VOCATIONAL EDUCATION AND TRAINING PROGRAMMES IN THE LIBYAN HIGHER EDUCATION SECTOR: AN EXPLORATIVE STUDY

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DECLARATION

I declare that the work presented in this thesis entitled "Vocational Education and Training Programmes in the Libyan Higher Education Sector: an Explorative Study" has not previously been submitted for a degree or similar award at Salford University or any other institution. To the best of my knowledge and belief, no material in this thesis has been previously published or written by another person, except where due reference is made.

This thesis includes material that has been published in internationally refereed conference proceedings. The following is a list of publications of the candidate, which are direct products from this thesis:


# ABBREVIATIONS

The meaning of the abbreviations used in this research is listed in alphabetical order below.

<table>
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<td>CCs</td>
<td>Community Colleges</td>
</tr>
<tr>
<td>DGHVECs</td>
<td>Directorate General of Higher Vocational Education Colleges</td>
</tr>
<tr>
<td>DICA</td>
<td>Department of Information and Cultural Affairs</td>
</tr>
<tr>
<td>EUN</td>
<td>Egyptian Universities Network</td>
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<tr>
<td>GSEC</td>
<td>General Secondary Education Certificate</td>
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<td>HE</td>
<td>Higher Education</td>
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<td>HEIs</td>
<td>Higher Education Institutions</td>
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<td>HEP</td>
<td>Higher Education Planning</td>
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<tr>
<td>IBRD</td>
<td>International Bank for Reconstruction and Development</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organisation</td>
</tr>
<tr>
<td>LNCECS</td>
<td>The Libyan National Commission for Education, Culture and Science</td>
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<tr>
<td>NAID</td>
<td>National Authority for Information and Documentation</td>
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<tr>
<td>NCETP</td>
<td>The National Centre for Educational and Training Planning</td>
</tr>
<tr>
<td>NCETR</td>
<td>The National Centre for Education and Training Research</td>
</tr>
<tr>
<td>NESP</td>
<td>The New Educational Structure Plan</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
</tr>
<tr>
<td>PHVETCs</td>
<td>Public Higher Vocational Education and Training Colleges</td>
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<tr>
<td>RPO</td>
<td>Research Process Onion</td>
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<tr>
<td>SHE</td>
<td>Secretariat of Higher Education</td>
</tr>
<tr>
<td>SHE</td>
<td>The Secretariat of Higher Education</td>
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<tr>
<td>UN</td>
<td>The United Nations</td>
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<tr>
<td>UNESCO</td>
<td>The United Nations Educational, Scientific, and Cultural Organisation</td>
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<td>VET</td>
<td>Vocational Education and Training</td>
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ABSTRACT

Vocational Education and Training Programmes in the Libyan Higher Education Sector: An Explorative Study

Libya traditionally suffers from a shortage of skilled manpower. In the 1990s a network of higher education institutions (HEIs) known as Public Higher Vocational Education and Training Colleges (PHVETCs), was introduced to enhance the supply of necessary qualified manpower. As in many other countries, HEIs in Libya have experienced massive expansion in terms of quantitative growth and geographic distribution in recent years. However, despite significant and positive impacts of this expansion on the society, a number of analysts argue that HEIs have increased in number and not in quality. The assumption behind this research is that HEIs in general and PHVETCs in particular suffer from a lack of appropriate planning mechanisms and procedures. Thus, the main problem of this research is formulated as: What determines the establishment and location of PHVETCs as an important public service in Libya? This study was exploratory and descriptive in nature and used both qualitative and quantitative research methods. The research was conducted by collecting and analysing primary and secondary sources of documented material, as well as undertaking an empirical data collection. Some of the research key findings are: there is a substantial mismatch between the outcome of PHVETCs and the exact requirements of the society; most of the PHVETCs suffer from limited human and physical resources, and the unavailability of standard criteria for the establishment and development of PHVETCs. On the bases of the data analysis and the findings, a model based on a set of proposed criteria has been put forward to be used by educational planners in Libya in establishing or improving existing PHVETCs.

Key words: Higher Education, Libya, Vocational Education and Training
CHAPTER 1

INTRODUCTION
CHAPTER 1: INTRODUCTION

INTRODUCTION

This introductory chapter provides a general description of the area of study and of the theoretical framework of the research. These include the research problem, aims, objectives, hypotheses to be tested and the justification and importance of the research. It also provides a brief outline of the thesis.

1.1 Overview and Background

Education in general and in the higher education (HE) sector in particular has long been considered the main driving force for the development and progress of societies and countries (von Greiff, 2007; Bloom, 2006; Alam, 2007). Evidently, HE has central role in providing prosperity and high-level manpower as noted by von Greiff (2007, p. 2)

“There is a widespread consensus that a highly educated population is positive for economy and the society in general. High-educated workers face lower unemployment risk, earn higher wages, are presumably better informed and make wiser decisions than low-educated workers. Moreover, a high-skilled [labour] force may also foster economic growth through more productivity enhancing innovations and better adoption of new technology.”

Over the past few decades HE has seen considerable expansion in terms of enrolments and courses in both developed and developing countries (Schofer and Meyer 2005). This expansion could possibly be explained by continual economic growth, strong social demand, technology, and the requirements of expanding and rapid globalisation trends. Clearly, these rapid changes have considerably increased the need for highly qualified and skilled graduates which
consequently, places more pressure on higher education institutions (HEIs) to evaluate and improve their programmes and awards to meet the new challenging requirements, as Broad (1988, p. iv cited in Negrete, 2004, p. 2) argues:

"Because of the importance of education to their competitive success, businesses are evaluating ever more critically whether college and university graduates are meeting the needs. Businesses and institutions of higher education must also evaluate what higher education can do to better prepare students for future careers in a constantly changing environment."

As a result of all these developments, the issue of planning in education in general and HE in particular has received considerable attention over the past few decades (Cortese 2003; Hopkins 1981; UNESCO 1975; Nast 1974). Analysts in the field have emphasized the importance of determining standards and criteria for the purpose of assessment of various aspects of HE (Albadri 2006 and 2007; Alfaidy and Ibrahim 1997 Slaughter 1995; Hammons and Nunn 1994; Hammons and Guillery 1990; Moodie 1988).

1.2 Statement of the Problem

Libya has historically suffered from a shortage of skilled manpower. This has led to increasing dependence on foreign skilled labour in many fields, especially those requiring the technical expertise which is lacking among local workers (Alawar, 2006; Eltaif, 1999; Abusnina, 1996; Dughri, 1980; Mogassbi, 1984; Gummed, 1979). This problem has become more pronounced over the past few decades, as the country has attempted to keep pace with the technological changes occurring in many developing countries. Hence, some relatively grand developmental projects have been designed and subsequently implemented. Among these are those related to the steel and petrochemical industries and the Great Man-Made River Project. Such industries and projects have required highly-skilled manpower that the national labour force has not been able to supply in adequate numbers. Therefore, a heavy dependence on foreign labour
was the apparent answer to the problem. This dependence on skilled foreign labour will increase as more development projects are planned and implemented (Alawar, 2006; Attir, 2005 and 2006).

Vocational education and training (VET) is an important sub-sector of the public education system in Libya. It has been subject to an active process of redesign and has become the focus of the government's strategy in more recent years (El-Hawat, 1996 and 2003; Gannous, 1999). Accordingly, during the 1990s, a network of Public Higher Vocational Education and Training Colleges (PHVETCs) was introduced for the purpose of enhancing the supply of skilled manpower needed for the socio-economic development plans. In 2000 there were 85 PHVETCs across the country. Therefore, the PHVETCs have been judged by the government as the main supplier of highly skilled manpower (El-Hawat, 1996; DGHVECs 2000).

However, several previous studies on HE in Libya (Albadri, 2006 and 2007; Alawar, 2006; El-Hawat, 2003; Alfaidy and Ibrahim, 1997) provide evidence of the unplanned nature of the establishment and locations of HEIs in the country, which has occurred as a result of "social pressure" more than the real needs of an area. Al-Hawat (2003, p. 397) makes the following comment about this:

"Such institutions are normally established at a quick pace and under social pressure without consideration for the basic requirements of university work... These universities and colleges tend to produce graduates whose education is mostly inadequate, infecting negative results on society rather than bringing positive results."

Previous studies also indicated that neither the distribution of the HEIs nor the courses they provide have followed a sensible plan to meet the true development needs of the country (Albadri, 2006 and 2007; Eltaif, 1999; Keibah, 1988). In connection with this, Eltaif, (1999, p. 29) points out:

"A quick glance at the existing labour market indicates that students graduating from higher education institutions are irrelevant to the demands of economic sectors. According to the 1995 census, unemployment among graduates has reached 10%. The greater majority of these unemployed are graduates of humanities and social
CHAPTER 1: INTRODUCTION

Science fields in spite of the fact that there is an urgent need for graduates of science and medicine. This has led to relying heavily on expatriate labour to fill the shortages in these areas."

This situation of uncontrolled increase in the number of HEIs at the expense of qualitative outcomes, however, can be strongly attributed to the unavailability of appropriate standards criteria. According to Albadri (2006, p. 148), the availability of such criteria would provide planners and decision makers in the field with concrete measures or methods on how to establish HEIs.

1.3 Aim and Objectives

The main aim of the study is to contribute to the body of knowledge about the PHVETCs sector as at this time there has been no comprehensive study covering this area in Libya. The objectives of this study are:

1. To evaluate the spatial equity, locational accessibility and efficiency of operation (internal efficiency) of the PHVETCs.
2. To measure how socio-economic considerations influence the performance of the PHVETCs sector.
3. To examine the geographic mobility of students of, and graduates from the PHVETCs.
4. To provide practical framework for planners and decision makers in Libya on how to make decisions regarding establishing and distribution of the PHVETCs opportunities in the country.

1.4 Hypotheses to be Tested

It is hypothesised that the establishment and subsequent spatial distribution of PHVETCs in Libya has been carried out inequitably, neglecting the potential and the true needs of the different regions of the country. This has impeded development plans and led to a chronic shortage of the skilled manpower
1.5 Research Questions

To guide the current study the following research questions were identified:

1. What determines the location of a PHVETC as an important public service for the society?
2. Does the establishment of PHVETCs take into account the socio-economic and distributional aspects of the population and the exact needs of areas?
3. Do the programmes that PHVETCs are providing match the type(s) of economic activities that take place in their regions?
4. To what extent do PHVETCs programmes supply Libyan society with the skilled manpower that it needs?
5. Do the existing PHVETCs have the human and other resources that are necessary for the operation of the educational/training process?
6. How accessible are the PHVETCs to their client population?
7. How often do PHVETCs students obtain employment relevant to their present major field of study after graduation?

1.6 Statement of Methodology

Given the fact that the phenomenon under investigation is considered terra incognita as very little research has been conducted covering VET issues in Libya and because there has been no research previously done to cover this area of study, this research is explorative in nature. The explorative research is appropriate since it aims to understand areas with few or no earlier studies and uses a quantitative approach to the collection and analysis of primary data (Saunders et al, 2007; Collis and Hussey, 2003). Triangulation methods were used for data collection and data analysis in order to ensure maximum
CHAPTER 1: INTRODUCTION

effectiveness (Denzin, 1989). A comprehensive literature review has been conducted and questionnaires were used to collect data for the study (Chapter Five provides more detail).

1.7 Scope and Limitation

The study is limited to the development of the PHVETCs from their beginning in the 1950s until 2000 due to data availability. The focus here will be on public colleges rather than private ones. The latter have been excluded from the study, due to their rarity and the lack of data about them.

1.8 Justification and Importance

The following factors justify the selection of this study:

1. The apparent maldistribution of the HEIs in Libya, particularly PHVETCs, which can be attributed mostly to the neglect of socio-economic and spatial considerations in the distribution of HEIs' opportunities in the country.

2. To the best of the author's knowledge no research on the above described problem has been reported in the literature.

The significance of this study stems from the fact that Libya, unlike many other developing countries, has a very sparse population and a short supply of native skilled labour in relation to its considerable resources and vast territory. Libya could rely on VET programmes for a solution in the near future. Consequently, it is considered that a study that focuses on the different aspects of PHVETCs as a tool for development will be an adequate basis for public policy in the country.
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1.9 Contribution to Knowledge

The present research's literature survey has shown that there is very little research and literature available covering problems and issues related to VET programmes in Libya, particularly at HE level. With this in mind, this research has contributed to knowledge about VET Programmes in Libya. It is a leading and unprecedented research, providing better understanding about VET programmes aspects of the Libyan HE system. The research presents a thorough and comprehensive information related to the development and locational distribution of PHVETCs within the context of socio-economic considerations in the country. It also offers a systematic basis for Libyan education planners regarding the expansion and evaluation of HE opportunities. Furthermore, the findings of this research present a functional and practical framework which could be implemented by HE planners and policy-makers in developing countries to enhance their performances. Finally, the research adds to the existing body of literature within the area of locational analysis of HEIs.

1.10 Thesis Structure

Following this introductory chapter the thesis is divided into eight chapters (Figure 1.1). The following is a brief summary of these chapters:

In Chapter 2, a literature review is conducted to determine the current state of research in the areas of VET, HE and locational analysis. These areas have been reviewed from different subject perspectives: globally, in developing countries and Libya as a particular case. In Chapter 3, a general background about the Libyan environment is provided and the development of HE and other pertaining aspects are discussed and evaluated. In Chapter 4, HE sector in Libya is described and analysed within the context of development planning in the country. In Chapter 5, the overall methodology and procedures adopted to conduct this research is described and discussed. In Chapter 6, the development and the spatial distribution of PHVETCs’ aspects in Libya is evaluated. In Chapter 7, the overall satisfaction of the PHVETCs students is
CHAPTER 1: INTRODUCTION

discussed. This covers their experience and perception of the provided courses and the physical accessibility of the colleges as well as employment expectation after graduation. In Chapter 8, an attempt is made to propose systematic criteria for the establishment or development of PHVETCs. The main aim of this set of criteria is to provide HE planners in Libya with an appropriate framework regarding the expansion of PHVETCs' opportunities in the country. Chapter 9 concludes with a discussion of the research results and with recommendations and suggestions for future research.
Figure 1.1: Structure of the Thesis
CHAPTER 2

LITERATURE REVIEW
In the preceding chapter, the introduction and general outline of the research were presented. In this chapter, related literature will be reviewed and discussed. Conducting a literature review is an important starting point for any research project. According to Hart (2001) a review of related literature provides the researcher with an initial understanding of the state of the subject area. It also assists in formulating the theoretical basis for the research undertaken. In this study a review of literature was conducted in order to determine the current state of research in the areas of VET, HE, and location analysis. These areas have been reviewed from different perspectives: globally, in developing countries and Libya as a particular case.

2.1 Vocational Education and Training

Generally, VET has been described as any education or training programme that contributes towards the collective development of the necessary knowledge, skills and attitudes needed for a specific occupation. However, in this study, the term will be used according to the definition formulated by UNESCO (United Nations Educational, Scientific, and Cultural Organisation) (2001, p. 7):

“A comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life”
Throughout the last few decades there has been a growing focus on VET programmes as a tool with the potential to improve individuals and societies. The purposes and objectives of VET programmes vary widely among countries as, Grubb and Ryan (1999, p. 1) point out:

"For developed countries, greater investment in human resources promises to give them a 'workforce for the 21st century', highly skilled, productive, and capable of restoring competitiveness, growth and equity. For developing countries, more basic levels of education and training hold out hopes of modernizing their traditional sectors, facilitating the growth of more modern sectors, and stabilizing political conditions. For transitional countries (like China), where skill shortages are sometimes the most obvious, more and higher-quality education and training often seem all that is necessary for an enormous boost to their roles in the world community."

Educational planners and decision makers around the world are now aware that public education systems are neither effective nor financially sustainable (Johnston and Marcucci, 2007; UNESCO, 1998, Salmi, 2002). Grubb and Ryan (1999) point out that it has become ever more common among many countries to call for evaluation and hence the re-structure of their education and VET programmes. For this particular purpose the World Bank in "Evaluating Vocational Training Programmes: A Practical Guide," includes excellent information on evaluating VET programmes. Specifically, it provides valuable information and practical guidance on how to evaluate VET programmes (Hunting et al, 1986).

VET programmes around the world are varied and diverse; this is because each country has its own unique characteristics which need to be thoroughly studied. With regard to this Twining (1989) explains that, although VET worldwide, is rich and diverse, it is little investigated and understood, largely because it is subject to constant change in response to the pressures of technology and attitudes to learning and work. He points out that VET provision varies widely between countries, because it is determined by many physical and cultural characteristics such as: "geography, history, tradition, language, employment opportunities, attitudes, government initiatives, institutional structures, and even
the constitutional or legal way in which institutions are organised”. He further emphasises that the concept of the knowledge gap is critical in this context, because it is easier to transfer knowledge than to transfer wealth and this fact alone makes it worth paying more attention to the study of VET as a means of overcoming the north-south divide.

2.1.1 VET in Developing Countries

In the context of developing countries, most of the available literature focuses on issues related to education/VET and socio-economic aspects. A number of studies have evaluated different aspects of VET systems, for example, in the Sudan (Omar 1977), Nepal (Belbase 1981), Nigeria (Igwe 1984), Thailand (Clesuntorn 1987), Malaysia and Indonesia (Wilson 1999). These studies utilize descriptive analysis to evaluate the VET system within their wider socio-economic context in the mentioned countries. Some researchers discuss the economics of VET systems and their return on expenditure. San (1990) analyses the interaction between the economy and the VET system in Taiwan. Yirgou (1990) examines the efficiency of the VET system in relation to graduates' employment in Ethiopia. Yang (1996) analyses the interaction between VET programmes and economic policies in China. Other researchers study different aspects of VET programmes in secondary schools. Sultana (1994), for example, explores the promise and problems of VET in secondary schools in developing countries, taking Malta as a case study.

Related studies have shown that many developing countries have adopted VET as an instrument for socio-economic development. Planners and decision makers in these countries place trust in VET programmes as the best choice for accelerating socio-economic development. However, a number of researchers and analysts have doubts about the effectiveness of these programmes as many of developing countries have not developed programmes that properly match their local needs (Watson, 1994; Psacharopoulos, 1991; Ishumi, 1988).
Psacharopoulos (1991, cited in Watson, 1994, p. 91) has identified the following reasons for the failure of VET programmes in developing countries:

1. Most families and children regard it as second best, as inferior to the academic route. They are, therefore, psychologically unsuited for manual work.

2. The speed of change has meant that it has proved difficult to prepare students for unpredictable labour markets.

3. Forward planning has proved notoriously difficult, not only because of (2) above, but because inadequate data-bases have made accurate forecasting impossible and because many of the skills and jobs required have been based on Western concepts of employment and have failed to take into account the local cultural dynamics.

4. Programmes for reskilling because of changes in technology have often not been built into programmes.

5. Governments rather than parents have usually made the decision to expand VET programmes.

6. Teachers are invariably inadequately trained or simply untrained.

7. The costs are at least twice as expensive as those of general education, because of the need to equip vocational classrooms and because technical teachers' education is much more expensive.

2.1.2 VET in Libya

There is generally very limited studies on VET in Libya. While a relatively few studies have been produced in the Arabic language literature, a paucity of research exists in the English language. Therefore, the few published works in Arabic about VET in Libya had to be translated by the author to English. It is worth noting that meaning can be lost unintentionally during translation. Alshiakh (1972) and Algomaty (1975) investigated the historical background of VET within the context of education and development in the country. They provided a brief description of the characteristics of VET development. They
use both historical and qualitative approaches in their investigation. Their main findings indicate that due to different factors relating to the long period of foreign domination as well as socio-cultural, administrative and organisational structures, all previous efforts to establish appropriate VET programmes in Libya had failed to reach their intended targets.

Almshhadani (1999) discussed the types of problems faced by trainees in the secondary agricultural colleges from the points of views of the trainees themselves. The study used a questionnaire survey method on a sample of final year trainees. The aim was to determine the negative effect of problems on the educational skills attainment by students in particular and the outputs of the colleges in general. The study pointed out that despite the fact that some colleges were established some 50 years before and that higher numbers of students were registered and graduated from these colleges, there were fundamental problems hindering students' learning and training ability during their college years. These problems certainly had an impact, directly or indirectly, on the theoretical and practical learning experience of the students. These negative effects were possibly due to lack of financial and other resources. To improve the functional performance and outcomes of these colleges, the study had recommended the following: 1) conduct an evaluation study for the current curriculum and 2) conduct a comprehensive evaluation study of these colleges to determine their potential and the immediate needs for educational equipments and practical activities; annual capacity of the students and their needs as well as the needs of the teachers.

Al-Said (1990) explored the relationships between the shortage of Libyan technical manpower and the society-negative attitudes towards VET. He conducted a survey study among a sample of students from both general and VET secondary schools in the City of Benghazi. He concluded that a disrespectful attitude towards VET is still very much in existence. In his recommendations he emphasised that in order to increase the efficiency of the VET schools there was an urgent need to reform and strengthen this important
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sub-sector of education to change this negative attitude (see chapter 6 for more
details on VET in Libya).

Musmam (2002) has examined the interaction between labour market and VET
system in Libya. In order to understand this interaction and the mechanisms
that influencing the demand and supply of intermediate skilled labour a
combined model based on both human capital theory and labour market theory
was employed. The findings of the study revealed that the imbalance between
supply and demand of intermediate skills and low quality of VET programmes
were a direct result of the failure to develop co-ordinated national system of
human resources planning and to improve the structure and content of VET
curriculum.

2.2 Higher Education

The term higher education (HE) is often used to refer to additional cycles of
education beyond secondary education. In this study, however, the following
definition suggested by UNESCO (1998, p. 19) is adopted:

“Higher education includes all types of studies, training or training for
research at the post-secondary level, provided by universities or
other educational establishments that are approved as institutions of
higher education by the competent state authorities.”

Indeed, no one today would dispute the fact that HE plays a central role in the
development of individuals and societies. HE is a large and highly dynamic
service in both physical and socio-economic dimensions. It has been described
as: 1) one of the largest services in many countries, 2) forming a large
enterprise that employs a large number of people, of different types, and 3) due
to the rapid continuing socio-economic changes it has become an important
industry that encourages increasing numbers of enrolments and a wide range of
programmes. During the last half century HE as an entity (system) of education
has experienced rapid growth and expansion around the world (Tight, 2007;
Schofer and Meyer, 2005; Adams, 2000). This is largely attributable to the
substantial economic growth and strong social demand for its services in both
developed and developing countries (Chapman and Austin, 2002; Schofer and
p. 898), enrolments in HEIs worldwide have increased considerably from
around 500,000 students in 1900 representing just 1% of the college age-group
to about 100 million students in 2000, representing around 20% of the college
age-group.

Over the last few decades HE systems in many countries have witnessed major
reforms of their structures and functions in response to the rapid changes in the
societal needs, technology and the requirements of industry and employers.
One aspect of these reforms is the focus on vocationalisation. VET curriculum
and programmes of a labour market oriented nature are widely introduced in
HEIs in many countries. The issue of vocationalisation planning in HE has
received increasing attention among educational planners and researchers
(Berg, 1992; Lamoure and Lamoure Rontopoulou, 1992; Durden and Yang,
2006; Wilkins, 2002; Williams, 1985; Gellert and Rau, 1992; Kazamias and
Assimina, 1992). However, the planning of HE according to Nast (1974), is one
of the most important and most complex issue facing every country. This is
partly, due to the fact that HEIs, unlike lower levels of schooling; tend to serve a
wider geographic area and larger population (Gould, 1978, Tight, 2007). These
specific characteristics often create spatial-related problems for educational
planners. These issues however, have been of particular interest to researchers
and policy analysts in the field (Alfaidy and Ibrahim, 1997; Slaughter, 1995;
Hammons and Nunn, 1999; Albadri, 2006, Moodie, 1988) who have stressed
the importance of determining standards criteria for the purpose of assessment
of different aspects of HE.

2.2.1 Community Colleges: a Longstanding Experience

It is quite common that HE in different parts of the world is divided and
structured into two distinctive sub-systems: traditional university education
which focuses mainly on academic and research activities and non-university or college education which provides further specialisation in different areas of vocational/technical education. As VET in HE is the primary concern of this study, the focus in this section will discuss briefly the experience of Community Colleges (CCs) in the United States. CCs in the United States are a well-documented and recognised phenomenon. In 2001 CCs celebrated their 100th anniversary. CCs are designed to "provide not less than two-year programme that lead to acceptable for full credit towards a bachelor's degree" (Enzi, 2005, p. 35-36). CCs were initially established in 1901 as junior colleges providing academic programmes and then developed to HEIs with an enumerated mission and functions. Bailey and Averianova (2000, cited in Wheelahan, 2004, p. 59) observed that:

"From their beginnings in the early 1900s, community colleges have undergone a significant shift in their purpose and mission. Starting primarily as junior colleges with an emphasis on academics, they are now complex institutions taking on a broad array of educational, social and economic functions."

Consequently, over the last century the number of CCs increased steadily, and their nature became more comprehensive moving towards vocational/technical education, and job training. Related to this, Kasper (2002-03, p. 14) points out:

"During the past century, community colleges have grown tremendously in number and have changed with time. No other segment of postsecondary education has been more responsive to its community's workforce needs... Today's comprehensive community college is both a principal provider of academic instruction and a major provider of vocational preparation and workforce development through stand-alone adult training programmes. Offering vocational preparation and academically oriented education, community colleges have seen a surge in enrolments that outpaces the enrolment growth of educational institutions offering bachelor's degrees."

Following the Second World War, CCs have seen a substantial growth resulting from providing scholarship to millions of veterans to attend colleges which had been associated with at one time dealt with the post war baby boom in the
numbers of college-age group (Andrews and Fonseca, 1989). As a result, since
the early 1960s the number in enrolments of the CCs had almost doubled from
2.2 million to 4.3 million in 1970 and 1990 respectively, and in 1999 it reached
5.3 million. In 2000 the total number of the colleges recorded were 1,076
(Kasper 2002-03, pp. 14-15). CCs were established and developed to fulfil the
immediate and pressing needs of the local communities as well as providing the
concept of equal opportunities in terms of gender, minorities and geographical
areas. With this in mind, the main mission of the CCs focuses on four distinct
functions: 1) pre-baccalaureate education, 2) vocational/technical and
continuing/adult education, 3) development/basic skills education and 4) to
provide open access for different age/group of the community (Hu et al, 1996).

The role of the CCs in providing local industries and businesses with qualified
and skilled manpower has been very clear through specific tailored VET
programmes and courses to meet the rapid technical changes in the workplace.
The recent development and implementation can probably be explained as a
result of the establishment and encouragement of closer links and partnerships
between the CCs and local businesses and employers. Kasper (2002-03, p.16)
explains that:

"Today, community colleges supply vocational training programs that
terminate in certificates, coursework leading to associate degrees,
remedial educational services, and customized, or "contract" courses
designed to meet the needs of local employers. Customized courses
provide job-specific skill training or remedial training and are
delivered to employers onsite".

In this regard, Fonseca and Andrews (1998) have argued that the continued
success of CCs is certainly attributable to the dynamic nature of the institutions' 
mission in terms of their ability to immediately respond to changes in work
related programmes as well as their open door admission policy, low tuition fees
and easy geographic access. Fonseca and Andrews (1998, p. 4) further
explain:
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"Access has been social as well as geographic. Many community college systems offer open enrolment, admitting all students who have a high school degree or equivalent. Community colleges also offer a variety of clerical, technical and professional specialities not commonly found at universities."

2.2.2 HE in Developing Countries

In the context of HE studies in the developing countries, Teferra and Altbach (2003) provide excellent descriptive analytic essays on 54 African countries, including Libya. This pioneering effort highlights several contemporary issues and trends regarding HE in Africa. These include: 1) the inequitable distribution of HEIs between regions in a country, 2) the mismatch between the outputs of HEIs and labour market needs, 3) shortages of and/or inadequate academic and physical infrastructure, 4) the brain drain issue of academic staff, 5) gender and urban/rural inequity and 6) the domination of liberal arts rather than scientific and technological subjects. These issues have been extensively discussed and mentioned as major constraints in many African HE systems. Along with these studies, Kosemani (1982) and Akpan (1989 and 1990) examine some aspects of the HE system in Nigeria. These studies provide comprehensive descriptive data analysis on the historical development of HE in the country and the imbalance in HE opportunities between the country's regions.

2.2.3 HE in the Arab Countries

Due to the fact that Libya has much in common with the rest of the Arab countries, historically, culturally and linguistically, and also shares many other characteristics in several areas, it is useful to provide a brief overview of HE situation in these countries.

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1 Developing countries have generally been defined as “all countries other than Canada and the United States, Western Europe, Japan, Australia and New Zealand” (Neumayer and de Soysa, 2007, p. 1512).
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Modern HE is a relatively recent phenomenon in many Arab countries as most of these countries established their HE systems during the 1960s and 1970s (Eickelman, 1992). As in many other parts of the world, Arab countries have seen substantial development in term of the number of HEIs. In 1950 there were only 10 universities scattered across the region (UNESCO 2003, p. 2). This number has increased significantly to about 233 in 2003 (UNESCO, 2004, p. 11). Despite this remarkable development, several analysts argue that HEIs in many Arab countries face some deficiencies and challenges. In regard to this, Abdrabou and El Araby (2006, p. 16) point out:

“Arab states have, as never before, witnessed a remarkable increase in enrolment rates in higher education institutions. This increase has resulted from a growing public demand for education, and enlarged population, and the governments' commitments to make higher education as accessible as possible. Nevertheless, most Arab states have proved to be unable to meet all students desiring to pursue their goals because of dramatic increase in student enrolment unaccompanied by sufficient resources... Higher education in Arab states is under considerable strain due to high rates of population growth and increasing social demand for higher education, which lead states and institutions to increase student enrolment often without adequate allocated financial resources.”

Although Arab countries vary in terms of available resources and specific socio-economic characteristics, they generally share a number of common issues that hinder the effectiveness of the HEIs (Massialas, 1991, p. 995; UNESCO, 2003, p. 3). These issues can be summarised as follows:

1. High population growth and the massification of secondary education
2. Inadequate financial resources. Inflexible and centralized management.
3. Inability to meet students' needs.
4. Weakness of the links between the HEIs, general and secondary education, local communities, society and human development needs.
5. Persistent mismatch between what HEIs offer and the knowledge/skills that are needed to become employed.
6. Lack of systematic guidance and career counselling services, a situation that compounds the problem of graduate job placement.
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7. Lack of general coordination between agencies controlling national development and HEIs, resulting in unemployment or underemployment of graduates.
8. Inability to offer large scale alternate routes to postsecondary education.
9. Apparent non-involvement of community and business leaders in the affairs of HE.

2.2.4 HE in Libya

In order to capture the general characteristics of HE system in Libya, an extensive literature survey was conducted to identify existing related literature. The main purpose of the literature survey was to identify the current research direction, gather data/information and the issues associated with the problem under examination. The literature survey has shown that in recent years the issue of the HE in Libya has received more attention in both academic and professional literature (Table 2.1).

