

# **A Skills Gap between Industrial Education Output and Manufacturing Industry Labour Needs in the Private Sector in Saudi Arabia**

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This thesis is dedicated to my soul son

Amer

## **Abstract**

From the oil boom in the 1970s up to present, Saudi Arabia, a leading oil producing country in the Middle East, has been encountering a serious shortage of skilled and qualified Saudi labour force, especially the private sector. Both the Saudisation policy and the current Ninth Five-Year Development Plan have addressed an urgent need to provide Saudi nationals with as many employment opportunities as possible to replace expatriate workers. To achieve this goal, the Saudi government has made great efforts to enhance the quality of education, as the key to a nation's future economic prosperity depends on the quality of its education and training. However, the current industrial education is still seriously blamed by private sector employers for failing to offer Saudi students of industrial education sufficient vocational skills training courses to obtain the kind of skills, knowledge, attitudes towards work at their request. In light of this serious vocational education issue, the purpose of this research was to investigate this skills gap between industrial education output and Saudi labour requirements in private manufacturing industries (excluding oil refining and petrochemicals), a sector that has been a major contributor to GDP growth since the late 1990s.

A survey method was adopted to conduct this research by applying two research instruments: a questionnaire and semi-structured interviews. The aim of this survey research is to explore the perceptions of the manufacturing skills training offered in Saudi industrial education from the perspectives of three groups of stakeholders: managers in private manufacturing industries, trainers of industrial education and trainees of industrial education.

The survey results revealed that a skills gap exists between the labour demand for qualified Saudi manpower and the current industrial education output and that there were social, cultural and economic factors leading to such a gap. This gap is the result of three factors-work ethics, specialised knowledge and generic skills, which play a key role in private manufacturing employers' decisions to employ Saudi workers. In order to solve this educational problem, based on the comments by the three groups of stakeholders, this research suggests a model, namely, knowledge-based industrial education, to modify the current industrial

education curriculum in order that the output of Saudi industrial education may be improved to fill this skills gap in the future.

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## **Author's declaration**

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

## **Abbreviation**

AOL: Arab Labour Organization

CPD: Continuous professional development

CV: Curriculum Vitae

EKE: Education for the Knowledge Economy

ESCWA: Economic and Social Commission for Western Asia

GCC: Gulf Cooperation Countries

GDP: Gross Domestic Product

GNP: Gross National Product

GOTEVT: General Organization of Technical Education and Vocational Training

HR: Human Resources

IEW: Individual's 'work ethic'

IIEP: International Institute for Education Planning (a UNESCO institute)

ILM: Internal Labour Market

ILO: International Labour Organization

IT: Information Technology

MOP: Ministry of Planning

NCVER: National Centre for Vocational Education Research

NOSS: National Occupational Skills Standard

KE: Knowledge Economy / Knowledge-based Economy /

KSA: Kingdom of Saudi Arabia

OECD: Organisation for Economic Co-operation and Development

OPEC: Organisation of the Petroleum Exporting Countries

PWE: Protestant Work Ethic

SA: Saudi Arabia

S.A.A.W: Prophet Muhammad be upon him

SABIC: Saudi Arabia Basic Industries Corporation

SAMA: Saudi Arabia Monetary Agency

SJAHl: Saudi Japanese Automobile Higher Institute

SLM: Segmented Labour market

SR: Saudi Riyal

TVET: Technical and Vocational Education and Training

TVTC: Technical and Vocational Training Corporation

UK: United Kingdom

UNESCO: United Nations Educational, Scientific and Cultural Organization

UNESCO-UNEVOC: UNESCO International centre for technical and vocational  
education and training

VET: Vocational education and training

WTO: World Trade Organization

# Chapter 1 Introduction

## 1.1 Research background

As a leading oil-producing country in the Middle East, the Kingdom of Saudi Arabia has a perceived shortage of skilled Saudi workers especially in the private sector (see Alsarhani, 2010, Saddi et al., 2009). With the aim of making the transition to a knowledge-based economy, the government of Saudi Arabia has placed emphasis on increasing the kingdom's economic growth through the diversification of economic activities, such as creating Saudi nationals more employment opportunities in the manufacturing industries in addition to those provided in the oil industry (Alsahlawi and Gardener, 2004, Madhi and Barrientos, 2003). The Ninth Five-Year Development Plan<sup>1</sup> (Ministry of Economy and Planning, 2010) aims to accomplish thirteen goals<sup>2</sup>, with particular emphasis on the following:

- 1) moving towards a knowledge-based economy;
- 2) diversifying of the economy and boosting its competitiveness;
- 3) strengthening the role of the private sector in economic development;
- 4) developing sectors of small and medium enterprises to increase their contribution to the gross domestic product (GDP).

The Saudi government has been implementing a series of five-year development plans from the 1970s up to the present with its primary efforts aimed towards the development of indigenous manpower and the replacement of a massive inflow of trained, skilled and well-disciplined foreign labour into the Saudi workplace. This policy is known as *Saudisation*.

Both the Sixth and the Seventh Five-Year Development Plans put an emphasis on ensuring that the Saudi educational system adequately prepares future employment seekers to be competitive in the job marketplace. However, a high unemployment rate among young Saudis currently remains a feature of Saudi society. As a part of the Saudisation policy, the government has invested heavily in the manufacturing industry (excluding oil refining and petrochemicals) in the

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<sup>1</sup> Approved on 9 August 2010 by the Cabinet of Saudi Arabia.

<sup>2</sup> The Royal Embassy of Saudi Arabia, Washington D.C. released the news on 5 April, 2010 regarding the Council of Ministers of Saudi Arabia adopting the Ninth Five-Year Development Plan (2010-14) with a list of 13 goals to achieve.

private sector over the past two decades. The manufacturing industry contributed 8% of the Kingdom's GDP growth in 2009 (The Eighth Development Plan, 2005,p.89), so this sector is therefore seen by the Saudi government as having a leading role in generating jobs for Saudi nationals.

In addition to the issue of the high unemployment rate among Saudi youth, there remains the issue of the extent to which Saudi nationals are being offered education to enable them to develop and maintain the skills, knowledge and work attitudes that private industries (especially the manufacturing industry at the private sector) require. Baki (2004, p.7) argues that the issue still exists because Saudi men are considered lacking in appropriate vocational skills training with respect to technical skills, industrial specialty knowledge and work ethics, particularly within the private sector. This is of concern in view of the fact that, as Morgan (2010a) notes, high quality education plays a central role in laying the foundations for a nation's future competitiveness in the global economy. If Saudi Arabia is to move from dependence on oil production towards a range of industries which will enable the Kingdom to compete in a competitive knowledge-based economy, there is a need for Saudi citizens to receive a high standard of education which will enable reliance on expatriate workers to diminish as internal employment capacity is enhanced.

Despite attempts by the Saudi government to address these issues in its development plans, there is still evidence to suggest that major challenges remain. The research reported in this thesis indicates that private sector employers remain unconvinced about the skills, knowledge and work attitudes of Saudi workers, while Saudi students and teachers having doubts about the extent to which current models of vocational training are addressing the skills gap which is perceived to exist.

## 1.2 The nature of educational and economic challenges in Saudi Arabia

This research investigates educational factors relating to the limited implementation of the Saudisation policy in the private sector. It is, therefore, necessary to examine the nature of educational and economic challenges in Saudi Arabia before making a statement of the research problem in this study. To do so, relevant literature relating to the underlying motivation of this study is reviewed. This section explores three issues associated with educational and economic challenges in the development of Saudi Arabia:

- 1) a perceived labour supply-demand mismatch (Al-Asmari, 2008, Madhi, 2007);
- 2) the challenges and obstacles of the implementation of Saudisation in the private sector (Al-Dosary and Rahman, 2009, Sadi and Al-Buraey, 2009, Al-Humaid, 2003, Alogla, 1990);
- 3) the challenges of preparing young people in Saudi Arabia for the implementation of the reality of the ‘knowledge economy’ by means of improving the overall standard of Saudi education (Nabih Maroun et al., 2010, Morgan, 2010a, Aubert and Reiffers, 2003).

Regarding the first issue, both educational researchers and private sector employers have long complained about the mismatch between labour force needs and the nature of educational qualifications, such as Saudi youth’s lack of ‘soft skills’ (e.g. problem-solving, leadership, negotiation, and so on), work ethics (e.g. low motivation to work, poor time-keeping at work) and high salary expectation (Al-Asmari, 2008, Madhi, 2007). Alsarhani (2005) indicates that the main reason for the supply-demand mismatch in the country is a lack of development in education and training before the discovery of oil, and a consequent consideration of education provided by the government as being more or less irrelevant to labour demands. Maroun et al (2010) report the interview result of the private sector’s perceptions of the education system outputs and identify six factors<sup>3</sup> contributing to the mismatch between the supply of education and training and the demand of the labour market in the

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<sup>3</sup> These factors are 1) inadequate coordination between business and education; 2) lack of key specialisation; 3) work ethics; 4) lack of credibility in assessment systems; 5) insufficient “soft skills” and 6) lack of practice (e.g. operating manufacturing machinery, computer-assisted monitoring of a production line, good hygiene practices for metal packaging, and so on).

private sector. Maroun et al (2010) argue that such a mismatch has led to irrelevancy of qualifications to meet private sector employers' labour demands.

The second issue is a recurrent theme in the literature; namely, that the implementation of Saudisation in the private sector has not been carried out as successfully as it has in the public sector. For example, Al-Humaid (2003) reviewed previous studies on Saudisation and suggested that the lack of job-related knowledge and skills training available in schools is the reason for unsuccessful implementation of Saudisation in the private sector. Bremmer (2004) indicates that this is due to two serious issues: a threat to foreign direct investment in the kingdom (especially in the manufacturing and service sectors) and the undermining of the kingdom's overall competitiveness in the global economy by hiring unqualified and unskilled Saudi workers. In light of this, Lundvall and Johnson (1994) propose that certain types of knowledge may play a significant role in improving vocational educational training quality, leading to higher levels of employment. These types of knowledge include not only the possession of relevant knowledge and skills, but a broader range of capacities including social skills. It is not clear the extent to which vocational education and training in Saudi Arabia currently offers a broad range of skills and abilities, focusing not simply on knowing how to do things, but in terms of wider attitudinal attributes which employers see as desirable.

Technical education and vocational training in Saudi Arabia has traditionally been seen as having a low social status. The rate of enrolment in technical education and vocational training has always been much lower than that of general education (Mahdi, 2000). Bosch and Charest (2010, p.3) point out that most Organisation for Economic Co-operation and Development (OECD) countries make a distinction within the education and training systems at secondary level between general and vocational education. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Labour Organization (ILO), vocational education and training is intended to be the 'means of preparing for occupational fields and for effective participation in the world of work' (UNEVOC, 2006, cited in Bosch and Charest, 2010, p.3). However, Jones (2007) indicates that this aim is not always seen as having high status in employment terms. Jones (2007) also argues that Saudi graduates of vocational training often refuse to take job offers in private sector

manufacturing industries but prefer to find more highly paid work in other areas. According to Ramkumar (2010), the reason behind this may be the fact that Saudi nationals often associate jobs in the manufacturing industry with heavily-work loaded manual labour, low-skills, and low pay.

Thirdly, the concept of preparing Saudi youth for the 'knowledge-based economy' and to be 'knowledge workers' has been increasingly emphasised in recent years since the Saudi government has put a particular stress on the need to prepare Saudi Arabia for a transformation in order to compete effectively in the global economy (Morgan, 2010a, Morgan, 2010b, Wilson, 2006). In light of this, the Ninth Five-Year Development Plan (2010-2014) addresses an urgent need to develop Saudi manpower and to increase the Saudi employment rate by the means of offering 'soft-skills' training programmes to Saudi workers. These include certain features, such as the values of diligence, creativity and innovation, of which 'knowledge workers' are meant to possess in the knowledge economy (Brief Report on the Ninth Development Plan, Ministry of Economy and Planning, 2010, p.9). Through such 'soft-skills' training programmes to raise the capabilities of the Saudi labour force, Saudi 'knowledge workers' are expected to meet labour market requirements, especially those required by the private sector and they are able to update their knowledge of the fast-changing production technologies available all over the world (Brief Report on the Ninth Development Plan, Ministry of Economy and Planning, 2010, p.9).

Furthermore, Al-Shammari (2009) also indicates that enhancing Saudis' knowledge and skills for the specific purposes of providing skilled Saudi workers for the global economy has been one of the aims of the Saudi government. In order to achieve this, they have attempted to improve the nature of vocational education and training in the Kingdom. For instance, in the Eighth Five-Year Development Plan (Ministry of Economy and Planning, 2005, p.415), it is clearly stated that the future vision of the technical education and vocational training sector is to put in place:

an effective training system to prepare a highly qualified national workforce in various specialties and skills to meet the needs of the labour market and the demand generated by rapid technological developments (2005, p.415)



To fulfil this vision of achieving qualitative improvement and quantitative growth in the technical education and vocational training sector, the government has allocated an increasing percentage of the nation's budget to human resource development, from the First to the current Ninth Development Plan, particularly in terms of the education and training sector. For example, the Eighth Development Plan articulates specific objectives of the development strategy (Ministry of Economy and Planning, 2005, pp.415-416), including:

- 1) upgrading the competency and skills of Saudi manpower;
- 2) improving labour market productivity by increased Saudi manpower participation in employment;
- 3) intensifying investment to enhance the role of the private sector in technical education and vocational training (for example by encouraging the private sector to establish technical colleges, technical institutes and training centres).

However, the research reported in this thesis indicates that there has been limited success in this attempt to enhance vocational skills in Saudi workers within the policy of Saudisation.

### **1.3 Statement of Research Problem and Purpose of the study**

The Kingdom of Saudi Arabia has had a shortage of skilled Saudi-national labour since the oil boom in the 1970s (ConstructionWeekonline, July 2009). Both the Eighth and the Ninth Five-Year Development Plans-the Kingdom's long-term strategy of achieving sustainable development - focus on the country's competitiveness, growth in a knowledge-based economy and youth issue. In particular, the Ninth Five-Year Development Plan allocates the majority of the national budget (approximately 50.6%) to human resource development, including education and training (The Saudi Gazette 2010, 2010). According to the results of certain empirical research reports and comments posted in several local newspapers (Al-Dosary and Rahman, 2009, Derhally, 2003, Al-Hamid, 2009, Stensgaard, 2006), one key factor is indicated: Saudi Arabia has a serious shortage of skilled and qualified Saudi-nationals in the labour market, especially in the private sector. Looney (2004d) points out that this shortage of skilled Saudi labour has resulted in the high rate of unemployment in the local labour force in the Kingdom of Saudi Arabia. Avanceña (2006) reports that, in an attempt to deal with this problem, the government introduced a policy of Saudisation to reduce the dependence on foreign labour by replacing foreign workers with Saudi nationals. This policy has proved to be a great success in the public sector, whereas it has not worked so well in the private sector (Ibrahimkhan, 2007).

In addition, Brown and Lauder (2001) maintain that the key to a nation's future economic prosperity depends on the quality of its education and training systems. However, regarding the current formal vocational education system and training in KSA, there is considered to be a mismatch of skills training between the existing schooling and the demand from the labour market (Baki, 2004). With regard to this issue, it is evident from recurring complaints by private sector employers and from empirical research findings, that there is a disagreement between what Saudi schools are producing and what the Saudi economy needs in terms of skilled labour (Calvert and Al-Shetaiwi, 2002, Hamilton, 2009).

Therefore, the research problem investigated in this thesis stems from the context of the Saudisation policy, which has not yet been implemented

successfully in the private sector due to the serious shortage of skilled, well-trained and well-qualified labour. This leads to the main purpose of this study: to investigate the nature of a skills gap and explore how the education system can respond to ensure economic development.

## 1.4 Research aims and objectives

This study aims to explore to what extent the vocational skills training content of current Saudi industrial education meets the Saudi labour market requirements in the private sector. Hence, this thesis will explore important issues in this regard according to the perceptions of three groups of key stakeholders. These groups are: private sector managers in the manufacturing industry, as well as trainers and trainees in technical education and vocational training (industrial education). Exploring their perceptions will generate information on the following elements:

- 1) The reality of implementing Saudisation in the private sector manufacturing industry;
- 2) The nature of manufacturing skills training (for both technical and generic skills) offered in Saudi industrial education, and;
- 3) The participants' understanding of the concepts of the knowledge-based economy and knowledge workers.

Consequently, through this research, it may then be possible to identify reasons for the skills gap and to suggest ways in which education provision can help address the needs of industry.

The following table (Table 1.1) shows the key objectives based on the research aim to investigate a skills gap between private manufacturing industry expectations and the vocational skills training currently available in Saudi industrial education:

No.	Key research objectives
1	To discover whether a skills gap exists between the current Saudi educational policy for industrial education/Saudi labour market policy and the demands of private sector employers.
2	To investigate alternative and innovative approaches to reducing the number of expatriate workers by replacing them with Saudi workers as part of the transition to a knowledge-based economy.
3	To examine private sector employer's attitudes towards and perceptions of the quality of Saudi vocational education and the learning outcomes of Saudi industrial education graduates, particularly those taking the 'manufacturing industry' pathway.
4	To evaluate the role of education in a modern knowledge-based economy in preparing the young Saudi workforce for the world of work and the importance of this to business development
5	To suggest options for the development of the current Saudi education system which would enhance the opportunities for Saudi youth to obtain both a technical and a generic skills base, while at the same time allowing some specialisation in order to meet specific labour market needs in the private sector manufacturing industry. In particular, suggestions will be made as to structural changes within the Saudi industrial education framework that may be useful to make.

**Table 1-1 Key research objectives of this study**

To explore these areas, the following research question will be explored:

*In the era of a knowledge-based economy, is there evidence for the continued existence of a skills gap between industrial education output and manufacturing labour needs in the private sector in the Kingdom of Saudi Arabia?*

To answer this question, five sub-questions were designed:

- 1) What are the perceptions of key stakeholders about the skills required in industrial manufacturing, and the extent to which these skills are shown by the workforce?
- 2) What are the perceptions of key stakeholders about the effectiveness of existing vocational education in preparing Saudi workers for employment in the manufacturing sector?
- 3) What are the perceptions of key stakeholders about the policy of Saudisation?
- 4) What are the main recruitment issues that managers in private sector manufacturing industries encounter in offering jobs to the Saudi labour force?
- 5) To what extent, and in what ways, might industrial education be adapted to better prepare Saudi trainees in industrial education for the world of work with the skills expected by the private manufacturing industry?

## **1.5 Significance of the study and its contribution to knowledge**

The investigation of the implementation of Saudisation is not a new research topic. Previous studies and a series of Five-Year Development Plans have evaluated its political, social and economic objectives, such as continuing implementation of this policy in the private sector, as this sector has been acknowledged as making the largest contribution to the Kingdom's GDP growth and economic strength. In terms of improving the Saudi economy, this policy has been receiving a great deal of attention and has given rise to considerable debates in many of its aspects, such as those listed below.

- 1) Human resource management (Sadi and Al-Buraey, 2009, Al-Dosary, 2004, Al-Humaid, 2003);
- 2) Economic policy (Alsarhani, 2010, Ramady and Saeed, 2007);
- 3) Labour market (Al-Asmari, 2008, Al-Dosary et al., 2005, Mahdi, 2007);
- 4) Employment (Ibrahimkhan, 2007, Alsarhani, 2005). And;
- 5) Health care (Hassan, 2004, Al-Mahmoud, 2002, Aboul-Enein, 2002).

