	104	Rowntree	50 hours per hour of <i>learning</i> time
5.1	114	Writer	65 hours per hour of <i>effective</i> time for the effectiveness of the educational transaction
Conven	-	tional	4 hours per hour of <i>face-to-face</i> time

Source: Author

Evaluating the above, and erring on the side of safety, a rather high figure of 65 hours has been derived. Such an extreme figure is necessary, especially in the introduction of new DE programs and also to motivate the faculty to be creative and futuristic in the preparation of these quasi-industrial materials. Of course, a figure of eight hours could also be used, half of Woodcock's (novice with regard to DE in

CONCLUSION AND RECOMMENDATIONS

relation to the veteran in DE - Rowntree [30 years experience] stating firmly the large number of hours required), but when the quality of material produced is beyond standards, then the faculty involved ought not to be blamed. Moreover, if such low figures are used, nobody in the faculty will work for it or the work will be done, but sub-standard materials may be created, ruining the integrity of DE and also the image of ALAM, as the materials will be widely circulated.

Referring back to Chapter 3.2.1 on a conventional short modular course (Electronic Navigation Aids - Operations: ENA-Ops) of duration three weeks, a simple calculation can be made to show the number of faculty members required to convert the course into a full DE program, shown by Table 8 below:

Table 8: Number of faculty required for converting a conventional short course (ENA-Ops) to a full distance-education program

74 hours face-to-face contact X 65 effective hours	=	4810 hrs
A faculty member works 40 hours a week, ideally	=	40 hrs
Therefore, number of lecturers required per week	=	<u>120 pers</u>
Assuming the staff works for 48 weeks per year	=	<u>2.5 pers</u>

Source: Author

Thus, based on a average salary of about Ringgit Malaysia (RM) 50,000 per annum, inclusive of all benefits such as medical care, housing, provident funds and so forth, for a lecturer qualified with a Master's or Chief's licenses and about five years teaching experience, works outs to be about RM125,000 (about US\$50,000) to produce the DE materials. This figure is without doubt, appear high. Further, it does not include the hardware costs, like printing and other support services necessary for production processes. So a new question that arises is whether to produce materials or to continue with conventional

CONCLUSION AND RECOMMENDATIONS

teaching. There are advantages and disadvantages that has to be carefully appraised. A confident and powerful policy on this needs to be introduced.

Considering the amount of time and resources that has to be spent on developing DE course materials may seem a waste. However, the base materials once developed can reach a large number of students and are therefore semi-permanent. If the quality is superb, then marketing of these DE materials, even to the international community, should not pose to be a problem, regarding DE as partly manufacturing. This is in line with the Prime Minister's, Dr Mahathir, suggestion that even the country's tertiary education skills could be exported instead of importing such skills, largely through twinning programs (Bernama 1993). After the initial development time has been used, much less time will be required to improvise on the quality of the existing materials. Henceforth, the usual time allocation of workload hours may be re-introduced to the faculty members involved in initial development of course materials - the most difficult part requiring innovation, creativity and hard work.

In addition, support and funding is also vital for any DE projects to enjoy any measure of success. This is reflected in Chapter 3.1.1 on collaboration and consortiums, where the Australian government allocated about A\$46 million to support the entire project. The success of the British Open University has also enjoyed the benefits of support, financial and otherwise from the federal government. In conclusion, DE programs may be akin to software development, mentioned earlier requiring hefty investments.

5.2 RECOMMENDATIONS

Staff care and development should be placed on the priority list. Employment conditions may be reviewed to retain personnel irrespective

CONCLUSION AND RECOMMENDATIONS

of loss of professional staff. Large staff attrition rates may be a symptom of an ailing remuneration scheme. Developing countries cannot afford to have such losses. The core staff who have gone through thick and thin, during times of severe staff shortages, when the number of courses has not diminished, ought to be rewarded. A scheme like this appreciates human resources and may be formulated with particular emphasis on seniority. So DE may be applied successfully in ALAM if the following conditions are met:

- sufficient staff
- staff support services
- motivation of staff
- rewarding staff
- staff development
- care of staff
- conducive working environment for staff
- personnel management course for faculty members
- inter-personal relations course for staff
- improved remuneration scheme