This recent interest is attributed to the rapid technological and economic changes that the country is currently undergoing as well as the strong social demand for its services (see Chapter 3 for more detail).

It should be noted that most of the literature is written in Arabic language (El-Hawat, 2003; Bubtana and Sarakbi, 1992; Mogassbi, 1984). Also, very few studies are of empirical nature, i.e. based on primary data analysis (Mogassbi, 1984; Elfnish, 1998; Aldhaif et al, 2001; Ali and Almithnani, 2006). The rest are theoretical (non-empirical) and based on secondary data analysis (Sarantakos, 2005). Furthermore, only one study devoted to the examination of VET programmes in HE provision.
<table>
<thead>
<tr>
<th>Author/s and Date</th>
<th>Title</th>
<th>Design</th>
<th>Main Information or Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mogassbi (1984)</td>
<td>Perceptions of the higher education system and manpower development in Libya</td>
<td>Retrospective, questionnaire, descriptive analytic study</td>
<td>Development and structure of HE system. Perception of university students and officials</td>
</tr>
<tr>
<td>Bubtana &amp; Sarakbi (1992)</td>
<td>Libya</td>
<td>Retrospective, literature analytic study</td>
<td>Historical development and structure of HE system</td>
</tr>
<tr>
<td>Elfshish (1998)</td>
<td>Higher education in Libya: a comparison study</td>
<td>Literature, questionnaire survey analysis</td>
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</tr>
<tr>
<td>Aldhaif et al (2001)</td>
<td>Higher engineering colleges between reality and targets</td>
<td>Questionnaire survey analysis</td>
<td>Perception of students and employers of colleges</td>
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<tr>
<td>El-Hawat (2003)</td>
<td>Libya</td>
<td>Retrospective, descriptive analysis</td>
<td>Development and structure of HE. Problems and challenges it faced</td>
</tr>
<tr>
<td>El-Hawat (2005)</td>
<td>Activating the structure of higher education in Libya</td>
<td>Document based analysis</td>
<td>The development, and assessment of the quantitative and qualitative aspects of HE</td>
</tr>
<tr>
<td>Albadri (2006)</td>
<td>Problems of higher education in Aljumahiriya</td>
<td>Document based analysis</td>
<td>Problems and issues facing HEIs in the country and possible solutions</td>
</tr>
<tr>
<td>Ali &amp; Almithnani (2006)</td>
<td>Evaluating engineering institutes to meet Libyan contemporary development requirements</td>
<td>Literature, questionnaire based analysis</td>
<td>Suggestions of criteria to evaluate engineering education in HEIs.</td>
</tr>
<tr>
<td>Albadri (2007)</td>
<td>Some problems of higher education policies in Libya</td>
<td>Literature, document based analysis</td>
<td>An overview of the problems that face HE policies in the country</td>
</tr>
</tbody>
</table>
All in all, these studies have looked at the phenomenon from various angles and examined different aspects of HE system in Libya. A number of these studies have focused on the historical development of the HE system in the country along with the structure and functions of the system. They also, provide data/information regarding HEIs, students and other related variables (El-Hawat, 1996, 2003 and 2005; Mogassbi, 1984; Elfnish, 1998; Alfaidy and Ibrahim, 1997; Attir, 2006; Bubtana and Sarakbi, 1992 ). However, it is noted that there is a considerable degree of inaccuracy and inconsistency in the used numerical data. This made the author to be cautious in dealing with this data. Some of the studies have explored the relationship between the HEIs and socio-economic development in the country (Keibah, 1998; El-Hawat, 1996, 2003; Elmagouri, 2005). These studies claim that there is critical mismatch between HE system output and the needs and demands of the society. Keibah (1998) argues this mismatch has led to the emergence of problem of unemployment among graduates of HEIs. Elmagouri (2005) also argues on the high geographical concentration of the HE opportunities and their graduates in the metropolitan areas particularly Tripoli and Benghazi despite attempts in distributing HE opportunities in different parts of the country. Subsets of these studies have focused on problems and barriers that undermined the effectiveness of HEIs (Albadri, 2006 and 2007; Elfnish, 1998; Mogassbi, 1984; Alfaidy and Ibrahim, 1997; Aldhaif et al 2001; Attir, 2006; El-Hawat, 2003). Based on the results of the above mentioned studies, these problems can be summarised as follows:

1. Absence of a clearly defined philosophy and objectives.
2. Absence of scientific planning to satisfy the essential requirements or demands of society for qualified manpower.
3. Absence of planning for building self institutions of HE in regard to the provision of faculty members.
4. Failure to adopt a well-defined and articulated policy for admission based on scientific international standards.
5. Haphazard planning and improvisation of the establishment and distribution of HEIs in the country which has not occurred in line with the national socio-economic development plans.

6. Absence of the effective role of the faculty staff and the scarcity of scientific research activity due to long teaching hours.

7. Scarcity of scientific research on the HEIs either because of the preoccupation of staff members with teaching only or because of a lack of the potential for scientific research.

8. Preventing of postgraduate programmes from achieving their goals and restriction on certain disciplines due to the lack of human and physical resources.

9. Reliance on traditional teaching methods in many disciplines. The dependence on conventional methods of evaluating the academic achievement of students.

10. Chronic mismatch between HE outcomes and the skills required by the local labour market.

Thus, it can be concluded that previous studies have provided a comprehensive overview of the historical development of HE in Libya and the relationship between HE and different socio-economic aspects of the country. Moreover, they identify and highlight various shortcomings that undermined the development and advancement the HE system in Libya. However, it is equally important to note that most of these studies suffer from a number of methodological, conceptual and theoretical weaknesses and limitations. These limitation can be summarised as follows:

- Purpose, objectives and methodological approaches adopted are often not explicitly stated.
- Related literature has not been plausibly reviewed and presented.
- The inadequacies and inconsistency of the used numerical data and the analysis of these data.
- Spatial aspects of the HE services have not received proper attention.
2.3 Locational Analysis

Locational analysis according to Johnston (2000, p. 464) can be defined as "an approach to human geography focusing on the spatial arrangement of phenomena and on related flow patterns." Optimal location and accessibility of a social facility (hospitals, schools, post offices, etc.) is an important issue in any public services operation (Black and Cheung, 2003; Massam, 1975; Salem, 1995; Stanilove, 2003). Location analysis for precisely defining the sites of public facilities/services plays a crucial role in shaping modern human life. On this particular point Teitz (1968, p.36) makes the following statement:

"Modern man is born in a publicly financed hospital, receives his education in a publicly supported school and university, spends a good part of his life travelling on publicly built transportation facilities, communicates through the post office or the quasi-public telephone system, drinks his public water, disposes of his garbage through the public removal system, reads his public library books, picnics in his public parks, is protected by his public police, fire and health systems; eventually he dies, again in a hospital, and may even be buried in a public cemetery."

Location and locational accessibility are important elements in the selection and usability of public facilities (Salem, 1995; Weber, 2003). The relevant literature shows that in determining the location of public facilities, a number of factors need to be examined. Jakle et al (1967) and Salem (1995), for example, have mentioned the importance of three factors: 1) centrality of the target population, 2) accessibility and utilisation, and 3) optimization to satisfy service demand. Revelle et al (1970) have suggested the following to measure a place's optimization: 1) total or average travel time for users 2) the maximum travel distance or time of the users, and 3) the demand for services created by the system. Accessibility is an important requirement in determining location of facility and accessibility satisfaction with its services is important in determining its effectiveness (Salem, 1995; Stanilove, 2003). Locational accessibility of facilities according to Weber (2003) and White (1979) can be measured in travel
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time, travel distance and travel cost. Curtis (1989, p. 5) states that spatial
dimension is an important factor in the efficiency of public services: "The
measurement of efficiency includes optimum, catchments area and population
size."

As mentioned previously, HE provision has been described as one of the
largest services in many countries in terms of enrolments and employees as
well as the physical spaces of its facilities. However, despite the importance of
the spatial aspects of these specific characteristics some analysts have argued
that studies on the spatial aspects of this important service has been very

However, during the past decades, there have been some spatial studies in the
field of HE. Several studies, explore the spatial dimension of HE in relation to
some socio-economic characteristics (Andrews, 1974; Andrews and Fonseca,
1989; Fonseca and Andrews, 1993). Some researchers have studied students'
migration prior to and after graduation. Alanen (1974) examined the magnitude
and mobility of the future college-age group in the United States. Ordovensky
(1995) analysed the relationship between institutional proximity and HE
entrance. He found that students living closer to a certain type of college are
more likely to enrol in that type of institution. Kyung (1996) examined students'
mobility from outside the States of New York coming to study at the State of
New York. He found that the number of enrolments decline with distance.
McCauley (1999) examined the migration of graduates from the University of
Oklahoma to find out where students choose to locate themselves after
graduation and why. Kerenner (2003) points out that analysis of recent HE data
in the United States reveals that black students often enrol at the few historically
black colleges or at a few HEIs located in major metropolitan areas. A number
of studies have examined standards and criteria in determining appropriate
locations of HEIs (HRC 2003; PEPC 1991; Hammons and Nunn 1994; Moodie,
1988) (see Chapter 8 for more detail).
2.4 Conclusion

On the basis of the above discussion of the literature review, the following points can be noted:

- VET programmes of various types and levels are experiencing growing development and interest from planners and decision makers all over the world. This development and interest can be attributed to the rapid changes in economic and technological development which subsequently have increased the needs and demands for a highly skilled and qualified workforce. This pressing situation has forced many countries to critically evaluate and comprehensively reform their educational systems. Therefore, VET programmes are now considered to provide the backbone and key elements of educational programmes at different types and levels. Because of all these developments, HE courses and programmes have become increasingly VET oriented.

- Despite the fact that first VET College in Libya was established more than half a century ago, the VET sector and relevant issues have not received the appropriate attention and interest from researchers and public policy makers. So far, very limited research has been devoted to explore the area of VET in Libya. One possible explanation of the limited research in this area is the lack of systematic data and reliable information pertaining to the VET sector in Libya. Paradoxically, however, the HE system in the country has, in recent years, become the focus of interest among researchers and public policy analysts. This recent interest can be attributed to the considerable growth in the enrolment numbers, to the rapid expansion of the service and also to the policy of horizontal distribution of HE opportunities. Added to this, the HE system in Libya, as in many other developing countries, is facing many problems and challenges which are affected by the quality of their outputs. One of the recent problems is the issue of the unemployment of graduates which has occurred as a result of the mismatch between the
graduates of HE and the requirements of the society (see Chapter 3 and 4 for more detail).

- Given the growing magnitude of public and private services as essential components in most countries, these services and facilities have experienced increasing importance over the last few decades and become the focus of considerable research. However, the issues related to the locational and distributional aspects of HEIs as important services have not yet attracted adequate research attention.

- Clearly, despite these limitations, one can conclude that the above review of related research has highlighted several aspects of the phenomenon under investigation and assists in outlining the general framework and main component of the present research.

In summary, in this chapter, a literature review has been conducted in the areas of VET, HE and locational analysis. In most of the mentioned studies attention has been focused largely on historical development, future planning and the forecasting of students growth, enrolments and graduates mobility, and the distribution of HEIs. However, despite the recent rapid growth of enrolments, massive expansion of the services and programmes, the locational analysis of HE aspects have not received sufficient attention. All in all, it was possible to use this literature to develop a conceptual and methodological framework for the present research. The next chapter will provide general background information on the Libyan environment, and the structure and development of the HE system in Libya.
CHAPTER 3

GENERAL BACKGROUND OF LIBYA AND LIBYAN HIGHER EDUCATION
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In the previous chapter the relevant literature has been reviewed and summarised, and in this chapter a general picture of the Libyan context is briefly presented. The HE system in Libya is also discussed and evaluated. It is obvious that HE systems around the world have similarities in some ways as the main functions of any HE system are teaching, research and public services (Bowden and Marton, 1998). However, some analysts (Johnston and Elton, 2005; Michael, 1997) argue that each system of HE has its own unique characteristics which is largely a product of several distinct factors such as historical, geographical, economical, social and cultural. The case of Libya is not an exception to these general rules. At this point, it is important to mention that since the research is primarily concerned with PHVETCs provision, only a relatively brief description and analysis will be made of the Libyan HE system (further discussion on PHVETCs is provided in Chapter 6).

3.1 The Libyan Environment

To examine the existing system of HE in Libya or any other country of the world, it is important to introduce the country from the geographical, historical and socio-economic context.
3.1.1 Location and Geographical Features

The Socialist People’s Libyan Arab Jamahiriya (Libya) is centrally located in the Mediterranean portion of North Africa, roughly between 9° and 26° east longitude and 33° and 19° north latitude (Figure 3.1). Libya covers an area of 1,760,000 km² which makes it the third largest country in Africa. It has extensive borders with six other African countries, Egypt and the Sudan to the east, Chad and Niger to the south, Algeria and Tunisia to the west and in the north there is the Mediterranean Sea with a long coastline of 1,900 KM (el Mehdawi, 1993). With a total population of 5,670,688 according to 2006 census (GAIT, 2006), Libya is considered the smallest among the African countries population wise.

Aridity is the most striking feature, resulting from the Saharan Plateau, which forms about 98% of the country, making it truly a desert land. This aridity is an obvious constraint to expansion of economic activities (Benkhial, 1995, p. 547).
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3.1.2 Historical Background

For most of its history, Libya has been subjected to a variety of foreign control. The Phoenicians, Carthaginians, Greeks, Romans, Vandals, Byzantines, Arabs, Turks, and most recently, Italians and a British-French administration, ruled all or parts of the country (Birks and Sinclair, 1980).

Thanks to a United Nations resolution, Libya was declared an independent nation in 1951, which approved the establishment of the United Kingdom of Libya with a constitutional monarchy (Best and Blij, 1977). During that time it was considered one of the poorest countries in the world (IBRD, 1960; Higgins, 1959). However, the discovery of oil in the 1960s has been a turning point in the history of the country and assisted the process of consolidation towards national state. The oil discovery has entirely “transformed the geographical and social profile” of the country (Fisher, 1978). In 1969, a military coup overthrew the king and the country was renamed the Libyan Arab Republic. In 1977, Libya adopted a new constitution and the official name changed to the Socialist Peoples’ Libyan Arab Jamahiriya (Jamahiriya, means the state of the masses) (Joffe, 2001).

3.1.3 The Population

The national censuses are the main sources of statistics for studying the population characteristics of the country. Two estimated census of 1933 and 1936 were conducted during the time of Italian control, to date six official censuses have been conducted. The first was in 1954 and the latest was in 2006 (Table 3.1).
Table 3.1: Population growth in Libya, 1933-2006

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Population</th>
<th>Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1933(^1)</td>
<td>655,000</td>
<td>-</td>
</tr>
<tr>
<td>1936(^1)</td>
<td>733,000</td>
<td>2.3</td>
</tr>
<tr>
<td>1954(^2)</td>
<td>1,089,000</td>
<td>1.9</td>
</tr>
<tr>
<td>1964(^2)</td>
<td>1,564,000</td>
<td>3.3</td>
</tr>
<tr>
<td>1973(^2)</td>
<td>2,257,000</td>
<td>4.3</td>
</tr>
<tr>
<td>1984(^2)</td>
<td>3,643,000</td>
<td>4.5</td>
</tr>
<tr>
<td>1995(^2)</td>
<td>4,799,000</td>
<td>2.5</td>
</tr>
<tr>
<td>2006(^3)</td>
<td>5,670,688</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Source: \(^1\) el Mehdawi and Clarke, 1982; p. 68; \(^2\) Secretariat of Planning, 1995; p. 3; \(^3\) GAIT, 2006.

An examination of the above figures shows that the total population of Libya was growing slowly during the period prior to 1954. This can be attributed to high death rates because of previously mentioned economic situation of that time. However, between 1954 and 1984, population growth has greatly increased with annual growth rate of approximately 4%. This high growth rate is attributable to the increasing birth rate and the return of numerous Libyans who fled to neighbouring countries during the period of Italian control and during the Second World War. It is also due to the influx of foreign expatriates who came in greater numbers after the discovery and exploitation of oil, as well as due to the improvement of the social services and the per capita income (el Mehdawi and Clark, 1982) also added to this growth. However, the growth rate has declined during recent years to about 2.2% which indicates that the population has started a new stage of growth as a result of improvement in education and participation of women in the workplace (Elkikhiya, 1995). According to the demographic projections, the population will continue to grow between 1.2% and 2.2% over the next few decades (UN, 2000, p. 309).

In most cases, the general distribution of population in the country is a product of its climate conditions in particular, as well as some other geographic and economic factors as Misrati (1983, pp. 184-185) indicates:
"Geographic factors, particularly, precipitation, temperature, surface and underground water, to a large extent determine the pattern of population distribution in Libya; moreover, other factors such as economy structure cannot be ignored."

The average population density is very low, less than three people per km². However, the population density varies from one part of the country to another; it is high along the coast, estimated at more than 50 people per km², whereas it falls to less than one person per km² in the interior. It is clear from figure 3.2, that there is a striking difference in the geographic distribution of the population among the country's regions. This pattern of distribution can be attributed to the great aridity that dominates the country which forces more than 90% of the population to be concentrated along the coastal area in general and particularly the north-eastern and north-western coasts.

Figure 3.2: Distribution of population, 1995
Source: Al-Kikhiya, 1995, p.218
3.1.4 Education

During the Turkish period (1551-1911) education in the country was largely based on religious (koranic) schools. Between 1911-1943 the Italian colonial education system was imposed, however, enrolments of the native people in the Italian schools remained low until the end of Italian colonial period (Alshaikh, 1972). The direct result of the long foreign control upon Libyans was an unfortunate experience for Libyan people in all aspects of life especially in education. In the early 1950s, about 90% of the total population was illiterate (IBRD, 1960, p. 8). However, after the discovery of oil the provision of education has been given high priority. Free education is provided at all levels and is compulsory between the ages of 6 and 15. As a result, the rates of literacy and attendance at school have improved significantly (Sharif, 2000).

The statistical picture of the education status of the national population is shown in Table 3.2 which is based on the latest available statistics. As can be seen from the table, in spite of the rapid development of education opportunities over the last few decades, the general level of education attainment among adult is still low. Around 37% of the total population and 45% of females are illiterate or can just read/write and have not experienced formal education. University or similar degree holders account for only 3.5% of the total population.

<table>
<thead>
<tr>
<th>Type</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Illiterate</td>
<td>173,231</td>
<td>10.5</td>
<td>436,188</td>
</tr>
<tr>
<td>Read and Write</td>
<td>314,789</td>
<td>19.0</td>
<td>278,677</td>
</tr>
<tr>
<td>Primary Certificate</td>
<td>394,165</td>
<td>23.8</td>
<td>328,859</td>
</tr>
<tr>
<td>Preparatory Certificate</td>
<td>385,494</td>
<td>23.3</td>
<td>309,428</td>
</tr>
<tr>
<td>Secondary Certificate</td>
<td>305,228</td>
<td>18.4</td>
<td>218,946</td>
</tr>
<tr>
<td>HE or similar Degree</td>
<td>84,725</td>
<td>5.1</td>
<td>30,601</td>
</tr>
<tr>
<td>Not declared</td>
<td>181</td>
<td>0.0</td>
<td>63</td>
</tr>
</tbody>
</table>

Source: Secretariat of Planning, 1995, pp. 609-610
CHAPTER 3: LIBYA AND LIByan HIGHER EDUCATION

However, despite the recent improvement, the Libyan education system is incapable of providing for the country’s needs for trained manpower. Clearly, the country still relies extensively on foreign experts as Zubi (1992, p. 107) explicitly comments:

"Despite the increasing and rapid expansion in the educational system, the rising figures for enrolment and well equipped buildings, the country still suffers from an acute shortage of the well qualified and skilled human resources that should meet the country’s socio-economic development and transformation plan and run the increase number of large industrial establishments like the oil industry, where a large number of foreign personnel still occupy core functions."

3.1.5 Labour Force

Libya has experienced a substantial economic growth rate over the past few decades, which has resulted in a drastic change in the labour force profile. The transformation of the economy has brought about a rapid evolution in the numbers of the national labour force. In 1964 there was an economically active population of 96,761. This figure has increased considerably over the past few decades (Table 3.3).

Table 3.3: Development of labour force: Libyan and non-Libyan

<table>
<thead>
<tr>
<th>Nationality</th>
<th>1975</th>
<th>1985</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Libyan</td>
<td>454,000</td>
<td>67.1</td>
<td>678,000</td>
</tr>
<tr>
<td>Non-Libyan</td>
<td>223,000</td>
<td>32.9</td>
<td>383,000</td>
</tr>
<tr>
<td>Total</td>
<td>677,000</td>
<td>100.0</td>
<td>1,061,000</td>
</tr>
</tbody>
</table>

Source: Zubi, 1992, p. 113; Secretariat of Planning, 1999, p. 78.

As can be seen from Table 3.3, the share of non-Libyan labour force in 1975 was about 33% and in 1985 the non-Libyan proportion had increased to about 36%. However, in 1995 this share had declined significantly to about half of the latter figure (17.4%). This significant decline can be explained by two reasons: the sharp fall of oil prices during the 1980s which brought about a marked reduction in the number of foreign workers (Lawless, 1989, p. 252) and the
underestimation of the numbers of migrant workers by official sources because they did not take account of illegal and undocumented migration (Birks and Sinclair, 1979, p. 98).

Evidently, the population of Libya shares a number of similar characteristics with the major Arab oil exporting countries in regards to labour force (ILO, 1979, p. 17). These characteristics can be summarised as follows:

1. The supply of indigenous labour is unusually small not only because of the smallness of the population, but also, because of the absence of women from the workforce,
2. The youthfulness of the population, and
3. The increased number of students in secondary and HE.

Certainly, all the said characteristics are true in the case of Libya. Firstly, the population is rather small, compared to the large size of the country. Secondly, historically, the participation of women in the labour force has been low. According to Ibrahim and Lawless (1988) it is among the lowest in the world, as it was just 13.2% in 1995. In addition, 37% of the total population were students enrolled at different levels of education. Thirdly, the population has many young people as the percentage of the population under the age of 15 years was 39% (Secretariat of Planning, 1999, p. 46).

Over the last few decades a feature of the country’s labour market has seen the gradual shift from primary (agriculture) sector to tertiary (services) sector. Table 3.4 shows the evolution of the workforce by broad sectors of employment. From the table it is clear that the percentage of those employed by the primary sector decreased significantly from 59.5% in 1959 to 12.5% in 1995, while the opposite is true for those working in tertiary sector which increased substantially from about 26% to 72% during the same period. This means that primary sector has lost its pre-oil position as the main employment sector to the tertiary sector. However, the secondary (industry) sector has experienced no significant change throughout this period.
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Table 3.4: Distribution of total employment by economic sectors (%)

<table>
<thead>
<tr>
<th>Year</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>59.5</td>
<td>14.2</td>
<td>26.3</td>
</tr>
<tr>
<td>1973</td>
<td>20.2</td>
<td>15.0</td>
<td>64.8</td>
</tr>
<tr>
<td>1995</td>
<td>12.5</td>
<td>15.5</td>
<td>72.0</td>
</tr>
</tbody>
</table>


3.2 The Structure of HE

When examining a HE system, it is appropriate to describe briefly the rest of the educational levels prior to HE level. The Libyan education system is structured around four levels (LNCECS, 2004): pre-school, basic education, intermediate education, and HE (Figure 3.3). The pre-school (kindergarten) covers 2 years from age 4 to 6. The compulsory basic education covers nine academic years from age 6 to 15 years. This level is divided into two cycles, the initial cycle (6 years) and the higher cycle (3 years). The intermediate level covers 2 to 4 academic years from age 15 to 18 years. This level provides different types of education:

- Basic Vocational Training (1 to 2 years): provides general vocational training relevant to a professional field.
- Specific Vocational Education (3 years): provides specific skills-based professions.
- Specialised Intermediate Education: provides (non-vocational) special education in six main fields. These fields are basic sciences, engineering and industrial sciences, medical sciences, agricultural sciences, social sciences, and fine arts and media.
HE is provided for students who have obtained the General Secondary Education Certificate (GSEC) and can take between 3 to 6 academic years. This level includes two distinct types; post-secondary VET programmes (PHVETCs) and university education which both can lead to Bachelors, Masters and PhDs. The former is aimed at producing professionals and technicians who combine both theoretical and practice elements. According to El-Hawat (1996, p. 94)

“They are institutes at the level of a university and as mentioned in their establishing decree are working to graduate a competent technical manpower which is capable of fulfilling the requirements of national transformation plans in technical and professional areas and which can work in different productive and services sectors. These colleges cooperate with universities in the areas of developing and designing courses and curriculum materials as well as teaching and training. The most talented graduates from these colleges are allowed to continue their study at universities.”

To achieve maximum utilisation of these colleges, it has been suggested that they be established and distributed in rural areas as well as in small and medium sized cities and be placed closer to large development projects that require professionals and technicians. The latter type (university education) are the comprehensive and specialised universities providing programmes which
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last between four and six years. Graduates from this university education obtain a bachelor's degree qualification for specialism in a particular area (El-Hawat, 1996). As will be illustrated in more detail in section 3.4, these two types of HEIs have increased substantially in numbers over the last few decades.

According to the 1995 census, the total student population amounted to 1,688,697 for all levels, which was equivalent to 35.2% of the country's population. Of the students population there were 92.2% enrolled at the basic level (6-15 years), 82.4% of the 16-18 years age-group was admitted to the intermediate level. In HE however, the enrolment among the student population of those belonging to the 18-24 years age-group was about 39.4% (NAID, 1996, p. 46).

3.3 Philosophy and Objectives of HE

Development of human resources is as important as the development of material/physical resources. Human resource can be developed in various ways, however, education is found to have significant positive effects in this regard (Psacharopoulos, 1988; Harbison and Myers; 1964). With regards to this discussion, Harbison and Myers (1964, p. 2) state:

"Human resources are developed in many ways. The most obvious is by formal education, beginning with primary or first-level education, continuing with various forms of secondary education, and then higher education including the colleges, universities, and higher technical institutes."

To place this approach in proper context, "education for all" is one of the main principles of educational policy in Libya. The general philosophy of the Libyan education system (DICA, 1975, p. 171-177) states that:

1. Education is a right for every citizen free of charge.
2. Basic education (primary and preparatory) is compulsory.
3. Educational services are to be available to villages and remote areas through mobile classrooms.
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4. The educational structure should be linked with the occupational structure to meet the requirements of the economic and social development plans of the country.

5. Education should achieve freedom, quality and unity.

Alongside the above mentioned general philosophy, the main objectives of HE in Libya are the following (NCETR, 1996, p. 76-7):

1. To satisfy society's needs for high-level professional personnel for all sectors of national life.
2. To perform theoretical and applied research.
3. To organize and prepare training courses and applied programmes in the continuing education.
4. To organize conferences and symposia, as well as maintaining academic relationships with research associations inside and outside the country.
5. To promote Arabicisation, the translation, writing, publication and asserting the use of Arabic language in teaching.
6. To generate adequate numbers of scientists, researchers, and faculty members.

3.4 Development of HE System

During the long colonial era which extended for almost four centuries (1551-1951), HE in Libya was virtually nonexistent (Alshaikh, 1973). As a matter of fact, it was not only HEIs which were unavailable, primary and secondary levels of education were also very limited. Discussing this era Wheeler (1966, p. 301-302) in his study "Educational Problems of Arab Countries," made the following statement in this regard:

"Primary education was restricted, secondary education ever more restricted; often both were conducted in foreign tongue. These sparse educational facilities were supplemented by private schools, often of missionary nature. Primary education was usually terminal, though there was some very limited vocational education in order to fill the lower positions in the administrations of the occupying powers."
In Tunisia, for example, access to modern secondary schools was not easy for Tunisian pupils in the days of the protectorate while in Libya there were few primary schools, and secondary education was scarcely available to indigenous population."

Accordingly, when Libya attained its political independence in 1951 there was no policy or infrastructure upon which to build a HE system in the country. However, over the past few decades this unfortunate situation has changed considerably. The historical development of HE in Libya will be discussed briefly in the next section within a context of two distinct periods, namely the low growth and high growth periods.

3.4.1 The Low Growth Period

Immediately following Independence in 1951, the country felt a substantial need for qualified personnel to run government and social institutions. In this respect Qubain (1966, p. 416) writes:

"The sharp contrast between the acute needs of the country for trained manpower and the almost complete absence of such personnel (aside from foreign communities) in the country was obvious. It was felt that the creation of a local institution of higher learning at an early stage would not only provide facilities responsive to the educational aspirations of young Libyans, but also would help train the manpower urgently needed by the government at a much lower cost."

Hence, five years after independence the Faculty of Arts and Education "the nucleus institution of the Libyan University," was established in 1956. Then the Faculty of Commerce and Economics, and the Faculty of Science were created in 1957, and the Faculty of Law founded in 1962. The main objective of these institutions was to provide the newly independent country with the necessary middle and top level administrators (Bubtana and Sarakbi, 1992). The faculties of Arts, Commerce, and Law were located in Benghazi, while the Faculty of Science was located in Tripoli. These two cities were selected as location for these institutions for socio-economic considerations as Qubain (1966, p. 416) observed:
"The distribution between these two cities is due in part to internal factors. The policy seems to be to locate science and engineering faculties in Tripoli so that they are near the industrial centres of the country, and those specializing in the humanities and social science in Benghazi, the spiritual focus."

In 1966 the Faculty of Agriculture was established in Tripoli. Later, in 1967, with assistance from UNESCO, two higher colleges were also established in Tripoli namely the College of Advanced Technology and the Higher Teacher Training College- "these two colleges became the Faculty of Engineering and the Faculty of Education respectively" (EI-Hawat, 2003, p. 392).

### 3.4.2 The High Growth Period

Since the revolution in 1969, Libya has embarked on a policy of implementing rapid socio-economic development plans. These development plans have brought about a conscious policy for the vast expansion of HE opportunities in the country. In 1973 the Libyan University was split into two independent universities, the University of Tripoli and University of Benghazi. Later these universities were renamed: the University of Elfateh in Tripoli and the University of Garyounis in Benghazi. Therefore, all HEIs operating in Tripoli became part of the University of Elfateh, and all HEIs operating in Benghazi became part of the University of Garyounis. These two universities between them have some 15 faculties covering various types of courses (EI-Hawat, 2003, p. 592).

In the latter part of the twentieth century, HEIs in the country have witnessed a substantial increase (Table 3.5). This increase in the number of HEIs can be attributed to the increase in oil revenues which gave Libya the opportunity to accelerate the process of education development, as well as the re-structuring and reform of the educational system in 1980 under what has been known as the New Educational Structure Plan (NESP). As a result, the number of HEIs has increased considerably from one university and four PHVETCs in 1970 to 11 universities and 15 PHVETCs in 1980. By 2000 this number had reached 14 universities with 76 faculties and 85 PHVETCs. However, some researchers (Albadri, 2006; Alfaidy and Ibrahim, 1997; EI-Hawat, 2003) observe that this...
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The number of universities was excessive for a population as small as Libya's (about 5.6 million according to 2006 census). Educational planners have suggested one million inhabitants as a lower threshold for establishing a university (Alfaidy and Ibrahim, 1997, p. 199).