However, there are few empirical studies which focus on vocational education research (Al-Shammari, 2009). It is in response to this research gap that the present research has been undertaken. A number of contributions of this study are summarised below (Table 1.2).

No.	Contribution to knowledge
1	The current study attempts to make its contribution to vocational education research by investigating the role of education in providing knowledge workers that can meet the requirements of private sector industry, thus providing employment for young Saudi males.
2	The importance of this study can be seen as an original contribution to the existing body of literature dealing with the application of two concepts, the knowledge-based economy and knowledge workers, to increasing the output of industrial education to meet the labour force requirements of the private sector, in particular the manufacturing industry.
3	Since, to the author's knowledge, no previous study has addressed which specific skills training in vocational education in Saudi Arabia requires development to meet the requirements of employers, this study attempts to fill this gap by studying the manufacturing skills training set out in the National Occupational Skill Standards designed by the Kingdom of Saudi Arabia General Organization for Technical Education and Vocational Training.
4	There has been a lack of critical attention given to the work ethics necessary for orienting the values of Saudi youths towards becoming knowledge workers. The current study intends to explore the significant role of work ethics as an important element in raising the level of employability of Saudi youths, and their capability in the manufacturing industry, considered the key sector in improving the Kingdom's economy.
5	This study hopes to contribute to the efforts to formulate a new technical education and vocational training curriculum model with a follow-up assessment package by integrating the concepts of the knowledge-based economy and knowledge workers. It will focus particularly on addressing the urgent need to establish the skills training base most appropriate to the specific needs of the manufacturing industry.
6	As far as the methodological approaches are concerned, few previous studies have investigated the implementation of Saudisation from the viewpoints of trainees and trainers in industrial education. In order to obtain insightful opinions from a variety of stakeholders, this study draws upon a cross-section of samples, such as private sector manufacturing industry managers, and both trainers and trainees in industrial education.
7	This study further aims to make an impact on policy by providing insights as to how a knowledge-based model of manufacturing skills training programme can be set as a good example for other technical education and vocational training courses to follow.
8	The Ninth Five-Year Development Plan addresses a need to balance regional development. This study selects relevant participants to provide their opinions in the questionnaire and give their responses to related interview questions on how industrial education is developing and the current trends in the implementation of Saudisation in three cities in the western region: Taif, Makkah and Jeddah.

**Table 1-2 A list of this study's main contributions to knowledge**

## 1.6 Structure of the thesis

This study is organised into nine chapters. Figure 1-1 below presents the structure of the thesis.

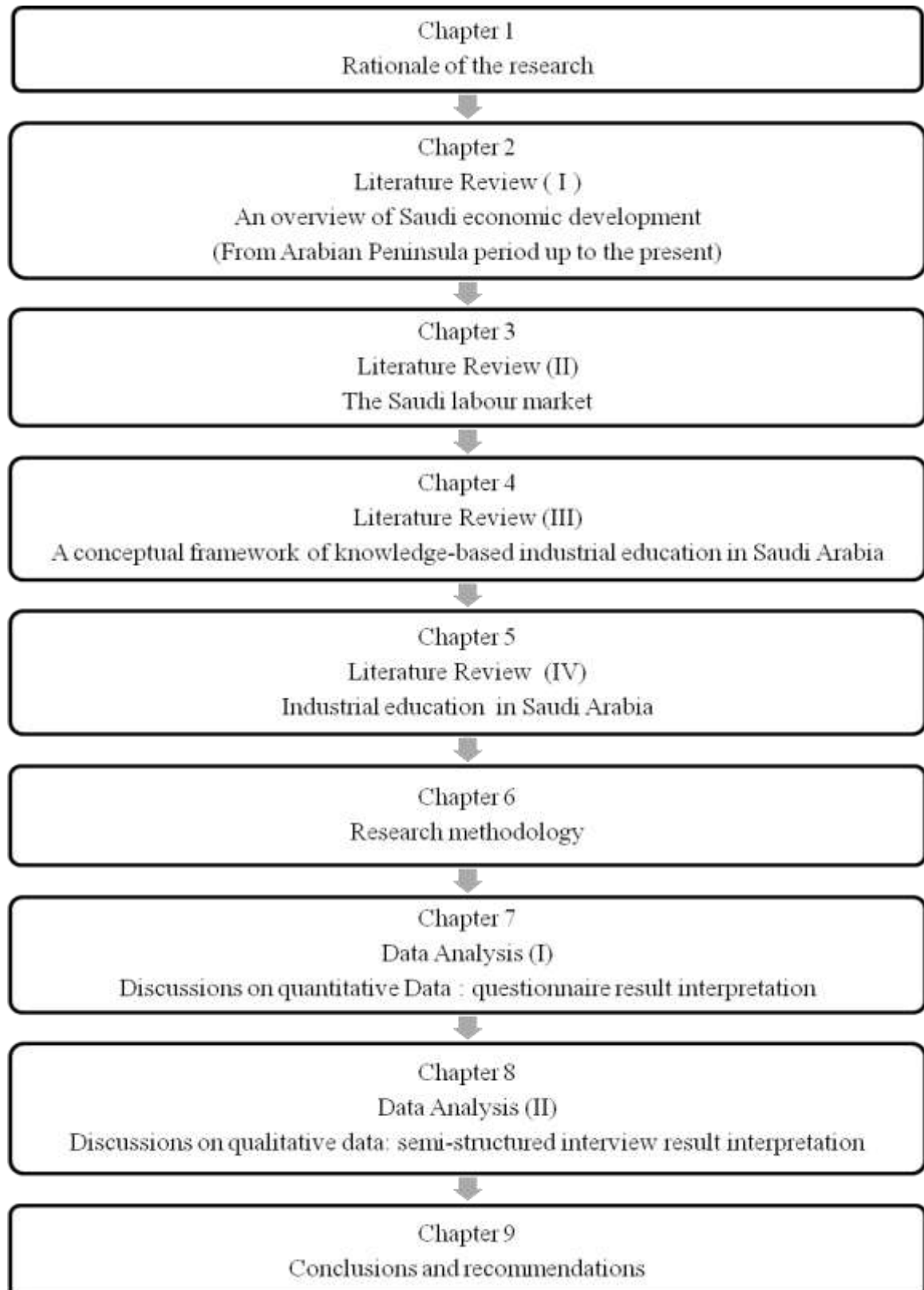


Figure 1-1 The structure of the thesis



The following paragraphs summarise the content of the nine chapters in this thesis.

The present chapter has begun the study by setting the scene with regard to the research background and motivation for the study. It has laid the ground for the research project by briefly examining the nature of the educational and economic challenges in Saudi Arabia. It has also stated the research problem and the purpose of this study. The fourth part of this chapter has identified the aims and objectives of this research. This chapter concludes with the originality and significance of this PhD project and how it may contribute to the existing body of literature.

Chapter Two is the first part of the literature review and gives an overview of the development of the economy in Saudi Arabia. It first introduces a wide picture of two profiles: the Arabian Peninsula before 1930 and the national status after the Arabian Peninsula was unified by King Abdul-Aziz and became known as the Kingdom of Saudi Arabia. It then gives an overview of the economic development in Saudi Arabia in terms of its geographical, political, social, and economic environment. Several aspects are explored relating to the context of the development plans and the policy of Saudisation: the problem of unemployment among young people in Saudi Arabia; the significant role of human resource development in facilitating economic growth in Saudi Arabia from the first to the eighth five-year development plan; the identification of the private sector as the primary source of economic diversification in the Saudi economy; the impact of Saudisation on economic performance in the country, and the interrelation between industrial education output and economic growth in preparing Saudi Arabia to cope with competitiveness in the knowledge-based economy.

Chapter Three reviews literature relating to the Saudi labour market in order to establish the theoretical framework of this study. This chapter examines the Saudi labour market from two perspectives: a review of the theoretical framework of the labour market and a discussion of the context of the labour market in Saudi Arabia. The chapter begins with the definition of a labour market and then moves on to review contemporary theories of labour market analysis from labour supply-demand perspectives. The second part addresses

more recent developments and issues of concern for the labour market in Saudi Arabia with a specific focus on its human resources issues (i.e. the problem of unemployment and the Saudi national manpower shortage).

Chapter Four reviews the conceptual framework of the knowledge-based economy and the knowledge worker. The World Bank (2003, p.3) addressed the significant relationship between education and knowledge in the current global economy. The World Bank (2002, p.7) also stressed the significant role in a nation's economy played by knowledge. In light of this, this chapter reviews relevant literature investigating the relationship between education and knowledge with specific reference to the development of a workforce that is well-trained and capable of generating knowledge-driven economic growth. Finally, the concept of the knowledge-based economy will be considered from the perspective of industrial vocational education in Saudi Arabia.

Chapter Five concludes the literature review. It describes the industrial education in Saudi Arabia by providing an overview of the Saudi educational system at the beginning of the chapter. Next, this chapter specifies the role of Saudi industrial education in terms of the interrelationship between Islam, work and vocational education. In other words, this section of Chapter 5 addresses how Islam guides Saudi nationals to prepare themselves for the workplace with appropriate work attitudes and vocational skills training offered by the vocational education. The final part of this chapter describes the structure of technical education and vocational training, in particular specific industrial education at both secondary and technical college level within the framework of the Saudi educational system.

Chapter Six presents the research methodology adopted in this study, including the research design, methods of data collection and data analysis, and the ethical dimension to be taken into consideration in conducting this study.

Chapter Seven reports the results of quantitative data analysis using three layers of statistical tests—Chi-square, t-test, One-way ANOVA followed by a post-hoc analysis to examine perceptions of the effectiveness of Saudi vocational education to support private industry in developing a knowledge-based economy. Based on the statistical results, three factors, i.e. social, cultural and economic

factors were found to contribute to a skills gap between industrial education output and private manufacturing industry's employment requirements. Following that, this chapter also synthesises the perceptions of trainers and trainees on approaches to bridging the skills gap between industrial education output and labour market needs in terms of the implementation of Saudisation at the private manufacturing industry in Saudi Arabia. The final section concludes with a summary of the findings of the quantitative data analysis in relation to the research questions.

Chapter Eight discusses the findings from the analysis of the qualitative data collected through interviews with managers of private sector manufacturing industries. Through the data from the semi-structured interviews, the researcher attempts to gain an in-depth understanding of the perceptions of the labour demand side, i.e. employers in manufacturing industries (excluding oil refining and petrochemical industries). This chapter synthesises the results of the qualitative data analysis into key themes to be taken into consideration in the investigation of the skills gap between Saudi industrial education and private sector manufacturing industry's labour needs.

Chapter Nine begins with a summary of the major issues of concern of this study, including employment issues and education and training issues. This chapter summarises major findings of the study based on a synthesis of the views of three groups of stakeholders' regarding the key factors affecting the implementation of Saudisation in the private sector in Saudi Arabia. It also identifies key elements contributing to the skills gap existing between the employment expectations of the Saudi private sector manufacturing industry and the content of the manufacturing skills training offered by Saudi industrial education. The final part of this chapter suggests directions for future research and proposes the theoretical framework of a knowledge-based curriculum model to improve the content of manufacturing skills training currently provided by industrial education in Saudi Arabia. The chapter acknowledges the limitations of the study: the small sample size, the credibility of the private sector managers' responses, access difficulties, gender issues, limited sites of data collection, issues relating to data collection methods and lack of interviewers from the policy or government departments.

# **Chapter 2 Saudi Arabian Economic Development (From the Arabian Peninsula period up to the present)**

## **2.1 Introduction**

### ***2.1.1 Orientation of this chapter: education as a source of human capital for economic development and growth***

Entering the 21st century, the Kingdom of Saudi Arabia is facing a rapidly changing world economy linked to the advancement of technology. It has undergone a dramatic economic transformation from the ‘livestock and pilgrimage’ economy of the Arabian Peninsula period (agricultural revolution), through the ‘energy’ economy during the abundant oil reserve period (the industrial revolution) to the current ‘knowledge’ economy (the knowledge/information revolution).

A nation’s economic development plays a significant role in the creation of wealth. Given the impact of globalisation in the global economy, Brown and Lauder (1996, p.2) maintain that the key tool for accelerating a nation’s economic development to increase its wealth is through education, one source of human capital. Perceived as the best investment and the basis for human development, Pont (2001) argues that the quality of education is important for a nation’s economy and plays a crucial role in creating employment in the knowledge-based economy. As noted by McEnhill et al. (2007, p.19) human resource development through vocational education and training has played a significant role in accelerating the economic development of the Kingdom of Saudi Arabia towards a knowledge-based economy. Peter Drucker (2003), often held to be the father of modern management, also considers education as the most important indicator of the ability of the country to generate wealth. In other words, based on the fundamental claim of human capital theory, a nation can increase its wealth by means of developing its human resources to provide a strong labour force (Stevens and Weale, 2004, Olaniyan and Okemakinde, 2008, King, 2009). All of the above mentioned propositions indicate that education as a source of human capital is often associated with a nation’s economic development and growth.

### 2.1.2 The structure of this chapter

According to Al-Hathloul and Edadan (1993, pp.33-36), Saudi Arabia has experienced a major transformation from the Arabia Peninsula period, particularly with regard to socioeconomic activities. In light of the aforementioned three phases of economic transformation, the main aim of this chapter is to provide a clear picture of Saudi Arabia's economic development from the period of the Arabian Peninsula to the current economic situation from an educational perspective (specifically human resources development<sup>4</sup>). One of the main concerns this study is then explored: how the economic transformation that Saudi Arabia has undergone since the period of tribal polity on the Arabian Peninsula has affected the kingdom's human resource development, with a particular focus on vocational education and training.

As shown in Figure 2-1, this chapter explores the economic development of Saudi Arabia in terms of two phases:

- 1) **Phase I**-from the Arabian Peninsula period to the unification of the Kingdom by the late King Abdulaziz Ibn Al-Saud in 1932, and
- 2) **Phase II**-from 1932 up to the present

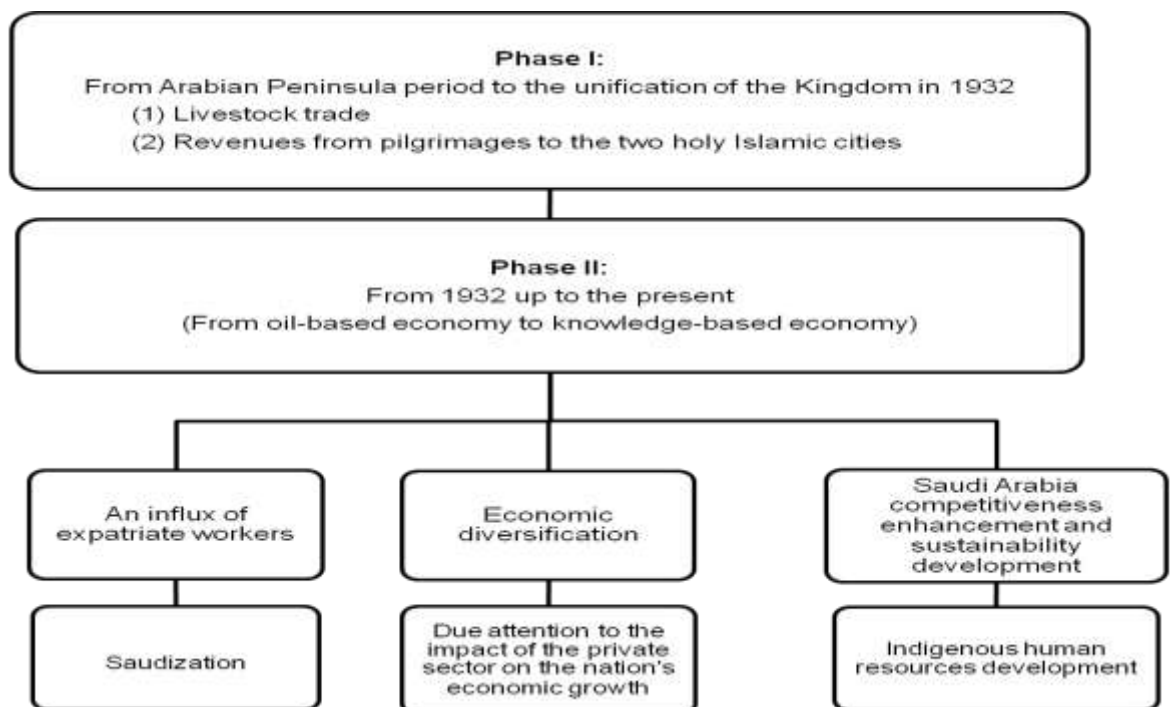


Figure 2-1 The structure of Chapter 2

<sup>4</sup> This thesis regards vocational education and training as a form of human resource development.

A particular focus of the analysis of economic development from 1932 onwards (the incompatibility of domestic human resource development with labour demands in the private sector) will be addressed in terms of the increasing attention to the private sector's impact on the kingdom's economic growth over the years and the dilemmas involved in the implementation of Saudisation in the private sector.

## 2.2 Phase 1: Saudi economic activities in the Arabian Peninsula

In order to investigate economic activities during the transformation of Saudi Arabia from a tribal society to a unified kingdom in 1932, it is of significance to give a brief overview of the Arabian Peninsula, four-fifths of which is covered by Saudi Arabia (Al-Farsy, 1986, p.26).

According to Senker (2006), Saudi Arabia can trace its roots back to the establishment of the earliest civilised settlement in the northern and central Arabian Peninsula, or the so-called Arabian Desert, a great desert located in the south-western part of Asia, in 1744<sup>5</sup>. Achoui (2006) and Cole (2010) describe the Arabian Peninsula as the homeland of Arabs<sup>6</sup> and of Islam. Its territory is surrounded by Jordan and Iraq to the north, the Arabian Sea and the Gulf of Aden to the south, the Red Sea to the west and the Persian Gulf and the Gulf of Oman to the east. Due to its geological and physical features and climatic conditions, the availability of water restricts living conditions on the Arabian Peninsula and has led to the nomadic/pastoral life of the ‘desert-dwellers<sup>7</sup>,’ who live in autonomous clusters near natural springs, wells and oases (Mohamedi, 2004). In other words, harsh natural and geographical conditions have had a great affect on the Arabs way of life and the tribal organisation (Information Office of the Royal Embassy of Saudi Arabia, 2010, Pishva'i, 2009, Mohamedi, 2004).

Moreover, HBC (2003) states that the nomads lead a wandering, unstable and vagrant life in their constant search for the scattered sources of water from restricted pastures or oases on the Arabian Peninsula. As noted by Ochsenwald (2007) and Mohamedi (2004), the pastures serve as temporary places for the desert tribal dwellers to raise cattle, camels and other livestock, as well as crops such as date. Such an unstable, vagrant pastoral life style has forced the desert tribes to establish a range of systems for searching and maintaining the

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<sup>5</sup> The Information Office of the Royal Embassy of Saudi Arabia in Washington D.C. updated the history of Saudi Arabia on its website in 2010 to stating that it was Muhammed bin Saud who established the first Saudi state in Diriyah in 1744.

<sup>6</sup> This thesis adopts the version in Maxime Rodinson's book, 'Muhammed: the Prophet of Islam' in which she identifies the Arabs here referred to as the nomadic peoples of the central and northern parts of the Arabian Peninsula (page 12).

<sup>7</sup> Variations of this term include nomads, Bedouins, and nomadic desert dwellers.

scattered sources of water by showing their unwavering loyalty to the leaders of the tribes in order to make their lives more secure.

In addition, the Arabian Peninsula was an ancient world trading centre, where certain agricultural-oriented commodities, such as spices, almonds and dates, were transported through a complex network of trading routes throughout the peninsula (Information Office of the Royal Embassy of Saudi Arabia, 2010).