From the above list, it is very clear that the author places prime emphasis on human resources and human resources development, care and organization, without any mention of tangible materials like buildings, equipment and facilities. This course of action would definitely optimize the effective support of the staff in the long term. Further, such backing is essential for ALAM to achieve quantum leaps forward in the desired direction for the future. The hiring of consultants skilled in DE should also not be overlooked. Experts will need specialists to distinguish their flaws. For educationalists and educational and training establishments, conventional or otherwise, peer reviewing is therefore essential for growth in all directions. However, prior to this, the Middle States Commission on Higher Education (1991) recommends some form of institutional self-study, treating education in

CONCLUSION AND RECOMMENDATIONS

a qualitative instead of a quantitative way - measuring its effectiveness by its own staff members.

The future lies in the field of DE in some form or other. The impact of new and advancing technology will spare no discipline, less it will be left behind. The technology in DE always leads the traditional way. For instance, decades ago the distance educators were already designing inter-active study materials. Only that it has not been applied and used in conjunction with digital technology. Entrepreneurs are beginning to tap this large potential market.

Note: that in many countries the number of school teachers are way ahead of the number of the nation's armed forces staff.

Consider also the students too, then the market for the production of inter-active learning systems, hardware and software alike, is immense. The field of inter-active learning, an off-shoot and direct by-product (apart from other spin-offs) of DE , whether with machines or humans, will be the name of the game of the twenty-first century. Therefore, DE has to be taken seriously and be perceived as an integral component of the total educational system, especially so in MET. •

QUESTIONNAIRE

THIS IS PART OF AN ASSIGNMENT AND DESIGNED FOR ANONYMOUS USE.
ARE YOU STUDENT OF 1992 CLASS [23] OR 1993 CLASS? [68]

PLEASE ALSO FILL IN YOUR COURSE CODE: _____

HOW MANY OF THE FOLLOWING ARE AMONG YOUR REASONS TO BE AT
WORLD MARITIME UNIVERSITY?

1	Because you like to study.	[45]
2	Just to be a student and to have a student life.	[1]
3	You want to prove to a person/group that you can do it.	[9]
4	You have already graduated from College and it seemed to be natural to just continue in that.	[18]
5	You believe that one has to study all one's life.	[34]
6	To broaden your horizon and become able to think about what's going in your profession in the world.	[78]
7	You want to specialize yourself in a narrow subject.	[29]
8	This is the only International Maritime University in the world.	[33]
9	You have felt that you have enough knowledge and experience in this field and you just want to get a degree in it.	[8]
10	To learn new teaching methods.	[35]
11	To improve the quality of your Organization's staff.	[61]
12	Because it is connected with the work you do.	[65]
13	Forced by Employer/Government/etc.	[5]
14	To keep your present job.	[8]
15	To be promoted in your job.	[37]
16	To get the job you want.	[25]
17	There is an opportunity to become a decision maker in maritime field in your country.	[45]
18	To develop connections/relations with people from all over the world.	[49]
19	You might have been a seafarer and this is a way to get rid of sea life.	[5]
20	You wanted to be away from pressure of your job at least for a while.	[7]
21	Because you just got the chance to live abroad.	[8]
22	To add something more to your curriculum vitae.	[22]
23	You wanted to improve your English only.	[5]
24	Because you like Sweden.	[6]
25	Any other reason? <u>'To spend more time with your family'</u>	[1]

HOW DO YOU STUDY AT WORLD MARITIME UNIVERSITY?

PLEASE TICK THE APPROPRIATE BOXES OR FILL IN THE BLANKS ON THE SPACES PROVIDED. PLEASE ALSO FILL IN YOUR COURSE CODE:_____

ARE YOU STUDENT OF 1992 CLASS [23] OR 1993 CLASS? [68]