Table 3.5: Development of Public HEIs in Libya, 1960-2000

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive University</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Specialised University</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Open University</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PHVETCs</td>
<td>-</td>
<td>4</td>
<td>15</td>
<td>54</td>
<td>85</td>
</tr>
</tbody>
</table>

Sources: Bubtana and Sarakbi, 1992, p. 431; NCETR, 1996; DGHVECs, 2000

3.5 Geographical Distribution of HEIs

Until the late 1970s most of the HEIs were concentrated in the cities of Tripoli and Benghazi. These two cities are respectively the first (the Capital) and second largest urban centres. Based on this fact several studies have linked between the changing in the structure and distribution of population, and the distribution of HEIs (Elmagouri, 2005; EI-Kikhiya 1995; Harrison 1967). Obviously, the main motivation behind migration has usually been economic; however, education seems to be another essential factor. The locational distribution of HEIs had denied some students the benefits of higher learning, and it has become a strong factor causing students from rural areas to migrate to where the HEIs are located. Harrison (1967, p. 404) has earlier discussed this issue in his study on Libya:

"For higher technical or university education students must migrate either to Tripoli or to Benghazi. Education encourages longer absence from home, and a student leaving college finds that the best opportunities for employment are in the city."

This opinion has been shared and supported in more recent years by EI-Kikhiya (1995, pp. 350-351)
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"Most higher education opportunities are located in cities, which make them imperative for thousands of villagers to move to cities to get education. This subsequently, makes them stay away from the life of the countryside and become more familiar with the city lifestyle which makes it difficult for them to return to rural life... Moreover, the provided courses and programmes mostly qualify the vast majority of graduates to work in the city and rarely in rural areas. Thus, graduates from rural areas find themselves earning a living from working in the cities and cannot return to their areas of origin."

Obviously, the direct result of the concentration of HEIs in Tripoli and Benghazi has largely been mirrored in the geographical distribution of enrolments as well as graduates. This specific issue has been further highlighted by Elmagouri (2005, pp. 97-80)

"It was noted that graduates from higher education institutions situated in Tripoli and Benghazi constituted more than 63% of the total graduates during the academic year 1994/95... It was also found that the share of the students enrolled in the higher education institutions of Tripoli and Benghazi had exceeded 73% of the total enrolment in the same year."

Recently, however, educational planners and administrators in Libya have probably become more aware of the effects of the distributional aspects of HEIs. It is evident, that more efforts had been made to more widely disperse the location of HEIs among all regions and locations. These efforts have been reflected in the government's policy for the "horizontal distribution" of the HEIs across the country to provide equal opportunities for all who wish for it and who can benefit from it (Albadri, 2006; NCETR 1996). However, some analysts have argued that the establishment and locations of HEIs have not been appropriately planned to meet the actual needs of different regions (El-Hawat, 2003, Albadri, 2006, Elmagouri, 2005). This unplanned expansion has been well summed up by Albadri (2006, pp. 148-149) who argues:

"Notwithstanding, the idea of horizontal proliferation and expansion of higher education institutions was a pioneering and ambitious idea, that aimed at providing higher learning to all sections of the society and assisted in transferring the whole society from underdeveloped stage to progress. However, the desired objectives did not meet the practical reality and this might suggest that such an idea had not been based on solid scientific grounds... The sudden and haphazard
expansion of universities and colleges has been conducted without taking into account the actual distribution and density of population. These ideas have probably been born of the moment because they did not take into account the simplest requirements of the higher education institutions such as appropriate buildings, administrative staff and most importantly, sufficient number of faculty members to carry out the various teaching responsibilities at these newly established colleges and universities."

This unplanned situation of HEIs' establishment and location distribution will be further discussed in Chapter 4.

### 3.6 Student Enrolment

When the first institution opened its doors in 1956 it had only 31 male students (Attir, 2006, p. 28). However, since then HE provision has witnessed substantial growth in the numbers of students. As shown in Table 3.6 student enrolment increased rapidly over the last three decades of the twentieth century, from 3,663 students in 1969/1970 to 269,702 students in 1999/2000. The 1990s witnessed more than a fourfold increase of student enrolment with a growth rate of 395%. According to results from several studies (El-Hawat 1996; El-Kikhiya, 1995; DICA, 1975) this significant increase in the enrolment numbers can be attributed to the following:

1. The impact of high demographic growth over the course of the past few decades.
2. Improvements in the schooling sector, which meant that considerable numbers of secondary students pass the GSEC exams and are entitled by law to enrol at HEIs.
3. The democratisation policy of Libyan education that offered free access to HEIs.
4. The need for more experts, qualified, and educated citizens emerged suddenly with the discovery of oil.
5. The massive socio-economic development programmes that were initiated, which subsequently increased the need for educated, trained and well qualified people to carry out such plans and projects.
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Table 3.6: Development of Enrolments in HEIs in Libya

<table>
<thead>
<tr>
<th>Type</th>
<th>1961/62</th>
<th>1969/70</th>
<th>1980/81</th>
<th>1989/90</th>
<th>1999/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td>1,028</td>
<td>3,663</td>
<td>19,315</td>
<td>50,475</td>
<td>204,332</td>
</tr>
<tr>
<td>PHVETCs</td>
<td>-</td>
<td>-</td>
<td>1,130</td>
<td>3,916</td>
<td>64,970</td>
</tr>
<tr>
<td>Total</td>
<td>1,028</td>
<td>3,663</td>
<td>20,445</td>
<td>54,391</td>
<td>269,302</td>
</tr>
<tr>
<td>Growth Rate (%)</td>
<td>-</td>
<td>256.3</td>
<td>458/1</td>
<td>166.0</td>
<td>395.1</td>
</tr>
</tbody>
</table>

Sources: Bubtana and Sarakbi, 1992, p. 431; NCETR, 1996; DGHVECs, 2000

Table 3.6 also clearly shows that students' numbers at PHVETCs rose considerably, they increased by more than sixteen-fold during the 1990s. However, it reflects the imbalance that favours academic education at the expense of urgently needed VET programmes. In 1999/2000 PHVETCs enrolled less than one-quarter of all students entering HEIs. Evidently, as is the case in most Arab countries, vocational-oriented education is traditionally impeded by the society's negative attitude. It was regarded, and perhaps still is regarded, as undignified, degrading, and menial. However, with the gradual rise of industry, this disrespectful attitude toward vocational training has begun to decline, but it is still very much in evidence (Al Heeti and Brock, 1997; Al-Said, 1990, Garrett and Farghaly, 1987; 1983 Qubain, 1966).

Decreasing gender differences has been one of the main objectives of the Libyan education policy (Keibah, 1998). In connection with this, it is worth mentioning that the growth in female enrolment is, the most positive aspect of the Government commitment to open access to HEIs. Gender inequality has decreased considerably over the course of the past few decades. According to Bubtana and Sarakbi (1992, p. 435) "not more than 5% of the total student population was female in 1957". Since then, the proportion of female participation in HEIs has increased continuously. This proportion rose from 21.1% in 1987/88 to 50.4% in 1999/2000 (AI-Hawat, 2003, p. 395).

Another area of concern is the insufficient emphasis on science and technology education/training. Until now the Libyan HE system has not yet been able to graduate enough qualified personnel in the many fields that are desperately
needed by the society (Sharif, 2000). The available statistics on the distribution of students by field of study shows that there has been more emphasis on theoretical (Humanities and Social Sciences) fields at the expense of basic and applied fields. Enrolment on liberal arts programmes has expanded at a much faster rate than those enrolling on basic and applied nature programmes.

As can be observed from Table 3.7, while there was comparatively a balance and equilibrium distribution between the fields of HE in 1986/87, the situation has changed considerably in 1995/96 when humanities and social sciences constituted more than 70% of the total students enrolled and just about 28% were enrolled in the basic, engineering, and medical sciences.

<table>
<thead>
<tr>
<th>Speciality</th>
<th>1986/87</th>
<th>1995/96</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Humanities &amp; social sciences</td>
<td>7,893</td>
<td>20.3</td>
</tr>
<tr>
<td>Agricultural sciences</td>
<td>5,762</td>
<td>14.8</td>
</tr>
<tr>
<td>Basic &amp; applied sciences</td>
<td>7,621</td>
<td>19.6</td>
</tr>
<tr>
<td>Engineering sciences</td>
<td>7,125</td>
<td>18.4</td>
</tr>
<tr>
<td>Medical sciences</td>
<td>5,625</td>
<td>14.5</td>
</tr>
<tr>
<td>Other fields</td>
<td>4,814</td>
<td>12.4</td>
</tr>
<tr>
<td>Total</td>
<td>38,840</td>
<td>100.00</td>
</tr>
</tbody>
</table>


Despite the fact that Libya enrolled a higher percentage in the sciences fields than other developing countries, it was well below the averages of the more developed and Arab countries (see Table 3.8). The increase in enrolment in the humanities and social sciences during the last few decades may be attributed to the expansion of the system and the pressures to admit more students. In such areas of HE (humanities and social sciences) it is easier and much less expensive to absorb large number of students (Psacharopoulos, 1987).
### Table 3.8: Some HE indices in selected world regions, 1995

<table>
<thead>
<tr>
<th>Region</th>
<th>Students per 100,000 pop.</th>
<th>Science students (%)</th>
<th>Students/Teacher Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed regions</td>
<td>4,110</td>
<td>37</td>
<td>14</td>
</tr>
<tr>
<td>Developing region</td>
<td>3,396</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>Arab countries</td>
<td>1,227</td>
<td>33</td>
<td>19</td>
</tr>
<tr>
<td>Libya</td>
<td>3,279</td>
<td>28</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: ¹ UNESCO (1998); ² NCETR (1996)

### 3.7 Teaching Staff

When the first institution was established in 1956 the total number of teaching staff was just six (Alshakshoki, 2006, p. 144). However, since then the number of faculty members in the HEIs has increased significantly over the past few decades. It rose from 1,629 in 1982 to 2,409 in 1988 (Bubtana and Sarakbi, 1992, p. 435) and in 1999 this number rose by fourfold to 10,362 of which 5,077 (45%) were non-Libyan (Gannous, 1999; GDHVECs, 2000). Despite the fact that almost 50 years have passed since the inception of HE system in the country it is not only unable to graduate enough students to satisfy the urgent needs of the country but it is even unable to satisfy its own needs for teaching staff (Albadri, 2006; Muftah 1983; Ghanem, 1977).

Lack of Libyan teachers in the education system in general and in HE in particular forced the Libyan Government to employ large number of non-Libyan to teach in HEIs. With regard to this particular aspect EUN (2003), the Website of Egyptian Universities Network (www.frcu.eun.eg) states that Libya requires 400 faculty members to teach at different HEIs in the country:

"The Minster of Higher Education and State for Scientific Research in 9/10/2003 in a meeting with 865 faculty staff members who have contracts with Libya, announced that the Libyan Higher Institutes require another group of faculty personnel from the Egyptian universities. This group includes 400 members in the specifications of Mathematics, Computer Science, Engineering, Science, and..."
CHAPTER 3: LIBYA AND LIBYAN HIGHER EDUCATION

Agriculture. This is to teach in the new [academic] year in Libya, which will begin in the days to come.”

Apparently, the problem of a lack faculty members not only occurs because the Libyan HE system is incapable of producing sufficient numbers of faculty members but it can also be attributed to another reason, namely the brain drain i.e. the loss of qualified and talented professionals to other countries (Teferra and Altbach, 2003; Edokat, 2000). As in many other developing countries, this problem has become a more critical issue in Libya (El-Kikhiya, 2003). This recent situation may be attributed to various reasons such as low job satisfaction, poor working conditions, and/or political issues etc. Such conditions have probably forced a considerable number of qualified faculty staff in many fields of knowledge to migrate to gain better conditions in other countries. According to El-Kikhiya’s (2003) estimation, approximately 5% of the total of Libyan intellectuals have left the country looking for better opportunities abroad. Alongside this, in 2002 there were 33 Libyan faculty members in the UK HEIs (Nunn, 2005, p. 56). Despite the importance of this issue, it has not yet been thoroughly discussed and highlighted because of a lack of sufficient data².

It is clear that the increase in student enrolment without equal increase in faculty members has contributed to an increase in the students to faculty ratio. The average rose from 1:17 in 1972/1973 (Ghanem, 1977, p. 2640) to 1:26 in 1999/2000 (Gannous 1999; DGHVECs 2000). The number of students per a faculty member in HE in Libya was higher than that of the advanced regions, developing regions, and Arab countries (Table 3.8).

² Apparently, the Libyan Government has recently realised the magnitude of this issue because in 2005 a Secretary (Minister) of Expatriate, Immigrants and Refugee Affairs has been appointed (Almanara, 2007). In conjunction with this recent development and concern, a conference entitled “African Brain Drain- Managing the Drain: Working with the Diaspora,” was held in Tripoli, Libya, on 21-25 October 2007 (www.aau.org/corevip07/index.htm).
3.8 Conclusion

Despite the fact that HE is a relatively recent phenomenon in Libya, it has seen an unparalleled growth in both absolute and relative terms. As mentioned earlier, this growth is a direct result of the economic growth and strong social demand for its services. Over the past half century HEIs have made substantial contributions to society at least from the quantitative standpoint. (This will be further discussed in the following chapter). However, the current condition of HE suggests that the system is suffering from a number of significant disadvantages. These disadvantages include:

1. The unplanned and inequitable distribution of HEIs between different parts of the country.
2. Severe shortages of teachers, heavy dependence on expatriate staff and relatively high teacher to students' ratios.
3. The growing dominance of liberal arts at the expense of pure and applied academic fields.

The next chapter will discuss the relationship between socio-economic development and HE planning in Libya.
CHAPTER 4

HIGHER EDUCATION AND DEVELOPMENT PLANNING IN LIBYA: AN OVERVIEW
The preceding chapter has shed some light on Libya and the Libyan HE system and the types of problems that the system has experienced. This chapter attempts to provide a general overview of the Libyan HE system within the context of socio-economic development planning in the country. The contextual conditions described within this chapter were influential on the identification of the research problem and the design of its procedures, and will also be relevant in drawing conclusions and formulating policy implications.

4.1 Development Planning

According to Todaro (1977, p. 1, quoted in Chowdhury and Kirkpatrick 1994, p. 2) development planning can be defined as:

"... a conscious effort of a central organisation to influence, direct, and, in some cases, even control changes in the principal economic variable (e.g. GDP, consumption, investment, saving, etc.) of a certain country and region over the course of time in accordance with predetermined set of objectives."

As will be seen in the next section, Libya has used comprehensive development planning as a method to plan the future development of the country. Advocates of the comprehensive development planning approach claim that the ultimate goal of this approach is to improve the quality of life by means of systematic evaluation and well defined objectives. According to Killick (1976, p. 161), appropriate development planning should meet the following requirements:
CHAPTER 4: HIGHER EDUCATION AND DEVELOPMENT PLANNING

1. Starting from the political views and goals of the government, the plan should define policy objectives, especially as they relate to the future development of the country;

2. It should set a strategy by means of which it is intended to achieve the objectives, preferably translated into specific targets;

3. It should present a centrally co-ordinated, internally consistent set of principles and policies, chosen as optimal means of implementing the strategy and achieving the targets, and intended to be used as a framework to guide subsequent day-to-day decisions;

4. It should cover the whole economy (hence it is ‘comprehensive’ as against ‘colonial’ or public sector planning);

5. In order to secure optimality and consistency, it should employ a more-or-less formalized macro-economic model (which, however, may remain unpublished) to project the intended future performance of the economy;

6. It typically covers a period of, say, five years and finds physical expression as a medium-term plan document, which may, however, incorporate a long-term perspective plan and be supplemented by annual plans.

However, analysts argue that the key component of any development planning is the availability of accurate and sufficient data and information which are apparently lacking in many developing countries including Libya (Salem, 1995; El-Hawat, 2003; Albadri, 2006). In line with this point of view, AbouZahr et al (2007, p. 1039) observe:

"Without data, a country's efforts to plan for [the] future growth and welfare of its people cannot be grounded in reality and therefore may be severely flawed."

4.2 Development Planning in Libya

Development planning programmes in Libya are a very recent practice. At the time of Libya’s independence in 1951, there was little hope for a viable future due to a small population which was poor and illiterate, and a lack of a resource bases with an economy based on subsistence farming supplemented by foreign
aid. The conditions in Libya at that time have adequately been described by Higgins (1959, p. 37) in these words:

"Libya comprises within the borders of one country virtually all the obstacles that can be found anywhere: geographic, economic, political, sociological, and technological. If Libya can be brought to a stage of sustained growth, there is hope for every country in the world."

However, within just one decade this gloomy dark picture had completely changed after a rapid exploitation of vast newly found oil reserves and substantial socio-economic reforms. With regard to this, Clarke (1963: 59) noted:

"The years 1951 and 1961 were momentous in the history of Libya; the former witnessed independence and the end of a long period of foreign domination, while the latter saw the first exports of oil which will reduce reliance on foreign financial aid."

It is obvious that the discovery of oil marked a turning point on the development of the country. The sizeable revenues from the production and export of oil enabled the government to prepare and implement a number of ambitious socio-economic development plans (Buru et al, 1985). At that time, the planning authorities argued that the main goal of development plans was to reduce inequality between different parts of the country (Abdussalam, 1983, p. 145).

"... Geographical distribution of investment and the location of projects were made in accordance with the principles of "spatial planning." It is hoped that this will help in population redistribution so as to relieve the congestion in the coastal belt, and particularly ease the pressure on Tripoli and Benghazi."

Broadly speaking, based on previous literature on socio-economic development planning and HE policy in Libya, four distinctive periods can be observed. These distinctive periods are discussed in the next section.

4.2.1 Organisation and Preparation

Evidently, it can be said that the first step towards socio-economic development in Libya was in 1953. According to the United Nations' report in that year an
amount of 18 million Libyan Dinars (UK£1 = 2.4 Libyan Dinars) had been spent on repairing the damages caused by World War II\(^3\) and improving the basic service sectors of agriculture, transport, health and education (Owen, 1961, p. 36, cited in el Mehdawi, 1995, p. 640). However, although the report mentioned development and programmes there was no planning framework and it was only aimed at providing some basic services for the then poor and deprived country (el Mehdawi, 1995). In 1964 the Ministry of Planning and Development published the broad outlines of The First Comprehensive National Plan for Socio-Economic Development (1963-68) which was formulated with technical assistance from the IBRD (International Bank for Reconstruction and Development) mission in Libya (IBRD, 1960). The total fund allocated to this plan was 169 million Libyan Dinars to be spent on different sectors (Ghanem, 1985, p. 220). Although, the plan had brought about some socio-economic progress to the newly independent country, there was sort of inequality and disparity not only between people but even between different sectors and regions as Ghanem (1985, p. 223) points out:

"Towards the end of the sixties the economy started showing clear disparities in the distribution of income, not only among people but also among different economic sectors and geographical regions. The economic plan favoured people working in the agricultural and oil sectors. The cities in the north, mainly Tripoli and Benghazi, were benefiting more from the economic boom than the rest of the country. The result was migration from rural areas to the northern cities, increasing the pressure on the different sectors of the country."

As far as HE is concerned, however, according to Algomaty (1978) the year of 1951 was considered a watershed between two eras, the colonial era where the country was deprived of national administrative organisations and educational systems and the era of independence. Consequently, since the 1960s, due to rapid political as well as socio-economic development, the education system entered another period of change based on the mentioned comprehensive national plan. Accordingly, the first five year plan in the history of the Ministry of

\(^3\) During the Second World War, Libya was a battlefield for several major military operations between the Allied and Axis forces. These military operations resulted in considerable loss of life, massive displacement of population and extensive damage to the economic infrastructure (Bulugma and Kezeiri, 1995).
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Education was designed for the different levels of education within the National Comprehensive Plan. Thus, when HEIs were first introduced in Libya, the main goal was merely the training of potential civil servants and teachers to be employed in the important service occupations of education, health and government (which were the big users of educated manpower) (Qubain, 1966).

Certainly, the most important work of the authorities during this period of development planning was concentrated in the enactment of laws and regulations compatible with the nature of the status quo and to fulfil the requirements of the socio-economic development plans (el Mehdawi, 1995).

4.2.2 Expansion

After the revolution in 1969, strategies and approaches were changed substantially. Associated with these changes, development planning has been, and continues to be, highly centralised within the hands of the government. During the 1970s (described by Ghanem (1985) as fat years) oil prices and revenues were very high. As a result, the government’s income from oil increased and planning continued, but with a different strategy, the first plan (1970-72), followed by another three-year plan (1973-75). Then, in 1976, came the five-year Economic and Social Transformation Plan (1976-80). Through these three plans, covering a period of 11 years, 11,225 million Libyan Dinars were spent on development projects distributed among different sectors of the national economy (Ghanem, 1985, p. 223). The Revolution Government advocated socialism, more self-reliance and self-sufficiency in food. Within this general context, the Government had become the main player in providing various needs of the society. This responsibility was not easy in a country lacking skilled manpower capabilities and having serious management difficulties. This situation has been explicitly described by Ghanem (1985, p. 225) in these words:

"The increasing income from oil eased the strain on the state. There was so much money that it was not difficult to follow a policy of 'all things to all people.' The planning was indiscriminate with industrial
projects being undertaken with little regard paid to their economic feasibility. Roads, ports, airports, hospitals, school and hotels were built simultaneously, and the major cities began to look like large construction sites! In the trade sector commodities were imported from all over the world, with no attention to whether or not there is need.”

It is obvious that these ambitious plans have demonstrated a substantial growth in the different economic and social sectors, however, some analysts have identified some shortcomings in these plans and argue that the relative success achieved during this stage was probably due to the huge investments allocated to the development project programmes, and the small size of the Libyan population (Attir, 2006; Kezeiri and Lawless, 1987; Naur, 1986; Ghanem, 1985; Abdussalam, 1983). The main identified shortcomings can be summarised as:

- These plans may not have been considered at the level of integrated the plan, they were no more than budgets and financial allocations set at the request of various ministries,
- These plans had not been based on actual and accurate statistics, and reliable analysis, and
- The lack considerations of spatial relationships both within and between regions.

In this context, it is important to note that the education policy was changed significantly. It focused on improving the quality of education aspects as well as the quantitative issues. Also, of concern was the delivery of educational services to the beneficiaries in villages and remote areas. The revolutionary regime stated that (Ministry of Education, 1975, pp 4-5):

“Education is the most important pillar of development… Education is seen as an investment in human capital, not just a service committed by the Government towards its citizens. Planning is considered essential for formulation and implementation of educational policy.”

The specific objectives of HE which came from the Three-Year plan were as follows (Ministry of Planning and Scientific Research, 1972, pp. 183-84):
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- The expansion of college acceptance, particularly in science colleges to meet the growing needs of the society.
- Positive and effective participation of HEIs through research and field studies which serve the socio-economic development.
- Support HEIs with faculties, specialists, laboratories and scientific resources as well as opening doors for graduate studies.
- The expansion of study and training missions to ensure access to the levels required by the country.

Along with this general policy trend, the Supreme Council of Educational Planning was established in 1970 in order to coordinate planning between HEIs and general education to help in raising levels of human resources efficiency in various areas to assist the country with fulfilling its needs for human resources. The specific duties and responsibilities of this organisation can be summarised as follows (Algomy, 1978, pp. 356-7):

- Identification of educational objectives, which were needed to be achieved by different educational institutions.
- A systematic study of long-range plans.
- Study and laying the scientific basis underlying the systems of education.
- Study priorities to be able to pursue scientific development in the world and how to benefit from the modern scientific experience.
- The application of scientific methods in both undergraduate and postgraduate programmes so as to meet the demands of the future.

Another picture of progress in the area of education was the focusing on HE and scientific research so that education would be able to meet the needs of qualified manpower in various scientific and technical areas. At that time, there was a general agreement among many observers that HE in Libya had witnessed a significance growth in both absolute and proportionate terms. This significant growth was not a surprise, bearing in mind the priority that was given to HE as a powerful instrument for socio-economic mobility and social stability.
as well as a main provider of highly qualified manpower urgently needed for development plans, (Gannous, 1999).

4.2.3 Slowing Down

From the early 1980s the income from oil went down substantially as a result of the drop in prices and decrease in production. Within a period of four years oil revenues had dropped by more than half from 22.6 billion US dollars in 1980 to just under 10 billion US dollars in 1984 (Khader, 1987, p. 202). Due to this sharp decline in the prices of oil, the Government began to change its policy to maintain a balance between its revenue and expenses. In this particular context Khader (1987, p. 203) pointed out that:

"Falling revenues have induced Libya to embark on an austerity policy involving cut-backs in development and administrative spending."

Also, Ghanem (1985, p. 228) commented:

"The loss of income affected the country's ability to continue its 'gun and butter' policy."

Based on the above mentioned considerations priorities had to be re-arranged in order to achieve a balance between income and expenditure. According to Khader (1987, pp. 203-204) since the early 1980s the Libyan budget was divided into three elements: development budget, administrative budget and a foreign trade budget as follows:

"The development budget is related to the implementation of the five-year plan (1981-85)... The administrative budget is made up of regular revenues and expenditures of the General Secretariats [Ministries], as well as transfer to and from the municipalities and most public enterprises... The foreign trade budget was introduced in 1982 as a tool for allocating foreign currency to priority sectors and is not therefore a part of government expenditure plans."

Although another Five-Year Development Plan (1981-1985) had been announced and published in 1980, it was not successfully implemented. This was because of the cut-backs in Libyan budgetary allocations, (as a result of
reduction in oil revenues) and the international economic sanctions and embargo imposed on Libya between 1992 and 2000 as a result of its alleged role in the bombing of Pan Am 103 over Lockerbie, Scotland in 1988 (Matar and Thabit 2003).

Since the mid 1980s the government abandoned planning work and adopted a series of ad hoc annual investments which remained strongly oriented towards both physical and social improvements as Sharif (2000, p. 93) observed:

"Reduction in financial resources availability, resulting in the suspension of planning programmes as it is commonly formulating (short, medium and long terms). Thus, recent development efforts have been carried out in accordance with the annual budget, which in reality is not a plan, rather just a list of projects designed to provide maintenance service or commodities that are considered essential for the national economy."

Clearly, as a result of this unstable economic situation many of the initial educational objectives have not been completely attained (El-Hawat, 2003; Keibah, 1998; Alfaidy and Ibrahim, 1997). As a result, in 1980 the whole education system was evaluated and new policies and objectives were set out. According to these new policies and objectives which were set out in the previously mentioned NESP, the HE sector should be closely linked with the general education stages and should complement them through in-depth specialized courses/programmes and scientific research to ensure the development of the society in various fields. However, the general objectives of the plan were formulated in broad terms as follows (El-Hawat, 1996, p. 184):

- Providing highly developed and diverse educational programmes to meet the current needs of the country in different fields.
- Conducting research and scientific studies, and provide work experience and advice.
- Organising courses, seminars and scientific conferences as well as establishing closer links, experience and scientific ties with scientific and cultural institutions and research organisations at home and abroad.
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However, almost two decades have passed since NESP was first announced and it appeared that many of the above mentioned objectives have not been achieved as the country still depends heavily on foreign skills in the implementation of many development projects. Related to this context, Abusnina (1996, pp. 6-7) examined the development issue in Libya and pointed out that:

"Until the mid 1990s Libya was placed among the medium human development countries, which include most of the Arab countries... the national manpower did not contribute a large share in the implementation of strategic projects, which was established in country. The lack of Libyan manpower contribution in the establishment of these projects was a missed opportunity for many Libyan workers to acquire the necessary skills and expertise when many giant foreign companies implemented these projects. This led to strengthening the policy of dependence on foreign workers to achieve socio-economic development."

Furthermore, Alfaidy and Ibrahim (1997, pp. 199-200) have specifically commented on the various shortcomings that were affecting the productivity of many HEIs:

"It was noted that some of the new higher education institutions have no economic value due to the lack of sufficient equipment and professional human resources... and the large number of expatriate faculty members which in some institutions accounted for more than 90% of the total... In addition to the high expenditures incurred by the society in the establishment of, for example, a faculty of engineering of less than 50 students, and not to mention the low level of educational attainment of this new faculty... It was also, observed that a large proportion of higher institutions tend to enrol in the social science and humanities, this is despite the fact that the society is in badly need of graduates of science disciplines... as it continues to rely on expatriates both at secondary and postsecondary levels in the areas of education as well as training."

Similarly, in another study, El-Hawat (2003, pp. 391-95) has discussed and commented on the lack of interrelationship between the HE system and economic activities:

"The most important challenge facing Libya’s system of education is its ability to adapt to the requirements of economic development in the relationship between the educational plan and the economy. For
this reason, Libya has tried during the past few years to link higher education policies with those of development, the economy and the society. Policy makers have tried at least theoretically and render it part of the general development plan... Nevertheless, despite this theoretical commitment, there is still disparity in the points of views of the educational planner and the economic planner.”

El-Hawat (2003, p. 398) further pointed out that to enhance the relationship between HE and socio-economic requirements the following issues needed to be addressed:

- Inadequate educational statistics and data.
- Insufficient information about the labour force needs.
- Lack of understanding between economists and financial experts.
- Insufficient legislation that promotes a reciprocal relationship between educational planning and economic planning.

In connection with this issue, NCETP (The National Centre for Educational and Training Planning) published in 1996, a report entitled “Action Policy Framework for the Twenty-First Century.” The broad outline of this policy framework can be summarised as follows (NCETR, 1996, pp. 128-134):

- Reconsider the philosophy and goals of HE to be online with the idea of specialised universities and community colleges.
- Establishment as well as affirmation of sustainable development planning for the advancement of education, training and scientific research in accordance with the needs of the society and future requirement.
- Coordination between the quantity and quality of secondary education graduates and the areas and ability of HE to absorb these graduates.
- Diversification of HE patterns and diversification of its sources of funding.
- Planning for HEIs teaching staff in accordance with a long-term plan.
- Develop postgraduate studies programmes that contribute to the advancement of scientific research in different fields of knowledge based on the needs of Libyan society and its socio-economic growth.
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- Upgrading of HE programmes and the dissemination of the importance of scientific research and its practical implications.
- Implementation of research activities to be in parallel to those in developed countries.
- Adoption of strategic planning for education, training and scientific research according to a long-term timetable and specific goals and objectives.
- Building a database of information and statistics for all aspects related to education, training, manpower, population, economic activities and labour market. This information would provide a great deal of clarity and vision of the future and assists in taking appropriate decisions in this respect.
- Directing education and training for the development of human resources according to a comprehensive development based on knowledge, professional and social needs.