Ghamri (1999, p.244) further indicates that the Arabs acted as middlemen to facilitate international trade from the time of the Roman Empire to the period of colonisation that followed when the British and the French moved into the peninsula. Hence the various tribal groups, in particular the nomadic tribes, relied on agricultural sources (e.g. camels, water and dates) for the economic activities in the pastoral oases and certain coastal towns and ports (Khoury and Kostiner, 1990, p.112).

Besides being a trading centre, Ghamri (1999) points out that the Arabian Peninsula also played a key role in religious observances. In this respect, Gellner (1981) notes that most of the tribes and states on the Arabian Peninsula from the time of the prophet Ibrahim (known as Abraham in the west) also received revenue from pilgrims. In brief according to Mohamedi (2004), during the Arab peninsula period, trade had two major sources: camel caravans and the annual influx of pilgrims visiting the holy places in the Hijaz. However, Lipsky et al (1959, p.152) state that there was no direct or significant impact on the development of the country's economic foundation from pilgrim revenue.

Kostiner (1993, p.3) notes that the centrality of the social, political, economic, and cultural life centred on tribes<sup>8</sup> during the Arabian Peninsula period. Lipsky et al (1959, p.4) also mention that loose tribal collaboration, sedentarised rural citizens, and a ruler formed the chieftaincies during the Arabian Peninsula period. Eisenstadt (2007) supports Kostiner (1993) proposition, arguing that there was a diverse and mixed structure embodied in a tribe, which encompassed subunits (families, clans, and larger factions). These were often bound together in one large political unit (Kostiner, 1993).

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<sup>8</sup> Kostiner (1993) defines tribes as a political unit composed of 'a group of people who shared a common territorial base, true or mythological kinship ties, and a corporate existence' (p, 3).



Tribes are components of 'chieftaincies' that offer their populations (the nomadic and the sedentarised populations) security in terms of political and financial support (Lipsky et al., 1959). The ruler from a leading family of a major tribe governs the loose cooperative and has the three obligations: to maintain internal order in the chieftaincy; to protect his people and; to wage war against enemies from outside their territory (Kostiner, 1993). The sedentarised population is categorised as the lowest political hierarchy during the tribal society period in the Arabian Peninsula. According Lipsky et al (1959), these sedentarised inhabitants centred in villages and towns had to fight for the state, pay tribute to the ruler as well as the regional nomadic tribe, and provide facilities for the nomads so that they could obtain the benefits of trade and protection from the ruler. As a result, the nomads recognised the ruler's leadership authority, took an oath to cooperate with him, pay tribute to him and defend the routes for trade (Kostiner, 1993, Gellner, 1981).

In these political circumstance, Kostiner (1990, p.228) claims that the tribal members had to show their political allegiance to the tribe they belonged to in order to obtain physical and economic protection as well as social status from the tribe in return. This, then, provides evidence to support the argument by Lipsky et al (1959) that the sharing of power, responsibilities and duty was the major cause of the loose alliances among the tribes.

For this reason, during the period of the Arabian Peninsula, the tribal leader, known as the sheikh, utilised his political leadership to govern the tribe in order to protect and develop its economy in terms of economic revenues generated from the trade in livestock and the annual incomes from the pilgrims to the two holy Islamic cities (Kostiner, 1993). The researcher, therefore, assumes that autonomous clusters of nomadic tribes were established on the basis of the scattered availability of water from restricted pastures or oases in the central and northern region of Arabia. This would have provided a clear justification for the tribal leader to function as a political means of protection against other tribes who attempted to take control over the availability of water during the first phase of economic development in the Arabian Peninsula.

## **2.3 Phase II: Economic development after the unification of the Kingdom in 1932**

As noted by Al-Humaid (2003, p.22), faced with a move towards a modernised and competitive global economy era, Saudi Arabia has made a great socio-economic transformation from a traditional way of nomadic or semi-nomadic living in the form of tribes to a more modern urban style of living. This section deals with the overall structure of the economy in Saudi Arabia. It provides a general overview of oil revenues and then considers the impact of the knowledge economy and globalisation on the national policy of Saudisation.

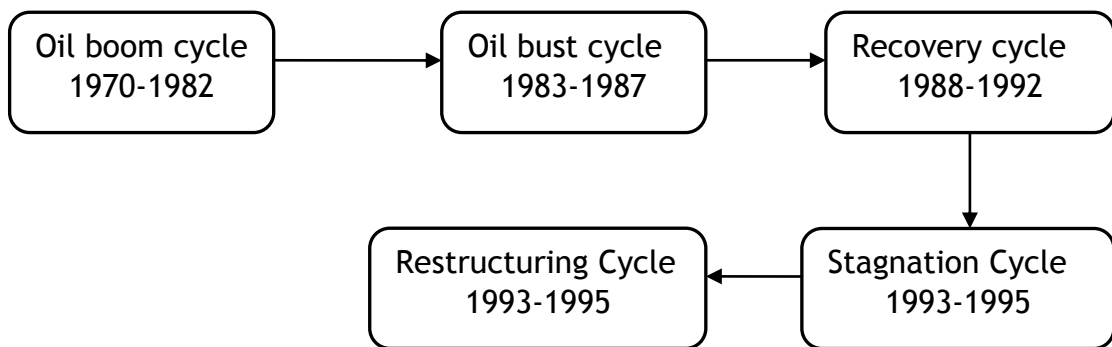
### ***2.3.1 Oil-based economy from 1932 up to the present***

As noted by Ghamri (1999, p.245), the discovery of oil in 1933 started from an agreement in Jeddah between King Abdulaziz and a wealthy American, Charles Crane, with a group of geologists from the United States to search for water to supply the daily needs of the population in Saudi Arabia. The US team of geologists did not find water, but discovered oil, which later led the Kingdom into a new period of prosperity as oil became the main source of income. In the early 1970s, the Saudi economy grew rapidly because of intensive oil production (Askari, 1990, Fakeeh, 2009). The Eastern Province is the richest in petroleum in the Kingdom. Most of the country's known petroleum reserves lie underneath its soil. However, higher oil prices led to development of more oil fields around the world and reduced global consumption. As a result, the peak years of oil revenues in 1980/81 and 1982/83 were followed by a worldwide oil glut and it became necessary to make a considerable decrease in the government's level of expenditure. Similarly, the economy as a whole had to come to terms with more modest circumstances.

At present, the economy of Saudi Arabia is well-known worldwide for its most valuable single product: crude petroleum (also referred to as oil). According to Saudi Aramco (2003), the Kingdom sits on 260 billion barrels of oil, or a quarter of the world's total known reserves. Its abundance and large-scale production began after World War II and has led to the rapid economic development of the Kingdom since the 1960s. Saudi oil reserves are the largest in the world, accounting for over 90% of the country's exports, nearly 75% of government

revenues, almost 13 percent of world output and 35 percent of total OPEC output in 1991 (Metz, 1992). Consequently, Saudi Arabia is the world's leading oil producer and exporter, meaning that it can play a key role in balancing international oil prices by adjusting the demand for and supply of oil.

Ramady (2005, p.22) state that all economic reforms and development plans until recently have been developed in an 'oil-driven' economy. As can be seen from Figure 2.2, the 'oil-driven' economy can be illustrated by the five major Saudi business cycles proposed by Ramady (2005).



**Figure 2-2 The five major business cycles**

Source: Ramady (2005, p.23)

The first cycle of the oil boom had a great impact on several elements in the Saudi Arabian economic structure due to high oil prices. The oil income fuelled rapid economic growth, high government expenditure on infrastructure, high personal income, and private sector demand for a suitably qualified Saudi national labour force. Oil began to become the main source of economic prosperity during this phase (Askari, 1990, Fakeeh, 2009).

However, when it came to the second cycle, there was a dramatic economic decline. This decline coincided with a drop in crude oil production from 9.81 million barrels per day during 1981-82 to 3.2 million barrels in 1985, which also resulted in a decrease in imports. Government revenues decreased drastically to around 50 billion in 1986 and a reduction in investment expenditure by both the public and private sectors (The Ministry of Planning, 1999, Ministry of Economy and Planning, 2009). During the 'Recovery Cycle' (Figure 2.2), the global oil market began to show resurgence and this period was a stable one. After this, the third phase of the business cycle, a fairly slow-moving business cycle known

as the ‘stagnation cycle’ arrived because of the decrease in oil prices and budgetary constraints in line with government revenues. As a result, budget deficits and debt service payments increased, as a result of government cash disbursements on overseas liquid reserves. During the final cycle, the ‘Restructuring Cycle’, economic reforms and major restructuring efforts took place. At the same time, the private sector became the major drive for economic growth. In order to attract foreign direct investment and Saudi capital held abroad, there was a movement towards privatisation, liberalization and capital market reforms.

At the turn of the century, Saudi Arabia took the economic lead in all other Arab countries in terms of Gross Domestic Product (GDP). However, as David and Boeker (2010), Looney(2004a), Alsahlawi (2004) and Madhi (2003) state, the GDP figures of Saudi Arabia fell behind those of the leading industrialised countries, such as the USA, UK and Japan. According to Askari (1990) and Ramady(2005), the reason for this was a diversification of the economy in the US, which was not the case in Saudi Arabia.

### ***2.3.2 Contribution of oil revenue to the acceleration of the economic growth***

After the discovery of oil, King Faisal continued to pursue the process of modernisation, introduced Western technology, and increased public education in the late 1950; however, all of this changed dramatically in 1970 (Al-Rajhi et al., 2004). In that year Saudi became the largest exporter of crude oil through its accumulation of large surpluses. In fact, some researchers, such as Gelb (1988) and Looney (1991) point out that the Saudi economy became largely dependent on a single product: oil. In other words, as stated by Alsarhani (2005), the economy of Saudi Arabia was not well-diversified. However, on examination of the oil output and revenues from it from 1970 to 2008 it can be seen that oil revenues still accounted for a large portion of Saudi GDP(Ramady, 2010f, p.45).

	1970-1973	1974-1981	1982-1985	1986-1991	1992-1996	1997-2001	2002-2008
Oil Output (million barrels)	8.1	25.874	6.672	12.292	14.778	14.548	22.269
Oil Revenue SR billion	69.98	1374.6	540.3	478.3	571.6	742.5	2284.1

**Table 2-1 Saudi Arabia oil production and revenues**

Source: Ministry of Planning (2002), SAMA (2002), pp. 388,444,455 (cited in Ramady, 2005, p.44)

During the early period of the oil boom in Saudi economy in the 1970-80s, the oil income benefits to the Saudi society have been characterised as having led to a classic ‘rentier’ economic situation (Ramady, 2005). The concept of the ‘rentier economy’ defined by Ramady (2005), Chaudhry (1997, 1989) and Auty (1999, 2001) refers to a feature of the early years of Saudi Arabia’s economic development. This model (the rentier economy) used by the Saudi government, attempts to ‘maximise’ the revenue from a natural resource (in this case, oil) and distribute it amongst various sections of the population. However, on examination of the percentage of GDP from the income share of oil and gas in Saudi Arabia (1970-2001), it is clear that the transitional trend in the economic growth was from heavy oil-dependence to less-dependence on oil (See Table 2-2).

	1970-1973	1974-1978	1979-1981	1982-1985	1986-1991	1992-1996	1996-2001
Saudi Arabia	63.7	68.26	84.63	45.73	37.16	42.93	36.5

**Table 2-2 Share of oil and gas rents in GDP 1970-2001 (% GDP)**

Source: (partially adapted from Ramady, 2005, p.44)

In terms of the concept of a ‘rentier’ economy mentioned above, Ramady (2005, p.215) maintains that Saudi Arabia has played a role as a significant and necessary input in the global economic activity from which oil reserve accumulates in the Eastern Region. In Ramady’s (2005) opinion, oil as a source of energy has had a great impact on the acceleration of Saudi economic growth in the context of international free market trade.

## 2.4 Human Resource Development in Saudi Arabia

As noted by Todaro and Smith (2006), human resources are a crucial element in influencing a country's potential for economic growth and development. In particular, they assert that skill levels, attitudes toward work, access to information, and willingness to innovate are regarded as the core aspects of human resource development in the knowledge-based economy. Regarding the economic growth of a developing country such as Saudi Arabia, it is of significance to mention what Al-Saloom (1995, p.9) suggests about the concern for development being 'a means for achieving economic development in line with other types of development such as political, administrative and social development'. He further indicates that planning, industrialisation, urbanisation, and technology are the four major requirements to achieve economic development (Al-Saloom, 1995). This may have been one of the original influences the Saudi government commencing a series of 5-year national development plans to make the economy of the Kingdom grow.

On this premise, this section analyses factors contributing to the development of economy in terms of human resource development in the Kingdom of Saudi Arabia by reviewing relevant literature. In particular, it focuses on an exploration of why these features are in need of careful consideration in investigating the issue of unemployment among Saudi nationals.

### ***2.4.1 Indigenous manpower: obstacles and challenges***

Most developing countries in the Middle East and North Africa, such as Saudi Arabia, must confront three major economic difficulties: slow economic growth, poverty, and unemployment (Billeh, 2002a). According to Kuchinke (2010), the development of human resources is an important factor in economic growth and has an impact on changes in economic structure. Al-Asmari (2008) reports that most policymakers view manpower development as a particularly significant 'driver' for sustainable development in the overall structure of the labour market.

Moreover, according to Al-Dosary and Rahman (2009), in the past, the initial leadership in economic development was provided by the Saudi government and

the primary role of the private sector has always been to seek out and manage profitable enterprises. Recently, in response to emerging economic difficulties and changes in oil revenues, the Saudi government has attempted to create a more favourable environment for private sector investment and growth through ensuring a gradually increasing level of expenditure in specific sectors (e.g. the private sector) within its development plans (Eighth Five-Year Development Plan, Ministry of Economy and Planning, 2005).

The Saudi government would also like to create a climate that will attract new foreign investment. This step would help create new job opportunities for native Saudis. For example, the Sixth Development Plan placed greater responsibility on the private sector and identified five important contributions<sup>9</sup>, among which were the replacement of non-Saudi workers by Saudis, create new job opportunities for citizens and raise labour productivity by participating effectively in upgrading technical and administrative skills through training (Al-Humaid, 2003, Al-Sayari, 2007). In other words, the Saudi government has strongly emphasised the role of the private sector in supporting economic growth and diversification, with the aims of

- 1) diversifying and expanding Saudi economy and;
- 2) building a more broadly-based, stronger, more efficient and competitive private sector for the future.

To date, through educational programmes at four different levels-general education, higher education, technical education and training and science and technology-the human resource development strategy is being implemented in Saudi Arabia. However, as pointed out by Wiseman et al (2008), the current Saudi education system has failed to foster strategic thinking and has relied on rote learning, valuing technical skills over general business skills, which often discourages creativity and new ideas. The result of the study by Alsahlawa and Gardener (2004) indicates that the education system in Saudi Arabia needs to provide the economy with an adequate base of trained professionals in order for it to become competitive globally.

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<sup>9</sup> These five contributions are: 1) high levels of production and operational efficiency; 2) great financial resources available for investment; 3) the use of advanced production technologies; 4) the use of modern management techniques in production and marketing activities; 5) accumulated experience of trading in international markets and dealing with foreign companies.

In order to meet the employment needs of a fast-growing young population, a more strategic and flexible short-term planning process at economic, social, education and structural reforms, especially in education output, is necessary.

Factor	Component	Saudi Arabian Setting		
Necessary conditions for growth		low	medium	High
<b>Education</b>				
- Years of education in the population				√
- Perceived quality of education		√		
- Companies investing in training		√		

**Table 2-3 Saudi Arabia: necessary conditions for growth**

Source: Adapted from Ramady (2005, p.35)

As shown in Table 2-3, Ramady (2005) views the contribution of education to the growth of the Saudi economy in terms of three attributes: years of education, perceptions of the quality of education and business enterprises' investment in education and training. He points out that Saudi nationals spend considerable time in education, but that the quality of education is poor. At the same time, the level of investment in training programmes offered by companies is also very low. In other words, concerning the output of the education system, there is a huge gap between the time spent in education and the level of investment in providing in-service training by companies. There is also poor teaching quality in terms of the output of education, which may limit economic growth.

The transition to the private sector requires human resource policies that emphasise productivity, skills formation and workplace flexibility (Al-Shammari, 2009, Rumford, 2001). As mentioned previously, the Saudi economy has progressed rapidly and oil wealth has increased the standard of living of most Saudis. However, although population growth creates a labour pool, they require the correct skills, knowledge and appropriate attitudes towards work. The jobs that the government wish to place Saudi in are those currently occupied by foreign workers with specific skills; therefore, unless the education system responds appropriately there will be unemployment. As a result, heavy dependence on petroleum revenue continues, and the mismatch between the job skills of Saudi graduates and the needs of the private sector job market at all levels remains the principal obstacle to economic diversification and development. Haider (2003) mentions that about 4.6 million non-Saudis are



employed in the economy, which has led to the Saudi government's developing a well-organised economic plan to address this problem.

### ***2.4.2 From the First to the Ninth Five-Year Development Plans: Human resource development as one of the major key indicators***

Since the discovery of oil in the early 1930s, the oil sector has remained the lynchpin of Saudi Arabian economy. Nevertheless, three decades ago, a strategic decision was made to diversify and expand the base of Saudi's economy (Royal Embassy of Saudi Arabia, 2002). Towards this goal, Al-Rajhi et al (2004) point out that a series of wide ranging reforms and policies were implemented in order to improve the investment climate and to attract greater private sector participation in the economy as well as facilitating inflow of foreign direct investment into the country. According to Ramady (2005), Saudi Arabia has some of the most sophisticated development planning processes of any nation in the developing world. This means that the Kingdom of Saudi Arabia follows economic development plans in order to achieve diversification and growth.

As shown below Table 2-4, the first Five-Year Development Plan commenced in 1970. This comprehensive development programme aimed to improve the economic conditions of its people in all aspects. The first phase of this process involved establishing an infrastructure that could support a modern economic base. The next step was to develop the human resources necessary to implement the economic transformation. Finally, the focus changed to economic diversification, including the expansion of the industrial and agricultural sectors. The Fourth, Fifth, Sixth, Seventh and Eighth Five-Year Development plans have all emphasised strengthening the growing private sector and increasing the efficiency of the industrial sector. In the Fifth, Sixth and Seventh Development Plans, the Saudisation policy placed great emphasis on the matching of educational outputs with the requirements of labour markets, particularly in technological, vocational and technical areas. The current Ninth Five-Year Plan focuses on higher national economic growth rates, increased foreign/domestic investment, and continuing to develop human resources (Royal Embassy of Saudi Arabia, October 2003).