- 1 What is your average study time per day? 3.26 hours
- 2 What do you consider the best period of study?
Early morning [31] Afternoon [10] Evening [61]
- 3 Do you prefer studying? Alone [64] In a group [31]
- 4 Which method of study do you mostly use? Memorize [11] Scanning [14]
Try understanding particular pattern [74] Others: 'Analyzing' [5]
- 5 How many times do you read a certain text to understand it? 2.4
- 6 On hand-outs, do you review and work on them?
Just before exams [23] After lecture [21] both [69]
- 7 Do you mostly do your reading/studying at?
home [86] school [3] library [13]
- 8 How helpful are the books given by WMU to you studies? Very Helpful [49]
Helpful [34] To a limited extent [10] Only for reference [9]
- 9 Is more private study time allotted during?
working days [35] weekends [45] others: [/]
- 10 When studying, do you continue? For short intense periods, no breaks [28]
For long periods, short breaks [43] Only before exams [13]
Others: 'Short periods - short breaks' [1]
- 11 Do you plan a study timetable? Yes [48] No [39]
- 12 If yes do you make a; Short term plan [23] Both [30]
- 13 As part of the study process, do you often take notes? In a lecture [62]
When reading [43] When a new idea appears to you [50]
- 14 Do you make a personal summary of your notes and compile them for review
process? Yes [60] No [24]
- 15 Do you consider the following important to the study process? Sleep [60]
Relaxation [66] Nutrition [46] Physical Exercise [56]
Others: Surroundings/Prayers 2/1
- 16 Do you use experiences/materials from other students?
Yes [63] No [17] Others: [/]
- 17 Do you use other materials (eg. 'How to Study') ?
Yes [35] No [48] Others: [/]
- 18 Is a 'starting momentum' before studying considered important to you?
Yes [58] No [22] Others: [/]

COMMENTS: 'Add workshop'

-
- Open Training and Education Network, Australia
 Course: 2785, Marine Engine Operation
 Course: 3105, Private Pilot Licence - Aeroplanes
 Course: 3129, Ocean Navigation
 Course: 3139, Coxswain
 Course: 3149, Master Class V
 Course: 3149B, Master Class IV
 Course: 3162, Coastal Skipper
- Queensland Distance Education College, Australia
 Course: EP0502, Boat Building (Plywood)
 Course: TEG363, Marine Construction
- TAFE External Studies College, Perth, Australia
 Course: 24-426, Radio Navigation Aids
 Course: 24-824, Gas Turbines for Pilots
 Course: 40-050, Marine Engineering Calculations
 Course: 42-516, Engineering Knowledge 1C
 Course: 42-534, Engineering Knowledge 1D
 Course: 43-032, Naval Architecture 1
 Course: 43-069, Marine Engineering Practice
 Course: 43-078, Marine Engine Driver Grade 1
 Course: 43-087, Marine Engine Driver Grade 2
 Course: 44-062, Marine Radio-Telephone Certification
 Course: 57-741, Ship Construction 1
- University of Queensland - Gatton College, Australia
 Programme: Marine Resources, Associate Diploma of Applied Science
- Victorian TAFE Off-Campus Network, Australia
 Programme: Navigation
 Course: PU 016, Coastal Navigation
 Course: PU 138, Seamanship
- The Open Polytechnic of New Zealand, New Zealand
 Programme: Commercial Pilots Licence
 Programme: Instrument Rating
 Programme: OP 5015, AME Licences, Certificate
 Programme: TC 5403, Avionics, Trade Certificate
- Chartered Insurance Institute, United Kingdom
 Course: 700, Marine Insurance and World Trade
 Course: 705, Marine Risks and their Assessment
 Course: 710, Marine Insurance - the Legal and Documentary Framework
 Course: 715, Marine Account Management and Reinsurance
 Course: 720, Marine Claims
 Course: 725, Aviation Underwriting
 Course: 730, Aviation Law and Claims
 Course: P13, An Introduction to Marine and Aviation Insurance
 Course: P55, Marine Insurance
 Course: P60, Aviation Insurance
- City of Bath College, United Kingdom
 Programme: Marine Technology and Naval Architecture
 Course: U81/794, Shipbuilding Technology II
 Course: U81/796, Naval Architecture and Ship Design II
 Course: U81/798, Naval Architecture III
 Course: U81/799, Technical Communications III
 Course: U81/800, Shipbuilding Technology III
 Course: U84/280, Naval Architecture and Ship Design IV
 Course: U84/281, Shipbuilding Manufacturing Technology IV
- Maritime Studies Limited, United Kingdom
 Course: Royal Yachting Association Coastal Skipper/Yachtmaster O...
 Course: Royal Yachting Association Day Skipper
 Course: VHF Restricted Radiotelephony
- National Marine Correspondence School, United Kingdom
 Programme: CSS/CSM, Royal Yachting Association/DTP Coastal Skipp...
 Programme: DSS/DSM, Royal Yachting Association Day Skipper Shore...
 Programme: YMO, Royal Yachting Association/DTP Yachtmaster Ocean...
 Course: AN1, Basic Astro Navigation
 Course: AN2, Standard Ocean Navigation
 Course: AN3, Complete Ocean Navigation
 Course: AS4/AP4/AC4, Standard Ocean Cruising (Sail/Power/Sail an...