In spite of all these ambitious objectives, however, results from recent and earlier studies have strongly suggested that that HE system in Libya is suffering from a lack of appropriate planning mechanisms and procedures (Attir, 2006; Albadri, 2006 and 2007; Alawar, 2006; Elmagouri 2005; Gannous and Aljoroushi, 2004; El-Hawat, 2003; Keibah, 1998; Alfaidy and Ibrahim, 1997; Mogassbi, 1983; Muftah, 1982). This lack of planning considerations has subsequently produced to a number of shortcomings and limitations within HE system. With regard to this, Keibah (1998, pp. 192-196) discoursed on the chronic mismatch between HE outputs and the real demands and requirements of the labour market:

"Any analyst of the performance of the Libyan economy over recent years can clearly observe the emergence of job seekers' problem especially among graduates of higher education. The obvious question that arises in this case is how the phenomenon of job seekers in Libya can be explained in the light of demographic characteristics that are characterized by the following features: 1) the small size of the Libyan population and the small percentage of Libyan workers, which is about 22%, 2) the proportion of the contribution of women in the labour force which does not exceed
25%, and 3) the relatively higher proportion of non-Libyan employed in the labour market... This can only be explained due to a mismatch between the outputs of higher education and the true needs of labour market. If appropriate measures are not taken to solve this problem, it will become more acute in the coming years and subsequently the universities will be educational institutions that graduate job seekers where jobs are not available to them. Thus, there should be a link between the higher education outputs with the requirements of the labour market and plan higher education to meet the exact needs of labour market. In other words, procedures must be set out to link the planning of higher education to the manpower planning."

4.2.4 New Trend

Libya is currently going through a transition period from a centrally planned economy to a market-oriented economy (Porter and Yergin, 2006). This recent shift, however, has opened the doors widely for the private sector to invest in HE to meet the increasing social demand on its services. As a result the number of HEIs has increased significantly, but the focus of the expansion has been on the quantitative aspects rather than the qualitative ones. With regard to this, Gannous and Aljoroushi (2004, p. 4) have argued about the recent deterioration of the effectiveness and efficiency of HEIs in Libya and brought forward a number of challenging questions regarding the uncontrolled growth in the number of HEIs:

"Does our society of just five million require more than 40 private universities, and 20 of what is known as departmental universities in addition to the seven veteran universities and more than 120 public and private higher colleges? And is there any possibility of providing all these universities and higher colleges with their educational process requirements such as qualified lectures, well-equipped laboratories, books, journals... etc. ...The quantitative increase in higher education institutions at the expense of quality, which may have so many negative damage consequences namely: graduates of lower attainment level, who do not qualify for any actions of positive impact. Nevertheless, they are employment seekers (if they get any) and will earn salary for their work. As a consequence, the society will suffer two defeats: 1) spending on weak education and 2) recruitment of large number of graduates, whose low production does not fulfil society’s ambitious plans."
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4.3 Conclusion

When Libya attained independence in 1951 it was considered one of the poorest nations in the world. Libya depended on a subsistence farming lifestyle supplemented by foreign aid and there was very little hope for a viable future. However, the discovery of oil in 1959 changed this gloomy picture as revenues from oil exploitations provided the country with the necessary financial resources to implement a number of huge comprehensive socio-economic development projects during the 1960s and 1970s. These development projects covered all socio-economic sectors and caused a massive transformation of the whole society towards progress and modernisation. Despite the positive impacts, the above discussion has shown that many of the desired and target objectives of these projects were not entirely achieved as a result of a number of impediments and limitations that have influenced the outcome of these programmes in Libya particularly during recent years. These impediments and limitations can be summarised as follows:

- The small size of population compared with the huge development planning programmes.
- Lack of national manpower in general and skilled workers and technical workers in particular.
- Insufficient financial allocations as a result of lower oil revenues during the 1980s.
- Unreliable, inaccurate and inconsistent statistical data and information.
- Inadequate administrative and managerial experience.
- The imposing of the UN sanctions following the suspected involvement of Libya in the bombing of the Pan Am 103 jet over Lockerbie.

The aforementioned issues have largely contributed to the unbalanced socio-economic development (Attir, 2006; Abusnina, 1996; Ghanem, 1985; Kezeiri and Lawless, 1987). In addition, the review of mentoring literature on development issues in Libya has suggested that development planning programmes in general have long been based and formulated on theoretical
CHAPTER 4: HIGHER EDUCATION AND DEVELOPMENT PLANNING
rather than on practical considerations. This is particularly the case for the
development of the HE system. In other words, it has been formulated on
traditional objectives-based planning rather than on problem-based planning
approach (Swann, 1997).

The next chapter (Chapter Five) describes the research methodology that has
been used for the framework of this study.
CHAPTER 5: RESEARCH METHODOLOGY

RESEARCH METHODOLOGY

The preceding chapter has discussed the relationship between HE and development planning in Libya and this chapter explains the overall methodology and procedures employed to conduct this research.

According to Collis and Hussey, (2003, p. 55) the term methodology "refers to the overall approach to the research process, from the theoretical underpinning to the collection and analysis of the data." Clearly, the choice of research methodology is an important part in any research project. It provides a coherent and systematic framework during the research process. This importance has been described by Berry (1983, cited in Vignali et al, 2001, p. 466) in these words:

[Research methodology] "... is not about data collection and the rules of evidence; it is more about the nature of explanation and the means by which explanations are produced."

5.1 Research Design

In order to provide definitive answers to the research questions mentioned in Chapter One, a research methodology is developed and designed. In this regard it is better to start this section by defining what is meant by research design. Vogt (1993, p. 196) defines research design as

"the science (and art) of planning procedures for conducting studies so as to get the most valid findings."

Research is often described as an organised scientific effort that intends to address a specific problem. However, there have been several attempts to
CHAPTER 5: RESEARCH METHODOLOGY

define the term research. Soanes and Stevenson (2005) define research as “the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions.” Bassey (1999, p. 38) states "research is systematic, critical and self-critical enquiry which aims to contribute towards the advancement of knowledge and wisdom." According to Sekaran (1992, pp. 4-5) research can be defined “as an organised, systematic, data based, critical, scientific inquiry or investigation into a specific problem undertaken with the objectives of finding answers or solutions to it.” Sekaran (1992, p. 5) further asserts that there are two main purposes of any research project, “one is to solve a currently existing problem in the work setting; the other is to add or contribute to the general body of knowledge in a particular area of interest to the researcher.”

Evidently, education and HE have been intensively researched, whether the research concern education directly or some other related fields (Hutchinson and Lovell, 2004; Cruickshank, 2003). Educational research according to Anderson (1990, p. 4) is:

“... disciplined attempts to address questions or solve problems through the gathering and analysis of main data for the aim of description, explanation, generalisation, and prediction.”

To place the methodology adopted in this study in a proper context, the Research Process Onion (RPO) was used. The RPO (Figure 5.1) contains six layers that start from the outer layer and move to the inner layer. In the next paragraphs, the research philosophy, research approach, research strategy, and the data collection methods are illustrated in accordance with the RPO as well as the questionnaire development and field study procedure.
5.1.1 Research Philosophy

According to the RPO the first layer raises the question of research philosophy. Although, research philosophies and paradigms are different and varied, there is, however, a wider view that two main philosophical trends dominate the research process namely positivism and interpretivism (Saunders et al. 2007, Collis and Hussey, 2003; Amaratunga et al, 2002). In connection with this discussion, Amaratunga et al (2002, p. 18) have distinguished between these two paradigms:

"...positivism uses quantitative and experimental methods to test hypothetical-deductive generalisations... Phenomenological (interpretive science) inquiry uses qualitative and naturalistic approaches to inductively and holistically understand human experience in context–specific settings. This approach tries to understand and explain a phenomenon, rather than search for external causes or fundamental laws."
Based on the above mentioned philosophical schools of thought, research can be classified into two broad types: qualitative and quantitative. The distinction between these two types has been briefly described by Amaratunga et al (2002, p. 19) in these words:

"The former [qualitative] concentrates on words and observations to express reality and attempts to describe people in natural situation. In contrast, the quantitative approach grows out of a strong academic tradition that places considerable trust in numbers that represent opinion or concepts."

Despite the philosophical or ideological differences between these two types of schools, several methodologists (Babbie, 2004; Collis and Hussey, 2003; Amaratunga et al, 2002; Denzin, 1970), nevertheless, observe that both methods have strengths and weaknesses and subsequently have suggested the benefit of using the two methods in a single study. This methodology commonly referred to as triangulation (Amaratunga et al, 2002, p. 23) is described thus:

"Triangulation is the combination of methodologies in the study of the same phenomenon. The assumption in triangulation is that the effectiveness of the triangulation rests on the premise that the weaknesses in each single method will be compensated by the counter balancing strengths of another."

This opinion has been supported by Denzin (1989) who states that using triangulation leads to greater validity and reliability than a single methodological approach. Collis and Hussey (2003, p. 78) further argues that triangulation "...can overcome the potential bias and sterility of a single-method approach." Easterby-Smith et al (1991, cited in Collis and Hussey, 2003, p. 78) has identified four types of triangulation as follows:

- Data triangulation, where data is collected at different times or from different sources in the study of phenomenon.
- Investigator triangulation, where different researchers independently collect data on the same phenomenon.
- Methodological triangulation, where both quantitative and qualitative methods of data collection are used
CHAPTER 5: RESEARCH METHODOLOGY

- Theory triangulation, where a theory is taken from discipline (for example, geography) and used to explain a phenomenon in another discipline (for example, education).

Hence, bearing in mind the above mentioned potential advantages of the triangulation, and in order to obtain comprehensive understanding about the phenomenon under investigation this technique has been adopted in this study. Different approaches and methods of data collection and data analysis were used in the process of this research.

5.1.2 Scientific Approach

According to Saunders et al (2007) there are two main research approaches namely the inductive and the deductive method. The inductive approach is based on data driven facts used to generate theory while the deductive approach is a theory driven approach where the research follows propositions of an existing theory. Collis and Hussey (2003, p. 15) further explains that inductive "...is referred to as moving from the specific to the general pattern or laws [while deductive] ... is referred to as moving from the general to the particular." In this research, however, because the main purpose of this research was to explore an area that has not been previously studied and also because the research is based mainly on information/data analysis, the inductive approach is adopted.

5.1.3 Research Strategy

Research strategy refers to the particular approach chosen by the researcher to conduct the research. Research strategy should be selected in accordance with the research questions in the particular situation (Yin, 1994). According to Yin (1994, p. 4) there are three conditions that determine the applicability of a certain research strategy. These are:

- The type of research question posed
CHAPTER 5: RESEARCH METHODOLOGY

- The extent of control the investigator has over the actual behaviour event
- The degree of the focus on contemporary as opposed to historical event.

Saunders et al (2007) have identified several research strategies including: experiment, survey, grounded theory, case study, explorative research, ethnography, and action research. Explorative research is useful when the intention is to examine a new environment or a subject has not been sufficiently covered by other researchers (Saunders et al, 2007; Collis and Hussey, 2003; Sanders and Pinhey, 1983). Guy et al (1987, p. 103) has listed the following four benefits for selecting an explorative research:

- To satisfy the researcher's curiosity and desire for better understanding;
- To test the feasibility of undertaking a more comprehensive study;
- To develop methods to be used in a more comprehensive study; and
- To formulate a problem for more precise investigation or for developing hypothesis.

Since no similar research has ever been carried out in Libya and because the main goal of this research is to explore a previously un-researched area, explorative research has been adopted.

5.1.4 Data Collection Methods

According to Collis and Hussey (2003, p. 55) methods refer to "the various means by which data can be collected and/or analysed." Generally, there are two major types of data collection: primary data and secondary data. Primary data is the type of data that is specifically collected for the research project undertaken. Several methods can be employed to collect primary data. Such methods include: interviews, questionnaires, observation (Saunders et al 2007). The term survey is commonly adopted to collect primary data from specific population or a sample from that population. Surveys are used to obtain data from individuals about themselves, their households, or about larger social
institutions and are widely accepted in social science research methodology as a key tool for gathering and analysing information from selected individuals (Oppenheim, 1992). The primary data in this research were mainly obtained through self administered questionnaires and focused interviews.

Secondary data, on the other hand, is the type of data that has been collected by others and is readily available. There are various sources of secondary data which according to Saunders et al (2007, p. 249) can be divided into: "documentary, multiple sources and survey." Documentary data can be in the form of written text such as books, journals, administrative and public records, and reports as well as non-written documents such as films and television programmes. Secondary data is often used as a supplement to primary data. For this reason, several documentary sources were used to develop richer and more adequate understanding about the area under investigation. These include library sources, the internet and official publications.

Based on the utilising of different secondary data sources, the conceptual framework of the present research has been designed. Also, the researcher has conducted a comprehensive literature review to better understand the area of study. However, studies on the subject of VET in general and at HE level in particular in Libya are very limited, and related published data/information are also, rarely available or easily obtainable. Generally speaking, the process of assembling data on HE or other social services in a developing country like Libya has proved a difficult challenge (Salem, 1995; Naur, 1986; Deeb and Deeb, 1982). Hence, it is worth mentioning that most of the secondary data/information used in this study has been obtained through direct contact with different sources during two fieldwork periods in Libya (see section 5.3.5 for further detail). National and local statistics and official documented data on education in general and HE in particular were collected mainly from the Secretariat of Education and the Secretariat of Planning.
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5.2 Level of Investigation

The study has been carried out at two levels. Firstly at national level, the spatial equity of the distribution of PHVETCs is examined in the whole country. The second is at local level in the Sha'biyat (Governorate) of Benghazi. At this level the accessibility and efficiency of the PHVETCs' system are examined.

As mentioned previously, Libya is a large country covering an area of 1,760,000 km². In fact, it is about seven times larger than the UK and in 2006 it had population of approximately 5.6 million. Indeed, the relatively large size area, the small population, the desert that covers about 90% of the mainland along with the concentration of about 85% of the population in the narrow coastal strip in the north, often creates challenges and difficulties for infrastructure and human development planning (Bulugma and Kezeiri, 1995).

The Sha'biyat of Benghazi is located in the northeast of Libya. It has the second largest population after the Sha'biyat of Tripoli. In 2004 the population of the Sha'biyat was estimated to be about 660,000 (GAIT, 2006) which accounts for 11.2% of the total Libyan population. It covers an area of approximately 8,000 km², with 90.6% of its population concentrated in the urban areas. The Sha'biyat of Benghazi is also considered the second most important economic and political region in the country (Bulugma and Kezeiri, 1995).

5.3 The Research Procedure

In order to fulfil the objectives of the current research, a questionnaire was developed and designed and a field study was conducted to collect the necessary data/information.

5.3.1 The Development of the Questionnaire

The questionnaire is described as one of the most widely used data collection techniques. The utilisation of a questionnaire as a valid means of obtaining
information from students is popular and increasingly used among researchers, and has been supported by several authors (Ng, 2004; Haselgrove, 1994; Astin, 1993; Roberts and Higgins, 1992; Mogassbi, 1984, Lewis, 1984).

A number of advantages can be identified by the use of a questionnaire. It provides straightforward, quick and efficient data collection from a large sample with little time and cost (Saunders et al, 2007; Oppenheim, 1992). Despite these merits, there are, however, some disadvantages that cannot be ignored. Such disadvantages, for instance, include the difficulty of developing and designing a well-constructed questionnaire that provides accurate data to answer research questions and there is also the problem of a low response rate. On these grounds, Saunders et al (2007, p. 364) argue that:

“The internal validity and reliability of the data you collect and the response rates you achieve depend, to a large extent, on the design of your questions, the structure of your questionnaire, and rigour of your pilot testing.

Therefore, having in mind all the above mentioned facts, a questionnaire was developed and in order to establish reliability and validity in the development of the questionnaire the following techniques and steps have been undertaken (Figure 5.2):

1. Creation of the initial items for the questionnaire from a literature review and a review of existing ones.
2. Conducting a pilot study with sample subjects and interviews with expert reviewers to test the questionnaire.
3. Modifying the questionnaire based on feedback from the pilot study.
4. Administering the final revised questionnaire survey.

Figure 5.2: Development of the Questionnaire
This figure was adopted and modified from Carayon et al, (2006, p. 384)
Therefore, to obtain the required data, a questionnaire was developed based on a review of published literature relevant to the field and existing questionnaires (Table 5.1). However, Hunting et al (1986) in particular has been an outstanding reference in this regard. It provides invaluable information and practical guidance regarding the evaluation of VET programmes.

### Table 5.1: Components and Sources of the Questionnaire

<table>
<thead>
<tr>
<th>Subject Areas Measured</th>
<th>No. of Items</th>
<th>Source of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location &amp; Accessibility</td>
<td>4</td>
<td>Salem (1995); Weber (2003); Leon (1998); White (1979); Stanilove (2003)</td>
</tr>
<tr>
<td>Quality of teaching/training</td>
<td>8</td>
<td>Hunting et al (1986); Omar (1977)</td>
</tr>
<tr>
<td>Concluding comments</td>
<td>3</td>
<td>The researcher and the Expert Panel (2004)</td>
</tr>
</tbody>
</table>

In order to receive helpful and constructive feedback regarding the questionnaire, draft copies of the preliminary questionnaire were distributed to colleagues (mainly PhD students) who have an adequate understanding and knowledge about HE issues in Libya. Subsequently a thorough and critical discussion was held with them. The feedback received provided several useful suggestions and insights that helped in enhancing the questionnaire at various points and some changes were made to the wording of individual questions and the layout of the questionnaire.

The student questionnaire consisted of 44 mostly closed questions with a few open-ended ones (Appendix A). These questions were specifically designed to obtain information on the following:

- The socio-demographic and educational characteristics of the students.
CHAPTER 5: RESEARCH METHODOLOGY

- Accessibility factors of home/college travel.
- Students' opinion regarding teaching/training programmes and courses offered by colleges.
- Employment opportunities after graduation,
- Levels of coordination between government/private institutions and the colleges.

The questionnaire was edited first in the English language and then translated into the Arabic language by the researcher (Appendix B). The accuracy of the Arabic translation was checked and approved by a professor of English language and a professor of Arabic language at the University of Garyounis, Libya. Next, the reliability and validity of the Arabic language questionnaire was obtained by requesting three professors in the Faculty of Arts and Education, the University of Garyounis, Libya, who are experts in the field to review and comment on the questionnaire. The developed questionnaire was finally piloted and tested with a group of 30 final year students randomly selected from three PHVETCs (10 students from each college) during the first field study in Libya. Subsequently, minor changes were made to its wording and format.

5.3.2 Designing and Conducting the Field Study

Field study according to McLeod and Herndon (1979, p. 126 cited in Titon, 1985, p. 19) field study is

"...the gathering of primary information... It is the process of first-hand investigation and direct experience of the behaviour of others. Both during and after the gathering of field data, the investigator expects to interpret the material, question it, and present it to the scholarly community and to the world at large in various traditional forms."

Therefore, to obtain the necessary primary data, a field study has been carried out in Libya in two sequential phases. These two sequential phases are described in following paragraphs.
5.3.2.1 The First Field Study

The first fieldwork was conducted in the Sha'biyat (Governorate) of Benghazi, Libya and lasted approximately six weeks in 2004. The Sha'biyat of Benghazi located in the north-east of Libya was selected for the following reasons:

1. It has the second largest population in the country after the Sha'biyat of Tripoli (see section 5.2).
2. It presents valuable research opportunities since it has nine PHVETCs (Figure 5.3). This fairly high concentration of PHVETCs can easily be targeted compared to those in other parts of the country.
3. The researcher is familiar with the study area. He grew up in the City of Benghazi. Taking into consideration that he was working alone, and was short of time, the fieldwork would not have been so successful if another Sha'biyat was involved.
4. Since the PHVETCs as a public educational service throughout the country is highly centralised and operated under the Secretariat of Education, they have to a large extent similar characteristics. Therefore, selecting the Sha'biyat of Benghazi should not affect the sample representation of Libya at large.
CHAPTER 5: RESEARCH METHODOLOGY

Figure 5.3: Distribution of PHVETCs in the Sha'biyat of Benghazi

Sources: Secretariat of Planning (1978, p. 32); Municipality of Benghazi (1992); and the field study, March 2004

The primary data necessary for assessing the perception of PHVETCs' students regarding the quality and efficiency of PHVETCs in Libya was collected during the first and main phase (discussed in Chapter 7). The population from which the subjects were selected was 1,308 final-year students at nine PHVETCs registered for the academic year of 2003-04 in the Sha'biyat of Benghazi, Libya. This selection was based on the fact that the participants had experienced a considerable time as students at these colleges and therefore were in a position to assess the efficiency of the provided programmes and consequently could ascertain the impact of these programmes on themselves.

Due to the researcher's time and financial constraints, a sampling technique was used. Sampling techniques have been widely used by many researchers Gay (1981, p. 85) defines sampling as
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"the process of selecting a number of individuals for a study in such a way that the individuals selected comprise a portion of the larger group referred to as a population."

Using such technique, often save time and budget and provide accurate data when appropriately conducted. Regarding this point Saunders et al (2007, pp. 206-207) argue

"The smaller number of cases for which you need to collect data means that more time can be spent designing and piloting the means of collecting these data. Collecting data from fewer cases also means that you can collect information that is more detailed... You also can devote more time to trying to obtain data from the more difficult cases. Once your data have been collected, proportionally more time can be devoted to checking and testing the data for accuracy prior to analysis."

The sample size was determined based on the table developed by Krejcie and Morgan (1970). The table gives a sample size of 303. To determine appropriate representatives from the target population, a proportionate stratified sampling procedure was employed. The benefit of this sampling method is that it guarantees representation of the defined strata (Colleges) in the target population (Moser and Kalton, 1979). On the basis of this, subjects were then randomly selected from lists provided by each college (Table 5.2).

After the questionnaire was piloted the interview process was carried out with the help of faculty members of the colleges, all whom were familiar with survey research. The researcher communicated directly with the respondents. At each stage prior to the questionnaire being administered, the researcher introduced himself, explained the nature of the research project and the procedures to be followed by the targeted population in completing the questionnaire. Each respondent was then given a copy of the questionnaire and requested to complete it anonymously to protect their privacy. A total of 303 questionnaires were distributed and 272 returned, giving 90% response rate (Table 5.2).

4 Based on the total sample size, the required sample size for each college was calculated using the following equation adopted from (Moser and Kalton, 1979, pp. 86-88):

\[
\text{Proportional Sample Size of a College} = \frac{\text{Total Sample Size} \times \frac{\text{Total Students of the College}}{\text{Total Population}}}{100}
\]
CHAPTER 5: RESEARCH METHODOLOGY

Table 5.2: Distribution of the sample population of PHVETCs in Benghazi Sha’bīyat in the academic year 2003/04

<table>
<thead>
<tr>
<th>College Name</th>
<th>Total No. of Students</th>
<th>Proportionate sample size distributed</th>
<th>No of responses received</th>
<th>No of responses not received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management and Finance</td>
<td>146</td>
<td>34</td>
<td>27</td>
<td>7</td>
</tr>
<tr>
<td>Mechanical Occupations</td>
<td>44</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Engineering Occupations</td>
<td>124</td>
<td>29</td>
<td>22</td>
<td>7</td>
</tr>
<tr>
<td>Electrical Occupations</td>
<td>43</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Computer Applications</td>
<td>169</td>
<td>39</td>
<td>29</td>
<td>10</td>
</tr>
<tr>
<td>Technical Teachers Training</td>
<td>42</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Teacher Training</td>
<td>418</td>
<td>97</td>
<td>91</td>
<td>6</td>
</tr>
<tr>
<td>Nursing</td>
<td>145</td>
<td>33</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>Social Work</td>
<td>177</td>
<td>41</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1,308</td>
<td>303</td>
<td>272</td>
<td>31</td>
</tr>
</tbody>
</table>

This Table was developed by the author according to the actual figures of the selected sample in each college.

5.3.2.2 The Second Field Study

The second field study was conducted in November 2006. The purpose of the second field study was to determine the reliability and validity of the criteria that have been proposed by the researcher to assist planners and decision makers in Libya in the establishment of colleges or in the development of existing colleges (discussed in Chapter 8). The expert opinion approach is extensively used and accepted by many researchers (Gelfand et al, 1995). It has widely been regarded as a useful tool for exploring and understanding issues where information is lacking and where additional research is needed. Expert opinion is often sought with regard to unknowns in a decision-making setting to improve the quality of the decision-making process. By using such a useful methodological assessment tool, the analysis of the findings is enhanced and corroborated the findings in the literature (Gelfand et al, 1995, p. 598).

For this purpose a group of experts consisting of 28 people were selected on the basis of their expertise of HE issues and invited to participate in the study. 15 of these experts were interviewed during the activities of “the Scientific Symposium about Higher Technical Education in the Libyan Jamahiriya” which
CHAPTER 5: RESEARCH METHODOLOGY

was held in Hoon, Libya, 8-9/11/2006\textsuperscript{5}. The remaining 13 participants were interviewed during personal visits by the researcher to the University of Garyounis the oldest and the most distinguished among Libyan universities. Almost all participants were PhD holders and more than half carry out full administrative positions in their institutions. Most of the participants had relatively long practical experience, ranging from 11-40 years (average 27 years). More importantly, they most likely reflect different perspectives on the issue since they are affiliated to different universities and colleges distributed among seven cities/towns in Libya, which contributed to the validation and improvement of the proposed criteria (Table 5.3).

\textsuperscript{5} At that symposium the researcher presented a paper based on some of the current research findings (see Declaration, page VIII). Participation in that event also provided a unique opportunity to the researcher to get first hand information about VET, discuss different aspects of his research and obtained positive feedback from experts in the field.
## Table 5.3: List of Expert Participants*

<table>
<thead>
<tr>
<th>No</th>
<th>Name*</th>
<th>Qualif.</th>
<th>Position</th>
<th>experience</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Abdolgadir O. Gringo</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>23</td>
<td>Higher College of Engineering, Hoon</td>
</tr>
<tr>
<td>02</td>
<td>Abdolkarim S. Abosalam</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>25</td>
<td>Garyounis University, Benghazi</td>
</tr>
<tr>
<td>03</td>
<td>Abdolrahim M. Albadi</td>
<td>PhD</td>
<td>Head of Faculty</td>
<td>36</td>
<td>Garyounis University, El-Marj</td>
</tr>
<tr>
<td>04</td>
<td>Abdolssalam M. Ezzaliti</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>25</td>
<td>Garyounis University, Benghazi</td>
</tr>
<tr>
<td>05</td>
<td>Ahmed Abunowara</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>23</td>
<td>Garyounis University, Benghazi</td>
</tr>
<tr>
<td>06</td>
<td>Alaabed A. Massaud</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>35</td>
<td>Almergb University, Alkhums</td>
</tr>
<tr>
<td>07</td>
<td>Ali A. Naser</td>
<td>PhD</td>
<td>Administrator</td>
<td>23</td>
<td>Higher College of Engineering, Hoon</td>
</tr>
<tr>
<td>08</td>
<td>Ali M. Farhat</td>
<td>PhD</td>
<td>Dean of Dept.</td>
<td>30</td>
<td>Higher College of Engineering, Hoon</td>
</tr>
<tr>
<td>09</td>
<td>Ali. G. Eljadid</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>11</td>
<td>Al-Fateh University, Tripoli</td>
</tr>
<tr>
<td>10</td>
<td>Aljili M. Ahmed</td>
<td>PhD</td>
<td>Dean of Dept.</td>
<td>30</td>
<td>Higher College of Engineering, Hoon</td>
</tr>
<tr>
<td>11</td>
<td>Emhemad. A. Mazin</td>
<td>MSc</td>
<td>Director General</td>
<td>19</td>
<td>Education Dept. Sha'biyat of Ajofrah, Hoon</td>
</tr>
<tr>
<td>12</td>
<td>Fathi. S. Abouzkhar</td>
<td>PhD</td>
<td>Dean of Dept.</td>
<td>20</td>
<td>Tahdi University, Sirt</td>
</tr>
<tr>
<td>13</td>
<td>Ibrahim A. Aljiyar</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>34</td>
<td>Garyounis University, Benghazi</td>
</tr>
<tr>
<td>14</td>
<td>Jamal A. Emhithal</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>23</td>
<td>Omar Mukhtar University, Al-Baida</td>
</tr>
<tr>
<td>15</td>
<td>Mansour M. Al-Kkhia</td>
<td>PhD</td>
<td>Emeritus Prof.</td>
<td>40</td>
<td>Garyounis University, Benghazi</td>
</tr>
<tr>
<td>16</td>
<td>Mansour M. El-Babour</td>
<td>PhD</td>
<td>Emeritus Prof.</td>
<td>25</td>
<td>Garyounis University, Benghazi</td>
</tr>
<tr>
<td>17</td>
<td>Mohamed Fathi Bara</td>
<td>PhD</td>
<td>Vice President</td>
<td>32</td>
<td>International Energy Foundation, Tripoli</td>
</tr>
<tr>
<td>18</td>
<td>Mohamed H. Abu-Baker</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>24</td>
<td>Garyounis University, Benghazi</td>
</tr>
<tr>
<td>19</td>
<td>Mohamed M. Almofti</td>
<td>PhD</td>
<td>Faculty staff</td>
<td>38</td>
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<td>President</td>
<td>30</td>
<td>Arab Union for Technical Education,</td>
</tr>
<tr>
<td>28</td>
<td>Yousif H. Alshain</td>
<td>PhD</td>
<td>Faculty staff</td>
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<td>Garyounis University, Benghazi</td>
</tr>
</tbody>
</table>

Source: interviews with experts in the field of HE, conducted in Libya, 7-11/11/2006.  
*Participants’ names listed in alphabetical order.
5.4 Data Analysis

Following the data collection phase of the study, the data was coded to enable it to be processed using a computer. To achieve the best results the software Statistical Package for Social Sciences (SPSS) for Windows was used to create a database and carry out the statistical analysis of the quantitative data. Mainly descriptive statistics, figures and tables based on the frequencies and percentages are used to describe the data where appropriate.

5.5 Ethics' Consideration

Ethics in research is an important issue and must be taken into consideration in any research design. Ethics' consideration in research, according to Saunders et al (2007, p. 178)

"refers to the appropriateness of your behaviour in relation to the rights of those who become the subject of your work, or are affected by it."

Ethicists argue that ethically sound research is primarily the responsibility of the researcher (Neuman, 2003; Oliver, 2003). Neuman (2003, p. 118) states that "ethics begin and end with the researcher" and he continues that "a researcher's personal moral code is the strongest defence against unethical behaviour." Ethicists have also emphasised that research participants must be adequately informed about the research problem in order to provide valid information (Oliver, 2003; Denscombe, 2005). Regarding this point Oliver (2003, p. 15) argues

"Participants should be fully informed about all relevant aspects of the research, before they agree to take part. ...there is a clear appreciation that if people do not understand the nature of research project, they are not really in a position to give their fully informed agreement."