Five-Year Development Plan		Key Indicators
First	1970-1975	<ul style="list-style-type: none"> <li>- Provision of modern infrastructure</li> <li>- <b>Expansion of human resources</b></li> <li>- Establishment of modern administrative infrastructure</li> </ul>
Second	1975-1980	<ul style="list-style-type: none"> <li>- Large infrastructure expenditure</li> <li>- <b>Expansion of human resources</b></li> <li>- Starting hydrocarbon industries</li> <li>- Beginning of infrastructure growth (transport, electricity, water and housing)</li> <li>- Establishment of modern administrative infrastructure</li> </ul>
Third	1980-1985	<ul style="list-style-type: none"> <li>- <b>Expansion of human resources and educational base</b></li> <li>- Expansion of infrastructure and economic resources</li> <li>- Expansion of hydrocarbon base</li> <li>- Undertaking regional economic initiatives</li> </ul>
Fourth	1985-1990	<ul style="list-style-type: none"> <li>- <b>Increase in expenditure on human resources</b> and health-care</li> <li>- Encouraging more private sector participation in reconstructing the Kingdom's economy</li> </ul>
Fifth	1990-1995	<ul style="list-style-type: none"> <li>- <b>Emphasis on human services</b></li> <li>- <b>Enhancing Saudi human resources</b></li> <li>- Emphasis on Saudisation</li> <li>- Encouraging more private sector participation</li> <li>- Expansion of technology base</li> </ul>
Sixth	1995-2000	<ul style="list-style-type: none"> <li>- <b>Emphasis on human resources</b>, health-care and social services</li> <li>- Expansion of private sector</li> <li>- Beginning of partial privatisation</li> <li>- Reduction in foreign labour and subsidies</li> </ul>
Seventh	2000-2005	<ul style="list-style-type: none"> <li>- Diversifying the Kingdom's economy</li> <li>- <b>Solving Saudi human resource problems</b></li> <li>- Increasing Saudisation</li> <li>- Preparing for globalisation and the WTO membership</li> <li>- Privatisation</li> </ul>
Eighth	2005-2010	<ul style="list-style-type: none"> <li>- <b>Upgrading human capabilities and efficiency</b></li> <li>- <b>Developing human resources</b></li> <li>- Enhancing national economic competitiveness and integrating into international economies</li> <li>- Enhancing private sector participation</li> <li>- Developing science and technology system as base for the Kingdom's economy</li> <li>- Increasing the number of new Saudi entrants to the labour market</li> <li>- Reduction in regional development disparities</li> </ul>
Ninth	2010-2015	<ul style="list-style-type: none"> <li>- Diversifying the economic base</li> <li>- Moving towards a knowledge-based economy</li> <li>- Strengthening the cooperation between the public and private sectors</li> <li>- Developing the SME sector</li> <li>- Raising Saudi citizens' living standards</li> </ul>

**Table 2-4 Saudi Arabia's national five year development plans: key indicators**

Source: adapted from Ramady (2005, p.21) and (2010e, p.26)

As mentioned previously, this has resulted in bringing many foreign workers into the job market since the 1970s. It was not until the early 1970s that human resources (including skills) became a constraint to accelerated development. The quantity and quality of available Saudi manpower accordingly emerged as the main factors limiting rapid economic development (Al-Dosary, 2004). Central to this process of accelerated human resource development in Saudi Arabia is a labour market that is both adaptable and efficient in allocating the supply of labour among various occupations and between different locations, as well as in determining wage rates.

### ***2.4.3 The private sector***

From the First Development Plan to the current Ninth Development Plan, one of the main objectives has been that the private sector should play a very influential role in the diversification of the Saudi economy (U.S.-Saudi Arabian Business Council, 2010, Alzalabani, 2005, Al-Humaid, 2003). In order to make the private sector more aware of its key role in making a contribution to the Kingdom's economic diversification and job creation for Saudis, both the Eighth (Ministry of Economy and Planning, 2005) and the Ninth Five-Year Development Plan (2010) state that it is of significance to emphasise the input of the private sector's human resources, which consist of both skills training and knowledge acquisition through education. For example, Ramady (2010d, p.211) points out that one of the private sector's challenges is how to reduce the rate of unemployment among Saudis. He also proposes a possible solution to this challenge, i.e., to ensure that the market is aware of the skill requirements of the private sector. However, in reality, the researcher has doubts as to extent to which the labour market and the industrial education sector is aware of what skills are urgently needed in the private sector. The reasons for this will be explained later in the study.

Moreover, Cordesman (2003) made a comparative analysis of national development plans of all developing countries in the GCC regions and asserted that Saudi Arabia had a more complex process of implementing its national development plan. Due to this, Cordesman (2003) assumes that the acceleration of growth and structural change in the Saudi economy threw the domestic labour market in to turmoil. As a result, the Saudi government was obliged to make the

decision to import expatriate labour, as this was necessary to achieve the growth targets.

The Saudi unemployment rate has been increasing and the government conceived the idea of taking action to minimise the presence of expatriate labour and maximises economic growth (Bhuian et al., 1996, Gammal and El-Bushra, 1986, Ibrahimkhan, 2007). Although the government took the most active role in shaping the growth and the structural change, the entire orientation of the economy, and the prevailing social philosophy remained strongly committed to private enterprise. This orientation (putting great emphasis on the role of private sector in economic diversification) was naturally reflected in the labour market.

### ***2.4.4 Saudisation as a facilitator to accelerate the Saudi economy***

As described in the previous section, the Saudi-Arabian economy faces a dilemma involving the factors following:

- 1) It is still heavily dependent on migrant/guest-workers, for unskilled and semi-skilled work, as well as in the highly-skilled professions for the acceleration of the economic growth of the Kingdom (Bhuian and Abdul-Muhmin, 1997);
- 2) The high unemployment rate among young Saudis.

The Saudi government has been making great efforts towards developing local manpower to solve this dilemma. Along with the series of five year national development plans in the past three decades of the 20th century, Saudisation is one of the major policies of job placement. Generally speaking, this policy was intended to reduce the heavy dependency on foreign workers and replace them with a local workforce, particularly in the private sector. In particular, this policy is directed by the following question:

*What strategy and vocational skills training may help Saudi nationals to acquire relevant, appropriate and sufficient qualifications to find a job?*

In other words, the fundamental objective of the Saudisation policy refers to

- 1) increasing the workforce participation of Saudi nationals across all sectors of the domestic economy in the Kingdom after years of heavy reliance on foreign workers to accelerate the nation's economic growth since the 1970s;
- 2) reducing the number of foreign workers and hence the amount of foreign remittance (Abdel-Rahman, 2003); and
- 3) enhancing the capabilities of the Saudi workforce through a qualitative and quantitative expansion of education and training (Campbell and Matthews, 1982, Mellahi, 2000).

According to Sadi and Al-Buraey (2009, p.71), the aim of this policy is to invest in all national and indigenous human resource development at all regional levels. In particular, as mention above this policy places a strong emphasis on enhancing the capabilities of the Saudi workforce through a qualitative and quantitative expansion of education and training (Campbell and Matthews, 1982, Mellahi, 2000). For example, in the Fourth Development Plan (1985-1990), government expenditure on education and training rose sharply to 33% of total actual expenditure from 18% in the previous plan (Ramady, 2005, Fakeeh, 2009). However, by the end of the Fourth Development Plan, the outcome of Saudisation in terms of increasing numbers of employed Saudi nationals was not satisfactory. The plan had anticipated an increase of the Saudi manpower to 51% of the total workforce, with annual growth rates of 3.8% for males and 5.2% for females (Alsarhani, 2005). Nonetheless, the actual figures indicated that the contribution of Saudi manpower was lower than 35%, which was attributed to several factors, notably delays in the implementation of Saudisation and the gap between education and training results and labour market demands (Al-Shammari, 2009, Fakeeh, 2009, Alzalabani, 2005). As was indicated by Mellahi & Wood (2001) human resources in KSA is shaped as a response to the wider socio-economic situation by five main factors: economy, national culture, national HRD strategy, labour market structure, and the political environment.

Perceived as a worker replacement development strategy, the Saudi government has been making great efforts to implement Saudisation in the private sector, in which 'other manufacturing' industries (exclusive of petrochemical and oil refining) makes the greatest contribution to GDP (6.7% to 8% in 2009) of all

industries in the non-oil producing sector involved in the diversification of economic activities (Ministry of Economy and Planning (MOP), 2009)

However, the survey results of empirical studies by Al-Shammari (2009), Alsarhani (2005), Al-Humaid (2003) and Fakeeh (2009) all argue that Saudisation does not provide a consistent human resource recruitment method for the private sector to follow to in recruiting suitable Saudi employees for the jobs available. They claim that this makes it difficult for the private sector (particularly SME) to recruit Saudi nationals with the skills, qualifications, knowledge, and experience they are looking for. Although the private sector has played an increasingly large part in facilitating the Kingdom's attempts at economic diversification, Al-Dosary and Rahman (2009) argue that employers in this sector remain highly reluctant to hire Saudi employees, most of whom are perceived to have insufficient or irrelevant qualifications, knowledge and skills.

In addition, since the discovery and production of oil in the 1930s, researchers on the Saudi labour market (Fakeeh, 2009, Ibrahimkhan, 2007, Ramady, 2010b) argue that the main causes of skilled indigenous labour shortage result from the skills gap and the reluctance of Saudi nationals to take up certain jobs. In particular, Torofdar (2011, p.6) assume that this skilled Saudi nationals' labour shortage is associated with the impact of Saudi culture on Saudi nationals' job preferences. To be more specific, the argument by Torofdar (2011, p.2) and Mellahi and Wood (2001, pp.143-144) attempts to address that the Saudi society is still deeply bounded by its social traditions and the culture of Islam, both of which have strong influences on Saudis' management style, the restricted nature of women's employment in certain work types (such as nursing, education and home economics) and national human resource practices. For example, Torofdar (2011, p.6) adopts du Plessis' (2007) definition of national culture (i.e. traditions, values, beliefs, and attitudes) to propose three cultural barriers which underpin the Saudisation process:

- 1) refusal of low-skilled posts;
- 2) the poor reputation of manual-based jobs and vocational educational training in Saudi society;
- 3) the conservative nature of cumulative Arab traditions (Mellahi, 2001) and strong social ties (i.e. family obligations) which restrain Saudi youth's flexibility in terms of social mobility in job locations.

Similarly, Kwong and Levitt (2009) assume that the potential account for Saudi nationals' reluctance to take certain jobs may result from Saudi cultural characteristics, such as using personal relationships to find favourable jobs in the public sector (wassattah in Arabic) and a hierarchical social structure (i.e. public sector employment equals to high social status and receive higher reputation among family members). Torofdar (2011, p.6) summarises three reasons proposed by Feulner (1989) and Al-Ajaji (1995), mentioning that young Saudis' favouritism for public sector employment is strongly related to economic factors (higher wages), social factors (low or middle-level positions in the public sector, higher prestige) and psychological factors (seeking greater job security and favourable working conditions, such as shorter working hours, long vacation periods).

Another reason that Saudi culture inhibits the Saudisation process lies in the fact that, according to Mellahi and Wood (2001, p.143), it plays a significant role in shaping the behaviour and ethical values of individuals within an organisation and in the Saudi society as a whole. In particular, Mellahi (2001, p.47) and Al-Shareef (1993, p.7) claim that religion is the most crucially significant factor in Saudi culture and has a great effect on Saudis' behavioural patterns at work. Mellahi & Budhwar (2010) argued that since Islam influences almost every aspect of life in Saudi Arabia, religious norms and beliefs have direct and/or indirect impact on employees' behaviour in the workplace. For example, with regard to private sector managers' declining to hire young Saudi graduates of technical education and vocational training, Aba-Alkhail (1988) indicates that a deeply-rooted stereotype of young Saudi workers having over-relaxed work attitudes has been existing for years. Al-Salamah (1994, p.89) reports that these relaxed attitudes include leaving work early, idleness during working hours, spending work-time on personal activities and unexcused absenteeism, all of which greatly affects the level of organisational commitment expected by the private sector managers. In consequence, most Saudi employers in the private sector have no choice but to demand expatriate workers take on more workload so as to meet the deadline of product sales.

In addition, Echagüe and Burke (2009, p.8) propose that it was the historically-rooted conservatism existing in Saudi society that has been blamed for making Saudi educational system deficient for providing the Saudi job market with a

pool of skilled, qualified and experienced indigenous workers. Even though the Saudi educational reform is regarded as one part of King Abdullah's efforts in the process of diversifying the Saudi economy and of 'Saudising' the workforce, Echagüe and Burke (2009, p.17) argue that the traditionally-conservative Saudi culture, i.e. a mixture of western prejudice, a hesitancy and mistrust for reform, is evidently seen in cases where private sector employers are not convinced to hire Saudi graduates, most of whom (64%) hold qualifications of either sharia (Islamic studies) or arts-related qualifications. In other words, the conservative nature of culturally-oriented beliefs, attitudes and behaviours as taught in Saudi education has greatly affected the attitudes of Saudi graduates towards the workplace, which then results in private sector employers' refusal or reluctance to offer employment (Alanezi, 2012, p.514). Echagüe and Burke(2009, p.7) as well as Mellahi (2007, p.90) claim that the restricted and segregated nature of Saudi culture tends to limit Saudi nationals' work performance levels. This may explain why such conservatism accounts for hampering the implementation of Saudisation in the private sector, despite the Saudi government's investment in 'nationalising' the workforce through education and training so as to diversify the Kingdom's economy to be ready for the competitiveness of global economy.



## 2.5 Summary

In general, the development of the Saudi economy is driven by the production of oil. That is, Saudi Arabia has an oil-based economy with strong government controls over major economic activities. The country possesses 25% of the world's known petroleum reserves, ranks as the largest exporter of petroleum, and plays a leading role in OPEC (SAMA, 2009). The petroleum sector accounts for roughly 75% of budget revenues, 45% of GDP, and 90% of export earnings in Saudi Arabia. About 40% of GDP comes from the private sector. Roughly five and a half million foreign workers play a vital role in the Saudi economy (e.g. in the oil and service sectors). In other words, the 'oil-driven' economy is the way in which the Kingdom of Saudi Arabia has built up the nation's wealth since King Abdulaziz united different tribes from Arabian Peninsula in 1932. Continual efforts were made by King Faisal, who aggressively pursued the modernisation with a new strategy through a series of national development plans dating from 1970 consistent with the oil boom (Stensgaard, 2006).

At a demographic level, Saudi Arabia has a young population and high birth rates means the population is growing rapidly. In view of this, the government is encouraging private sector growth to reduce the kingdom's dependence on oil and increase employment opportunities for the fast-growing population of young Saudis. This signifies that the Saudi government is aware of an urgent need to offer this young population sufficient well organised and practical education and training programmes. In this way, Saudi graduates can prepare themselves for the workplace with the appropriate qualifications and knowledge to enter the competitive labour market. Consequently, the gap between education and training and labour market demand may be bridged. This type of education output is precisely what Saudisation aims at as the top priority among the aforementioned objectives of human resource development. It is likely that expatriate workers will be replaced by Saudi nationals.

In addition, with the increasing impact of globalisation on the development of the Saudi economy, an alternative means to improve the current dichotomy between education output and human resource development (i.e. quality of manpower) is the implementation of the 'knowledge economy,' a type of

economy that links education (skills training and life-long learning) to the acceleration of sustainable economic growth.

Throughout a series of five-year national development plans (1<sup>st</sup>-9<sup>th</sup> Five-Year Development plans), the focus has moved from the diversification of the economy to the increasing investment in the private sector, as it is this sector that makes the greatest contribution to Saudi's economic prosperity. For example, in order to achieve one of the main objectives in the Ninth Development Plan, it is assumed that a knowledge-based economy can, to some extent, improve the current standard of living and quality of life; therefore education can be a force to help develop the nation's economy. In this sense, the Saudi economy will move forward to a new era by means not only of oil revenues, but also diversification of other sources in different sectors

# Chapter 3 The Labour Market in Saudi Arabia

## 3.1 Introduction

The purpose of this chapter is to examine the labour market in the Kingdom of Saudi Arabia from two dimensions: the theoretical framework of the labour market and the context of the labour market in Saudi Arabia. We will begin with a definition of what a labour market is and then move on to contemporary theories of labour market analysis. The purpose of this is to link the contemporary theories of labour market analysis to the context of current labour market issues in Saudi Arabia in terms of labour supply and demand. This chapter will have the following structure:

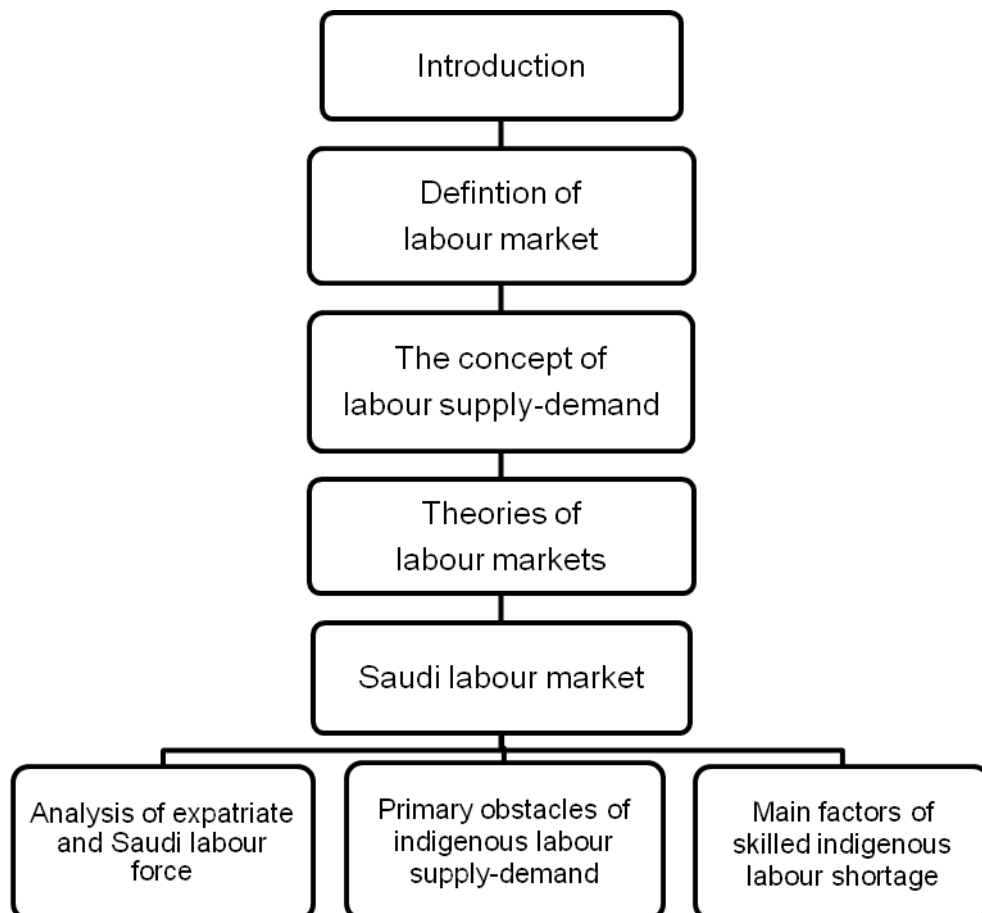


Figure 3-1 The structure of Chapter 3

### **3.1.1 Definition of 'labour market'**

To understand the labour market, we first have to define the term 'market.' According to Uploaders (2009), a market, is an arrangement between buyers and sellers in specific settings, such as a flea market where buyers and sellers meet to exchange their old goods by making a deal. Mabry (1973, p.3) defines a market as 'an arrangement under which buyers and sellers are brought together for purposes of entering into an exchange.' The purpose of this exchange is for an arrangement of the purchase and sale in a specific context, such as a farmers' market in an urban centre for the purchase and sale of produce (Mabry, 1973).

This can also be applied to a labour market. That is, there will be a purposeful exchange arranged by buyers and sellers for 'human energies, skills and time' in a labour market and remunerations (for instance, human services, wages and salaries) may be found in money, commodities or services (Mabry, 1973, p.3). Loveridge et al (1979, p.27) defines the labour market as 'those mechanisms and institutions through which the purchase and sale of labour power are arranged.' In other words, in this arrangement, buyers play a role as employers and sellers as employees. Buyers make a purchase of the 'human energies, skills and time' from sellers who own these 'sale products.' Meanwhile, sellers may get remuneration (for example paid wages and salaries) from buyers. Therefore, an exchange for 'demand' and 'supply' is arranged between buyers (employers) and sellers (employees). This exchange activity of sellers providing 'supplies' to meet the 'demands' from buyers characterises a labour market.