Course: ASS/AP5/AC5, Complete Ocean Cruising (Sail/Power/Sail an...
 Course: CA2, Standard Coastal and Ocean Navigation
 Course: CA3, Complete Coastal and Ocean Navigation
 Course: CN1, Basic Coastal Navigation
 Course: CN2, Standard Coastal Navigation
 Course: CN3, Complete Coastal Navigation
 Course: MT1, Yachting Meteorology
 Course: SH1/PH1/CH1, Basic Seamanship and Meteorology (Sail/Powe...
 Course: SH2/PH2/CH2, Standard Seamanship and Meteorology (Sail/P...
 Course: SH3/PH3/CH3, Complete Seamanship and Meteorology (Sail/P...
 Course: SR1/PR1/CR1, Basic Coastal Cruising (Sail/Power/Sail and...
 Course: SR2/PR2/CR2, Standard Coastal Cruising (Sail/Power/Sail ...
 Course: SR3/PR3/CR3, Complete Coastal Cruising (Sail/Power/Sail ...
 Course: SSV, Marine VHF Operation and Examinations
Tiller School of Navigation, United Kingdom
 Course: Coastal Navigation for Beginners
 Course: Meteorology for Yachtsmen
 Course: Royal Yachting Association Day Skipper
 Course: Royal Yachting Association Day Skipper & Yachtmaster Off...
 Course: Royal Yachting Association Yachtmaster Ocean
 Course: Royal Yachting Association Yachtmaster Offshore
 Course: Sailing and Seamanship for Beginners
 Course: Use of the Sextant for Sun Sights
 Course: VHF Radio Telephone
Wheelhouse School of Navigation, United Kingdom
 Course: RYA Day Skipper Certificate
 Course: RYA/DTP Coastal Skipper/Yachtmaster Offshore Certificate
 Course: RYA/DTP Yachtmaster Ocean Certificate
Granton Institute of Technology, Canada
 Course: Fibreglass and Plastic Construction and Repair
 Course: H044-0A, Aircraft, Airframe and Power Plant Mechanics
 Course: H044-0B, Aircraft Science and Mechanics
 Course: H044-0C, Aircraft Electricity and Electronics
 Course: H044-0D, Aircraft Power Plant Mechanics
 Course: H044-0E, Aircraft Maintenance and Repair
 Course: H045-0A, Aircraft Gas Turbine Engine Technology
 Course: J110-0D, Marine Navigation

**LIST OF ORGANIZATIONS
IN DISTANCE EDUCATION**

Computer-Based Instruction and
Training Bureau
COMBITS Bureau
Universiti Sains Malaysia
11800 Pulau Pinang
Malaysia

Computer aided instruction -
audio visual interfaces for
microcomputers

Control Data Australia
493 St. Kilda Road
Melbourne 3004
Australia

'Plato' courseware in Physics at
A\$120 per unit or 16 units for
A\$1495. Chemistry at A\$105 per
unit (10 units per set)

Disted Services Sdn Bhd
5 Jalan Hargreaves
11600 Penang
Malaysia

Private enterprise collaborating
with tertiary institutions from
Australia, Canada and the United
Kingdom through external study
mode

Educational and Testing Services
School Services Division
Mail Stop 37-B
Rosedale Road
Princeton
NJ
United States of America