Therefore, before the administration of the questionnaire, participants were fully informed about the nature and purpose and the research (detailed verbal and
written information was provided). They also informed that their participation were voluntary and they could terminate at any time.

In addition to the fact that participants should receive adequate information in order to obtain the required data, there are also the principal of anonymity and confidentiality. The researcher should maintain the anonymity and confidentiality of participants throughout the research process (Babbie, 2004; Oliver, 2003). Therefore, during the administration of the survey, two steps were undertaken to protect the participants' anonymity and confidentiality. First, a covering letter was enclosed with the questionnaire explaining the importance and purpose of the research and assured the respondents of confidentiality and anonymity (Appendix A). Also, in order to protect the participants' confidentiality, all names were omitted and a numeric coding system was used.

5.6 Conclusion

The purpose of this chapter was to describe the research methodology employed in this research. It provides information on the choice of research philosophy, scientific approach, research strategy, data collection methods and the procedure adopted during the field study. The overall methodology of this research is based on triangulation technique. It was found to be more appropriate as it provides the opportunity to benefit from multi research methods and techniques. The scientific approach is the inductive method which means using data to develop theories and generic models. The empirical analysis is based on data obtained from both secondary and primary sources. The secondary data was collected from different documentary sources, while the primary data was mainly obtained by using both questionnaire and interview methods. For this purpose a questionnaire was developed and administered on a sample of PHVETCs' students. To sum up, in order to achieve the main aim of this research, four objectives were designed along with seven research questions and methods used to answer each question (Figure 5.4). The research procedures and methodologies adopted have proved valuable in
CHAPTER 5: RESEARCH METHODOLOGY

providing sufficient data/information to pursue this research. Data analysis and findings will be discussed and presented in the subsequent chapters.

OBJECTIVE 1: To evaluate the spatial equity, locational accessibility and efficiency of operation (internal efficiency) of the PHVETCs

RQ1: What determines the location of a PHVETC as an important public service for the society?

OBJECTIVE 2: To measure how socio-economic considerations affect the PHVETCs sector.

RQ2: Does the establishment of PHVETCs take into account the socio-economic and distributional aspects of the population and the exact needs of areas?

RQ3: Do the programmes that PHVETCs are providing match the type(s) of economic activities that take place in their regions?

OBJECTIVE 3: To examine the geographic mobility of students and graduates of the PHVETCs.

RQ4: To what extent do PHVETCs programmes supply Libyan society with skilled manpower that it needs?

RQ5: Do PHVETCs have the human and other resources that are necessary for the operation of educational/training process?

OBJECTIVE 4: To offer practical advice to planners and decision makers in Libya on how to make decisions on implementing policy on the PHVETCs.

RQ6: How accessible are the PHVETCs to their client population?

RQ7: How do often PHVETCs students obtain employment relevant to their present major field of study after graduation?

Figure 5.4: Research Objectives, Questions and Data Collection
CHAPTER 6

DEVELOPMENT AND SPATIAL EQUITY OF PHVETCS
In the previous chapters, the conceptual and methodological aspects of the research have been outlined and discussed. In this chapter and the subsequent chapter the empirical data will be presented and discussed. This chapter addresses the following research questions:

RQ1. What determines the location of a PHVETC as an important public service for the society?
RQ2. Does the establishment of PHVETCs take into account the distribution of the population and the needs of areas?
RQ3. Do the programmes that PHVETCs are providing match the type(s) of economic activities that take place in their regions?
RQ4. To what extent do PHVETCs programmes supply Libyan society with the skilled manpower that it needs?

For this purpose, in this chapter the development and distribution patterns of the PHVETCs is discussed, analysed and presented. The analysis is based mainly on data collection generated by DGHVECs (Directorate General of Higher Vocational Education Colleges) of the Secretariat of Education in Libya (DGHVECs, 2000) as well as from related documented sources.

6.1 Development of PHVETCs

Most of the studies that deal with Libyan socio-economic issues have widely acknowledged the relative neglect in the area of human resource development and management in the country (Musmam, 2002; Agnaia, 1997; Abusnina,
CHAPTER 6: DEVELOPMENT AND SPATIAL EQUITY OF PHVETCS

1996; Dughri, 1980; Alshaikh, 1972; IBRD, 1960; UNESCO, 1952). These studies have further underscored the importance of VET programmes as a key factor to address the most pronounced problem of the shortage of skilled labour.

Until 1980 Libyan society did not show much interest in VET especially at tertiary level. This situation has been more aggravated as a result of an extended legacy of a continuing negative attitude towards technical and manual work on one hand and the unpopularity of VET programmes among secondary students on the other (Almashhadani, 1999; Al-Said, 1990). This imbalance in the education system did not assist the socio-economic plans that the country had embarked on since the early 1970s. Probably, as a result of this imbalanced development, Libya, like other Arab oil-exporting countries, has had to rely heavily on expatriate labour for the implementation of its ambitious development programmes (Birks and Sinclair, 1980, Secretariat of Planning, 1999).

As stated earlier, because of the imbalanced development in the education system, Libyan educational planners have introduced the New Educational Structure (NESP). The NESP placed high priority on vocationalisation of the HE sector which later become known as PHVETCs (Secretariat of Education, 1982). Since the mid 1980s, the country has experienced unprecedented expansion of HEIs. As a result, the number of PHVETCs increased from 54 in 1995/96 to a country wide network of 85 PHVETCS in 2000 with a growth rate of 131% during the same period as can be seen from Table 6.1.
Thus the number of PHVETCs has increased considerably during the last 10 years or so\(^6\). There are still some embedded problems in the system that affects its performance. The PHVETCs, which are considered as the main supplier of highly skilled manpower, have failed to attract the required enrolments as the majority of secondary graduates prefer academic HEIs. Furthermore, most of studies related to the this issue have concluded that HEIs in general and PHVETCs in particular have also, failed to produce the required graduates both in quality and quantity. This is strongly attributed to the unplanned nature of the establishment of PHVETCs in terms of physical and human resources (Aldhaif et al, 2001; Alfaidy and Ibrahim, 1997; El-Hawat, 1996 and 2003). Aldhaif et al (2001, p.37) have specifically commented about the poor conditions and subsequently the outcome of PHVETCs in these words:

> "Most of the colleges’ buildings are inappropriate and previously were high schools, and often smaller in size than elementary schools buildings."

> "Most of these colleges suffer from a lack of laboratories and workshops and therefore, most of courses teaching is provided in theoretical settings rather than by practice-based instruction."

> "Most (if not all) of the colleges are without libraries, they do not even have bookstore service."

---

\(^6\) According to Gannous and Aljoroushi (2004, p. 4) estimates there were more than 120 public and private higher colleges in 2004

---

<table>
<thead>
<tr>
<th>Type of College</th>
<th>1996</th>
<th></th>
<th>2000</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Colleges</td>
<td>Students</td>
<td>Colleges</td>
<td>Students</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>14</td>
<td>6,563</td>
<td>23</td>
<td>13,432</td>
</tr>
<tr>
<td>Specialised</td>
<td>17</td>
<td>9,589</td>
<td>25</td>
<td>17,938</td>
</tr>
<tr>
<td>Tech. Teacher Training</td>
<td>8</td>
<td>3,510</td>
<td>9</td>
<td>6,714</td>
</tr>
<tr>
<td>Teacher Training</td>
<td>15</td>
<td>7,922</td>
<td>28</td>
<td>26,886</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>27,584</td>
<td>85</td>
<td>64,870</td>
</tr>
</tbody>
</table>

Source: DGHVECs, 2000, different pages; NCETR, 1996, pp. 82-88.
With the shortage of means, the deficit in the faculty members and the shortcomings of buildings in addition to indifference of the colleges' administrators to arrange fieldwork practical training, students of these colleges are graduated at the level of basic education.”

6.2 The Spatial Equity of PHVETCs

In general terms, equity can be defined as the equality of being equal or fair. Truelove (1993) points out that spatial equity means “treating equals equally irrespective of where they live.” Talen (2001, p. 468) has further distinguished between four types of equity as follows:

“Firstly, equity can be defined as equality, in which everyone receives same public benefit, regardless of socio-economic status, willingness to pay, or other criteria... Second, equity in the distribution of public benefit can be predicted on the basis of need... Third, the equitable distribution of facilities can be based on demand... Finally, equity can be based on market considerations, where cost of service is a key factor in distribution.”

In the field of HE, however, Teferra and Altbach (2003) identify different aspects of equity including the inequitable distribution of, and access to, HEIs between areas, males and females, the rich and poor, and rural and urban communities. In this particular research, however, spatial equity of PHVETCs will refer to differences in the distribution of these colleges and related variables among the 13 Mintaqahs (provinces) of the country (Figure 6.1)7.

As indicated previously, until late 1970s almost all HEIs in Libya were concentrated in two cities namely Tripoli and Benghazi (Section 3.5, Chapter 3). However, since the early 1980s there has been a deliberate policy to place particular importance on ensuring equal distribution of HEIs' opportunities in all parts of the country. This policy was set in order to achieve two main goals,

---

7 Since the Independence in 1951, Internal Administrative Boundary System (IABS) of the country has been changed 10 times. This frequent change in the IABS is considered by some researchers as a major barrier on development planning of the country (see Appendix C for more detail).
firstly, to maximize equitable access to HEIs, and secondly, to enhance the supply of skilled manpower needed for the socio-economic development plans. Along with these developments, during the 1990s the network of PHVETCs was introduced in order to attain these desired goals (Albadri, 2006; El-Hawat, 1996 and 2003).

Figure 6.1: Administrative Boundaries of Mintaqahs, 1995
6.2.1 The Colleges

As mentioned earlier, in 2000, there were 85 PHVETCs distributed among the country's regions. As can be seen from Figure 6.2 there is a high concentration of PHVETCs along the coastal areas in general and in the northeast and northwest in particular, which comprised more than 87% of the total colleges. This pattern of distribution matches to a large extent the general pattern of the population distribution (see Figure 3.2, Chapter 3).

Figure 6.2: Distribution of PHVETCs, 2000

Sources: Secretariat of Planning, 1978, pp. 25-26, and appendix D
CHAPTER 6: DEVELOPMENT AND SPATIAL EQUITY OF PHVETCS

However, a closer look at the distribution of PHVETCs between Mintaqahs has provided a different picture. As can be seen from Table 6.2, the distribution of PHVETCs is varied between the 13 Mintaqahs of the country; nonetheless, each Mintaqah has at least one College. Considering these colleges as HE opportunities the PHVETCs might be said to be equitable public service. Indeed, as indicated earlier, educational planners in the past decade had adopted a deliberate policy to spread-out PHVETCs' services in different parts of the country (Section 3.2, Chapter 3). However, Tripoli specifically, had a significant share with more than 21% of the total PHVETCs (Table 6.2).

Table 6.2: Distribution of population and PHVETCs by Mintaqahs

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
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<td></td>
<td></td>
<td></td>
<td>No</td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>01</td>
<td>Albatnan</td>
<td>1</td>
<td>151,240</td>
<td>1,249</td>
<td>13.4</td>
</tr>
<tr>
<td>02</td>
<td>J. Akhdar</td>
<td>8</td>
<td>381,165</td>
<td>4,246</td>
<td>7.9</td>
</tr>
<tr>
<td>03</td>
<td>S. Benghazi</td>
<td>8</td>
<td>665,615</td>
<td>8,927</td>
<td>13.8</td>
</tr>
<tr>
<td>04</td>
<td>Alowstah</td>
<td>4</td>
<td>240,574</td>
<td>1,517</td>
<td>5.0</td>
</tr>
<tr>
<td>05</td>
<td>Alwahat</td>
<td>3</td>
<td>62,056</td>
<td>540</td>
<td>1.3</td>
</tr>
<tr>
<td>06</td>
<td>Aljufrah</td>
<td>3</td>
<td>39,335</td>
<td>750</td>
<td>0.8</td>
</tr>
<tr>
<td>07</td>
<td>Sawfajjin</td>
<td>4</td>
<td>76,401</td>
<td>1,890</td>
<td>1.6</td>
</tr>
<tr>
<td>08</td>
<td>Misratah</td>
<td>6</td>
<td>486,553</td>
<td>3,837</td>
<td>10.2</td>
</tr>
<tr>
<td>09</td>
<td>Alnagaza</td>
<td>4</td>
<td>244,553</td>
<td>2,120</td>
<td>5.1</td>
</tr>
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<td>10</td>
<td>Tripoli</td>
<td>18</td>
<td>1,313,995</td>
<td>22,266</td>
<td>27.3</td>
</tr>
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<td>11</td>
<td>Alzawiyah</td>
<td>9</td>
<td>517,395</td>
<td>8,995</td>
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<tr>
<td>12</td>
<td>J. Gharbi</td>
<td>10</td>
<td>316,970</td>
<td>3,953</td>
<td>6.6</td>
</tr>
<tr>
<td>13</td>
<td>Fazzan</td>
<td>7</td>
<td>314,029</td>
<td>4,580</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>Libya</td>
<td>85</td>
<td>4,811,902</td>
<td>64,690</td>
<td>100.0</td>
</tr>
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</table>

Source: Computed by the author from data in DGHVECs (2000) and Secretariat of Planning (1999, p. 78). Percentages are rounded to nearest one-tenth.

Another aspect of the locational distribution of PHVETCs, linked to the equal opportunity of access, is the rural-urban differential. As can be observed from Figure 6.3, about 60% of the PHVETCs are located in settlements of more than 25,000 inhabitants. Furthermore, according to available data (Appendix D), 57% of the total PHVETCs are located either in the national capital or in district
capitals. This pattern of distribution can be, perhaps, attributed to the heavy concentration of, and hence access to, HEIs opportunities in the more-developed areas (major cities and towns) at the expense of other disadvantaged areas.

![Figure 6.3: Locations of PHVETCS According to Settlements Size](image)

**Figure 6.3: Locations of PHVETCS According to Settlements Size**

Source: Computed by the author from data in Appendix D

However, some analysts of HE issues argue that the concentration of HEIs in cities and towns is part of the current global urbanisation trend on the one hand and the specific needs of different urban related services and amenities that cannot be provided in areas of scant numbers of population such as villages and small towns, on the other (Teferra and Altbach 2003; Akpan 1987). With regard to this, Akpan (1987, p. 551) argues that cities and towns are the only places where HEIs can be operated and developed in a proper manner:

"Institutions of higher education find in the cities and towns favourable conditions for their growth and operation. They are consumers of large quantities of water and electricity, and require ancillary services such as telecommunication, banking, transportation, printing and machine maintenance."
6.2.2 The Enrolments

The distribution of enrolments across the country's 13 Mintaqahs is shown in Figure 6.4 and Table 6.2. It is clear from Figure 6.4 that the distribution of enrolment is considerably varied between the 13 Mintaqahs; however, Table 6.2 shows that there is to some extent similarities in the percentage distribution according to each Mintaqah's share of population and students. Nevertheless, Tripoli in particular which is the largest Mintaqah in terms of population size has proportionately more students than its population share. This can be explained by more PHVETCs being found in the Mintaqah of Tripoli than in others (Table 6.2).

To measure the relationship between population and enrolments in the 13 Mintaqahs, the Spearman Rank Order Correlation Coefficient (Rogerson, 2001) has been used. The correlation coefficient has been computed between two variables, namely enrolments and population, and found to be \( r_s = 0.923 \). This result suggests a strong, positive and statistically significant relationship between the numbers of population and enrolments in the 13 Mintaqahs of the country. Apparently this means that the number of population in the Mintaqahs determines to a large extent the number of students enrolled in the PHVETCs.

Another way of examining the availability of education opportunities in any area either at national or local levels is the number of students per 1,000 inhabitants. As shown in Table 6.2, at national level there were 13 students per 1,000 inhabitants with significant differences between Mintaqahs. Taking the national average as a yardstick, there was only one Mintaqah that had an average similar to the national average (Sahel Benghazi). Whereas above the national

---

8 The formula for determining the Spearman Correlation Coefficient is

\[
rs = 1 - \frac{6 \sum D^2}{N(N^2 - 1)}
\]

Where \( r_s \) is a constant, \( D \) refers to the difference between subjects ranks on the two variables, and \( N \) is the number of cases (Rogerson, 2001, p. 94).
average there were five Mintaqahs, four are located in the north and only one in the south. These Mintaqahs ranged between 25 students as the case of Sawfajjin and 15 students as in Fazzan. The remaining seven Mintaqahs were below the average. These Mintaqahs ranged between as little as six students (as the case of Alowstah) to 11 students (as in Jabal Akhdar).

Figure 6.4: Distribution of Enrolments by Mintaqahs and Gender, 2000

Source: Appendix E.
6.2.3 The Gender Dimension

One striking aspect of inequity of access to education in developing countries is the female/male student enrolments differential. In most of these societies more males than females are encouraged to seek and gain admission into HEIs (Teferra and Altbach 2003; Akpan, 1987). As mentioned previously, it has been one of the main objectives of the educational policy in Libya to eliminate gender disparities in education. In this respect, it is worth mentioning that the growth in female enrolment has been one positive aspect of the government commitment to open access to HEIs (Section 3.6, Chapter 3). Clearly, gender inequity in education at national level has decreased enormously over the course of the past few years. Indeed, this also is true in the case PHVETCs' provision. In 2000, the proportion of female enrolment at national level gave an impression that it was significant (51.7%). However, a closer look at Figure 6.4 shows considerable variation at Mintaqahs' level. Among the 13 Mintaqahs disparity in access to PHVETCs was smallest in Alnagaza (18.1%) and highest in Alwahat (75.7%).

This enormous variation between the Mintaqahs can be explained by socio-cultural characteristics on the one hand and types of courses provided by PHVETCs on the other. Broadly speaking, until recent years in Libyan society in general, and in rural areas in particular, there was a bias against female access to higher learning (NCETR, 1996; Alshaikh 1972). On the other hand, however, there is a general trend in Libyan society that encourages girls in particular to enrol in teachers' training colleges if this type of HEI is available in an area. Teaching is considered as the most preferred work for women among many other employment opportunities (Elmagouri, 2005; Keibah, 1998).

6.2.4 The Faculty

In 2000 the total number of academic staff at the PHVETCs was 4,845 (DGHVECs 2000). This number was grouped into three categories namely: full-
CHAPTER 6: DEVELOPMENT AND SPATIAL EQUITY OF PHVETCS

time national, full-time non-national, and part-time. It is clear from Figure 6.5 that the PHVETCs are relying noticeably on non-Libyan faculty members for the delivery of instruction. The full-time non-Libyan staff constituted almost 46% of the total faculty members in 2000.

In this respect, as mentioned in Chapter 3 there is sufficient evidence from the literature (EUN 2003; Bobtana and Sarakbi 1992; Muftah 1982, Alfaidy and Ibrahim 1997) indicating that the lack of faculty members has long been a problem that affected the system of HE. This issue, however, will probably continue to affect it as the HE system still largely depends on expatriates for the delivery of instruction (see Section 3.7, Chapter 3 for further details).

Turning now to the distributional issues, an important indicator for measuring equity in education is the ratio of students to staff members. As can be seen from Figure 6.6, the overall ratio at national scale is 13 students per staff member; however, this ratio varies significantly at regional level. It ranged between 25 as in Albatnan and seven as is the case of Sawfajjin and Misratah. While, there was only one Mintaqah that had an average similar to the national
average (Sahel Benghazi) there were five that exceeded the average and seven were below the average. This pattern of distribution can be attributed to the following factors: 1) the general distribution of population, 2) the rank and importance of city/town in the urban hierarchy system, and 3) the previously mentioned social attitude and educational aspects.

![Distribution of Students/Staff by Mintaqahs, 2000](source: Appendix E)

Figure 6.6: Distribution of Students/Staff by Mintaqahs, 2000

6.2.5 The Courses

The total number of courses provided by the PHVETCs for the academic year of 1999/2000 was 370. These courses are shown in Table 6.3 by Mintaqah and type. It is clear from the Table that some Mintaqahs such as Tripoli and Jabal Gharbi were largely advantaged in terms of having more courses, followed by Azawiya. These three Mintaqahs constituted 164 courses, or approximately 45% of the total courses. Moreover, though it is clearly realised that Libya as a
developing country needs more numbers of manpower in the areas of engineering, agricultural and technology (Eltaif, 1999; Keibah, 1998), there were, for instance, a total of 188 courses (50.8%) provided in the area of Education. It is perhaps evident that the distribution of the courses has been carried out without appropriate plan and/or done haphazardly. Obviously, such distribution has to be determined according to a plan that takes into consideration the specific requirements and needs of the areas.

### Table 6.3: Distribution of PHVETCs' Courses by Mintaqahs, 2000

<table>
<thead>
<tr>
<th>Courses</th>
<th>Abatinan</th>
<th>J. Akhdar</th>
<th>S. Benghazi</th>
<th>Alwostah</th>
<th>Awahat</th>
<th>Ajliftah</th>
<th>Sawflajin</th>
<th>Misraah</th>
<th>Alnagar</th>
<th>Tripoli</th>
<th>Azawiyah</th>
<th>J. Ghartbi</th>
<th>Fazzan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>Education</td>
<td></td>
<td>8</td>
<td>22</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>3</td>
<td>9</td>
<td>16</td>
<td>32</td>
<td>22</td>
<td>18</td>
<td>26</td>
<td>188</td>
</tr>
<tr>
<td>Fine Art &amp; Media</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Mang. &amp; Finance</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
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Source: Compiled and computed by the author from data in DGHVECs (2000)

### 6.3 Conclusion

Results from the literature review have shown that human resource development programmes and VET programmes have not been given high priority by Libyan society in the past. Several analysts have pointed out that this areas have long been neglected and have not been given the necessary attention in Libya. Although the numbers of HEIs in general and PHVETCs in
CHAPTER 6: DEVELOPMENT AND SPATIAL EQUITY OF PHVETCS

...have increased considerably in the past decade, evidently, there is still an imbalance between the enrolments as well as the graduates of VET and academic programmes. Despite this significant increase in the number of PHVETCs, many of these colleges suffer from a severe lack of human and physical resources which consequently affect the quality and effectiveness of the outcome of the PHVETCs.

The spatial analysis has long been emphasised in many fields such as geography and economy. However, results from the literature review have shown that spatial analysis has not attracted the proper attention that it deserves within the field of HE, particularly in Libya. This chapter has focused on the context of spatial analysis of the PHVETCs in Libya. It is apparent that the establishment and distribution of the PHVETCs have been carried out without a proper planning framework that takes into consideration the socio-economic aspects of the country and is not in accordance with the actual needs of the areas. Based on the previous discussion, the following general features of the results are worth noting:

- The metropolitan areas had the greater share of colleges. This tendency seems to be contradicted the Government's efforts to promote equitable distribution of HE opportunities all over the country. The obtained results clearly show that metropolitan areas in general and Tripoli in particular comprised the lion's share of the colleges, enrolments, faculty members and courses. Results show that there was a kind of similarity between the percentage distribution of enrolments and population within the Mintaqahs. This to some extent gave an indication that population distribution has been the major determiner of HE opportunities in Libya. However, despite this fact, Tripoli Mintaqah in particular had captured higher enrolments than population.

- Clearly, gender inequity in HE in Libya has recently recorded positive achievements particularly at national level. However, spatial analysis of this issue at Mintaqahs' level has demonstrated a considerable difference. The differences may be referable to socio-cultural, urban-rural
PHVETCs are heavily dependent on non-Libyan faculty members. Non-Libyans comprised a significant proportion of the total number of faculty members. Findings from the literature indicate that this issue has long been a problem within the HE system in Libya. Furthermore, the average ratio of students to faculty member varied substantially between Mintaqahs. The average was found to range from 7 to 25 students per faculty member.

The next chapter provides the final-year students' perception and experience regarding the efficiency and effectiveness of the PHVETCs' programmes.
CHAPTER 7

STUDENT EXPERIENCE OF PHVETCS
CHAPTER 7

STUDENT EXPERIENCE OF PHVETCS

In the preceding chapter, different aspects of the spatial equity of the PHVETCs have been examined. In this chapter, the focus is particularly on the overall satisfaction of the final-year students at PHVETCs. It covers their college experience regarding the provided courses, physical accessibility of the colleges as well as work after graduation related issues. The discussion in this chapter is devoted to addressing the following research questions:

RQ5. Do PHVETCs have the human and other resources that are necessary for the operation of educational/training process?
RQ6. How accessible are the PHVETCs to their client population?
RQ7. How often do PHVETCs students obtain employment relevant to their major field of study after graduation?

7.1 Student Perception

Interest in student perception of their college experience has received considerable attention over the past few decades (Velde and Cooper, 2000; Haselgrove, 1994; Astin, 1997; Roberts and Higgins, 1992; Pascarella and Terenzini, 1991; Lewis, 1984). A student's reflection of their experiences of the learning environment is of particular importance to those engaged in education planning. With regard to this, Astin (1997, p. 164, cited in Knox et al, 1992, p. 303) wisely points out:

"Given the considerable investment of time and energy that most students make in attending college, the student's perception of value should be given substantial weight. Indeed, it is difficult to argue that
student satisfaction can be legitimately subordinated to any other education outcome."

7.2 Results of the Student Questionnaire

The following analysis is based mainly on data collection from a sample of final-year students at PHVETCs (see Chapter 5 for more detail).

7.2.1 Socio-economic Characteristics

Of the 272 in the students' sample, 71.3% were female and 28.7% were males. The vast majority (87%) were 21-25 years old and the remaining were 26 years old or over. To assess the socio-economic status of PHVETCs' students, the respondents were requested to provide information about: 1) the highest level of education attained by their parents, 2) the average monthly income of the family and 3) the family size. The results showed that about one-third of the respondents' fathers and two-thirds of the respondents' mothers have no formal education. About 70% of the total respondents belonged to families with 10 members or more. A significant proportion (62.5%) of respondents' family income level was found to be below 300 Dinars (UK£1= 2.4 Libyan Dinars per Month). In line with this discussion, a similar study focusing on secondary vocational education found that more than two-thirds of the respondents belonged to families receiving a monthly income below 200 Dinars (Almashhadani, 1999, p. 188). A great majority of the respondents (87.9%) were supported by and financially dependent on their parents during their course of study. 10.3% were self-sponsored and only 1.8% received sponsorship.

In respect of place of residence, the great majority of respondents (85.3%) were born in Benghazi City or other towns but still within the Sha'biyat of Benghazi. Libyan nationals dominated the overwhelming majority of the respondents (97.4%). Most of the respondents lived with their parents or relatives during
their college education (87.5%) and only 12.5% were living in college accommodation.

7.2.2 Educational Background

The respondents were asked to provide information about their educational background. Those who had an academic education were the highest at 89.7%, whilst those with a specialisation education and vocational education were only 9.6% and 0.7% respectively. Concerning the location of previous secondary schools, the majority of respondents (83.8%) came from schools either in the City of Benghazi or in adjacent towns within the Sha'biyat of Benghazi while the remainder came from schools located in other Sha'biyats. In connection to this point, respondents were asked to note whether there was a linkage or not between their past education and their current course of study. Those who responded in the affirmative were 45.6% of the total population sample; however, about the equivalent number of the participants (43.8%) answered negatively. The remainder (10.3%) did not know or were not sure.

In responding to a question on whether the present course of study was compatible with their desired profession, almost 60% of the respondents stated that the present course of study was compatible with their desired profession. However, about a quarter of the total respondents reported the present course was incompatible with their desired profession and the rest (14%) did not know or were not sure. Those who reported incompatibility of the current course of study with their desired profession were requested to give reasons for their responses. As shown in Figure 7.1, students expressed a variety of reasons; however, a particular emphasis was placed on two reasons: 1) they did not meet the preferred course requirements, as a result of their GSEC lower grades and 2) course selection was a result of parental advice. These two reasons accounted for 39.1% and 27.5% respectively.
Similarly, students were asked to articulate their motivations for enrolling on the course. Again respondents gave various reasons as to why their course was chosen. Two reasons have been considered most important and accounted for about four-fifths of the total responses. These were: desire for more study (42.6%) and the choice has been made through Central Admission of the Secretariat of Education (39.1%). Other reasons for enrolling are shown in Figure 7.2.

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Figure 7.1: Reasons for the Incompatibility with Desired Course
Source: Appendix F.

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\(^9\) The Central Admission of the Secretariat of Education is responsible for the admission of secondary school graduates into HEIs. The placement of the graduates in the different HEIs is normally based on their cumulative grade point average in GSCE exams (Mniena, 2001).
7.2.3 Locational Accessibility

According to Stanilove (2003, p. 784), "accessibility describes the ease of access to a particular location." Locational accessibility can be tested or measured in time, distance, cost and mode of travel used to arrive at the service facility (Weber 2003; White 1979). To measure the physical accessibility of the location of the PHVETCs to beneficiaries, respondents were asked to provide answers to the following:

1. Type of transport used to travel between college and home,
2. Average travel time,
3. How easy/difficult is the daily journey, and
4. Physical constraints that would affect their daily journey.

The mode of transport most frequently used by the respondents to arrive at college was the public bus service. This type was used by 40.4% of the total population sample, followed by private vehicle (either as a passenger or a
CHAPTER 7: STUDENT EXPERIENCE OF PHVETCS

driver) which accounted for 30.1%. Other motor commuting means used by respondents were taxi service 14% and hitch-hiking 1.1%. These four types jointly accounted for 85.6% of the total responses. Only 13.6% of the total respondents walked between home and college (Figure 7.3).

![Figure 7.3: Mode of Transport Used to Come to College](source: Appendix F.)

In response to the inquiry about the average daily travel time between home and college, more than three-quarters of the sample (76.1%) reported that their daily travel usually took less than 30 minutes and 21.7% stated their daily journey usually took more than 30 minutes. Related to this factor, the respondents were asked to describe how easy or difficult their daily travel between college and home was. This daily travel routine had been described as easy or very easy by about three-fifths of the total respondents. On the other hand, however, around two-fifths described their daily travel as difficult or very difficult. Heavy traffic on the road was found to be a major deterrent by over a third of the total sample population followed by long distance (26.1%), traffic lights (9.2%) and road works (4.8%). At the other end of the table, 25.7%
CHAPTER 7: STUDENT EXPERIENCE OF PHVETCS

reported they had not experienced any type of constraints during their daily travel routine (Figure 7.4).

![Figure 7.4: Constraints Experienced During Daily Travel](source: Appendix F)

7.2.4 Views on PHVETCs' Programmes

Respondents were asked to describe their overall satisfaction with their courses at PHVETCs. In this regard, the majority of respondents were in the affirmative and stated that the course programme met their needs and expectations (70.2%) while 29.4% of the sample responded negatively and stated that the programmes did not meet their needs and expectations. The main reasons provided by the respondents who answered negatively were: "courses don't reflect profession or are irrelevant" (17.5%), "courses are hard" (15%) and "courses are below standard" (12.5%).