## 3.2 Concepts of 'labour supply' and 'labour demand'

### 3.2.1 Labour supply

Generally speaking, the term labour supply refers to the labour available in the labour market. To be more specific, the 'quantity of labours,' as Serageldin et al (1984, p.28) define it, is the 'economically active population' which indicates a particular segment of the population. This active population is viewed as those aged 15 to 64 whose participation rate is then applied to define the labour force. By this definition, the concept of labour supply is associated with the concept of labour force, which encompasses all those employed and job seekers within a restricted segment of the population (Sirageldin et al., 1984, p.28). In this sense, the 'quantity of labours' may be thus characterised as having two components: the size of working-age population (people aged 15 to 64) and their participation rate in the labour market.

In addition, concerning the meaning of labour supply, Mabry (1973) states the concept of the labour supply in terms of wage satisfaction.

When reference is made to the market labour supply, this refers to the number of people...at work...,seeking work,...would be seeking work.....jobs at acceptable wages.....available in the market (Mabry, 1973, p.151).

Smith (1776) thought that wages were determined in the marketplace through the law of supply and demand. Workers and employers would naturally follow their own personal interests, so that workers would be attracted to the jobs where labour was needed most. Based on this, the resulting employment conditions would ultimately benefit the whole of society.

Another factor to bear in mind is that there is no definite minimum age for employment in Saudi Arabia. One report by the U.S. Department of Commerce which was released on the website of the Saudi Network claims that the minimum employment age is 14 in Saudi Arabia. Another report states: 'The employment age of Saudi Arabia is 13, but there are restrictions on the type of work and the length of work (6 hours a day). Saudis are given full rights as workers at age 18' (Schneider et al., 2007).

The above examples both give the minimum age for employment as being below 15. Child labour which is ‘a serious social problem facing Saudi Arabia’ as described on the Gulf News on 25th April, 2008 by the correspondent, Mariam Al Hakeem (2008). Al Hakeem (2008) further reported that a recent study on the child labour population in Saudi Arabia found that nearly 1.54 per cent of children work.

### **3.2.1.1 The supply side of the Saudi context**

Before analysing the supply factors in the Saudi labour market, a question is raised here: what has been the supply response to the increased demand of labour force since the 1970s’ oil boom in the kingdom? As far as the factors of labour supply are concerned, both internal and external factors contribute to the economic growth and the creation of job opportunities in Saudi Arabia. Concerning the internal reasons for the supply of labour, the potential labour force and the rates of workforce participation have an effect (Sirageldin et al., 1984,p.24). Serageldin et al (1984) suggest that the external factor of the labour supply can be the Saudi population size of the potential work force (that is, new entrants to the labour market).

According to the neoclassical model of the labour market that will be discussed later in this chapter, Saudi Arabia has had a strong demand for labour at all skill and occupational levels. This strong demand indicates that there is a positive relation between the participation of and the demand for the labour force. That is, if the labour force participation rate increases, the demand of the labour force will also increase. Consequently, when there is an increase in wages of the labour services, there will be a change in the geographic mobility of workers from low demand location to high demand ones (Sirageldin et al., 1984).

In addition, based on the perfect competition assumption of the neoclassical model, obtain access to the market information network about available job opportunities should be ‘equally widespread’ among job seekers. However, due to certain non-economic and economic factors addressed by Sirageldin et al (1984), the Saudi component of the labour force in the market is not responsive to the expected labour supply. According to Sirageldin et al (1984), these noneconomic factors include geographic mobility in terms of the Saudi nationals’

values and attitudes towards occupations. The economic factors include the following:

- 1) the Saudi labour market system which is not a closed system, meaning it is not only for Saudis but also open to other people with different nationalities from outside or within Saudi Arabia;
- 2) wage differences from occupation to occupation or from region to region;
- 3) labour shortage at regional or occupational levels;
- 4) the demand for training by potential and existing local workers.

Therefore, as Serageldin et al (1984) propose, there is a need to take into consideration of all the above supply factors in analyzing the supply side of the labour market in the light of the neoclassical theory (the main concern being the price forces) and the segmentation theories (the major concern being the structural forces), both of which will be explained in greater detail later in this chapter.

### ***3.2.2 Labour demand***

Mabry (1973, p.277) views the demand for labour as ‘a factor of production,’ which refers to the demand for the product it produces. Friedman (2007, p.201) further indicates the meaning of ‘the factors of production’ as follows:

One the demand side, the chief consideration in classifying factors is substitution in production. A single factor consists of units that are regarded as perfect substitutes in production; different factors consist of units that are not perfect substitutes.

Smith (1776) stated that the demand for labour could not increase except in increasing the amount of wages as the ‘fund’ for employment, which is intended to pay employees. Statements such as these foreshadowed the wages-fund theory, which held that a predetermined ‘fund’ of wealth existed for the payment of wages. Smith (1776) defined this theoretical fund as the surplus or disposable income that could be used by the wealthy to employ others. He also mentioned that the size of the fund could fluctuate over periods of time, but at any given moment the amount was fixed, and the average wage could be determined simply by dividing the value of this fund by the number of workers.

Serageldin et al (1984) suggest that there is interdependency between the demand for labour and the demand for goods and services. They illustrate this claim by an analysis of the demand for labour in Saudi Arabia during the 1970s when the oil revenue started to increase rapidly throughout the state. It is assumed that there would be changes in the demand for labour if there are changes in the demand for goods and services, which may indicate the 'production function' within the labour market framework (Sirageldin et al., 1984). Thus, this concept of a production function may well define the fundamental relationship between gross domestic product (GDP) and employment in line with the national economy.

Moreover, regarding the factors of the labour demand in the context of the Saudi labour market, Sirageldin et al (1984) adopt a concept identified by Simon Kuznets<sup>10</sup>-patterns of growth-to indicate further about the GDP/employment interdependent relationship. Sirageldin et al (1984, p.25) interpret Kuznets' description of this concept as being that 'the sectoral composition of GDP will change over time in a systematic pattern with the growth of per capita GDP.' In the light of this 'pattern of growth,' Serageldin et al (1984) assume that the reason for the rapid increase in employment and labour demand resulted from the rapid growth of per capita GDP in the 1970s. In other words, according to Serageldin et al (1984), the major labour demand factors are associated with the GDP growth in line with the development of human resources in government expenditures and the encouragement of private sectors taking the initiative in the national economy. They further argue that there are other determinants of the labour demand, including the wage rate at the national level and changes in technology.

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<sup>10</sup> Simon Smith Kuznets is a Russian American economist, and formulated a measurement for a nation's economic growth in terms of income per capita. Which became known as the 'Kuznet Curve'



### 3.3 Theories of labour markets

#### 3.3.1 *Classical theory*

In general, the nature of the classical theory is a theory of ‘markets and market interdependencies’ in relation to its social context (Loveridge and Mok, 1979, p.28). The essence of this theory may thus be explained from the social dimension and combines the labour market mechanism and the power-domination system. According to Smith (1776, cited in Morrison, 1995, p.61), labour is the true measure of value, which means that the values of goods and services are determined by the cost of producing these goods and services. In this sense, labour cost plays a dominant role, and therefore most of these costs can be attributed to the labour force that, produces such goods and services (Morrison, 1995, p.61). Regarding the framework of a classical model, Fitzgerald (1998, p.2) states that

[...] within this framework the amount of labour that workers supply is exactly equal to the amount of labour demanded by firms at the equilibrium wage.

Using the US economic situation in the 1970 as an example of a classical theory, Fitzgerald (1998, p.2) assumes that there is a free service for both workers and firms to obtain full information about job opportunities and workers in a classical model (Fitzgerald, 1998, p.2). However, in the 1970s, the reality in the United States showed that finding a good job was not always a simple process, as it required time and financial resources to search for a good job during that period.

In addition, Vincens and Robinson (1974, p.76) propose three assumptions on the classical theory from the supply side:

- 1) There may be some changes in the selection of the labour supplier.
- 2) There may also be some changes in the content of jobs based on changes in technology and the development of preferences.
- 3) If there is a rise in the wage of an occupation, this will lead to a movement of manpower towards that occupation.

To the classical economist, as argued by Mabry (1973), economics is primarily concerned with understanding economic growth and the distribution of income. Mabry (1973) also assumes that all economic development depends on the existence of a disposable surplus (an excess of production or supply over demand). This means that all economic development relies on the capacity of an economy to produce more valuable commodities or services for long-term purposes than goods for short-term purposes (that is, goods which have to be used up in the annual process of production) (Mabry, 1973). Therefore, classical economists sought to identify the determinants of surplus and of general wage level.

According to Mabry (1973), the wages-fund theory was discredited by W.T. Thornton, F.D. Longe, and Francis A. Walker, all of whom argued that the demand for labour was not determined by a fund but by the consumer demand for products. He further points out that the proponents of the wages-fund doctrine had been unable to prove the existence of any kind of fund that maintained a predetermined relationship with capital, and they also failed to identify what portion of the labour force's contribution to a product was actually paid out in wages (Mabry, 1973, p.93). Indeed, Morrison (1995) holds a similar viewpoint to Mabry (1973) and proposes that the total amount paid in wages, depends upon a number of factors, including the bargaining power of workers. In a word, the aforementioned propositions by Mabry(1973) and Morrison (1995) offer clear evidence that the central concern of classical economists is wages, which is regarded as the major determinant of labour demand in terms of the value of labour in the labour market.

### ***3.3.2 Neoclassical theory***

The conventional neoclassical analysis considers the labour market as a 'unified entity' in which allocation of employment is regulated by the price mechanism (Loveridge and Mok, 1980). In other words, the labour market, in neoclassical theory, is regarded as an exchange system where buyers and sellers of labour meet each other individually as equals. Loveridge and Mok (1980, p.385) state that neo-classical theory is basically 'a-historical' theory, in which experiences of actors in the labour market should be considered since they may influence the supply and demand. For example, when an employer seeks a capable employee

to fill a job vacancy in his company, one of the major criteria for recruiting new staff is linked to years of related work experience in the field. Sirageldin et al (1984, p.16) state that the neoclassical model takes the standpoint of 'perfect competition,' which refers to the notion that employers seek ways to maximise the profits of the productivity in decision-making of labour demand and to maximise the job performance of the workers in terms of their skill levels. On the other side, employees have the right to make the choice to maximize the satisfaction of their desire to improve their skills by investing their knowledge and obtaining rewards in the form of a pay rise equivalent to the amount of their investment in that skills training (King, 2009, Olaniyan and Okemakinde, 2008, Winch, 2007). Under conditions of perfect competition, the labour market is assumed to operate continuously, producing uninterrupted flows of labour services at appropriate prices. This means that perfect competition makes the market efficiently match jobs (demand) and potential workers (supply). Within this framework, Healy and Cote (2001) note that individuals try to move from low-to high-income areas and from low-to high-paying jobs.

Furthermore, the purpose of the interaction between the demand (employers) and the supply (workers) is to decide the quantity of the product. This theory specifies the reality of a 'market' in which the forces of demand and supply interact to determine how much of the commodity or service is exchanged and at what price (Sirageldin et al., 1984).

Labour services also share the same feature, where the market mechanism determines the number employed and the wage level. The labour market is viewed as a vehicle through which businessmen (demand) and workers (supply) interact to determine the dimension and allocation of the work effort and the wage rates acceptable to both sides (Sirageldin et al., 1984). Furthermore, Allen et al, (2006) argue that the neoclassical model assumes perfect competition where, in equilibrium, all jobs are viewed by workers as equivalent and all workers are viewed by employers as a homogeneous entity. Loveridge and Mok (1979) propose their assumptions on the competitive labour market model based on the claims by Levitan et al (1972).

These assumptions are summarised as follows:

- a) Employers and workers have sufficient knowledge and information about wages and job opportunities available in the labour market.
- b) Employers act as profit-maximisers and workers act as wage satisfaction maximisers.
- c) Both employers and workers play their roles in the total demand or supply without having any influence on decisions concerning wages.
- d) There should be no barriers or obstacles to labour mobility or other production factors.
- e) Employers and workers should play their roles individually-workers act with other workers in the form of unions and employers make decisions on wages and job recruitment through associations.
- f) The internal frameworks of labour in a particular market should be identical and equal.

To sum up, from the discussion and the assumptions listed above, it is clear that in essence, neo-classical theory sees the market for labour, with buyers and sellers in open competition with each other, as functioning in broadly the same way as other markets. What is more, neoclassical theory claims that labour is not a completely homogeneous commodity: workers have differences in their tastes and preferences for leisure rather than work and for monetary (money or salary in this case) rather than non-monetary rewards. They (workers/employees) also differ in their investment in education and training, work skills, and experience.

### ***3.3.3 Segmented labour market theories***

The literature describing segmented labour market theories focuses attention on labour force issues such as differential wages, unemployment and discrimination (Leontaridi, 1998). Major segmented labour market theorists—Doeringer and Piore (1971), Gordon (1972), Reich et al (1973), and Kreckel (1980), have developed the concept of an internal labour market and dual labour market theory. This section starts with a summary of the key features of these terms and then considers their application to the Saudi labour market in the context of educational issues.

### 3.3.3.1 Defining Labour Market Segmentation based on dual labour market theory

In a basic sense, a dual labour market refers to a situation where a labour market is divided into two tiers or sectors—a primary and a secondary sector (Doeringer and Piore, 1971, pp.1-2). Reich et al (1973, p.359) point out the differences between primary and secondary labour markets in terms of behavioural rules in the workplace. They claim that jobs in the primary labour market require employees to develop stable working habits as the expected work attitude and to enhance their on-the-job skills. On the other hand, the secondary labour market as claimed by Reich et al (1973, p.359) requires no stable working habits since most of the jobs available are low-skilled, manual jobs. Wachter et al (1974) further distinguishes the two sectors in terms of wage differences as follows: the primary sector being high-wage and the secondary as low-wage. Another key dual labour market theorist, Reinhard Kreckel (1980) identifies the differences between the primary and secondary sectors based on three job characteristics: employment stability, payment and job contents. In Kreckel's terms, the primary labour market offers higher wages and longer tenure while the secondary labour market offers poor tenure and little chance of promotion to higher job posts in the company. Doeringer (1986, p.107) reflects Kreckel's concept of a dual labour market in which the primary labour market provides high-paying jobs, secure employment, healthy working conditions and good benefits while the secondary labour market offers jobs with low wages, restrained job mobility within the firm, and a temporary career. In other words, the primary labour market is perceived to offer the 'good' jobs while the secondary labour market jobs are perceived as 'bad and unstable' (Dekker et al., 2002, p.107).

### 3.3.3.2 Defining Internal Labour Market

Pfeifer (2010), Saar et al (2008) and Doeringer (1986, p.48) explain the term internal labour market as an administrative unit within a firm where a set of administrative rules and procedures serve as determinants of wage and job position allocation. Doeringer (1986, p.107) argues that the internal labour market places its major emphasis on collective behaviour in which competition amongst employees still exists due to employers' decision-making on the possibility of job promotion and pay within a firm. Unlike the concept of a dual

labour market (a term highlighting issues of pay and prospects), the concept of the internal labour market considers two main issues: wages and employment, in which wage rigidity, employment tenure, the application of efficiency wages and theories of implicit contracts are taken into account (Pfeifer, 2010, Saar et al., 2008, Doeringer, 1986). In part, when it comes to key determinants of employers' decision-making of offering job promotion within the firm (especially the secondary sector), efficiency wages and theories of implicit contracts are given quite a great deal of attention in labour market analysis research in developing countries such as India (Jha and Golder, 2008), Brazil (Arbache, 2001), and South Asian countries (Osmani et al., 1998). The following provides a summary of some major ILM (Internal Labour Market) theorists on defining these two terms.

**a) Theories of implicit contracts**

Concerning the relationship between prices (wages) and quantities (layoffs, referring to the redundancy of employment within a firm during the recession period), Okun (1981) points out that the term implicit contracts was initially developed to account for the emergence of quantity adjustments instead of falling wages in the labour market so as to cope with the recession in the economy. Gordon (1972), Feldstein (1975), and Baily (1974) propose that implicit contract theories refer to an effort made by both employers and employees to engage in a long-term employment relationship in which a worker is capable of reducing the instability in his labour income and the firm owner is able to increase the expected average profit. According to advocates of implicit contract theories, they are an attempt to secure employment and guarantee income stability, this term is defined as an agreed written employment document by both parties (employers and employees) in which this document specifies the amount of work that workers are able to supply and how much pay the employer is capable of offering.

**b) Efficiency wage strategies**

Doeringer (1986, p.48) argues that employers use efficiency wage strategies to motivate their employees, raise levels of productivity and efficiency at work by increasing wages more than the market-clearing wages. His argument was supported by the literature review of labour regulations in developing countries done by Boeri et al (2008) who assume that efficiency wage strategies (i.e.

minimum wages) can be served as a possible way to reduce poverty in the form of raising wages as a strategy for enhancing workers' productivity.

Furthermore, Mill (1929) and Cairnes (1967) suggest that different labour market sectors should focus on the division of labour in accordance with equivalent wages and working conditions. However, their insights are different from those proposed by Smith (1937). Smith (1937, cited in Fine, pp.99-100) puts an emphasis on the concept of 'equilibrium wage differences,' in which he defines the cause-effect relationship between employment and the wage premiums, that is, compensations for employees in terms of five conditions-the degree of agreeability, the degree of learning the business, the level of constancy, the level of trust, and the probability of success in employment. Fine (1998) continues to describe the argument by Smith (1937, p.35), stating that the immobility of labour would lead to wage differentials, and this is because, compared to other commodities, competition over the wage would be held back more by transport costs than competition over prices in general.

However, the segmentation theories of labour markets still fail to give satisfactory and acceptable explanations of three issues in the functioning of the labour market mechanism: prolonged problems of poverty and unemployment, the lack of adequate education and training programmes, and discrimination (Sirageldin et al., 1984). For example, in the job competition theory, Dickens and Lang (1992) point out that the number and types of job vacancies and social customs and institutions are the key determinants and factors in filling the actual number and types of jobs. Workers' skills, wage flexibility and some intra-firm decisions (such as position promotion and on-the-job training) are not taken seriously into consideration in the mechanics of the labour market (Dickens and Lang, 1992). In other words, these intra-firm allocative decisions of job positions are made in the form of demand-orientation, without considering worker's skills, wage levels, or on-the-job training, among which these factors are regarded as employers' major concern in employee recruitment, job promotion allocation and new employment creation (Achoui, 2009).

Concerning the necessity of firms' investments in on-the-job training, Becker (1975) claims that such training should be subdivided into general and specific training so that the purposes of these two types of training would, to a certain

degree, raise the productivity of workers. In reality, few Saudi firms in the manufacturing industries, according to Dekker et al (2002), Acemoglu and Pischke (1998) and Stevens (1994) are willing to pay for training, such that a training course entails both general and firm-specific elements. This argument is also supported by the research study by Ibrahimkhan (2007), claiming that firm-specific training is of great importance in securing and in providing the employees a chance of promotion within the firm so that they may have a higher motivation for staying in the company and making more contributions to the firm. This cannot, however be applied to all firms since a lot of manufacturing is still characterised by Saudi workers' employment instability (Svenstrup, 2011).

The segmented labour market model has characteristics that reflect the division between public and private labour markets in Saudi Arabia. Within the private sector's individual organisation, there is further segmentation e.g expatriate / Saudi worker. However for the purposes of this thesis a broad segmentation of public/ private sector will be used.