PACKETS program for Middle
School Mathematics

Educational Planning and
Research Division (EPRD)
Ministry of Education
Level 2, 3 & 5, Block J
Pusat Bandar Damansara
50604 Kuala Lumpur
Malaysia

Initiates application of ET and
media production

Educational Technology Division
Ministry of Education
Jalan Ampang
50604 Kuala Lumpur
Malaysia

Provision of ET primarily media
service, to enhance school and
teacher education

Holborn College
200 Greyhound Road
London W14 9RY
United Kingdom

Courses in DE - Degrees in law
(LLB Hons) in specially-written
texts and materials at fees of
GBP 1,460/degree or 450/diploma
on specialist law subjects

International Centre for Distance
Learning (ICDL)
c/o The Open University
Milton Keynes, MK7 6AA
United Kingdom

Large computerized database of
more than 500 institutions in
about half of the world's nations

ADDRESSES:**APPENDIX C**

International Council for Distance
Education (ICDE)
External Studies
University of New England
Armidale
NSW
Australia 2351

International membership body
for those involved in DE.

International Extension College
External Studies ,Office D
Dale's Brewery, Gwydir Street
Cambridge, CB1 2LJ
United Kingdom

Large information base on DE in
the third world

Knightsbridge University
Dept. E2, Stefansgade 22,
Copenhagen 2200
Denmark

Earn a Bachelor's, Master's or
Doctorate degree entirely by DE

Marconi Marine
GEC-Marconi Communications
Limited
Marconi House
New Street
Chelmsford CM1 1PL
United Kingdom

Radio traffic logging systems

MARIS
Bank House
1 St. Mary's Street
Ely, Cambs. CB7 4ER
United Kingdom

Detail information about courses
in DE

Maritime Studies Limited
24A Bridge Street
Carmarthen
Dyfed SA31 3JS
United Kingdom

Correspondence courses on
navigation and seamanship for
yachtsmen and professional
seafarers

Medical Education Department
Faculty of Medicine
Universiti Kebangsaan Malaysia
Bangi, Selangor
Malaysia

DE techniques in Master's degree
program in Family Medicine.

National Extension College
Dept 616 NEC
18 Brooklands Avenue
Cambridge CB2 2HN
United Kingdom

Home study: 50 GCSE and 'A'
Level courses; 100 other courses

Off-Campus Studies Centre
Universiti Sains Malaysia
11800 Minden
Pulau Pinang
Malaysia

Involved in DE programs for
tertiary education

On Board University AB
Erik Dahlbergsallen 15
S-115 24 Stockholm
Sweden

Training organization involved in
the production of DE packages
for shipping

ADDRESSES:

APPENDIX C

Poseidon Simulation Systems AS
P O Box 89
N - 8370 Leknes
Norway

Personal computer-based
simulation systems; GMDSS,
radar, etc.

Practical Maritime Studies
Limited
Dept. F/P
Middle Cottage
Litley Green
Chelmsford, Essex CM3 1BU
United Kingdom

Postal home tuition on
Introduction to Shipping; Ship
Chartering, Ship Management/
Finance, Maritime Law, Marine
Insurance, Laytime. Courses
approved by Law Society for
C.P.D. scheme

Teaching-Learning Advisory Unit
University Sains Malaysia
Chancellory
Minden
Pulau Pinang
Malaysia

Study techniques and
instructional design support and
technology

The North of England Protecting
and Indemnity Association Ltd
2-8 Fenkel Street
Newcastle upon Tyne NE1 5DS
United Kingdom

The virtues of distance learning
for the student and company

The Rapid Results College
Dept. HE179
Tuition House
London SW19 4DS
United Kingdom

Home tuition service: self-
contained courses; no costly,
time-consuming text books to
buy; regular tests; timetable to
suit you; free tuition for up to
4 years if not successful; over
100 professional/personal
development courses; over 35
GCE A-level and GCSE courses

University of London
Centre for International
Education in Economics
Thornhaugh Street
London WC1H 0XG
United Kingdom

Degrees by distance learning

Videotel Marine International
Ramillies House
1/2 Ramillies Street
London W1V 1DF
United Kingdom

Producers and distributors of
training material including
computer based training
programs

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