Likewise, respondents were asked to report the level of their satisfaction with the education and training programmes provided at the PHVETCs. The majority of the respondents (63.6%) were satisfied with the level of programme. However, 36% expressed their dissatisfaction. Those who reported
dissatisfaction were requested to give reasons for the dissatisfaction. The main reasons for dissatisfaction were: programme comprised too many irrelevant courses (14.3%), an equivalent number (14.3%) also mentioned a lack of practical courses and that they did not feel like a HE student. 12.2% reported that the courses were too hard for them. Inadequate staff and facilities as well as insufficient administration were reported by 10.2% and 8.2% respectively (Figure 7.5).

Figure 7.5: Respondents' Reasons for Dissatisfaction (no 98)
Source: Appendix F.

Respondents were asked to determine areas that urgently needed improvement and amelioration and which would consequently improve the internal efficiency of the PHVETCs. According to the respondents' answers the different areas that need to be improved were as follows:

- There is a need to raise the standard of courses (25%),
- Improve facilities (laboratories, libraries, workshops, and equipment) (23.2%),
- Improve buildings (19.5%),
- Provide better guidance (16.9%), and
• Other areas (15.4%).

7.2.5 Employment and Careers

The transition from college to the world of work has been considered one of the major challenges for graduates (Graham and McKenzie 1995). To view the related aspects of this issue within the PHVETCs, respondents were asked to provide answers regarding this matter. Traditionally, the Libyan Government has been the main employer of graduates of higher education. However, as a result of the budgetary constraints during the last two decades (see Section 4.2.3, Chapter 4), the Government is no longer able to guarantee employment opportunities to graduates. In connection with this, the vast majority of the respondents (85.7%) believed that providing graduates with work places should be the Government's responsibility. In other words, work opportunities for graduates must be the Government's main concern. Related to this factor, respondents were asked about the availability of employment information to students. More than three-quarters of the total sample reported they had not received any information in relation to employment opportunities available to them. Respondents who obtained information or advices about employment opportunities (23.2%) mentioned different sources, as shown in Figure 7.6. A large proportion (46%) of those obtained information through direct contacts with employment agencies and 14.3% from relatives and friends. However, just 7.9% reported that they got information through the colleges themselves.
Regarding previous work experience, the vast majority of the respondents (84.2%) stated that they had not had previous work experience. Only 13.6% of the total respondents had some kind of work experience through part time work. Almost half of those who had had some kind of work experience, had worked within the City of Benghazi. Concerning employment possibilities after graduation, respondents were asked about their expectations of future employment opportunities. Almost 43.8% of the respondents reported that employment prospects following graduation would be poor while 22.1% predicted it would be fair. However, only 14% had high or very high expectations for employment after graduation (Figure 7.7).
Regarding their prospective employment location after graduation, more than two-thirds claimed they intended to seek work opportunities within the City of Benghazi. Those who stated that they intended to seek work opportunities outside the City of Benghazi were 5.2% within the Sha'biyat of Benghazi and 21.3% within other Sha'biyats. The remainder (1.5%) intended to seek work opportunities outside the country.

### 7.3 Discussion

A total of 272 final-year students at nine PHVETCs in the Sha'biyat of Benghazi, Libya were requested to answer a self-administering questionnaire. Their responses provide a sufficient data-set regarding their socio-economic characteristics, experience at the PHVETCs, employment expectations and other pertaining aspects. On the basis of the above mentioned results, specific points are distinguished and discussed in the following paragraphs.

Interestingly, the majority of the participants were females (71.3%). The preponderance of females over males, however, does not reflect the gender
ratio of the total population at national level as according to DGHVECs (2000) the gender ratio was 47% for females and 53% for males in 2000. Also, a high percentage of the total participants were of a traditional students age, being 25 years of age or younger. These characteristics can be accounted for by the popularity of PHVETCs courses among female students on the one hand and the extent to which PHVETCs contribute to the local labour market with younger skilled manpower on the other.

In general, a high proportion of the respondents belonged to large families of low socio-economic status, and in particular, whose mothers lacked formal education. In literature, however, a number of related studies indicate that there is a kind of relationship between the education level of parents and the field of study chosen by students. Students whose parents lack higher education attainment are more likely to enrol on non-university programmes (Knighton and Mirza, 2002; Corak et al, 2003). Furthermore, in Libya as well as in many Arab countries, there is a general attitude that students who originally belong to less educated and less socio-economically established families tend to go to college rather than university.

As far as the previous educational background of the student is concerned, the majority of respondents came from academic secondary schools whereas very few came from VET secondary schools. This tendency can possibly be explained by that fact that many VET secondary graduates go straight to the labour market following graduation rather than going on to HEIs. In addition, contemporary secondary education in Libya is over-dominated by academic subjects and its graduates lack the necessary skills needed by workplace. VET programmes comprise a relatively small proportion of the secondary education system as Alaghbari, (1998, pp. 150-151) observes:

"The secondary education system in Libya focuses on preparing individuals for university education and neglects preparing them professionally to contribute to the development plans of Libya. Indeed, secondary education is dominated by academic curriculum subjects while technical and vocational subjects comprise a relatively
very small portion of the education programme. Secondary education is far from workplace life and production. This situation has led to the lack of balance between theoretical knowledge and professional practice. Furthermore, secondary education suffers from a lack of guidance and orientation. Moreover, graduates from secondary education who cannot enrol at university do not find appropriate jobs that match their abilities and their specialties because of their low level of education and the lack of employment opportunities available on labour market.”

According to Brabyn and Skelly (2002, p. 2), “locational accessibility refers to physical proximity of a service facility,” and this is considered an important determinant affecting utilisation of a service. Related to this matter, physical access to PHVETCs had been described as easy or very easy by three-fifths of the respondents; the daily travel generally took less than 30 minutes and the vast majority of the respondents (86%) relied on motor vehicle modes to travel to and from the college. Furthermore, about three-fifths of the respondents reported that heavy traffic and long distance were found to be the main deterrents during their daily travel. However, this situation of long distance travel and using motor vehicle modes for transport could be a major constraint to students belonging to lower income families.

According to article 14 in Law 114 of 1994, which covers the regulations of PHVETCs, 60% of curriculum instruction time should focus on practical training and 40% on theoretical knowledge (Ajarida Arrasmiya, 1994, p. 14). However, it is clear from the findings that instruction in PHVETCs tends to emphasise theoretical issues rather than practical applications. Similar findings have been previously reported by Arrabei (2004) and Aldhaif et al (2001). In this regard Arrabei (2004, p. 2) has commented on the inadequate practical applications and the insufficient work experience of the graduates of applied and technical fields:

“Graduates of applied and technical fields are often facing challenges in securing placement in the labour market, particularly in the private sector. This is primarily because of the lack of work experience and insufficiency in areas related to specialisation and occupation during their college study. This also, is a result of the dominance of
CHAPTER 7: STUDENT EXPERIENCE OF PHVETCS

"theoretical subjects at the expense of practical ones because of a lack of or non-existence of workshops, laboratories and equipments which are often needed for practical applications."

Although a high proportion of students included in the survey were apparently satisfied with their courses, they thought that PHVETCs' programmes needed more improvement. This improvement should cover: better guidance, physical facilities, human resources and an increase in practical courses. Along with these findings, a previous study conducted by Aldhaif et al (2001) has mentioned that most PHVETCs suffered a lack of physical and human resources which resulted in inappropriate functioning as HEIs (see Section 6.1, Chapter 6).

In spite of the importance of career counselling services for students as potential employees (Oliver, undated; Mau and Fernandes, 2001; OECD, 2000), the findings revealed that most of the respondents have not obtained any information about work opportunities available to them after graduation. This finding was consistent with the findings of earlier research (Mogassbi, 1984). Furthermore, they have not had any work experience as part of their college training. According to a number of related studies, obtaining a place for employment has become an increasing challenge and often a "stressful process" for new graduates (Chao, 2005; Polach, 2004; Perrone and Vichers, 2003; Graham and McKenzie, 1995). This situation of a lack of information regarding work opportunities combined with a lack of previous work experience, has almost certainly led them to be extremely pessimistic about the probability of employment opportunities available to them after graduation.

Regarding the location of prospective work, most of the respondents reported that after graduation they would seek employment within the City of Benghazi. This tendency can possibly be attributed to two factors. Firstly, the City of Benghazi is considered the largest local labour market in the Sha'biyat of Benghazi and secondly it gives an indication of the limitation of geographical mobility of PHVETCs students who prefer to seek work near to where they are domiciled. This lack of geographical mobility of graduates of HE can possibly be
explained by a lack of adequate information regarding the world of work and work opportunities available to students after graduation. This lack of geographical mobility, however, entirely contradicts the wide employment mobility experienced by people with a HE degree (Belfield and Morris, 1999).

7.4 Conclusion

Given the above findings and discussions, it can be concluded that while a significant proportion of the students included in the survey seemed to be generally satisfied with their study programme, they remained extremely concerned about the nature and adequacy of instruction offered which was largely theoretical. They also had concerns about the insufficient human and physical facilities. In addition, they seemed more pessimistic about employment opportunities available to them after graduation. These negative attitudes can perhaps be linked to the unavailability of career counselling services for PHVETCs students and the lack of work experience during college course training. Therefore, authorities should be equally concerned with providing PHVETCs with sufficient physical and human resources (buildings, laboratories, workshops, instructors etc.) to enhance instruction delivery, practical programmes, and consequently to enhance the output in accordance with the needs of the local industrial, economic and social structures. More importantly, PHVETCs should introduce students’ academic and career counselling services as an important tool in providing students with the necessary information about career and work opportunities. In addition, PHVETCs should establish links with local businesses and find ways of coordination between the programmes provided and the employers’ needs. Such measures, consequently, would enhance future employment opportunities for students enrolled in PHVETCs and bridge the gap between the supply and the demand of the local labour market.

The main purpose of the following chapter is to develop several guideline criteria for the establishment or development of PHVETCs.
CHAPTER 8

EVALUATION CRITERIA FOR PHVETCS
In the previous chapter the main focus of the discussion has been on the overall satisfaction of final-year students at nine PHVETCs in the Sha'biyat of Benghazi, Libya. In this chapter, however, an attempt is made to develop and validate systematic evaluation criteria for the establishment or development of existing PHVETCs. Justification for having evaluation criteria for PHVETCs is also discussed in this chapter.

8.1 Why Evaluation Criteria are Needed for PHVETCs?

The discussions and findings in the preceding chapters have provided very convincing evidences of the unplanned nature of the establishment and distribution of PHVETCs' provision in Libya. Clearly, when the PHVETCs' provision was introduced in the country the central priority of the Government's focus had been primarily on the quantitative aspects with not much concern given to qualitative ones. Therefore, many PHVETCs were established and distributed haphazardly to fulfil the main objective of spreading the advantages of this service in all parts of the country. Notwithstanding, PHVETCs' services are now scattered throughout many parts of the country and the majority of these colleges do not appear to have the necessary human and physical resources to support their learning/training programmes. As a result, they do not produce adequate skilled graduates that meet the true demands and needs of their regions. Therefore, there is a need to consider qualitative aspects as well in the provision of PHVETCs so that they can produce graduates who have skills that can be utilised by the Libyan
CHAPTER 8: EVALUATION CRITERIA FOR PHVETCS

labour market. Moreover, quality aspects will add value to the investment being made in education by society.

On the whole, results from previous studies combined with the results of the present study have highlighted several shortcomings and limitations that significantly impede the performance and operation of the PHVETCs. These shortcomings can be classified into five main categories as follows:

1. **Infrastructure and facilities**: most of the PHVETCs are suffering from inadequate buildings and other significant educational infrastructure, as well as poor facilities (libraries, computer laboratories, workshops, laboratories and equipment (Chapter 6 and 7). This situation has resulted in PHVETCs' students losing their confidence in the quality of their education and believing that they do not belong to the HE community (Chapter 7).

2. **Location and accessibility**: clearly, existing PHVETCs' locations were selected haphazardly as most of the colleges were established and distributed in metropolitan areas (main cities) rather than towns and rural areas. Inappropriate locations have also affected the physical accessibility of the colleges as the vast majority of the students who participated in this study relied on motor transport mode to travel to and from home to college (Chapters 6 and 7). This disadvantaged students belonging to low income families who are not able to meet transport costs and hence, do not enrol in PHVETCs.

3. **Relevance to true needs**: evidently, there has been a chronic mismatch between the colleges' output and the true demands of the labour market. Also, there is a lack of relationship/cooperation between PHVETCs and local business/industry, (Chapters 4, 6 and 7).

4. **Courses and instruction**: Most of PHVETCs suffer from inadequate curricula, ineffective teaching/learning methods, and weaknesses in practical applications (Chapters 3, 6 and 7).
5. **Human resources:** many of the PHVETCs do not have a sufficient quantity and quality of faculty and supporting staff. Moreover, they have a greater reliance on part-time and non-Libyan faculty members (Chapters 3, 6 and 7).

This haphazard and unplanned situation, however, can be attributed to the unavailability of systematic standard criteria (Albadri, 2006 and 2007; Alfaidy and Ibrahim, 1997) that can be used to make accurate and meaningful decisions regarding the establishment and distribution of PHVETCs' opportunities in the country. It is clear that the availability of such criteria would provide an effective method to assist planners and administrators in taking appropriate decisions in this regard. Therefore, the development of suggested evaluation criteria will be focused on the above mentioned shortcomings and limitations.

### 8.2 Search for Criteria

It is convenient to start this section by defining the term criterion. A criterion may be defined as: “an established standard by which something may be judged or examined” (PED, 2006). Also, Sadler (1987, p. 194) defines a criterion as:

“A distinguishing property or characteristic of any thing, by which its quality can be judged or estimated, or by which a decision or classification may be made.”

The domain of forming and developing standard criteria for the establishment or development of HEIs has not been adequately studied. However, relevant literature has shown different attempts to determine standards and criteria to fulfill specific aims in the following areas: establishing new HEIs (HRC, 2003; HKJ, 2003; PEPC, 1991; Hammons and Nunn, 1994), college administrators (Hammons and Guillory, 1990), students' selection and admission (Harman, 1994; Pearse, 1978), evaluation of non-traditional programmes (Gooler, 1977), affiliation/validation (Hopkin, 2001) and quality management
CHAPTER 8: EVALUATION CRITERIA FOR PHVETCS

performance (Borahan and Ziarati, 2002; Williams, 1988; Billing, 1988, Nisbet, 1988; Gilmer, 1949).

These attempts provide diversified international experiences from both developed and developing countries including Britain (Moodie, 1988); the United States (PEPC, 1991; Hammons and Nunn, 1994; Hammons and Guillory, 1990); Pakistan (HRC, 2003); Turkey (Borahan and Ziarati, 2002) and Jordan (HKJ, 2003). The most common criteria cited in the literature regarding the establishment of new HEIs are: population and demographic factors, local interest; funding availability; appropriate regulation; assessment of existing HE opportunities; and geographic location and accessibility (Table 8.1).

Table 8.1: The Most Consensus Standards and Criteria in the Literature

<table>
<thead>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Population base</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students' enrolment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needs of an area</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial resources</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevance to local needs</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effectiveness of existing HEIs</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility of location</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical facilities &amp; services</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human resources</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Provided courses</td>
<td>X</td>
<td>X</td>
<td></td>
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<td>X</td>
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</tbody>
</table>

In a general sense, the above mentioned publications have provided useful insights that assist in the setting up and developing of initial criteria for the establishment of PHVETCs. Among these, Hammons and Nunn (1994) provide an excellent overview on establishment criteria for the community colleges in the United States which has been the most reliable and detailed
source in this regard. However, regrettably, one weak point about Hammons and Nunn's (1994) work is that they have not explicitly cited their references. PEPC (1991) has also been a valuable reference monograph for the present work. It developed inclusive theoretical and practical framework criteria for establishing and assessing HEIs in the United States. These framework criteria are based upon a three-phase process planning as follows:

1. A threshold analysis to determine probable needs of a region,
2. A feasibility study to determine the cost-effectiveness of the proposed new institution, and
3. An implementation plan for the development of the institution.

However, related to this issue, several authors (Casley and Lury 1987; UNESCO 1975; Cheeswas 1967) have also, strongly stressed the importance of data and information as an indispensable tool for understanding, evaluating and generating practical and positive effects on educational planning. They provide practical methods for collecting relevant, reliable and accurate data and the specific types of data that are usually required for making such assessment and decisions (Table 8.2).
### Table 8.2: Data / Information Most Frequently Used in Education Planning

<table>
<thead>
<tr>
<th>Type of Data</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Socio-Demographic** | - Population pyramid  
- Population demographic, distribution, urban and rural  
- Population forecasts                                       |
| **Economic**          | - Distribution of wealth by region  
- Balance of payments situation  
- Relative importance of economic sectors nationally and by region  
- Communication and transport networks                           |
| **Educational and manpower** | - General  
  - Educational pyramid  
  - Record of number of higher education graduates over past years  
  - Number of secondary education graduates by year  
  - Number of secondary education graduates accepted for HE by year  
  - Map showing location and size of schools and HEIs  
  - Number of positions presently held by higher education graduates  
  - Number of foreign higher education graduates  
  - Enrolments by sex and type  
  - Number of graduates by year  
  - Family background of students  
  - Secondary education details  
    - Description of secondary education system  
    - Enrolment by sex and type  
    - Number of graduates by year  
    - Family background of students  
  - Higher education system details  
    - List of institutions with data on each of HE by type and professional fields  
    - Number of teachers at higher education (full-time/part-time)  
    - Number of expatriate staff  
    - Ratio of number of books in library to enrolment  
    - Assessment of available teaching and research equipment  
  - Manpower  
    - Number of nationals who could be attracted as college staff from private and public sectors  
    - Number of expatriates who could be recruited  
    - Number of unemployed HEIs graduates  
    - Estimation of the need for higher education graduates by general field over the next 5 to 10 years period. |
| **Financial**         | - Educational budget-recurrent & capital  
  - Total  
  - Primary  
  - Secondary  
  - Higher education  
  - Education budget ratios  
    - Total as percentage of GNP & GDP  
    - Each educational level as % of total educational budget  
  - Unit cost per student (recurrent)  
    - Primary  
    - Secondary  
    - Higher education  
  - Source and amount of educational financing:  
    - From Government  
    - From other sources |

8.3 The Proposed Criteria

In this section an attempt is made to develop a set of criteria which will assist educational professionals in Libya to review all new proposed PHVETCs prior to their establishment. More specifically, the main aim of these proposed criteria is to provide HE planners with appropriate standard criteria to ensure that new PHVETCs would be established and developed in accordance with the needs and priorities of the country as well as to prevent overlapping with existing HEIs.

Accordingly, based on the above mentioned literature (Table 8.1), a set of criteria is suggested to be used for the establishment of new proposed PHVETCs in Libya within a three procedure framework (Figure 8.1). Within each of these three stages a number of criteria should be evaluated and examined as follows:

8.3.1 First Stage (Assessment of Current Situation)

This should be done by a board of professional members appointed by the Secretariat of Higher Education (SHE). The main function of this board would be to conduct a comprehensive assessment of the following three criteria:

STG1 (1) Population base,
STG1 (2) Enrolment participation, and
STG1 (3) Geographical accessibility of the area where the proposed new college will be located

If all of the three mentioned criteria are approved by the appointed board then the second stage is conducted.
8.3.2 Second Stage (Feasibility Study)

There should be an independent board appointed by the SHE to conduct a feasibility study into the setting up of the new proposed college and to evaluate the effect and future outcomes of this college on the area to be served. Five criteria should be examined within this stage. These include:

STG2 (4) Local interest and needs,
STG2 (5) Financial resources available,
STG2 (6) Impact on other HEIs in the area,
STG2 (7) Relevancy to local needs, and
STG2 (8) Appropriateness of the site

8.3.3 Final Stage (Implementation Process Plan)

At this stage the SHE must appoint a committee of professionals from different background related directly or indirectly to educational planning. This committee can be called the Professional Inspection Committee (PIC). Its main task must be to conduct a survey concerning the human and physical resources. The PIC has to undertake regular site visits to evaluate available physical and human resources comprising the following:
STG3 (9) Sufficient facilities and enough space to accommodate projected future growth,
STG3 (10) Appropriate human resources, and
STG3 (11) Affiliation to a well established university

8.4 Validation of the Proposed Criteria

As mentioned in Chapter Five, in order to determine the reliability and validity of the proposed criteria, a group of experts consisting of 28 persons were chosen because of their expertise in the field of HE (Table 5.2, Chapter 5). During the interview the researcher introduced himself and briefly explained the research that he was conducting and the purpose of the criteria he had developed. Then he explained the procedure to be followed during the interview. Each participant was then shown the proposed criteria and given more explanation and invited to indicate their agreement (or otherwise) with each criteria. In the case of disagreement the participants were requested to comment briefly in their own words in an open-ended manner. After all the interviews were completed, the responses were summarised and analysed.

To begin with, it is probably relevant to note that the participants were pleased with the proposal. It was apparent from the discussion that took place during the interviews, that all the experts showed their satisfaction and thereby their agreement on the three stage procedure and the criteria included within each stage. The participants' levels of agreement on the 11 criteria are illustrated in Table 8.3.
Table 8.3: Agreement among the Experts Regarding the Criteria

<table>
<thead>
<tr>
<th>No</th>
<th>Criterion</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. out of 28</td>
</tr>
<tr>
<td>01</td>
<td>Large population base</td>
<td>23</td>
</tr>
<tr>
<td>02</td>
<td>Sufficient number of students at secondary schools</td>
<td>25</td>
</tr>
<tr>
<td>03</td>
<td>Locational accessibility</td>
<td>23</td>
</tr>
<tr>
<td>04</td>
<td>Local interest and needs</td>
<td>26</td>
</tr>
<tr>
<td>05</td>
<td>Availability of adequate financial resources</td>
<td>26</td>
</tr>
<tr>
<td>06</td>
<td>Assessment of the impact on other HEIs</td>
<td>28</td>
</tr>
<tr>
<td>07</td>
<td>Relevance to the local needs</td>
<td>25</td>
</tr>
<tr>
<td>08</td>
<td>Appropriateness of the selected site</td>
<td>28</td>
</tr>
<tr>
<td>09</td>
<td>Infrastructure and facilities</td>
<td>28</td>
</tr>
<tr>
<td>10</td>
<td>Availability of the necessary human resources</td>
<td>27</td>
</tr>
<tr>
<td>11</td>
<td>Affiliation and validation</td>
<td>19</td>
</tr>
</tbody>
</table>

Source: Interviews with experts in the field of higher education (n = 28), conducted in Libya, 7-11/11/2006.

As can be seen from Table 8.3 above, the expert participants seemed to be satisfied with the proposed criteria as 10 out of the 11 criteria received significantly high agreement (more than 80%) and three achieved absolute agreement (100%). Only one criterion had slightly lower agreement and satisfaction among the expert-panel (68%). Some of the participants (32%) were against the idea of affiliating the new college to a well-established university but were not against the validation of programmes’ appropriateness. They argued that affiliating colleges to universities is impracticable and inefficient since universities are more concerned with academic programmes which entirely contradict the practical nature of courses/programmes provided by the PHVETCs. Furthermore, they suggested that it would be more appropriate if the SHE establish a type of central authority concerned with PHVETCs’ programmes and issues. Overall, comments and feedbacks received
from the expert panel, as well as the new ideas that emerged during the interview discussions assisted in modifying and developing a subsequent modified version of the proposed criteria (Appendix H).

8.5 Conclusion

Motivated by related literature and by the personal experience of the researcher an attempt is made to propose several guideline criteria for the establishment or development/termination of existing PHVETCs. This proposed set of evaluation criteria is well-supported in the literature and approved by experts in the field in Libya. Overall, it is hoped that the proposed criteria will offer a systematic basis for making decisions regarding the expansion of PHVETCs' opportunities in the country. The evaluation criteria have inbuilt mechanisms to address the observed limitations in the provision of PHVETCs. Therefore, the future establishment or the development of existing PHVETCs would not occur haphazardly but rather on a systematic planned approach.

The next chapter provides the summary, conclusion and the recommendations of the study.
CHAPTER 9

SUMMARY, CONCLUSIONS, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH
CHAPTER 9

SUMMARY, CONCLUSIONS, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This chapter provides a summary and the main findings of the research, together with conclusions and implications. Also, possible directions for future research will be suggested.

9.1 Summary

The last few decades have seen growing worldwide agreement among many researchers and educators that education in general and HE in particular play a significant role in the development and progress of individuals and societies. Therefore, HE has experienced a rapid growth in students' numbers and a massive expansion in its programmes and services in individual countries as well as worldwide (Schofer and Meyers, 2005; Chapman and Austin, 2002).

Alongside this general trend, vocationalisation of HE has seen growing interest and activity. This probably can be attributed to recent globalisation, economical and technological developments. These recent developments have brought about considerable changes in the patterns of the labour market and the business requirements for manpower. As a result of these developments, the HE system in many countries has been subjected to rigorous evaluations and reforms.

Libya is not an exception from this general trend. Education in general and HE in particular in Libya has seen critical evaluations and substantial reforms over
the last two decades as a result of the increasing social demand and the labour market needs of specialised and qualified manpower. In the 1990s Public Higher Vocational Education and Training Colleges (PHVETCs) were introduced in the country to enhance the supply of skilled manpower. However, several studies on the Libyan HE system have provided evidence of the unplanned nature of HEIs in general and PHVETCs in particular. They have further argued that the graduates of these colleges are incongruent with the needs of the labour market. The main purpose of this research was to explore and evaluate PHVETCs' provision in Libya in relation to the country's own socio-economic aspects. The research examined critically three main aspects namely: spatial equity, locational accessibility and the internal efficiency of the operation of the PHVETCs.

The exposition of this thesis is divided into 9 chapters. Chapter 1 introduces the research problem and outlines the overall research framework. Chapters 2, 3 and 4 provide literature associated with the research problem. In Chapter 5 the research methodology and procedures are presented and described. In Chapter 6 the development and spatial distribution of the PHVETCs are evaluated. Chapter 7 provides opinions and experiences from the PHVETCs' students regarding the PHVETCs' programmes and their employment expectation after graduation. In Chapter 8 an attempt is made to propose systematic criteria for the establishment and evaluation of the PHVETCs. This final chapter will initially provide a summary of the research objectives, research methodology and then based on the major findings, conclusions will be drawn and implications of the findings will be discussed.

9.2 Objectives and Research Questions

To address the purpose of this research, the researcher specifically sought to pursue the following objectives:
CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

1. To evaluate the spatial equity, locational accessibility and efficiency of operation (internal efficiency) of the PHVETCs.

2. To measure how socio-economic considerations influence the performance of the PHVETCs.

3. To examine the geographic mobility of students of, and graduates from the PHVETCs.

4. To offer practical advice to planners and decision makers in Libya on how to make decisions on implementing policy on the PHVETCs.

As derived from the objectives of this study, the research main question (RQ1) is formulated as follows: What determines the establishment and location of PHVETCs as an important public service for the society? The main question is divided into the following sub-questions:

RQ2. Does the establishment of PHVETCs take into account the distribution of the population and the exact needs of areas?

RQ3. Do the programmes that PHVETCs are providing match the type(s) of economic activities that take place in their regions?

RQ4. To what extent do PHVETCs' programmes supply Libyan society with the skilled manpower that it needs?

RQ5. Do the PHVETCs have the human and other resources that are necessary for the operation of the education/training process?

RQ6. How accessible are the PHVETCs to their client population?

RQ7. How often do PHVETCs' students obtain employment relevant to their field of study after graduation?
CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

9.3 Methodology

This research is exploratory and primarily descriptive. It attempts to explain and describe phenomena than test theories. Triangulation techniques were used to obtain and analyses the required data from secondary and primary sources.

9.4 Summary of Findings

To reiterate, the main motivation behind this thesis was to answer the primary question (RQ1):

What determines the establishment and location of PHVETCs as an important public service for the society?

The main findings of the research have revealed that the HE system in Libya in general and PHVETCs in particular is haphazard and suffers from lack of appropriate planning mechanisms and procedures. This situation has led to the unplanned and inequitable distribution of HEIs in the country which can be attributed to the unavailability of appropriate standard criteria. These findings are in close agreement with results from several previous studies on HE in Libya. The previous studies have identified several shortcomings which can be summarised as follows:

- Development planning in general and HE planning in particular have long been based and formulated on theoretical rather than practical considerations. In other words, it is often based on traditional objectives' planning and not on a problem-based planning approach. This lack of planning mechanism and procedures has affected the overall performance of the HE system in the country (Chapters 4).

- The absence of clearly defined philosophies and objectives within the HE system. This has led to haphazard planning of the establishment and locations of HEIs in the country (Chapters 3 and 4).
CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

- The growing dominance of humanities and social sciences’ fields at the expense of pure and applied academic fields. This situation has probably contributed to the chronic mismatch between HE outcomes and the skills required by the local labour market (Chapters 3 and 6).
- The lack of sufficient national faculty members to instruct at HEIs. This situation has forced the HEIs in Libya to employ expatriate faculty members because there are not sufficient numbers of qualified Libyan to fill the positions available. This can be partially attributed to the phenomenon of brain drain from the country (chapter 3 and 6).
- The unreliable, inaccurate and inconsistent related statistics data and information (Chapter 6).

This gives an indication that, although Libyan society has recently realised the utmost importance of VET programmes in HE provision in providing the highly qualified manpower urgently needed, the problem, however, lies in the tools, methods and processes that are used in the implementations and evaluations of such human developmental programmes.

The following is a review of answers to the six research questions that have been posed at the beginning:

RQ1. What determines the location of a PHVETC as an important public service for the society?

RQ2. Does the establishment of PHVETCs take into account the distribution of the population and the exact needs of areas?

It was found (Chapter 6) that the population’s size and distribution has been a substantial determiner of the locational distribution of the PHVETCs. The distribution of PHVETCs was found to closely match the general distribution of population. However, as is the case in many developing countries, major cities and towns dominate with greater numbers of PHVETCs. The City of Tripoli (the national capital) alone comprised about 13% of the total PHVETCs in the country in 2000.
CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

**RQ3.** Do the programmes that PHVETCs are providing match the type(s) of economic activities that take place in their regions?

**RQ4.** To what extent do PHVETCs' programmes supply Libyan society with the skilled manpower that it needs?

The unplanned nature of the establishment and distribution of PHVETCs' course programmes was evident. It was found that the vast majority of courses provided were in the areas of education and social sciences (Chapter 6). Clearly, humanities and social sciences courses dominate HEIs. One explanation of this strong and continuing dominance of such courses is the fact that these courses are taught by the traditional methods of “chalk and talk” and text books which do not require expensive equipments or special laboratories/workshops. The tendency has long been prevalent in the PHVETCs. Although practical training should comprise 60% of the courses' time, it is clear that the opposite is true.

**RQ5.** Do the PHVETCs have the human and other resources that are necessary for the operation of the education/training process?