### **3.3.3.3 Application of segmented labour market theories to the Saudi labour market context**

The Saudi labour market can be viewed as a segmented labour market, where the primary labour market refers to the public sector and the secondary market refers to the private sector in terms of their stability characteristics (Reich et al., 1973, cited in, Kreckel, 1980, p.538). In fact, Al-Shammari (2009) and Fakeeh (2009) explain that all kinds of jobs in the public sector in Saudi Arabia have been filled up by Saudi nationals since the oil boom in the 1970s, while Saudi youth are not so much motivated and willing to find jobs in the manufacturing industry in the private sector. Fakeeh (2009) assumes the reason for young people's resistance to work in the private sector is that employers are reluctant to offer career opportunities and higher salaries to Saudi youths graduating from industrial education due to their concerns about the prolonged image of Saudi young people's instability at work.

According to the research done by Fakeeh (2009), the Saudi labour environment is influenced, to some extent, by its culture and employment requirements



made by the government as well as the private sector. Fakeeh (2009, p.100) argues that

Another societal barrier to Saudisation is that many in Saudi society look down upon manual jobs and think of vocational training as a rank below a diploma or a university qualification. Furthermore, tradition and social ties hinder the social mobility of many young Saudis whose skills may be in demand in distant locations. Family obligations (in the sense that young new entrants are expected to remain close to their families specially their parents and look after them) frequently prevent mobility.

Even though the government has put great efforts (e.g. the implementation of Saudisation policy to diversify the Saudi economy) into forcing the private sector to offer more employment vacancies to Saudi nationals, still expatriate workers occupy most of the jobs (especially the manual-based jobs) in the private sector.

In the Saudi labour market context, Fakeeh (2009) argues that the Kingdom shows a paradox of high wealth and high unemployment due to a prolonged heavy reliance on expatriate workers' efforts to accelerate the nation's economic growth. By putting a great deal of pressure on the private sector, Fakeeh (2009) further explains that the government sector, the oil sector and the private sector compose the work force in Saudi Arabia, in which the majority of the labour force comes from the private sector. In particular, the manufacturing industry, identified as a major economic activity, makes up 88% of the work force in the private sector (Fakeeh, 2009). However, regarded as the secondary labour market, the private sector has been stereotyped for many years as a workplace of jobs with 'low-skill', 'low pay,' little chance of job promotion and large quantity of physical labour (Mellahi, 2007). Concerning the two major issues emphasised by internal labour market theory, Fakeeh (2009) and Achoui (2009) also argue that from the demand side, most private sector employers have a high degree of preference to hire employees with enterprise-specific skills and higher levels of loyalty, stability and productivity at work. For example, Achoui (2009) reviews the work by Looney (2004b) and the result of a survey carried out by Fadhel (2007), claiming that

[...] companies in the private sector in Saudi Arabia confront HRD problems such as lack of credit/ finance/capital, limited market skills and bureaucratic hindrances...78.8% of the training programmes were

conducted in the form of 'on-the-job' training and were provided on an ad-hoc basis (Fadhel, 2007, cited in, Achoui, 2006).

However, these private sector employers seldom take certain costless assets (e.g. incidental on-the-job learning, friendship or equity and legitimacy at the workplace) into account when putting strategies in place to enhance workers' productivity. In this sense, with regard to the attention necessarily paid to a fair treatment in wages, Fakeeh (2009) points out that the Kingdom has been suffering a high rate of unemployment at nearly 11% in 2007 owing to specific problems in the Saudi labour market; for example, new Saudi labour entrants' expected initial salary mismatches with the qualifications earned at school.

In short, due to a high domestic birth rate coupled with the freezing of state employment since the aftermath of the oil windfalls of the 1970s and early 1980s, Mellahi and Wood (2001, p.135) argue that Saudi Arabia has, in fact, a highly segmented labour market. Their argument lies in a clear distinction made between indigenous Saudis and foreign workers in terms of four factors which accounted for the private sector's resistance to Saudisation (Mellahi and Wood, 2001, pp.139-142) including

- 1) labour cost;
- 2) social and cultural perceptions towards work in the private sector;
- 3) discipline and control;
- 4) workforce diversity;

In particular, Mellah and Wood (2001, p.143) regard the third factor—discipline and control—as the proof of how religion exerts a profound influence on Saudi HRD strategy. For example, women are excluded from a manual-based workplace due to the principles of the Qur'an and the moral belief among the vast majority of people in Saudi Arabia that marriage, child-bearing, high fertility rates and extreme degree of occupational segregation account for the limited chances of employment. Mellah and Wood (2001, p.144), adopt nineteen core Islamic management values listed by Alhabshi and Ghazali (1994) to explain why they consider the Saudi labour market to be segmented in the sense of indigenous and expatriate workers.

### 3.4 Saudi human resource

The purpose of this section is to provide a general idea of the labour market in Saudi Arabia with regard to its human resources (for instance unemployment problems and Saudi national manpower shortage).

#### 3.4.1 Analysis of expatriate and local labour force

As pointed out by Al-Shammari (2009), expatriate (foreign) workers compose a large portion of the total Saudi workforce and play the most important role in human resource development in the nation, which is a reality that the Saudi government is seriously addressing. Ramady (2010c) analysed the expatriate communities within Saudi Arabia (see Table 3-1). Among all the expatriate communities listed in the table, Asian communities are the largest group in the workforce, followed by Filipinos and citizens of Arab states such as Egypt and Yemen. Although expatriates from the USA and European countries represent a small number of the workforce in Saudi Arabia, they are the group which is most highly-paid and has the greatest professional knowledge and skills. According to the total expatriate population estimated by several organizations, such as Gulf Organization for Industrial Consulting in 2002 and Statistical Abstract of the ESCWA Region in 1998, the total expatriate population in Saudi Arabia is six million (Ramady, 2005).

Expatriate communities	Numbers	Expatriate communities	Numbers
Indians	1300	Syrians	100
Egyptians	900	Indonesians	250
Pakistanis	900	Sudanese	250
Filipinos	500	Kuwaitis	120
Yemenis	800	Bangladeshis	400
Sri Lankans	350	Turks	80
Jordanians / Palestinians	260		
Total Expatriate Population in Saudi Arabia			6090

**Table 3-1 Expatriate communities in Saudi Arabia, 2004 (estimate in thousands)**

Source: partially extracted from Ramady (2010c, p.371)

In addition, a World Bank publication (Sirageldin et al., 1984) clearly showed the increasing percentage of the employed expatriate labour in Saudi Arabia in three different periods-from 27% in 1970, to 40% in 1975, to around 53% in 1980. From these statistics, it is evident that the Saudi national workforce relied heavily on expatriate workers during those ten years and that the percentage of the employed foreign workers nearly doubled from 27% (1970) to 53% (1980). From 2000 to 2005, the expatriate labour force continued to increase, reaching 59% in 2005. As Table 3-2 shows, the Saudi Ministry of Economy and Planning (Saudi Economy in Figures, 2009) and SAMA (Annual report No.43, 2007) estimated the total non-Saudi labour force (about 3-4 million from 2000 to 2007), making up more than half of the total labour force.

	2000	2001	2002	2003	2004	2005	2006 <sup>r</sup>	2007 <sup>p</sup>
<b>Total Population</b> (Millions persons)	<b>20.38</b>	<b>20.91</b>	<b>21.44</b>	<b>21.98</b>	<b>22.53</b>	<b>23.12</b>	<b>23.68</b>	<b>23.98</b>
Saudis	14.83	15.22	15.61	16.01	16.42	16.85	17.27	17.49
Non-Saudis	5.55	5.69	5.83	5.97	6.11	6.27	6.41	6.49
<b>Total Labour Force</b> (Thousand persons) <sup>1/</sup>	<b>6,001.10</b>	<b>6,167.00</b>	<b>6,264.80</b>	<b>6,610.50</b>	<b>7,180.60</b>	<b>7,371.50</b>	<b>7,523.00</b>	<b>7,766.30</b>
Saudis	2,727.50	2,886.90	2,943.50	3,124.60	3,298.20	3,367.20	3,431.60	3,584.70
Non-Saudis	3,273.60	3,280.10	3,321.30	3,485.90	3,882.40	4,004.30	4,091.40	4,181.60
Government Sector	945.7	958.5	945.5	978.1	1,012.40	1,026.10	1,022.30	1,125.10
Private Sector	5,055.40	5,208.50	5,319.30	5,632.40	6,168.20	6,345.40	6,500.70	6,641.20
<i>Notes : <sup>r</sup> revised, <sup>p</sup> preliminary estimates, <sup>1/</sup>CDSI revised estimates, * at year-end.</i>								
Dated: March 22, 2008								

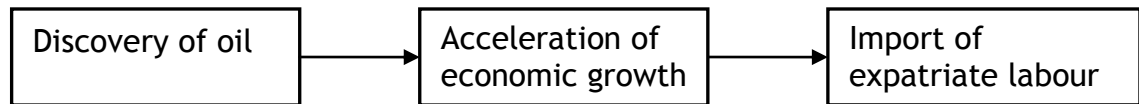
**Table 3-2 Saudi Arabia: Economic Indicators (2002-2007)**

Source: Central Department of Statistics & Information, MOEP/macroeconomic calculations, SAMA – Annual Report No.43, Fourth Quarterly Statistical Bulletin-2006, and MoF 2008 – Budget statement

### **3.4.2 Primary obstacles of indigenous labour supply-demand in the Saudi labour market**

Saudi Arabia has been in transition between tradition and modernity since the process of modernization began in the late 1950s (Wilson, 2006, p.165). From then on, Saudi Arabia has witnessed a rapid economic transformation from a nomadic-trading oriented economy to a modern technological production oriented economy (Mellahi and Wood, 2002). Al-Dosary (2007) and Wilson (2006) explain that the abundant oil revenues generated from the dramatically increased oil price during the early 1970s have provided the foundation for the accelerated economic growth and development of Saudi Arabia. Al-Dosary

(2007), Wilson (2006) and Looney (2004a) regard such huge oil revenues as the key determinant in the acceleration of the Saudi economy. Figure 3-2 shows a model of the transition of economy in the Kingdom of Saudi Arabia from the discovery of oil to its impact on importing foreign labour to support the rapid growth of the Saudi economy.



**Figure 3-2 A Model of oil discovery and expatriate labour import**

Source: devised by the researcher based on the work by Ramady(2005)

The Saudi government, in this sense, utilised the oil revenues as the fund to make a variety of investment to develop the Kingdom into a modernised nation through a range of infrastructure projects. In order to accomplish these large-scale infrastructure projects, an extensive labour force was urgently requested.

However, from the early 1970s to the mid 1990s, Saudi workers lacked the sufficient technical and basic skills to handle these infrastructure projects efficiently and effectively. For this reason, Al-Dosary (2007), Wilson (2006) and Looney (2004a) state that the Saudi government started to import a large number of workers from abroad to help solve the local labour force problem. From then on, skilled expatriate workers started to migrate from their own countries to help to conduct a range of infrastructure projects to develop Saudi Arabia into a modern nation, which initiated the huge influx of foreign labour to serve as the major part of the overall labour force in the Saudi labour market. This massive inflow of expatriate workers resulted in giving the labour supply of the Saudi labour market heavy dependence on foreign labour (around two-fifths of total employment).

On the other hand, as far as the labour demand obstacles of the Saudi labour market are concerned, Mahdi (2007) uses labour segmentation theory with special reference to labour demand, to analyse the Saudi labour force. He points out that a fundamental Saudi manpower problem exists in the Saudi labour market. This problem refers to the education outcome not being responsive to the labour market demand. Mahdi (2007) also points out five factors resulting in

this supply-demand mismatch between education outcome and labour market reality. These five factors are

- 1) attitude towards work;
- 2) professional knowledge;
- 3) both technical and basic skills;
- 4) wage differences between managerial and skilled manual jobs;
- 5) infrastructure requirements in terms of the capability of using modern technology.

As a result, Mellahi and Geoff (2002) argue that faced with continuous high economic growth during the oil boom in the 1970s and early 1980s, the Saudi labour market has faced a shortage of local labour which would support the rapid development in the Kingdom.

In a word, based on the aforementioned propositions by Al-Dosary (2007), Mahdi (2007), Looney (2004a), Wilson (2006), and Mellahi and Geoff (2002), the primary labour demand obstacle that the Saudi labour market has encountered is related to a shortage of skilled Saudi workers and the influx of expatriate labours to support the rapid national development since the oil boom of the 1970s.

### ***3.4.3 Main factors in the Saudi labour force shortage***

As mentioned in the previous section of this chapter, there has been competition between the foreign workforce and the national Saudi labour force since the oil boom in the 1970s. Seen as the major obstacle of Saudi labour market, many empirical labour market studies have addressed an urgent need to solve this shortage of skilled Saudi workers (Looney, 2004e, Fakeeh, 2009, Mahdi, 2007). In order to gain a basic understanding of why Saudi Arabia has been encountering a series indigenous manpower shortage, it is of great importance to explore the characteristics of the Saudi labour market. Thus, based on the synthesis of the characteristics of the Saudi labour market, certain factors may be found to justify this Saudi labour force shortage.

As noted by Sirageldin et al (1984), the Saudi labour market shares certain characteristics with other developing countries in the Gulf region, including:

- 1) a large inflow of expatriate labour force;
- 2) a significant nomadic population;
- 3) a large-scale training programme;
- 4) a relatively large area and a relatively dispersed population;
- 5) minimal institutional rigidities in the functioning of the market.

Among these characteristics, Sirageldin et al (1984) argue that the large-scale-on-the-job training and extensive formal education do not correspond with the labour demand in the private sector, despite the great efforts of the Saudi government's Saudisation policy to resolve the skilled Saudi labour force shortage.

In light of this, Mahdi (2007) points out three major aspects which create a state of mismatch between skills and job requirements:

- 1) little development in education and training before oil was discovered;
- 2) educational objectives irrelevant to labour demand;
- 3) females being restricted in the labour market and in education.

Other economic experts, such as Becker (1975), Rima (1981) and Tachibanaki (1998) also emphasise the significant role of appropriate education and training for employees in terms of the human capital theory, with special references to education. However, although the government has been making great efforts to provide subsidies and facilities for education and training programmes to improve the productivity and skills, the gap is still there. This has led to an issue of national unemployment.

In dealing with this issue, the government initiated a policy, Saudisation, in an effort to replace the foreign workers with a qualified and skilled national Saudi labour force. Mellahi (2007) proposes four key factors that have an important influence on the structure of the labour market in Saudi Arabia. These factors are summarised as follows, based on Mellahi's (2007) analysis of the structure of the Saudi labour market:

- 1) Demographic factors: high population growth with a young population structure under the age of 21 due to high birth rates, with a rise of 3-4 percent annually.
- 2) Economic factors: high dependency on expatriates.
- 3) Psychological factors: negative conventional image of Saudi nationals' work ethics and attitude.
- 4) Socio-cultural factors: social understanding of work in the private sector.

Accordingly, some challenges have arisen relating to the four factors mentioned above.

#### **3.4.3.1 Demographic factors**

Saudi Arabia is amongst the fastest growing countries in the world with regard to its population growth (SAMA, 2003). No comprehensive or accurate census has been taken and there is no way to obtain accurate statistics about manpower data and information on labour market, job evaluation and classification systems, placement activities of employment services, planning institutions and research personnel. For example, according to a report by Looney (2004d), the overall unemployment rate was around 8 percent. However, the unemployment rate among young Saudis was estimated to be anywhere from 15 to 30 percent (Hassan, 2003). The unemployment rate among new graduates (in the age group of 20-24) is even worse—these first-time job-seekers have an unemployment rate of 27 percent for men and 33 percent for women (Hassan, 2003). However, it is difficult to obtain accurate statistics about manpower data in Saudi Arabia; this is because Saudi Arabia traditionally tends to hold a conservative attitude towards making population data or any other forms of statistics about human resources accessible (Foray and Lundvall, 1996).

As Saudi Arabia has a 'young' population structure, unemployment is a major concern for future labour market entrants (Ramady, 2005). In this sense, the first challenge for the Saudi government, as Mellahi (2007) assumes, is an attempt to establish sustainable employment opportunities for rapid growing numbers of young Saudis entering the competitive labour market. This coincides with the statement by Ramady (2005, p.366) that 'the labour force is increasing faster than the available jobs, based on the demographic structure of the Kingdom.' Looney (1991) also suggests three reasons for the number of



‘economically active nationals’ fewer than expected in light of demographic structure in Saudi Arabia. Looney (1991) assumes that these reasons include a youthful population, widespread expansion of tertiary education and reduced labour force participation rate in terms of the small number of women taking up paid employment.

Looney (1991) further indicates the impact of demographic structure on the Saudi labour market distortions in three areas. These areas are the rural/urban population distribution, tradeable/nontradeable sector distortions, and skill mismatches in the labour force. With regard to the rapid rural-urban migration, Looney (2004b) assumes that its rapid development may result in a labour shortage’ in the agricultural sector, large-scale urban unemployment/underemployment, urban bias in the government’s economic policy and large external economies in urban areas.

Furthermore, regarding the second area of Saudi labour market distortions- tradeable/nontradeable sectors distortions, Looney (1991, p.671) proposes that this is because there is too high proportion of the labour force moving into sectors that ‘do not face international competition,’ which leads to damaging a move away from tradeables undermining the resource basis to produce directly productive activities, especially in the manufacturing sectors. This tradeable/nontradeable sector as a factor contributing to the employment pattern in the Saudi labour market is thus evidently seen in government programmes, where an attempt is made to reduce unemployment through public sector hiring (Looney, 1991).

The third area of labour market distortion in Saudi Arabia is that of skill mismatches. Looney (1991, p.672) asserts that the cause of skill mismatches is derived from the government’s ‘quick decision-making’ in expanding the tertiary education level and of sending a great number of Saudi nationals abroad. That is to say, without careful consideration for the implications of this ‘quick decision-making’ on the primary and secondary education, and even technical education, an rapid expansion of the quantity of tertiary education and higher education would be developed as a ‘by-product of spending decision’ (Looney, 1991, p.671). In other words, Looney (1991) makes critical comments about the Saudi government’s decision to expand the quantity of tertiary and higher education,

arguing that the Saudi government should really consider whether it is good to speed up the pace of opening more new universities or to send more Saudis abroad to pursue higher academic qualification in the hope for better-paid, higher-positioned job offers.

#### **3.4.3.2 Economic factors**

Another challenge is the wage difference between local and foreign labour. This was established in a context where there was a shortage of qualified, skilled and competent workers necessary to support the high economic growth during the oil boom in the 1970s and 1980s (Mellahi, 2000, p.332). There are two main reasons for this challenge of the influx of cheap foreign labour. One is that the private sector tends to seek cheap expatriates, especially in 'labour-intensive' and manual occupations (Mellahi, 2007, Madhi and Barrientos, 2003, Mellahi and Wood, 2001), of which most young Saudis are not in favour due to their perceptions of social status associated with the type of work, sector of employment and social interactions at work. The other reason is related to the level of control over the work stability from an employers' perspective (Atiyyah, 1996, Lumsden, 1993, Mellahi, 2007). That is, for private sector managers, there is disparity in work performance between foreign workers and Saudi nationals. Given work permits (valid for one year in Saudi Arabia), expatriate workers are not allowed to attempt to change job, which is often the case among Saudi nationals. On top of this, foreign workers have very little 'bargaining power' vis-à-vis their Saudi employers due to the length of their stay. For these two reasons, employers in the private sector would prefer to import large numbers of foreign workers with low-wages to do manual-based work.