On the basis of the researcher's personal experience and direct observations during the field study as well as from the results obtained from the survey and relevant research, it is clear that most PHVETCs do not possess the necessary supporting infrastructure facilities and human resources. These should be available for HEIs to enable them meet their exigencies and perform their functions adequately and accurately. Generally, PHVETCs suffer from lack of adequate facilities or an absence of the necessary infrastructure facilities, such as laboratories, libraries, bookshop etc. as well as a lack of sufficient numbers of qualified faculty members, support and personnel necessary to sufficiently perform such an educational/training process (Chapters 6 and 7). Obviously, this lack of necessary physical and human resources has significantly affected the performance and outcome of the PHVETCs.

**RQ6.** How accessible are the PHVETCs to their client population?
Accessibility in this research is refers to the physical proximity and accessibility of PHVETCs to the students' population. Physical access is an important factor for the utilisation of a service and for the satisfaction/dissatisfaction of the service beneficiaries. According to the findings of the survey that was conducted among a sample of final-year students at nine PHVETCs a significant percentage of the participants (60%) described daily commuting travel between college and home as easy or very easy and lasting less than 30 minutes. However, the vast majority of the participants (86%) relied on motor vehicle modes for travelling to and from the college. Furthermore, a large percentage of the participants (60%) reported that heavy traffic and long distance were the main deterrents during their daily travel. Long distance and reliance on a motor vehicle for transport could be a major constraint to students belonging to low income families. Such travel costs would be prohibitive to them and prevent them from attending PHVETCs.

RQ7. How do often PHVETCs students obtain employment relevant to their present field of study after graduation?

Employment opportunities after graduation was described as poor by a significant percentage of final-year PHVETCs' students who participated in the study (approximately 44%). Associated with this, findings from the literature have highlighted the recent issue of graduates' unemployment. The emergence of the issue of unemployed graduates according to these analysts is a direct result of the mismatch between HEIs programmes and outputs and the exact needs of the local market. Findings from the research revealed that PHVETCs seem to suffer from a number of weaknesses which in consequence affect employment prospects of the PHVETCs' graduates. These weaknesses are:

- The inadequacy or unavailability of career counselling and job placement services.
- The absence of work experience/training programmes prior to graduation.
CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

- Lack of cooperation (relationships) between PHVETCs and local businesses and industries.

- Lack of information regarding employment prospects available to students after graduation.

This chronic situation of a lack of career counselling and job placement services, work information and work experience have led PHVETCs' students to be extremely pessimistic about the employment prospects after graduation.

9.5 Limitations and Conclusions

Before drawing conclusions, it is necessary to point out a few limitations on the data and the methods adopted to address the research problem.

- There has been limited data/information regarding the research problem. At national level the investigation was based on a relevant literature review and data generated by the Directorate General of Higher Vocational Education Colleges of the Secretariat of Education in 2000 (GDHVECs, 2000). Although this data is relatively out of date, it is the most comprehensive data available on PHVETCs' system.

- The survey was conducted in only one Sha'biyat (the Sha'biyat of Benghazi) in the country and, therefore, results may vary across other Sha'biyats. Data collected was based on a questionnaire to collect opinions and experience from final-year students at nine PHVETCs in the Sha'biyat. Results from students in other Sha'biyats may differ from those of the Sha'biyat of Benghazi.

- The focus of the study has been on internal efficiency aspects of the PHVETCs' programmes more than external ones.
Nevertheless, despite these limitations, this research provides useful information and insights about different aspects of PHVETCs. Important conclusions can be drawn in the following paragraphs:

HE in Libya is a recent phenomenon. Indeed, during the long colonial era (1551-1951), the country did not experience any kind of HEIs. However, following the attainment of independence, the Faculty of Arts and Education was established in the City of Benghazi in 1956. This Faculty was the nucleus of the University of Libya. In the early 1970s the University of Libya was divided into two universities, namely: the University of Tripoli (now University of Alfatah) which comprised of all HEIs that were located adjacent to the City of Tripoli; and the University of Benghazi (now University of Garyounis) which comprised all HEIs that were located adjacent to the City of Benghazi. By the beginning of the 1980s, due to the increasing social demand for HE services as well as the urgent need for highly qualified technical manpower, more HEIs were established to meet the needs of the socio-economic development plans. This led to a significant increase in the number of HEIs from seven universities and four colleges in 1985 to 14 universities and 85 colleges in 2000. By 2004 there were 67 public and private universities and 120 public and private colleges.

Despite the contributions of these HEIs in the development and progress of Libyan society, many relevant studies unanimously agreed that this large increase in the number of HEIs considerably exceeded the actual needs and demands of the country. Furthermore, this large increase came at the expense of the quality aspects. In fact, many of these HEIs suffered from a shocking lack of physical and human resources that are essentially required for this type of educational institutions. All these issues hampered HEIs from performing their required functions in the society.

During the 1960s and 1970s VET did not receive the necessary attention from the Government, despite the urgent need for highly qualified manpower as a result of the discovery and exploitation of oil resources. Therefore, a lack of local skilled labour had increased the dependence on expatriate skilled labour
CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

to address the critical gap. However, since the mid 1980s the Government showed more interest for this type of education and in the 1990s the Public Higher Vocational Education and Training system (PHVETCs) was introduced for the purpose of enhancing the output of HEIs in the country. As mentioned previously, the number of PHVETCs has increased considerably and spread to most regions of the country. However, some observers argue that the establishment of the PHVETCs as well as their distribution in the country has been carried out haphazardly, rapidly and unsystematically which subsequently hampered the quality performance of PHVETCs from functioning effectively to respond to the exact needs of the society.

This research was conducted in order to come to a proper understanding of the nature and characteristics of the PHVETCs as well as to evaluate their programmes' effectiveness on students and society as a whole. Research in the area of VET in Libya was found to be very limited and it can be considered terra incognita as there is relatively very little information and data available regarding this particular issue.

To generate better understanding about this issue, an exploratory research was adopted. Exploratory research is employed when a researcher is seeking insights into the general nature of a problem or there is insufficient information about it. Therefore, it was necessary to refer to many sources and methods to obtain data and information covering different aspects of the research problem. For this purpose, different methods were used to collect the necessary data. These included: a literature review of relevant areas, observation, questionnaire and interviews.

The analysis of collected data and information has provided convincing evidence of the unplanned nature of the establishment and distribution of PHVETCs in the country. The unplanned nature of the establishment and distribution of PHVETCs has contributed several shortcomings and complications which has affected their effectiveness in providing society with proper manpower needs. However, this unplanned situation is mainly attributed
to the unavailability of standard criteria that should be formulated to assist in organising the establishment and distribution of HEIs. Therefore, based on the research findings, an attempt was made to develop a set of systematic criteria regarding the evaluation and establishment of PHVETCs. The proposed criteria are well established in the literature and their validity was determined by a panel of experts in HE in Libya. The proposed criteria will help planners and administrators in Libya in making decisions regarding the expansion of PHVETCs' opportunities in the country.

9.6 Policy Implications

The conclusions drawn from this research have important policy implications on VET programmes in general and PHVETCs provision in particular. Therefore, on the basis of the research results some implications and recommendations can be suggested as follows:

- There is a tremendous need for comprehensive and critical evaluation of the PHVETCs' provision in order to understand better their status and role on the society. The proposed systematic evaluation criteria (Chapter 8) can be used for this purpose.
- There is a general deep-rooted tendency among Libyan society to hold negative attitudes towards manual work and VET programmes. Therefore, to change this negative image, corrective and active measures need to be introduced to adequately address this issue.
- To handle the uncertainty of employment prospects among graduates, PHVETCs should introduce career counselling and a job placement service. Such a service is considered a crucial tool that links the colleges with the outside environment.
- Authorities at both national and local levels should be equally concerned with providing the PHVETCs with sufficient physical and human resources to enhance the outputs in accordance with the needs of the society.
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- PHVETCs should establish close links with local businesses and industries and find ways of coordination between the provided programmes and the employers’ needs.

- There is an urgent need to establish a national VET research centre. Such a research centre can diagnose and identify various aspects of the VET programmes’ needs of the country and can help in setting future plans.

9.7 Areas for Further Research

Due to the lack of previous research and empirical studies in this area in Libya, neither changes nor trends about it can be observed. Therefore, it is suggested that similar research be conducted in future. However, since this research is exploratory in nature, it raises several interesting research issues. Therefore, in the light of the research findings, several areas for future research are suggested. Although research data within these areas is limited, however, implications are potentially significant.

- In the present research, the focus has been on the internal efficiency of the PHVETCs and there is an obvious need to explore the external aspects of these colleges. The relationship between the PHVETCs and local business and industries can be explored by surveying the opinion of employers regarding programmes and graduates of PHVETCs. Alongside this, the recent issue of unemployment among HEIs' graduates deserves equal attention.

- Private HEIs is a very recent phenomenon in Libya. The number of private HEIs has increased at an alarming rate in the last few years (Abojaafar, 2006). Therefore, there is a clear need to explore the extent, nature and impacts of the private HEIs development on Libyan society.

- Relevant discussions and research provide signs of a long-held and currently existing negative attitude towards manual work in Libya.
Also, there is a general tendency among Libyan society to attach less importance to VET streams. Students' numbers at PHVETCs is relatively small compared to those at universities (about 29% in 2000) which indicates that students prefer to enrol at universities rather than PHVETCs. This issue obviously is of importance and deserves more attention from researchers and policy analysts to explore factors and circumstances that contribute to society's misjudgement of VET programmes in HEIs.

- According to Todaro (1985, p. 353 as cited in Edokat, 2000, p. 1) the brain drain phenomenon is one of the most significant problems that is challenging many developing countries and therefore it “deserves mention not only because of its effect on the rate and structure of LDCs [Less Developed Countries] economic growth but also because of its impact on the style and approach of Third World educational systems.”

- Recently, there are clear and convincing signs that the lack of, or insufficient numbers of, faculty members in HEIs in Libya is influenced partially by the problem of the brain drain (Zaptia, 2007; Porter and Yergin, 2006; El-Kikhiya, 2003). Therefore, it can be argued that it might be of importance to investigate the nature, causes and effects of this problem within the system of HE in the country.
APPENDICES
Appendix A: Student Questionnaire Design

The Questionnaire for the Survey of Public Higher Vocational Education and Training Colleges

Dear Student,

This questionnaire is designed to collect information about socio-economic and educational backgrounds as well as perceptions and opinions of the students about the college and programmes provided in the college. This information will be used to improve the quality of the college. Please do not place your name on the questionnaire. This information provided in this form will only be seen by the researcher. The information will be confidential and used for statistical purposes only. Please read questions carefully and answer by circling the appropriate number or write in the blank space. If you face any difficulty in completing the questionnaire, please do not hesitate to ask for help. Thank you very much for helping with the study. I greatly appreciate your taking the time to complete the questionnaire.

Name of the College: ___________________ Date: __________________

General information
A. Age: ______
B. Place of Birth: __________
C. Gender: A. Male  B. Female
D. Nationality: A. Libyan  B. Non-Libya
E. Type of accommodation: A. Dormitory  B. Private
F. Permanent address: __________________________
G. Number of family's members: __________
H. Father's level of education:
   A. Illiterate  B. Read & write  C. Primary
   D. Preparatory  E. Secondary  F. University +
1. Mother's level of education:
   A. Illiterate  B. Read & write  C. Primary
   D. Preparatory  E. Secondary  F. University +
10. Total monthly income of the family (approximately): __________
11. Who pays tuition fees?
   A. Myself  B. Parents  C. Sponsorship
12. If C: A. Public body  B. Private body
13. What were your main reasons for enrolling in the course?
   A. Through central admission.
   B. My employer is sponsoring me.
   C. I'm an unemployed/a school leaver and want to improve my job prospects.
   D. I want to start my own business.
   E. Desire for more study for its own sake.
   F. I wasn't accepted on a course I preferred.
   G. Other, specify: ____________________________________________

Educational background
14. Previous schooling.
   A. Academic  B. Specialized  C. Vocational
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15. Place of secondary school: ________________________________
16. Year of graduation: ________________________________
17. Do you see any connection between the courses you studied in secondary school and your current courses?
   A. Yes  B. No  C. Don't know/Not sure
18. Is your present field of study compatible with your desired profession?
   A. Yes  B. No  C. Don't know/Not sure
19. If no, please give reasons:
   A. Didn't meet the specific requirement of preferred course.
   B. Preferred was too unaffordable.
   C. Preferred wasn't available where I live.
   D. Parents advice other wise.
   E. Changed my mind after received other options
   F. Other, please specify ________________________________

Location and accessibility

20. What mode of transport do you usually use to get to the college?
   A. Walking  B. private car  C. Taxi  D. Bus
   E. Other: ______________________________
21. Can you estimate how long it takes by car to get to the college?
   A. Less than 15 minutes
   B. 15-30 minutes
   C. More than 30 minutes
21. How do you find the journey to the college?
   A. Very easy  B. Easy  C. Difficult  D. Very difficult.
22. What is the main constraint in reaching to the college?
   A. Road work  B. Heavy traffic  C. Traffic lights
   D. Long distance  E. None.

Quality of teaching/training

23. What is your opinion of the course, compared with your expectations?
   A. It meets my needs and expectations.
   B. Doesn't meet my needs and expectations.
24. If B:
   A. I was intended to enrol at university.
   B. Lack of practical programmes.
   C. Because of course time table.
   D. Courses are below standards.
   E. Courses are too hard.
   F. Courses don't reflect profession.
   G. No comment.
25. In general terms are you satisfied with the educational/training Programmes?
   A. Very satisfied  B. Satisfied  C. Not satisfied
26. If C, give reasons: ________________________________
   A. Courses don't reflect profession.
   B. Courses are out of date.
   C. Lack of practical programmes.
   D. The educational atmosphere isn't suitable for higher education student.
   E. Don't feel as higher education student.
   F. Courses time-table isn't well-organized.
27. What is your personal evaluation of the courses you are studying?
   A. Too theoretical.
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B. Too practical.
C. Well balanced.

28. Where usually practical/training programmes are taken place.
   A. Most of the practical programmes are conduct in the college.
   B. Most of practical programmes are conducted outside the college.

29. If B, indicate the place:____________________________

30. In your opinion what action would most improve the educational/training programmes?
   A. Improve buildings.
   B. Raise standard of courses.
   C. Improve labs/workshops.
   D. Increase length of course.
   E. Provide better guidance to student/trainee before course.
   F. Improve and tighten discipline.
   G. Other:________________________________

Employment opportunities

31. Do you intend to seek employment in your major field of study?
   A. Yes   B. No   C. Don't know/Not sure

32. If no, why do you remain in this field? Please, give reasons:____________________

33. Do think authorities should take greater interest in the employment possibilities of graduates?
   A. Yes   B. No   C. Don't know/Not sure

34. Did you receive any information on employment possibilities open to you after graduation?
   A. Yes   B. No

35. If yes, please indicate the name and address of the body that offer the information?
   ________________________________

36. Have you had any work experience?
   A. Yes   B. No

37. If yes, indicate the name and place of your employer:
   ________________________________

38. What is your judgment of employment opportunities after graduation?
   A. Very high B. High   C. Fair   D. Poor   E. Don't know/Not sure

39. When you graduate where would you like to work?
   A. In urban area (city or town),
      specify____________________________
   B. In rural area, specify____________________________

Concluding comments

40. On the basis of your experience in this college, would you encourage others to enrol here?
   A. Yes   B. No   C. Don't know/Not sure

41. Do you consider your views to be representative of all students?
   A. Yes   B. No   C. Don't know/Not sure

42. If no, give details:________________________________

Thank you very much for your participation
Appendix B: The Arabic Translation of the Questionnaire

تقييم التعليم المهني العالي في ليبيا

الاستبيان الخاص بالطلاب والمتدربين في شعبة بنغازي

عزيزي الطالب

هذا الاستبيان صمم خصيصًا للحصول على معلومات تتعلق بالخلفية الاجتماعية والتعليمية، وكذلك وجهة نظر وخبرة الطلاب تجاه البرامج المقدمة في المعاهد والمراكز المهنية العليا. المعلومات المتحصل عليها سوف لن تستخدم إلا للأغراض العلمية والتي ستسهم في تطوير أداء هذه المعاهد والمراكز. نرجو عدم كتابة اسمك على الاستبيان. كل البيانات والمعلومات المتحصل سوف لن تستخدم إلا من قبل الباحث، كما أنها سوف تعامل بسرية تامة والإعراض الإحصائية البحثية فقط.

يرجى قراءة الأسئلة بعناية وإجابة عن طريق وضع دائرة حول الاختيار المناسب أو الكتابة في المكان المخصص. تأمل عدم التردد في طلب المساعدة إذا ما وجدت أي صعوبات في تعبئة الاستبيان.

شكركم سلفا على حسن تعاوكم معنا.

الباحث

سعد محمد الزيتني

المعهد أو المركز: ____________________________
التخصص: ____________________________
التاريخ: ____________________________

أولاً - البيانات الشخصية:

(1) العمر: ____________________________
(2) مكان الميلاد: ____________________________
(3) الجنس: أ- ذكر  ب- أنثى
(4) الجنسية: أ- ليبي ب- عربي  ج- أجنبي
(5) نوع السكن: أ- سكن داخلي للطلاب ب- شقة  ج- فلما
(6) عنوان السكن: أ- اسم الشارع: ____________________________  ب- اسم الحي: ____________________________  ج- اسم المنطقة أو المؤسس: ____________________________
(7) عدد أفراد الأسرة: ____________________________
(8) المستوى التعليمي للآب: أ- أمي ب- يقرأ وينتمي  ج- ابتدائي  د- إعدادي
(9) المستوى التعليمي للأم: أ- أمي ب- يقرأ وينتمي  ج- ابتدائي  د- إعدادي
(10) إجمالي دخل الأسرة: ____________________________ دينار (تقريبا)
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(11) من يقوم بدفع رسوم الدراسة: أ- الطالب ب- ولي الأمر ج- منحة دراسية

د- منحة دراسية من العامل للتفرغ الدراسي

إذا كانت إجابة السؤال الأول ج أو د، أذكر الجهة المنحة:

أ- اسم الجهة المنحة: 

ب- عنوانها:

(12) ما السبب أو الدافع لشراء الاحتراف بالمعهد/المركز?

أ- عن طريق التنسيب

ب- الجهة التي أعمل لديها متحفتي فرصة التفرغ للدراسة

ج- عاطل عن العمل أو منقطع عن الدراسة، وأرغب في تحسين وضعي

د- أرغب في تأسيس مشروع خاص

ه- رغبة ذاتية في مواصلة الدراسة

و- لم أقبل في المجال الدراسي الذي أرغب فيه

(13) سبب آخر، أذكره:

(14) أين تلقست دراستك الثانوية؟

أ- في مدرسة ثانوية عامة ب- في مدرسة ثانوية خاصة ج- في معهد مهني متوسط

(15) اسم المدرسة أو المعهد: 

المكان:

(16) هل تجد ثمة علاقة بين ما درسته في الثانوية وما تدرسه الآن؟

أ- نعم ب- لا

(17) هل توافق تخصصك الحالي مع طموحاتك المهنية؟

أ- نعم ب- لا

(18) إذا كانت إجابة السؤال السابق ب، يرجى ذكر السبب؟

أ- لم تمكن من إجراز متطلبات التخصص المطلوب.

ب- التخصص المرغوب يتجاوز إمكانياتي المادية والمعرفية.

ج- التخصص المرغوب غير متوفرة في شعبة بنغازي.

د- ولي أمري نصحني بذلك.

ه- غيرت التخصص المرغوب بعد تعرف على خيارات أخرى.

و- سبب آخر، أذكره:

(19) ما الوسيلة التي تستخدمها للوصول إلى المعهد/المركز؟

أ- السير على الأقدام ب- سيرة خاصة ج- حافلة عامة

د- سيرة أجرة ه- أخرى، حددها:

(20) في تقديرك كم يستغرق المشوار بواسطة السيارة؟
APPENDICES

1. أقل من ربع الساعة
2. من ربع الساعة إلى نصف الساعة
3. أكثر من نصف الساعة

كيف تجد مشوارك اليوم إلى المعهد/المستشفى؟
4. سهل جدا
5. صعب جدا

ما العقبة الرئيسية التي تعرقل وصولك إلى المعهد/المستشفى؟
6. أعمال الطريق
7. تأخير المرور
8. طول المسافة
9. لا توجد

ثالث: جودة البرامج الدراسية والتدريبية:

10. صفة عامة ما مدى رضاك عن البرامج التعليمية والتدريبية بالمركز/المعهد؟
11. راض جدا
12. راضي جزئيا
13. غير راض
14. محبط

إذا كانت إجابة السؤال السابق ج أو د، وضح الأسباب؟

ما تقييمك الشخصي للبرنامج الدراسي؟
15. هناك تركيز أكبر على الجوانب النظرية.
16. هناك تركيز أكبر على الجوانب العملية.
17. الجوانب النظرية والعملية متعادلان تقريبا.

ما تقييمك لمستوى التطبيق العملية مقارنة بالدراسة النظرية؟
18. جيدة
19. مقبولة
20. ضعيفة
21. لا أعرف/غير متأكد

أين تجرى التطبيقات العملية والتدريبية؟
22. أغلب التطبيقات تجري داخل المعهد/المستشفى.
23. أغلب التطبيقات تجري خارج المعهد/المستشفى.

إذا كانت إجابة السؤال السابق ب، ذكر اسم المكان الذي تلقيت فيه التطبيقات وعنوانه؟

من بين العوامل التالية، أختار العامل المهم الذي ترى أنه سيسهم في تحسين العملية التعليمية بالمعهد/المستشفى.
24. تطوير المباني.
25. تطوير المعامل والورش وتجهيزها.
26. زيادة فترة البرنامج الدراسي.
27. توفير إرشاد أفضل للطلاب.
28. تطوير المناهج.
29. أخري، ذكرها:

هل تحتد أنك حصلت على إرشاد مناسب عن:

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أ- البرنامج الدراسي: نعم لا
ب- إمكانيات العمل بعد التخرج: نعم لا
ج- الإمكانات الأخرى بعد التخرج: نعم لا

خامساً: فرص العمل بعد التخرج:

31 هل تود العمل في نفس مجال تخصصك بعد التخرج؟
أ- نعم ب- لا ج- لا أعرف/غير متأكد

32 إن كانت الإجابة السؤال السابق لا، لماذا بقيت في نفس المجال؟ أذكر السبب؟

33 هل تعتقد أن الجهات المسؤولة (مثل التعليم، القوى العاملة) ينبغي أن تهتم بمسألة أيجاد فرص علم للخريجين؟
أ- نعم ج- لا أعرف/غير متأكد

34 هل توفرت لديك معلومات تتعلق بفرص العمل المتاحة ضمن مجال تخصصك؟
أ- نعم ب- لا

35 إن كانت الإجابة نعم، أذكر اسم الجهة التي وفرت المعلومات؟
أ- اسم الجهة: ____________ ب- عنوانها: ____________

36 هل سبق لك العمل؟
أ- نعم ب- لا

37 إن كانت الإجابة السؤال السابق نعم، أذكر الجهة التي عملت أو تعمل لديها وسنوات الخبرة؟
أ- اسم الجهة: ____________ ب- العنوان: ____________

ج- عدد سنوات الخبرة: ____________

38 ما تقديرك لفرص العمل بعد التخرج؟
أ- عالية جداً ب- عالية ج- مقبول وضيفة د- لا أعرف/غير متأكد

39 بعد التخرج ستسعى للعمل في:
أ- المناطق الحضرية (المدن والبلدات): أذكر اسم المدينة التي ترغب العمل بها: ____________

ب- المناطق الريفية: أذكر اسم المنطقة التي ترغب العمل بها: ____________

38 إن كانت الإجابة السؤال السابق نعم، أذكر الجهة التي عملت أو تعمل لديها وسنوات الخبرة؟
أ- اسم الجهة: ____________ ب- العنوان: ____________

ج- عدد سنوات الخبرة: ____________

38 ما تقديرك لفرص العمل بعد التخرج؟
أ- عالية جداً ب- عالية ج- مقبول وضيفة د- لا أعرف/غير متأكد

39 بعد التخرج ستسعى للعمل في:
أ- المناطق الحضرية (المدن والبلدات): أذكر اسم المدينة التي ترغب العمل بها: ____________

ب- المناطق الريفية: أذكر اسم المنطقة التي ترغب العمل بها: ____________

38 إن كانت الإجابة السؤال السابق نعم، أذكر الجهة التي عملت أو تعمل لديها وسنوات الخبرة؟
أ- اسم الجهة: ____________ ب- العنوان: ____________

ج- عدد سنوات الخبرة: ____________

38 ما تقديرك لفرص العمل بعد التخرج؟
أ- عالية جداً ب- عالية ج- مقبول وضيفة د- لا أعرف/غير متأكد

40 بعد التخرج ستسعى للعمل في مجال: ____________

38 إن كانت الإجابة السؤال السابق نعم، أذكر الجهة التي عملت أو تعمل لديها وسنوات الخبرة؟
أ- اسم الجهة: ____________ ب- العنوان: ____________

ج- عدد سنوات الخبرة: ____________

38 ما تقديرك لفرص العمل بعد التخرج؟
أ- عالية جداً ب- عالية ج- مقبول وضيفة د- لا أعرف/غير متأكد

40 بعد التخرج ستسعى للعمل في مجال: ____________
APPENDICES

Appendix C: A Brief History of the Internal Administrative Boundaries System (IABS) Changes in Libya

One major problem often faces researchers, who carry out studies on Libya, is the continuous changes in the Internal Administrative Boundary System (IABS) of the country. Over the last half century the IABS has been changed 10 times (Table 1). Libya has long been known of its inconstant IABS and political institutions. This inconstant situation has negative effects on the design and implementation of public policies in the country. Furthermore, this continuous change in IABS has been a major difficulty for researchers when trying to study and make progressive statistics comparison overtime (Mniena, 2001, Almogairabi, 1993).

Table 1: Changes of the IAPS in Libya, 1951-2001

<table>
<thead>
<tr>
<th>No</th>
<th>Year</th>
<th>English</th>
<th>Arabic</th>
<th>Total No. Divisions</th>
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<tr>
<td>01</td>
<td>1951</td>
<td>Province</td>
<td>Wilayat, singular Wilayah</td>
<td>3</td>
</tr>
<tr>
<td>02</td>
<td>1964</td>
<td>District</td>
<td>Muhafadat, singular Muhafadah</td>
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<tr>
<td>03</td>
<td>1979</td>
<td>Municipality</td>
<td>Baladiyat, singular Baladiyah</td>
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<tr>
<td>04</td>
<td>1980</td>
<td>Municipality</td>
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<td>05</td>
<td>1984</td>
<td>Municipality</td>
<td>Baladiyat, singular Baladiyah</td>
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<tr>
<td>06</td>
<td>1986</td>
<td>Municipality</td>
<td>Baladiyat, singular Baladiyah</td>
<td>13</td>
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<tr>
<td>07</td>
<td>1990</td>
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<td>08</td>
<td>1996</td>
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<td>Manatiq, singular Mintaqah</td>
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<td>09</td>
<td>1998</td>
<td>Governorate</td>
<td>Sha'biyat, singular Sha'biyah</td>
<td>26</td>
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<tr>
<td>10</td>
<td>2001</td>
<td>Governorate</td>
<td>Sha'biyat, singular Sha'biyah</td>
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Following the Independence in 1951, Libya was divided geographically into three large provinces namely: Cyrenaica in the east, Fezzan in the southwest and Tripolitania in the northwest. In 1964 the country was re-divided from the three provinces to 10 Districts. In 1979 the system reorganised into 44 Municipalities which was again changed under the same name into 25 Municipalities in 1980, 24 Municipalities in 1984, 13 Municipalities in 1986 and seven Municipalities in 1990. In 1996 the system was reorganised into 13
APPENDICES


The author has exploited considerable time to select an IABS between the above mentioned IABS that appropriately matched the purpose of the current research before proceeding on analysing the distribution of PHVETCs between Libyan regions. Finally, the 13 provinces structure has been selected for this purpose. This selection has been made for the two following reasons:

1. The latest available statistics of the general census of 1995 has been carried out according to this system.

2. The availability of the base map that represents this administrative system (NAID, 1996).
## Appendix D: The Distribution of PHVETCs According to Location in Libya, 2000

<table>
<thead>
<tr>
<th>Mintaqah</th>
<th>College acronym</th>
<th>Location City/Town</th>
<th>Pop. of location (1995)</th>
<th>Status of Location</th>
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<tr>
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<td>Tubruq</td>
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<td>Darnah</td>
<td>74.358</td>
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<td>2) Jabal Akhdar</td>
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<td>Alqubba</td>
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<td>Albayda</td>
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Source: Compiled by the author from data in DGHVECs (2000).
# Appendix E: Colleges, Students and Teachers by Mintaqahs in Libya, 2000

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<th>No. of Colleges</th>
<th>No. of Students</th>
<th>No. of Teachers</th>
<th>Students/Staff Ratio</th>
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<td>Females</td>
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Source: Compiled by the author from data in DGHVECs (2000)
### Appendix F: Summary of Student Questionnaire Results

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<td><strong>3. Gender</strong></td>
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<td></td>
</tr>
<tr>
<td>Female</td>
<td>194</td>
<td>71.3</td>
</tr>
<tr>
<td>Male</td>
<td>78</td>
<td>28.7</td>
</tr>
<tr>
<td><strong>4. Nationality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Libyan</td>
<td>262</td>
<td>96.3</td>
</tr>
<tr>
<td>Non-Libyan</td>
<td>7</td>
<td>2.6</td>
</tr>
<tr>
<td>No response</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>5. Type of Accommodation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dormitory</td>
<td>34</td>
<td>12.5</td>
</tr>
<tr>
<td>Private</td>
<td>238</td>
<td>87.5</td>
</tr>
<tr>
<td><strong>6. Permanent address</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benghazi City</td>
<td>209</td>
<td>78.8</td>
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<tr>
<td>Benghazi Sha’biyat (excluded city)</td>
<td>25</td>
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<td>Other Sha’biyat</td>
<td>35</td>
<td>12.9</td>
</tr>
<tr>
<td>No response</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>7. No. of family’s members</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4 persons</td>
<td>7</td>
<td>2.6</td>
</tr>
<tr>
<td>5-9 persons</td>
<td>98</td>
<td>36.0</td>
</tr>
<tr>
<td>10-14 persons</td>
<td>136</td>
<td>50.0</td>
</tr>
<tr>
<td>15+ persons</td>
<td>24</td>
<td>8.8</td>
</tr>
<tr>
<td>Not reported</td>
<td>7</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>8. Parents’ level of education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal education</td>
<td>82</td>
<td>30.1</td>
</tr>
<tr>
<td>Primary</td>
<td>48</td>
<td>17.6</td>
</tr>
<tr>
<td>Preparatory</td>
<td>38</td>
<td>14.0</td>
</tr>
<tr>
<td>Secondary</td>
<td>37</td>
<td>13.6</td>
</tr>
<tr>
<td>Higher education</td>
<td>63</td>
<td>32.2</td>
</tr>
<tr>
<td>Unknown to student</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal education</td>
<td>153</td>
<td>56.3</td>
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<tr>
<td>Primary Education</td>
<td>36</td>
<td>13.2</td>
</tr>
<tr>
<td>Preparatory</td>
<td>37</td>
<td>13.6</td>
</tr>
<tr>
<td>Secondary</td>
<td>25</td>
<td>9.2</td>
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<td>Higher Education</td>
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</table>
### 9. Family's total income