#### **3.4.3.3 Socio-cultural and psychological factors**

Concerning the socio-cultural and psychological dimensions, Sagy (1997) supports the arguments proposed by Super and Bochrach (1957) that young people make their career choice based on psychological, sociological, economic, and situational factors. Among these factors, socio-cultural factors are viewed as the key influence in the decision-making of vocational choices among the young generation (Super and Bochrach, 1957). Super and Bochrach (1957, p.147) further describe the representation of the socio-cultural structure: 'the context

in which each person negotiates his or her identity belief systems and life course including career development.’ Here, one’s identity belief systems is associated with the concept of ‘social status’(Ramady, 2010c, p.369), which is the social and cultural perceptions that young Saudis have with regard to social relations. This means that Saudi nationals have their own identity belief systems (including their social perceptions of work types) in terms of social status, which has an impact on their attitudes towards work from a socio-cultural dimension.

Moreover, the general attitude held by most young Saudis, is that they prefer well-paid white-collar work to enhance their social status (Looney, 1991). Based on his own observations and interviews with Saudi business, employment and social agencies as well as comments made by several Saudi industrial leaders, Ramady (2010c, pp.368-369) summarizes seven Saudisation implementation issues raised by the private sector in light of sociological, economic, psychological and situational factors. They are summarized in Table 3-3:

Issue of concern	Reason for private sector's resistance to this policy
a) Labour cost	<b>The relatively high cost of Saudi manpower, compared to foreign manpower</b> , results in private sector reliance on imported cheap manual labour, deployed in labour-intensive occupations. This helps private sector profitability despite government attempts to increase expatriate costs (Residency or <i>Iqama</i> , visa renewals, etc.)
b) Social and cultural perceptions	<b>Saudis are reluctant to take up and seriously pursue certain types of jobs</b> , despite Saudisation directives. For example, the forced Saudisation of employees in the vegetable markets has failed.  Social status is still important for young Saudis as it affects marriage and other social relations.
c) Control over process of production	Expatriate workers are easier to control and more disciplined than Saudis. Control is exercised through short-term employment contracts. In some cases, there are few legal obligations towards expatriates, who are prohibited from changing jobs without their sponsor's permission.
d) Lack of social integration in multicultural work environment	Local populations are reluctant to integrate into multi-cultural work environments, fearing that it might degrade their existing status.
e) Job tenure	It is more difficult to fire Saudi workers than foreign workers.
f) Inadequate qualifications	Saudi employees may have inadequate qualifications, a lack of good English or a non-technical background.
g) Mobility	Saudi workers are less mobile than foreigner workers; they are reluctant to change job locations.

**Table 3-3 Private sector's resistance to Saudisation: seven issues of concern**

Source: adapted from Ramady (2010c, p.369)

As shown in Table 3-3, it is clearly stated that job type is the main socio-cultural factor contributing to Saudis' unwillingness to taking up the jobs given to them in the private sector under the Saudisation policy. The other socio-cultural factor, as Ramady (2010c) states, is Saudis' attitudes towards the multi-cultural work environment. From the psychological dimension, Ramady (2010c) reports

from his personal observation and interviews that the reluctance to work in a multi-cultural environment results from the fear of devaluing Saudi employees' existing status. In other words, faced with the 'multi-cultural' working environment, Ramady (2010c, p.369) assumes that Saudi employees are afraid of being seen as 'lower status' workers within the company's organisational hierarchy.

In addition, Al-Salamah and Wilson (2001) mention that most of the jobs in the private sector are manual jobs, often considered low status work. Mahdi (2007) also mentions that Saudi graduates would like to have jobs at managerial and administrative levels rather than low-paid technical and vocational jobs. For this reason, Saudi nationals are eager to seek employment opportunities for administrative and well-paid jobs with an excellent welfare system, which affects Saudi individuals' incentives to invest in vocational training for work in the private sector (Mellahi, 2000).

Al-Shareef (1993, p.6) points out that traditions, customs and cultural inheritance exert a great deal of influence on how Saudi nationals value their jobs. Even though current employment opportunities in the public sector are not as many as those created during the 1980s, Idris (2007) and Torofdar (2011, p.2) mention that a large number of Saudis still have a strong preference for obtaining managerial, office-style job positions, as a result of the jobs created using the accumulated wealth generated from the abundant oil revenue in the 1970s. Alnaqbi (2011, p.16) also indicates that similar to other GCC countries, Saudi nationals have a tendency to associate the nature of a job with the social status of individuals. In this sense, this following section will focus on how national culture and religion influences the human resource practices in KSA based on Hofstede's national culture categories:

(A) Saudi society is a high power distance culture.

Saudi nationals show more respect for those who hold a managerial position in the private sector or employment in the public sector (Ghemawat and Reiche, 2011). This can then support the argument by Karoly (2010), mentioning the relationship between low-valued manual jobs and demotivation of commitment towards private sector job titles.

(B) Saudi nationals tend to have low level of uncertainty avoidance.

According to Gopalakrishnan (2002), giving feedback through an intermediary is typical in Arab culture, into which the act of avoiding conflict with colleagues can be regarded as what Hofstede terms 'uncertainty avoidance.' Beer et al (1985) argues that Saudi employers tend to avoid giving candid feedback on employees' work performance since such feedback gives them a feeling of hostility and unfriendliness from their employers. In this sense, Saudi employees have the characteristic of high-level of uncertainty avoidance, where members of a society tend to increase the level of anxiety and threat in facing unknown situations and ambiguity (Ghemawat and Reiche, 2011).

(C) Saudi workers have high level of collectivism in the workplace.

Idris (2007) supports the argument by Hall (2003) who claims Saudi Arabia has a culture of collectivism, in which group work is highly valued. Hall (2003) and Beer et al (1985) indicate that a large number of employers tend to write comforting statements on the work appraisal forms of poor work performers as a compensation strategy for those receiving a low salary. However, Beer et al (1985) argue that this may create the risk of demotivating employees who have higher levels of work performance and encouraging employees with lower performance to remain unproductive as usual.

Furthermore, the impact of national culture on the Saudisation program is evidenced in several literature reviews on the level of organisation commitment, job satisfaction and attitudes towards various aspects of employment in the private sector. For example, Obeidat et al (2012, p.517) argues that religion plays a significant role in shaping every aspect of Arab behaviour. Since Islam put great emphasis on honesty, loyalty, flexibility and trust, Mellahi and Wood (2002) indicate that core values of work ethics in any sector needs to be carried out in an Islamic way. Ali and Al-Owaihan (2008) further point out that Islamic work ethics can shape Arab employees' job satisfaction level as well as the appropriate attitudes towards monetary and non-monetary rewards given by their employers. Similarly, Yousef (2001) assumes that there is a close association between work ethic and organisational commitment in Saudi society, which leads to low-level of Saudi workers' commitment towards work.

To sum up, while Saudi Arabia has made great efforts to improve the national economy through a series of five-year development plans, the foremost objective for the government to achieve is to convert income flow, which mostly comes from oil production revenue, into a 'stock of wealth'. Here, as Chenery (1979) states, the term 'stock of wealth' is a significant one, as it comprises several crucial factors: infrastructure, capital goods, technical skills and 'quality' education output. All of these factors (particularly the focus on education and employment) aim to some degree to contribute to a nation's stock of wealth, and if nurtured, could produce a more sustained economic growth in Saudi Arabia in the future. According to a report by The Economist (1997a), it is assumed that in comparison with skilled foreign workers, Saudi nationals generally demand a salary about six times higher but they do not work as hard as those skilled expatriates. Therefore, Mellahi and Wood (2002) indicate that most private sector employers have a negative stereotype of Saudi workers as having reluctant, lax and irresponsible work ethics.

In brief, given these factors in relation to the structure of labour market conditions in Saudi Arabia, it is clear that if Saudi Arabia is to become independent from expatriate workers and improve productivity throughout its economy, a pool of national skilled, disciplined and productive workers has to be created.

### 3.5 Summary

This chapter analyses the labour supply-demand situation of the Saudi labour market in terms of three labour market theories: classical, neoclassical and segmentation. On one hand, the core Saudi labour supply issue arose from the Saudi government's efforts to implement Saudisation in the private sector, which plays a leading role in the diversification of Saudi economic activities. According to studies on the Saudi economy by several major researchers, such as Ramady (2010f), Al-Dosary (2009), and Looney (2004b), Saudi Arabia has witnessed an influx of expatriate workers from abroad since the oil boom in the 1970s to act as the major labour force to proceed a range of infrastructure projects throughout the Kingdom. Perceived as operating a 'rentier' economy with respect to the largest exporter of crude oil in the Middle East, Al-Rajhi (2004) and Niblock and Malik (2007) point out that as oil revenues have a great effect on the orientations of all significant economic development in Saudi Arabia, the Saudi labour market requires productive worker; instead, the reality shows the opposite. In this respect, Beblawi (1990, p.88) proposes the concept of 'rentier mentality' to describe the typical Saudi worker's attitude toward work, i.e. 'performing no serious work.' This characteristic of Saudi workers may partly justify why private sector employers favour skilled expatriate workers over Saudi nationals. In a word, the main labour supply issue the labour market of Saudi Arabia has encountered is a skilled Saudi labour force shortage with regard to salary demands, workforce participation rate, and geographic mobility.

The implementation of Saudisation in the private sector is intended to resolve the persistent high unemployment rate among the fast-growing young Saudi population. However, it is a recurring issue addressed by researchers (Ramkumar, 2010a, Mahdi, 2000, Sulimani, 2006, Khan, 2008) that the acquisition of human capital, such as technical skills, generic skills, professional knowledge, and work attitudes among young Saudis is perceived as dissatisfying, inadequate, insufficient and irrelevant to the labour market needs in the private sector. The priority of the private sector is always to seek the maximum profit gained through a high level of productivity from the skilled labour force without of making an equivalent level of investment in human capital to achieve this goal. In this sense, the demand side of the mechanics of the labour market in the private sector in Saudi Arabia comprises the following features:



- 1) the disparity of wages between expatriate and local workers;
- 2) poor job vacancy information and inadequate job access;
- 3) a mismatch of the perceived orientations of vocational educational training between technical education and private manufacturing enterprises;
- 4) the disparity of productivity and job performance between expatriate and local workers.

To sum up, based on the definition of the labour market mentioned at the beginning of this chapter, the researcher assumes that the arrangement between employers in the private sector (buyers) and Saudi employees (sellers) in the present Saudi labour market context is regarded as distorted due to a number of determinants: wage, productivity, human capital investment and training (skills, knowledge, and work ethics), employment, workforce participation rate in the labour market and the orientations of vocational educational training.

# Chapter 4 A Conceptual Framework of Knowledge-Based Industrial Education in Saudi Arabia

## 4.1 Introduction

Upgrading the education and skills of the domestic labour force is considered to play a crucial role in the process of making the economic transformation from industrial-led activities to a knowledge-based economy. Education may be viewed as a process of attaining knowledge, which is commonly defined as the accumulation of concepts and facts in formal educational settings such as schools, universities, technical colleges and the like (Morrison, 1995,p.260). This statement agree with what Harris (1979) claims and with the World Bank 2003 report (2003): that the central concern of education is the transmission of knowledge. According to the World Bank 2003 report (2003), enriching the quality of education through advancing in knowledge also plays a significant role in a nation's economy. Based on the World Bank's(2002,p.7), statement Spring (2009,p.37) mentions the role of knowledge as the most important factor in a nation's economic development.

In this regard, a highly trained, skilled and well-educated workforce is considered essential in the face of the forces of the global economy and rapid advancing technological changes (Guile, 2006). As noted by Aubert and Reiffers (2003), such a workforce is assumed to meet the goal and purposes of vocational education and training in any country that attempts to progress, prosper and remain competitive in the global economy. As a result of this concept, Education for the Knowledge Economy (EKE)<sup>11</sup> is necessary. The aim of EKE is to help developing countries equip themselves with highly skilled and flexible human capital resources<sup>12</sup> capable of competing effectively in the global economy (Farrell and Fenwick, 2007).

In light of this significant role of knowledge in the era of knowledge-based economy, the Saudi government clearly states that one of the major objectives in the Eighth Five-Year Development Plan (Ministry of Economy and Planning, 2005) is to upgrade the quality of education at all levels (from primary to higher

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<sup>11</sup> This term is proposed by the World Bank (2003)

<sup>12</sup> This refers to employees in the workplace.

education) with an particular emphasis on the ability to produce and use knowledge (both theoretical and applied). That is, the Saudi government endeavours to prepare the Kingdom for competitiveness and sustainability development by instilling in the minds of the Saudi workforce a framework of knowledge-based economy to be utilised to its utmost in the workplace. For example, Jones (2007) makes the critical comment that there is a surging demand for technical and vocational education (particularly subjects related to manufacturing industry) from private sector employers that could create an invaluable opportunity to develop a workforce that is well-trained and capable of generating knowledge-driven economic growth in Saudi Arabia.

In brief, the aforementioned issues generate the orientation of this chapter: the application of a knowledge-based economy framework to prepare Saudi industrial education graduates for the knowledge-based manufacturing workplace.

Figure: 4-1 outlines the structure of this chapter.

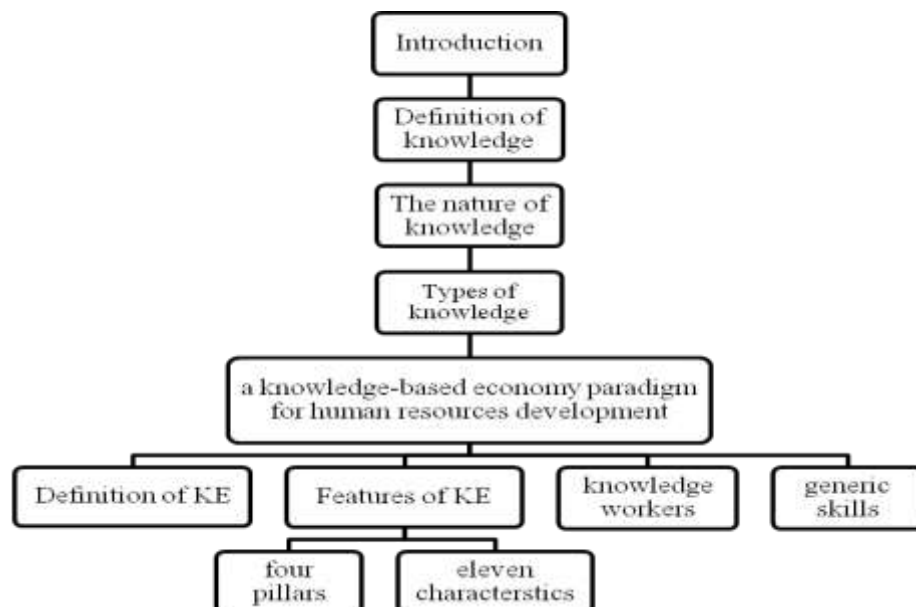


Figure 4-1 The structure of Chapter 4

## 4.2 Defining Knowledge

As mentioned in the previous section, knowledge plays a crucial role in a country's economic growth and national development in the current era of the knowledge revolution. For this reason, it is necessary to obtain an understanding of why knowledge should be taken into a great deal of consideration as a key determinant of human capital to be developed in the workplace by reviewing various ways of defining this term.

In its broadest sense, the online Cambridge Dictionary defines knowledge in two ways: knowledge as 'awareness' and knowledge as 'understanding of or information about a subject which has been obtained by experience or study, and which is either in a person's mind or possessed by people generally.' In understanding the concept of knowledge, Biggam (2001, p.2) uses the definition of knowledge given by the Concise Oxford Dictionary, which regards knowledge as 'awareness or familiarity gained by experience (of a person, fact, or thing).' In these two definitions, knowledge is related to the cognitive domain in people's mind (know-how) and can then account for implicit learning, in which learning takes place unintentionally and unconsciously (Shanks, 2005).

Furthermore, Ward (1998, p.65) defines knowledge as 'knowing that' and 'knowing how.' 'Knowing that' refers to facts and information, which people are able to express exactly, whereas 'knowing how' deals with the ability to do something, which people are not able to express exactly. The concept of 'knowing that' can account for explicit learning, where information and facts are accessible; on the other hand, the notion of 'knowing how' accounts for implicit learning, in which people learn things without awareness (Mathews et al., 1989, p.1084). From a cognitive perspective, people acquire two types of knowledge in learning: one is explicit knowledge and the other is implicit knowledge. How students can internalise the notions of 'knowing that' and 'knowing how' is related to the role of education in skills acquisition. Bearing this in mind, in a knowledge-based economy or the so-called knowledge society, it is of great importance for a country to produce skilled knowledge workers who are capable to internalise the rapid updated flow of information in their minds and develop their ability to the given tasks when entering the workplace (The World Bank and European Training Foundation, 2005, World Bank, 2003).

Based on the aforementioned definition of knowledge, knowledge plays a significant role in accelerating a nation's economic growth. This role, as acknowledged by Eliasson (2001), is manifested by the extent to which workers apply both explicit knowledge and implicit knowledge to the given job tasks to contribute to productivity expected in the workplace.

## 4.3 The Nature of Knowledge

### 4.3.1 *Idealism*

Chen (1999) claims that there is a ‘mutual promotional circle’ relationship between education and knowledge, in which education is heavily based on knowledge (e.g. educational theories) and knowledge is transmitted in education (educational practices in this case). As was noted by Rheault (2008), idealism, perhaps the oldest system of philosophy, concerns the extent in which the existence of objects (or so-called physical reality) are perceived in the mind of human beings. Expanding Rheault’s interpretation of idealism, Morrison (1995, p.17) further explains two features that shapes human’s perceptions of the national world: ‘physical matter’ and ‘ideals.’

On one hand, Morrison (1995, p.17) elaborates the notion of ‘physical matter’ or ‘physical reality’ by stating that knowledge can only be understood and elucidated by a sense of perception. Applying Morrison’s interpretation of this notion to the Saudi secondary industrial educational context, trainees acquire their ‘practical’ knowledge (i.e. build up their awareness of the process of production line in the workshop) when they enter the ‘field’ to observe workers operating machines in the workshop. This example provides a clear picture of Morrison’s interpretation of ‘physical matter,’ as Dancy et al.(2010, p.28) regard observation as one type of ‘sense perception.’ In this way, trainees may acquire more workplace practices through fieldwork observation to update their knowledge.

On the other hand, Morrison (1995, p.17) continues to explain the notion of ‘ideals’ or ‘human reality,’ by stating that obtaining an understanding of the reality of the natural world entails principles, standards, ideas and ethics. That is, the notion of ‘ideals’ refers to ‘theoretical’ knowledge (i.e. educational theories). Again, applying this interpretation by Morrison to secondary industrial education in Saudi Arabia, trainees acquire a range of theories about the menial workplace (e.g. manufacturing industry, construction industry) through textbooks written by experts with years of experiences in the industry.

In brief, according to Rheault (2008), the underlying assumption of idealism takes a position that knowledge takes place within the mind and that the mind is active and contains innate capacities for organising and synthesizing the information derived through sensations. In other words, from an idealist perspective, it is suggested that trainers of Saudi secondary industrial education provide opportunities for trainees' minds to discover, analyse, unify, synthesise and create applications of knowledge to life and behaviour by stimulating interest in the subject content (Brownhill, 1983).