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Unknown</th>
<th>100-150</th>
<th>151-300</th>
<th>301-450</th>
<th>451-600</th>
<th>601-750</th>
<th>750+</th>
<th>Unknown to student</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>120</td>
<td>50</td>
<td>14</td>
<td>5</td>
<td>7</td>
<td>26</td>
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<tr>
<td></td>
<td></td>
<td>18.4</td>
<td>44.1</td>
<td>18.4</td>
<td>5.1</td>
<td>1.8</td>
<td>2.6</td>
<td>9.6</td>
</tr>
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</table>

### 10. Who pays college tuitions fees?

<table>
<thead>
<tr>
<th>Who pays</th>
<th>Unknown</th>
<th>Student</th>
<th>Family</th>
<th>Sponsorship</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>28</td>
<td>239</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.3</td>
<td>87.9</td>
<td>1.8</td>
</tr>
</tbody>
</table>

### 11. Previous schooling

<table>
<thead>
<tr>
<th>Previous schooling</th>
<th>Unknown</th>
<th>Academic</th>
<th>Specialised</th>
<th>Vocational</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>244</td>
<td>26</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>89.7</td>
<td>9.6</td>
<td>0.7</td>
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</table>

### 12. Location of secondary school

<table>
<thead>
<tr>
<th>Location</th>
<th>Unknown</th>
<th>Benghazi City</th>
<th>Benghazi Sha'biyat (excluded Benghazi city)</th>
<th>Other Sha'biyat</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>204</td>
<td>24</td>
<td>41</td>
<td>3</td>
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<td></td>
<td></td>
<td>75.0</td>
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<td>15.1</td>
<td>1.1</td>
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</table>

### 13. Year of school graduation

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>7</td>
<td>237</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2</td>
<td>2.6</td>
<td>87.1</td>
<td>8.1</td>
</tr>
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</table>

### 14. Connection between past and current course of study

<table>
<thead>
<tr>
<th>Connection</th>
<th>Unknown</th>
<th>Yes, there's connection</th>
<th>No there's no connection</th>
<th>Don't know/Not sure</th>
<th>No response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>124</td>
<td>119</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45.6</td>
<td>43.8</td>
<td>10.3</td>
<td>0.4</td>
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</table>

### 15. Is the current course compatible with the desired profession?

<table>
<thead>
<tr>
<th>Compatibility</th>
<th>Unknown</th>
<th>Yes, there's connection</th>
<th>No there's no connection</th>
<th>Don't know/Not sure</th>
<th>No response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>163</td>
<td>69</td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>59.9</td>
<td>25.4</td>
<td>14.0</td>
<td>0.7</td>
</tr>
</tbody>
</table>

### 16. Reasons for incompatible with the desired profession (no. 69)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>I didn't meet the requirements</td>
<td>27</td>
</tr>
<tr>
<td>Parent advise otherwise</td>
<td>19</td>
</tr>
<tr>
<td>Preferred was too unaffordable</td>
<td>8</td>
</tr>
<tr>
<td>Preferred unavailable nearby</td>
<td>7</td>
</tr>
<tr>
<td>Changed mind after received other options</td>
<td>6</td>
</tr>
<tr>
<td>Through Central Admission</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>39.1</td>
</tr>
</tbody>
</table>

### 17. Reasons for enrolling in the course

<table>
<thead>
<tr>
<th>Reason</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desire for more study</td>
<td>116</td>
</tr>
<tr>
<td>Through Central Admission</td>
<td>99</td>
</tr>
<tr>
<td>Not accepted in the preferred course</td>
<td>31</td>
</tr>
<tr>
<td>Unemployed/ a school leaver and want to improve work prospect</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>
## APPENDICES

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Values</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>To start own business</td>
<td></td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td>Parent wish</td>
<td></td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 18. Mode of transport used to come to college

<table>
<thead>
<tr>
<th>Transport Method</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public bus</td>
<td>110</td>
<td>40.4</td>
</tr>
<tr>
<td>Private vehicle</td>
<td>82</td>
<td>30.1</td>
</tr>
<tr>
<td>Taxi</td>
<td>38</td>
<td>14.0</td>
</tr>
<tr>
<td>Walking</td>
<td>37</td>
<td>13.6</td>
</tr>
<tr>
<td>Hitch-hiking</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>No response</td>
<td>2</td>
<td>0.7</td>
</tr>
</tbody>
</table>

### 19. Home/College travel time

<table>
<thead>
<tr>
<th>Travel Time</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 15 minutes</td>
<td>105</td>
<td>38.6</td>
</tr>
<tr>
<td>15-30 minutes</td>
<td>102</td>
<td>37.5</td>
</tr>
<tr>
<td>More than 30 minutes</td>
<td>59</td>
<td>21.7</td>
</tr>
<tr>
<td>No response</td>
<td>6</td>
<td>2.2</td>
</tr>
</tbody>
</table>

### 20. Home/College daily journey

<table>
<thead>
<tr>
<th>Journey Difficulty</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very easy</td>
<td>40</td>
<td>14.7</td>
</tr>
<tr>
<td>Easy</td>
<td>121</td>
<td>44.5</td>
</tr>
<tr>
<td>Difficult</td>
<td>86</td>
<td>31.6</td>
</tr>
<tr>
<td>Very difficult</td>
<td>23</td>
<td>8.5</td>
</tr>
<tr>
<td>No response</td>
<td>2</td>
<td>0.7</td>
</tr>
</tbody>
</table>

### 21. Home/College constrains

<table>
<thead>
<tr>
<th>Constrains</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy traffic</td>
<td>92</td>
<td>33.8</td>
</tr>
<tr>
<td>Long distance</td>
<td>71</td>
<td>26.1</td>
</tr>
<tr>
<td>Traffic lights</td>
<td>25</td>
<td>9.2</td>
</tr>
<tr>
<td>Road work</td>
<td>13</td>
<td>4.8</td>
</tr>
<tr>
<td>None</td>
<td>70</td>
<td>25.7</td>
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<tr>
<td>No response</td>
<td>1</td>
<td>0.4</td>
</tr>
</tbody>
</table>

### 22. Opinion about the course compared with expectations

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meets needs and expectations</td>
<td>191</td>
<td>70.2</td>
</tr>
<tr>
<td>Doesn’t meet needs and expectations</td>
<td>80</td>
<td>29.4</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>0.4</td>
</tr>
</tbody>
</table>

### 23. Reasons for not meeting needs and expectations (no. 80)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses don’t reflect profession or irrelevant</td>
<td>14</td>
<td>17.5</td>
</tr>
<tr>
<td>Courses are too hard</td>
<td>12</td>
<td>15.0</td>
</tr>
<tr>
<td>Courses bellow standards</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>Don’t feel as a higher education student</td>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td>Parent’s wish and personal reasons</td>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td>Lack of practical courses</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>Central Admission</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>Wasn’t preferred course</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>Courses’ time-table difficulties</td>
<td>3</td>
<td>3.7</td>
</tr>
<tr>
<td>Insufficient staff and facilities</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Employment difficulties</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Not reported</td>
<td>15</td>
<td>18.7</td>
</tr>
</tbody>
</table>

### 24. Satisfaction with education/training programmes

<table>
<thead>
<tr>
<th>Satisfaction</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfied</td>
<td>19</td>
<td>7.0</td>
</tr>
<tr>
<td>Satisfied</td>
<td>154</td>
<td>56.6</td>
</tr>
<tr>
<td>Unsatisfied</td>
<td>98</td>
<td>36.0</td>
</tr>
<tr>
<td>Not reported</td>
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<td>0.4</td>
</tr>
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</table>

### 25. Dissatisfaction reasons (no. 98)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too many irrelevant courses</td>
<td>14</td>
<td>14.3</td>
</tr>
</tbody>
</table>
APPENDICES

| Lack of practical courses | 14 | 14.3 |
| Don't feel like a higher education student | 14 | 14.3 |
| Courses are too hard | 12 | 12.2 |
| Inadequate staff and facilities | 10 | 10.2 |
| Inadequate administration | 8 | 8.2 |
| Courses time-table are inappropriate | 6 | 6.1 |
| Courses don't reflect profession | 5 | 5.1 |
| Out of date courses | 3 | 3.1 |
| Lack of employment possibilities | 2 | 2.0 |
| Not reported | 10 | 10.2 |

26. Nature of courses
- Too practical | 147 | 54.0 |
- Too theoretical | 22 | 8.1 |
- Well-balanced | 101 | 37.2 |
- No reported | 2 | 0.7 |

27. Where practical applications take place?
- Within the college | 128 | 47.0 |
- Within another venue | 137 | 50.4 |
- Not reported | 7 | 2.6 |

28. Venues of practical applications outside the college (no. 137)
- Within a public body venue | 128 | 93 |
- Within a private body venue | 7 | 5.1 |
- Not reported | 2 | 1.5 |

29. Actions would improve education/practical courses
- Raise standards of courses | 68 | 25.0 |
- Improve labs, workshops, and equipments | 63 | 23.2 |
- Improve buildings | 53 | 19.5 |
- Provide better guidance | 46 | 16.9 |
- Improve and tighten disciplines | 27 | 9.9 |
- Increase practical/training programmes | 12 | 4.4 |
- Other | 1 | 0.4 |
- Not reported | 2 | 0.7 |

30. Seeking employment in the major field of study
- Yes | 227 | 83.5 |
- No | 19 | 7.0 |
- Don't know/Not sure | 26 | 9.5 |

31. Reasons for not seeking employment in the field of study (no. 19)
- Too late to change field of study | 7 | 36.8 |
- No alternative | 7 | 36.8 |
- Not clear at the beginning | 2 | 10.5 |
- Parents' desire | 2 | 10.5 |
- Intended to do postgraduate studies | 1 | 5.3 |

32. Should authorities provide employment opportunities to graduates?
- Yes | 233 | 85.7 |
- No | 21 | 7.7 |
- Don't know/No sure | 18 | 6.6 |

33. Employment possibilities information provided for students
- Yes | 63 | 23.2 |
- No | 206 | 75.7 |
### APPENDICES

<table>
<thead>
<tr>
<th>No</th>
<th>Don't know/Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Bodies provided employment information for students (no. 63)</td>
<td>3</td>
</tr>
<tr>
<td>An employment agency</td>
<td>29</td>
</tr>
<tr>
<td>Relative/Friends</td>
<td>9</td>
</tr>
<tr>
<td>Private employer</td>
<td>8</td>
</tr>
<tr>
<td>The College</td>
<td>5</td>
</tr>
<tr>
<td>Public body</td>
<td>4</td>
</tr>
<tr>
<td>No response</td>
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</tr>
<tr>
<td>35. Work experience</td>
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</tr>
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<td>Yes</td>
<td>37</td>
</tr>
<tr>
<td>No</td>
<td>229</td>
</tr>
<tr>
<td>Don't know/No sure</td>
<td>6</td>
</tr>
<tr>
<td>36. Type of job (no. 37)</td>
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<tr>
<td>Private body</td>
<td>16</td>
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<td>Public body</td>
<td>15</td>
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<tr>
<td>Taxi driver</td>
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</tr>
<tr>
<td>Farming</td>
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<td>No response</td>
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<td>37. Job location</td>
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</tr>
<tr>
<td>Other Sha'biyat</td>
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</tr>
<tr>
<td>Benghazi Sha'biyat (excluded Benghazi City)</td>
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</tr>
<tr>
<td>Not reported</td>
<td>3</td>
</tr>
<tr>
<td>38. Employment opportunities after graduation</td>
<td></td>
</tr>
<tr>
<td>Very high</td>
<td>16</td>
</tr>
<tr>
<td>High</td>
<td>22</td>
</tr>
<tr>
<td>Fair</td>
<td>60</td>
</tr>
<tr>
<td>Poor</td>
<td>119</td>
</tr>
<tr>
<td>Don't know/Not sure</td>
<td>49</td>
</tr>
<tr>
<td>Nor response</td>
<td>6</td>
</tr>
<tr>
<td>39. Prospected employment location</td>
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</tr>
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<tr>
<td>Other Sha'biyat</td>
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<td>Benghazi Sha'biyat (excluded Benghazi City)</td>
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</tr>
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<td>Outside the country</td>
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<td>No response</td>
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</tr>
<tr>
<td>40. Encouraging other to enrol at PHVETCs</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>80</td>
</tr>
<tr>
<td>No</td>
<td>47</td>
</tr>
<tr>
<td>Don't know/Not sure</td>
<td>142</td>
</tr>
<tr>
<td>No response</td>
<td>3</td>
</tr>
<tr>
<td>40. Reasons for not encouraging other to enrol (47)</td>
<td></td>
</tr>
<tr>
<td>Don't feel at higher education institution</td>
<td>27</td>
</tr>
<tr>
<td>Lack of practical applications</td>
<td>7</td>
</tr>
<tr>
<td>Inadequate staff and facilities</td>
<td>9</td>
</tr>
<tr>
<td>No response</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Field study conducted by the author in 2004.
فهد الرحمن الحليم

الموضوع: استطلاع آراء

يعتبر التعليم في الجماعية جملة من التحديات التي تتمثل في زيادة الطلب عليه ومستوى توافق الطاقة الاستيعابية لمؤسسات التعليم مع النمو والانتشار الجغرافي للسكان وكذلك قدرته على مواجهة التطورات التقنية التعليمية الحديثة التي فرضتها متطلبات المتغيرات الدولية والعولمة بالإضافة إلى مدى ملاءمة مخرجاته لمتطلبات التنمية الحديثة واحتياجات سوق العمل.

ومن خلال مطالعتنا للدراسات والبحوث السابقة التي ناقشت واقع مؤسسات التعليم العالي في ليبيا، تبين وجود بعض المشاكل التي أثرت سلباً على أدائها والتي منها أن العديد من هذه المؤسسات تم إنشاؤها دون مراعاة بعض المسائل المهمة التي منها الاحتياجات الفعلية للمناطق المقامة فيها ومدى توفر الإمكانيات المادية والبشرية المطلوبة لمثل هذه المؤسسات.

وسامحنا منا في مطالعة بعض هذه المشاكل فقد حاولنا تطوير مجموعة من المعايير التي قد تساعد المختصين في التعليم العالي عند التفكير في إنشاء معاهد جديدة أو تطوير القائم منها. واعتباراً من الخبراء والمختصين في ميدان التعليم العالي بالجماعية العظمى، فإنه يبدأ أن نضع بين أيديكم ملخصاً بتقريراً بشأن معايير إنشاء المعاهد العليا في الجماعية. هذه المعايير هي جزء من بحثنا بجامعة سالفورد ببريطانيا للحصول على الدرجة المميزة. نأمل منا الإطلاع وتزويدها بأفكاركم ومقترحاتكم حول هذه المعايير ومدى ملاءمتها للبيئة الليبية. وفي الوقت الذي تشكركم فيه سلفنا على رحابة صدركم وحسن تعاونكم معنا فإننا نحن من العلي القدر أن نوفقكم ويسعد خطاك.

السلام عليكم ورحمة الله وبركاته

الباحث
سعد محمد الزليتي
مقترح بشأن وضع معايير إنشاء المعاهد العليا في الجماهيرية

يتضمن المقترح إحدى عشر معيارًا تتوزع على ثلاث مراحل رئيسية حسب الآتي:

المرحلة الأولى: تقييم الوضع الراهن

تكلف أمانة اللجنة الشعبية العامة للتعليم العالي لجنة من المختصين لإجراء تقييم شامل للقاعدة السكانية، ورغبات الطلاب المتوقع التحاقهم بالمعهد ومدى سهولة الوصول للمعهد حسب الآتي:

المعيار 1: رغبات الطلاب المستهدفين للتحاقهم وأعادهم: يجب أن يتوفر العدد الكافي من طلاب التعليم المتوسط الراغبين في الانخراط بالمعهد المفترض تنفيذ. وفي هذا الخصوص يقترح الباحث أن يكون إجمالي عدد الطلاب المتوقع التحاقهم بالمعهد في حدود 250 طالبًا كحد أدنى لإنشاء المعهد (هذا الرقم هو متوسط إجمالي أعداد طلاب السنة الأولى في 85 معهدًا عاليًا خلال العام 2000).

المقترحة:

المعيار 2: القاعدة السكانية: يجب أن يتوفر في المنطقة المزمع إقامة المعهد بها قاعدة سكانية كافية لتوزيد المعهد المخطط بأعداد مناسبة من الطلاب. إذا يجب أن يتوفر للجنة إحصائية دقيقة وكافية عن الخصائص الديموغرافية للمنطقة كالوضع السكاني والإسقاطات المستقبلية والتوزيع الجغرافي.

المقترحة:

المعيار 3: سهولة الوصول: يجب أن يتوفر لموقع المشروع سهولة الوصول من حيث وسائل وشبكة المواصلات. فسهولة الوصول هي خدمة هامة بما فيها الخدمات التعليمية مثالًا في غاية الأهمية لتفادي تداخل البرامج التعليمية والترفيهية. وتحقيق المنفعة القصوى للمعهد يقترح الباحث أن تكون المسافة المطلقة بين المعهد المقرر وأقرب معهد مسؤول قائم في حدود خمس وثلاثين كيلومترا أو نصف ساعة قيادة بالسيارة.

المقترحة:

المرحلة الثانية: الجذور الاقتصادية

تشكل اللجنة الشعبية العامة للتعليم العالي لجنة من ذوي الاتصالات للقيام بدراسة الجذور الاقتصادية للمشروع لتقييم تأثيرات المستقبلية للمعهد المقترح على المنطقة المزمع إقامتها بها وفق المعايير التالية.

المعيار 4: رغبة واحتياجات السكان المحليين: لا بد أن يتوفر دليل ملموس من المجتمع المحلي بين حاجات الطلاب المستهدفين وأرباب العمل (المؤسسات والشركات العامة والخاصة). ويمكن التعرف على ذلك من خلال إجراء مسح للطلاب وأرباب العمل أو قرار من المؤتمر الشعبي الأساسي يوضح حاجة المنطقة لمثل هذا المعهد.

المقترحة:

المعيار 5: التمويل الشامل: يجب أن يتوفر للمعهد المفترض مصادر التمويل الكافية لقيام بواجباته ودعم نشاطاته بضرورة مستمرة.

المقترحة:
المعيار 6. التأثير على المؤسسات التعليمية القائمة: لا بد من إجراء تقييم شامل لتثبيت إنشاء المهد على المؤسسات التعليمية العالية القائمة والمناظرة الواقعة داخل حدود المنطقة المراد إنشاؤه بها أو المناطق المجاورة.

المتطلبات: ❌ لا موافق ❌ موافق

المعيار 7. العلاقة بالاحتياجات الفعلية للمنطقة: يجب أن تكون البرامج التعليمية والتدريبية (التخصصات) المقررة ذات علاقة وثيقة بالأنشطة الاقتصادية القائمة وتلبية احتياجات سوق العمل المحلي.

المتطلبات: ❌ لا موافق ❌ موافق

المعيار 8. مدى ملاءمة الموقع لإنشاء المهد: ويتم ذلك من خلال تقييم العناصر التالية:

- مساحة والموقع المقترح وملابسته للتوسعات المستقبلية.
- النواحي الجمالية للموقع.
- الطبوغرافية والهندسة المدنية والتصريف الصحي.
- المطاقع والشبكات الإتصال (البريدية والكهربائية).
- المخاطر البيئية مثل السول والفيضانات والثلوث.

المتطلبات: ❌ لا موافق ❌ موافق

المرحلة التنفيذية: بعد الموافقة على إنشاء المهد تشكل اللجنة المحلية العامة لجنة من المختصين تقوم بتقييم المشروع وتعرضه بالتقديم للمؤسسات البشرية والراحة للمشروع والمليئة.

المعيار 9. البنية التحتية والوسائل: لا بد من توفر الإمكانيات والوسائل والمصادر الكافية بما يسمح باستيعاب التوسعات ونمو المستقبلي. وتتمثل البنية التحتية (المباني والمصادر) الآتي:

- القاعات الدراسية المجهزة (تتوافق قدره 15م² للطالب).
- قاعة المحاضرات العامة والندوات المجهزة.
- المعمل الورش وقاعات الحاسب.
- المخازن.
- السكن الطلابي (إذا لزم).
- الوحدة الصحية والإسعافات المكثمة والملاحقة.
- مكاتب الإدارة وأعضاء هيئة التدريس.
- القاعات الرياضية المفتوحة والمغلقة.
- المطعم والمحلات.

المتطلبات: ❌ لا موافق ❌ موافق

المعيار 10. الإمكانيات والعناصر البشرية: يجب أن يتوفر للمهد الإمكانيات والعناصر البشرية اللازمة لقيام بالواجبات المنوطة بصورة مناسبة. وتمثل العناصر البشرية في التالي:

- أعضاء هيئة التدريس الأفراد وفق معدلات الأداء.
- أعضاء هيئة التدريس.
- الفنيون المساعون.
- الكادر الإداري المؤهل.

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المعايير 11، الارتباط بجامعة رئيسية: عقب الموافقة على إنشاء المعهد يجب ربطه بإحدى الجامعات الرئيسية.

حيث تقوم هذه الجامعة بمتابعته (بواسطة فريق من المختصين) عن طريق القيام بزيارات تفتيشية منتظمة لتأكد من مدى ملاءمة المباني والمعدات والعناصر البشرية وتفوقها مع البرامج التعليمية والتدريبية المقدمة بما يسهم في تحقيق ضمان جودة البرامج التعليمية والتدريبية في المعهد.

الموافق □ لا موافق □

الموافقات إضافية

النهائي المقترح

المعلومات الشخصية لكاتب الاستبيان

الاسم: 

الصفة: 

المؤهل العلمي: 

أعمالي سنوات الخبرة: 

بيانات أخرى: 


APPENDICES

Appendix H: Proposed Systematic Criteria for Establishing or Evaluating PHVETCs in Libya

These proposed criteria have been developed by utilised well-established literature and evaluated by a group of experts on higher education issues in Libya. It hoped that, these criteria would help planners and professionals in Libya in taking decision regarding establishing new, evaluating or terminating existing PHVETCs. This set of the proposed criteria can be used completely or partially according the situation. It can be used as a whole within the three stage procedure when a decision needs to be made about a new college. However, it can be use partially in the case when the evaluated college is existed.

First stage, assessment of current situation: This should be done by a board membership of professionals appointed by the Secretariat of Higher Education. The main function of this board will be to conduct a comprehensive assessment of the population base, enrolment participation and geographical accessibility of the area where the proposed new college will take place. This includes:

1. Student enrolment demand: There should be sufficient number of students in the secondary schools within the catchment area of the new proposed college. However, in a similar situation regarding the well-recognised community colleges in the USA, Hammons and Nunn (1994) have noted that: In general, area high schools should have enrolment in grades 10-12 that is at least 70% of the expected enrolment of the local community college. Another useful proportion often used is the ratio of community college enrolment to the number of area high school graduates in the same year. However, as a general guideline, the researcher would suggest 250 students as an acceptable threshold value for a new college. This figure has been arrived at by evaluating average enrolment of first year students in 83 existing PHVETCs.

2. Population base: The proposed area should have a sufficient large population base to generate and establish a new economically efficient college. However, there should be accurate and sufficient statistical data about current and projected population as well as demographic characteristics available to support the establishment of the proposed college.

3. Locational accessibility: There should be an accessible location with adequate space and buildings to provide greater access to the prospected students. The assessment board should also consider the accessibility of the site taking into account walk access time and public transport service availability. The new proposed college is also of primary importance. Within this respect PEPC (1991, p. 11) suggest the following for a new established community college:
APPENDICES

The threshold level for geographic access to a proposed new community college should be established at 30 miles driving distance and 45 minutes driving time from a campus of a community college. However, in the case of Libya, to avoid unnecessary duplication of service and promote the efficient utilisation of resources the researcher would recommend 35 kilometres driving distance and 30 minutes driving from existing, adjacent HEIs. This sort of distance separation, however, can also facilitate sharing resources by adjacent HEIs.

Second stage- feasibility study: There should be an independent board appointed by the Secretariat of Higher Education conduct feasibility study on setting up the new proposed college to evaluate the effect and future outcome of this college on the area to be served. This includes:

4. Local interest and needs: A proof should be available from the local community especially among prospective students and employers. Evidence from the literature indicates that demographic alone were not enough (Hammons and Nunn 1994, p. 54):
This interest needs to be demonstrated by potential students in the area and by employers in order to develop student pool and a base for financial support... A public opinion survey... or a petition from publicly elected body... A survey of employers in the area to determine their need for a better-educated work force is also desirable.

5. Financial resources: There should be adequate financial resources available for the support of the new proposed college. Adequacy of financial resources is of essential importance to enable the proposed college to continue maintenance and efficient working for years to come.

6. Impact on other HEIs: there should be an assessment of the effect of the proposed college on the existing HEIs that already serve the area and adjacent areas.

7. Relevance to needs: There should be relevance between the local needs and academic programmes provided by the proposed new college. This means that programmes to be provided have to reflect the local market labour requirements.

8. Appropriately selection of the site: According to UNESCO (1975, p. 40) the possible site should conform the following technical factors:
   8.1 size and shape of the site
   8.2 acquisition possibilities of the site and surroundings, and ownership
   8.3 cost of site and future site-development
   8.4 existing regional or town-development plans
   8.5 legislation and regulation affecting the site
   8.6 aesthetic qualities of the site
   8.7 topography, soil quality, water table, drainage
   8.8 natural hazards (flooding, smoke, pollution)
APPENDICES

8.9 transportation infrastructure

Final stage- Implementation process plan: After approval, the Secretariat of Higher Education must appoint a committee of professionals of different backgrounds related directly or indirectly to educational planning. This committee can be called Professional Inspection Committee (PIC). Its main task must be to conduct a survey about the human and physical resources. The PIC has to undertake regular site visits to evaluate available physical and human resources resource which comprises of the following:

9. Infrastructure and facilities: There should be sufficient physical facilities and enough space to accommodate projected future growth. Infrastructure (building and space) are included the following:
   9.1 Class Rooms (Average 1.5 Sq. meters per student)
   9.2 Lecture hall
   9.3 Laboratories, computer labs and workshops
   9.4 Library and reading room
   9.5 Principal and faculty offices
   9.6 Outdoor and indoor sport facilities
   9.7 Dining room
   9.10 Health care service
   9.11 Storage facility
   9.12 Student residence (if applicable)

10. Human resources: the college should have necessary human resources to carry out different required activities appropriately. These include the following:
   10.1 Total number of permanent staff members
   10.2 Total number of part-time staff members
   10.3 Student to faculty ratio (in theoretical and practical programmes)
   10.4 Appropriate number of non-teaching (support staff; operational personnel; administrative; etc).

11. Affiliation and validation: Once the new college is approved, it should be affiliated to a national/regional VET authority. So, experts from the affiliated authority undertake inspection visits to the college to ensure that the staffing, facilities, equipment and buildings are appropriate for the programmes offered by the college. This is a standard practice to maintain quality of the college.
REFERENCES


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REFERENCES


REFERENCES
REFERENCES


REFERENCES


REFERENCES


ARABIC REFERENCES

The Arabic references are listed according to English alphabetical order


Alagbari, B. S. (1998)

الأعور، محمد علي، ندوة التعليم العالي والتنمية في الجماهيرية، الجزءان الأول والثاني، منشورات المركز العالمي لدراسات وأبحاث الكتاب الأخضر، طرابلس. ص 200
REFERENCES


REFERENCES

المثنائي، عبدالسلام و علي، راسم عامر (2006) تقوي مؤسسات التعليم العالي الهندسي التقني بما يخدم متطلبات التنمية المعاصرة في الجماهيرية، في الأعور، محمد علي، ندوة التعليم العالي والتنمية في الجماهيرية، الجزء الأول، منشورات المركز العالمي لدراسات وأبحاث الكتاب الأخضر، طرابلس، الصفحات 49-70.

Aljarida Arrasmiya (1994)
الجريدة الرسمية (1994) العدد 4، أبريل، 1994

Almanar (2007)

Almashhadani, A. (1999)
المشهداني، أحمد (1999) المشاكل التي تواجه طلبة المعاهد الزراعية المتوسطة (دراسة ميدانية)، مجلة العلوم الاجتماعية والاقتصادية، مجله 5، الصفحات 168-206.


الصيحي، أحمد مفتاح (1990) أثر الاتجاهات على نقص الامالة الفنية الليبية: دراسة ميدانية لاتجاهات طريقة التعليم الثانوي في مدينة بنغازي نحو التعليم والعمل الفني، رسالة ماجستير غير منشورة، جامعة قارونوس، بنغازي.

Alshaikh, R. G. (1972)
الشيخ، رافق غنمي (1972) تطور التعليم في ليبيا في العصور الحديثة، دار التنمية للنشر والتوزيع، طرابلس.


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REFERENCES


DGHVECs (The Directorate General of Higher Vocational Education Colleges)


REFERENCES

المهدي، محمد المبروك (1995) الصناعة، في بولنطة، الهادي مصطفى و الفزيري، سعد خليل، الجمهورية: دراسة جغرافية، دار الجمهورية للنشر والتوزيع والإعلان، سرت، الصفحات 629-687.


الحوات، علي (1996) التعليم العالي في ليبيا: واقع وأفاق، منشورات مكتبة طرابلس العلمية العالمية، طرابلس.


الحرام، قنعان أحمد (1995) التضاريس والجيومورفولوجيا، في بولنطة، الهادي مصطفى و الفزيري، سعد خليل (تحرير)، الجمهورية: دراسة جغرافية، دار الجمهورية للنشر والتوزيع والإعلان، سرت، الصفحات 143-93.


الكيخيا، منصور محمد (1995) السكان، في بولنطة، الهادي مصطفى و الفزيري، سعد خليل (تحرير)، الجمهورية: دراسة جغرافية، دار الجمهورية للنشر والتوزيع والإعلان، سرت، الصفحات 333-393.


Eltaif, A. A. (Ed.) (1999)


GAIT (the General authority of Information and Telecommunication) (2006)

REFERENCES

Gannous, S. M. (Ed.) (1999)


HKJ (Hashemite Kingdom of Jordan) (2003)

Keibah, M. S. (1998)


Ministry of Education (1975)

Ministry of Education and Scientific Research (1972)

Mniena, A. I. (2001)
REFERENCES


NAID (National Authority for Information and Documentation) (1996)

NAID (National Authority for Information and Documentation) (1999)

NCETR (National Centre for Education and Training Research) (1996)