### 4.3.2 Empiricism

Among the ancient philosophers, Aristotle is believed to be the founder of the empiricist tradition and he views knowledge as 'something generated by, and residing inside, an observer' (Matthews, 1992, p.302). Aristotle's view of knowledge lays the foundation of empiricism: knowledge of the world must be based on observation and sense perception (Morrison, 1995). As noted by Williams (1975) and Hirsch (1988), both John Dewey and Karl Popper developed their own theory of knowledge based on Aristotle's proposition. William (1975, p.310) comments that Karl Popper developed a *theory of objective knowledge* by arguing that 'knowledge is not only based on observation; the conception of knowledge is not reducible as experience. Regarding John Dewey's view on knowledge, Hirsch (1988, p.4) comments that

[...]knowledge had to be discovered and that therefore a theory of inquiry had to be the cornerstone of any theory of science[...]the discovery of scientific knowledge involves a continuous process whereby observation and hypothesizing closely interact at every stage of an investigation[...] (Dewey, 1938, cited in Hirsch, 1988, p.4)

In other words, the basic notion of empiricism is that knowledge provided to individual's mind arises from the senses or the experiences of introspective awareness (Markie, 2008). A similar argument on empiricism in relation to the educational context is made by, claiming that knowing (the theory of knowledge) is only dependent on the observations of experience and experiment for their knowledge of reality. Linking this empiricist view on knowledge to the enhancement of Saudi secondary industrial education to prepare Saudi graduates for the workplace in the knowledge-based economy, trainers are meant to encourage trainees to build up their ability of discovery through observation to

shape their practical knowledge-one of the key requirements of employment in the private sector.

### **4.3.3 Positivism**

Positivism, the third type of knowledge theory, was developed in the middle of the nineteenth century by a philosopher, Auguste Comte (Morrison, 1995). In essence, Comte claims that positivism uses the methods of the natural sciences-scientific methods-to develop knowledge at the highest stage through observation and description (Morrison, 1995). Positivism emphasises two important ideas of developing knowledge:

- 1) the reliability of observation as a basis for a theory of knowledge;
- 2) the search for factual regularities, which are considered to be the way of forming general laws.

In other words, positivism is premised on the natural sciences, and takes the position that knowledge is gained through the search for universal truths and objective investigation in terms of the formulation of general laws (i.e. law-like regularities) (Morrison, 1995). In this sense, students gain practical knowledge through observation and experimentations to generalise law-like regularities.

In order to obtain a better understanding of the three paradigms in terms of the underlying proposition on knowledge, Table 4-1 summarises this researcher's own reflections on some researchers' interpretations and proposals for applying these to the TVET context in the knowledge-based economy.



	<b>Idealism</b> <b>(Cohen, 1999)</b>	<b>Empiricism</b> <b>(Lipton, 2001)</b>	<b>Positivism</b> <b>(Peca, 2000)</b>
<b>Belief</b>	Knowledge is a process of discovery.  The mind is the most important part of human.	Knowledge is based on experience, which is composed of conscious awareness (i.e. sense experience) and a series of events people go through to gain some learning (i.e. job experience).	Scientific knowledge arises from positive affirmation of theories through strict scientific methods.
<b>Educational emphasis</b>	Developing the mind, personal discipline and character development  Encouraging critical thinking  Promoting cultural learning  Providing character development: creativity and self realization / direction (Nonaka and Toyama, 2005, p.421)	The role of experience and evidence in the formation of ideas;	Discovering the uniform relations existing between phenomena  positive knowledge means real, useful, certain, undoubtful and exact
<b>Educational methods</b>	A comprehensive, systematic and holistic approach  e.g. project-based learning (self-directed learning)  work-based learning	Scientific method—all hypotheses and theories can be tested against observation  e.g. experiential learning (Georgiou, 2006, Georgiou et al., 2008) competence-based learning (Halliday, 1996);  evidence-based activities (Sheridan, 2008, p.14)	Asking ‘how’ questions  the method of observation is employed to find out the invariable relationship between facts  the method of experimentation is utilised to discover the natural laws
<b>Relevance to knowledge-based TVET &amp; Knowledge worker</b>	Creativity, critical thinking, self realization and discovery, decent work attitudes, problem-solving	Apprenticeship (Kolb and Kolb, 2009)	Creativity, critical thinking, self realization and discovery, decent work attitudes, problem-solving

**Table 4-1 A comparison of three paradigms on knowledge and their implications on TVET**  
Source: devised by the researcher based on Cohen(1999), Lipton(2001) and Peca (2000)

## 4.4 Types of Knowledge

In general, there are two types of knowledge in terms of the level of clarity (Edvinsson and Malone, 1997, Polanyi, 1967). The first type of knowledge is explicit knowledge, which can be easily articulated and expressed in words and numbers. The most common forms of explicit knowledge are represented by data, documents (both in print and electronic), scientific formulae, product specifications, manuals, and so forth (Edvinsson and Malone, 1997). In identifying the use of explicit knowledge in the workplace, Smith (2001) further suggests that explicit knowledge can be acquired in the form of observation, reading or group discussion.

On the other hand, tacit knowledge, according to Polanyi (1967), is implicit and not easily articulated. Pathirage *et al* (2007), Bordum (2002), and Nonaka and Takeuchi (1995) claim that this type of knowledge is highly personal, context-specific and difficult to formalise and communicate. Brătianu and Orzea (2009), Wasonga and Murphy (2006) and Anderson (2004) further contend that people acquire this type of knowledge in a range of forms, such as experiences, subjective insights, intuitions, ideals, values or emotions.

As argued by Dual *et al* (2008, p.75), tacit knowledge can be developed as 'professional knowing' through work experience. Such an argument can be seen in the internship study by Wasonga and Murphy (2006), which suggests that tacit knowledge can be created during the process of internship in terms of its advantage of providing trainees a meaningful workplace context to accumulate experiences, skills and knowledge. In the light of this, in the workplace, for example, new employees begin to build up tacit knowledge when joining a new company. Ngah and Jusoff (2009), Pathirage *et al* (2007) and Alwis *et al* (2004) illustrate the two dimensions of tacit knowledge in the workplace- technical and cognitive which are based on the proposition of knowledge creation as a self-transcendental process by Nonaka and Konno (1998). The 'technical' dimension deals with procedural knowledge, which encompasses informal skills as 'know-how from years of experiences in the profession' (Meyer and Sugiyama, 2007, p.26). For example, five-star hotel chefs develop a wealth of expertise after years of experiences in the culinary field, but they often have difficulty articulating the technical or scientific principles of their art. The other

dimension of tacit knowledge concerns the cognitive domain in people's minds. This dimension of tacit knowledge consists of beliefs, perceptions, ideals, values, emotions and mental models, all of which people usually take for granted and cannot be articulated very easily (Smith, 2001, Haldin-Herrgard, 2000).

Furthermore, Nonaka *et al* (2001) expand on the four modes of knowledge creation proposed by Nonaka and Takeuchi (1995, pp.63-69), which originated from the ideas of explicit and tacit knowledge. The four modes of knowledge creation are illustrated as follows:

	To tacit	To explicit
From tacit	Socialisation	Externalisation
From explicit	Internalisation	Combination

**Table 4-2 Four modes of knowledge creation**

Source: Nonaka and Takeuchi (1995, pp.63-69)

- 1) **Socialisation:** from tacit to tacit. In this process, people share experiences with others to create tacit knowledge, such as shared mental models and technical skills. This also includes observation, imitation, and practice (Nonaka et al., 2001). Applying the basic viewpoint of this process to the industrial education classroom activity, Daud et al (2008) suggest that this process can be facilitated in the form of informal discussion to generate initial ideas of a work-based project among students or with the lecturer.
- 2) **Internalisation:** from explicit to tacit-embodiment explicit knowledge in tacit knowledge. In classroom settings, Daud et al (2008, p.76) consider this process closely related to "learning by doing." Based on the viewpoint of internalisation by Nonaka and Takeuchi (1995), they (Daud et al., 2008, p.76) suggest that it is beneficial and of great help for students to internalise knowledge by producing notes, telling stories or drawing diagrams on the particular subject under investigation. That is, the learning method for internalisation is associated with verbal and diagram and knowledge and is acquired from documents.
- 3) **Externalisation:** from tacit to explicit. Nonaka et al (2001) explain that this process is to articulate tacit knowledge into explicit concepts through metaphors, analogies, concepts, hypothesis, or models.
- 4) **Combination:** from explicit to explicit. This is a process of systemising concepts into a knowledge system and information is reconfigured by such means as sorting, combining, and categorizing. An empirical study conducted by Lwoga et al (2010) indicates that formal education and many training programmes work in this way.

## 4.5 Human resource development: a knowledge-based economy paradigm

### 4.5.1 Definition of a knowledge-based economy

*'Knowledge has always been the source of economic development.'*

*(World Bank Forum, 2003)*

The above quote is from the World Bank Forum paper entitled 'Knowledge Economies in the Middle East and North Africa: Toward New Development Strategies' by Aubert and Reiffers (2003) and gives a clear and concise explanation of a 'knowledge-based economy'. In basic terms, according to the definition by the OECD (1996b), the concept of the 'knowledge-based economy' refers to knowledge and information as the integral components of generating competitive advantage for an economy. Knowledge is thus linked with the effectiveness of productive effort for economic growth (Foray and Lundvall, 1996). In other words, a knowledge-based economy has three main features in terms of productivity and economic performance: learning, technology, and information (Dunning, 2000).

In addition, knowledge and technology are the core elements in a knowledge-based economy, and they are considered to be the 'driver for the productivity and economic performance' (OECD, 1996b, p.3). According to the OECD report analysis (1996a), knowledge is transmitted through communications and computer network systems, which shows a relationship between knowledge and technology in the knowledge-based economy. In brief, the term 'knowledge-based economy' refers to how knowledge (perceived as the intangible asset of intellectual resources) is transmitted and learned through the use of technology, which leads to productivity and economic growth in modern economies (Harrison and Kessels, 2004).

#### ***4.5.2 Four Pillars and Eleven Characteristics of Knowledge-based economy***

As mentioned in the previous section, knowledge is perceived as the most intangible asset of intellectual resources to be applied continuously in the knowledge-based economy. This means that knowledge instead of the interactive potential of capital, labour and material is maximised in the form of continuous application to work processes, products and services to gain the critical added value in a knowledge-based economy (Harrison and Kessels, 2004).

Generally speaking, knowledge is regarded as a factor of production in the era of the knowledge-based economy, as were land and human capital in the previous two periods of revolution. In order to obtain a better understanding of how different this new type of economy is from the two previous economies (i.e. the agricultural economy and industrial economy), Lengnick-Hall and Lengnick-Hall (2002, pp.21-27) summarise eleven characteristics proposed by some leading authorities (Tapscott, Burton-Jones and Baird & Henderson) in the field of the knowledge-based economy (Table 4-3).

No.	Characteristic of KE	Leading KE thinker	Definition
1	<b>Symbolic goods/ Digitisation</b>	Tapscott (1996) Burton-Jones (1999)	A firm's knowledge resources must include the ability to create and manage goods through the technology utilisation of electronic symbols.
2	<b>Demassification</b>	Burton-Jones (1999)	A firm must be able to manage a workplace that is dispersed with a combination of labour, materials and money, on which the industrial economy rely to produce goods and services.
3	<b>Boundaryless enterprise/ Globalisation</b>	Tapscott (1996) Burton-Jones (1999)	A firm must be able to manage workflows that take place 24/7/365.
4	<b>Virtualisation</b>	Cortada & Woods (1999)	A firm requires a contingent workforce; meanwhile, it also builds contractual relationships with its suppliers and distributors to gain benefits of increased flexibility and breadth of resources.
5	<b>Connectedness/ Unprecedented partnering/ Integration- internetworking</b>	Botkin (1999)	A firm must develop new skills for knowledge management activities that capitalise on their expanded reach in the form of a talent pool, which refers to relationship marketing and individually targeted advertising (i.e. a unique "personal" impersonal relationship).
6	<b>Disintermediation</b>	Tapscott (1996)	The elimination of the intermediaries <sup>13</sup> in economic activity
7	<b>Convergence</b>	Baird & Henderson (2001) Botkin (1999) Tapscott (1996)	Bringing together different economic sectors to create new products and services
8	<b>Personalisation/ Mass customisation/ Prosumption</b>	Baird & Henderson (2001) Botkin(1999) Tapscott (1996)	Consumers take an active role in the production process as their knowledge, information, and ideas become part of the product specification process.
9	<b>Dynamic pricing</b>	Baird & Henderson (2001)	Pricing decisions change based on time and place as products and services are constantly updated and shifted.
10	<b>Immediacy</b>	Baird & Henderson (2001)	Business is transacted in real

<sup>13</sup> Mark L. Lengnick-Hall and Cynthia A. Lengnick-Hall discuss in their book (entitled *Human Resource Management in the Knowledge Economy: new challenges, new roles, new capabilities*, 2002: 24) this notion from the HR (Human Resource) delivery system perspective, stating that this term refers to the role HR middlemen play in business transactions between managers and employees of an organisation or between producers and consumers.

		Botkin(1999) Tapscott (1996)	time. Firms must be agile, resourceful, and adept at interpreting events and making sense of the environment 'on the fly.'  Product life cycles become shorter.
11	<b>Customer communities</b>	Baird & Henderson (2001) Botkin (1999) Tapscott (1996)	Customers talk with other customers on local and global bases. Thus knowledge sharing takes place both among organisations and among customers, which means that firms must learn how to influence individuals and ideas in their environment with greater adeptness and subtlety.

**Table 4-3 Eleven Characteristics of a Knowledge Economy**

Source: Lengnick-Hall and. Lengnick-Hall. (2002, pp.22-23)

Aubert and Reiffers (2003) in their paper at the World Bank Forum on Knowledge for Development in the Middle East and North Africa offered a conceptual framework to assess knowledge-based development strategies. This framework suggests four pillars (i.e. education, infrastructure, innovation, and economic/institution) with an attempt to develop a knowledge-based economy (Aubert and Reiffers, 2003). In each pillar, there are key elements to be taken into account when any developed or developing country attempts to produce a strong and competitive workforce in the global economy (OECD, 1996a). These pillars can, thus, become the 'drivers' for facilitating economic activities at all levels (for example, the infrastructure and the system of vocational education and training) in any developed or developing country in the world.

Table 4-4 below illustrates the four requirements for the development of a knowledge-based economy, according to the World Bank (Aubert and Reiffers, 2003). Auber and Reifers (2003) assert that the education pillar may be highly associated with the significant role of vocational education and training in the economic development of any developed or developing country. This argument can be justified from its key elements, such as encouraging early learning of other major international languages and enhancing the literacy rate, both of which are claimed to be major challenges for every Gulf state's economic growth (Rincon, 2005). Moreover, the use of ICT within the infrastructure pillar is also considered to be the key constituent of a knowledge-based economy. In other words, these two pillars-the education pillar and the infrastructure pillar-

have the greatest impact on the cultivation of a knowledgeable and competitive workforce.

Pillar	Key Elements
<b>Pillar 1 – The economic and institutional pillar</b> This pillar provides incentives for the efficient creation, dissemination, and use of knowledge to promote growth and increase welfare.	competitive environment financial markets labour markets safety nets legal systems overall governance climate
<b>Pillar 2 – The education pillar</b> This pillar can create and use knowledge.	enhancing literacy rate and strengthening population's identity and by extensive 'arabization' of education early learning of other major international languages systems of lifelong learning encouraging women's education enrolment rate
<b>Pillar 3– The innovation pillar</b> This pillar is composed of firms, research centres, universities, consultants, and other organisations that can tap into the growing stock of global knowledge, adapt it to local needs, and transform it into products valued by markets.	R&D- research and development within effective interaction between institutions of science and education and the business world
<b>Pillar 4– The infrastructure pillar</b> This pillar can facilitate the effective communication, dissemination, and processing of information	Telecommunications The use of ICT (e.g. computers, Internet access )

**Table 4-4 Four pillars of knowledge-based economy**

Source: Auber and Reiffers (2003, pp.2-4 & 9)

### ***4.5.3 The concept of Knowledge Worker and its application to the TVET context***

With the impact of globalisation, the flow of information exchange has expanded so rapidly that knowledge has become more and more important within this information and communication revolution era (Salmi, 2002). Brown (2001) asserts that the knowledge and skills of the workforce are considered to be two vital factors contributing to global economic competitiveness. With respect to competitiveness in the global economy, Porter (2002) and Porter et al (2000) explore the relationship between productivity and competitiveness, and assume that a nation's competitiveness is defined by its productivity. Swedberg (1996) also indicates that the significance of knowledge and skills as a factor in raising productivity plays a role in a country's source of wealth.



As Drucker (2002) argues, knowledge workers may be considered as ‘capital’ instead of ‘labour’, as this type of worker makes knowledge-based industries productive by utilising specialised knowledge effectively. Unlike blue-collar workers (also known as manufacturing workers) in an industrialised society, knowledge workers as those who are ‘information specialists’ equipped with the ability to ‘maintain and expand the technological leadership role in the knowledge society (Brinkley, 2008, pp.27-28) .’ For example, researchers in the field of knowledge management identify knowledge worker ‘gold-collar’ workers in terms of their professional specialty such as information system designers, information specialist librarians or ICT teachers (Bender, 1998, McGinn and Raymond, 1997). In addition to this definition, Brown (1999) describes what a knowledge worker is based on another three criteria (Table 4-5):

- a) professional specialty;
- b) characteristics;
- c) skills and abilities

Criteria for defining knowledge workers based on	
Professional specialty (Bender, 1998, McGinn and Raymond, 1997)	<ul style="list-style-type: none"> <li>• lawyers / doctors / programmers / teachers / scientists</li> </ul>
Characteristics (Mohanta et al., 2006, Brown, 1999)	<ul style="list-style-type: none"> <li>• can analyse, synthesise and evaluate information</li> <li>• use that information to solve problems of variable content</li> <li>• possessing factual and theoretical knowledge</li> <li>• finding and accessing information</li> <li>• motivation</li> </ul>
Skills and abilities (Mohanta et al., 2006, Munk, 1998)	<ul style="list-style-type: none"> <li>• are highly educated, creative and computer literate</li> <li>• have mobility (i.e. have portable skills that make it possible for them to move anywhere their intelligence, talent and services are needed)</li> <li>• communication skills</li> <li>• ability to apply information</li> <li>• intellectual capabilities</li> </ul>

**Table 4-5 Definition of ‘knowledge worker’**

Source: devised by the researcher based on the works by the researchers mentioned above.

In this sense, Jayne (2006) proposes that knowledge workers, perceived as the means of production in a knowledge-based economy, play a crucial role in helping knowledge-based industries/organisations to maintain a competitive advantage in the global economy.

Furthermore, Allee (1997, p.71) describes knowledge workers as people who are ‘continually learning and aware of the limited shelf life of knowledge.’ This gives a central theme for designing an updated and innovative knowledge-based curriculum for vocational education and training, which consider to prepare students and unskilled workers with the required technical and cognitive skills for ‘knowledge’ work to be in the hands of education (Boutwell, 1997).

In brief, as indicated by Mohanta et al (2006), the global knowledge-based economy brings great challenges to work-related education<sup>14</sup>. Mohanta et al., (2006,p.78) further suggest that industrial workers during the industrial revolution had to be retrained through a well-designed vocational education and training curriculum to be knowledge workers, who could use ‘their intellect to convert their ideas into products, services, or processes’ in the knowledge revolution. Farrell and Fenwick (2007, p.14) asserted that ‘education is a key driver of economic transformation and growth’; therefore a knowledge able workforce in the labour market of any developed or developing countries may be developed through this knowledge-based vocational education and training curriculum to contribute to a nation’s economic growth and prosperity.

### **4.5.4 Generic skills**

In the process of globalisation, Brown (2001) points out that a workforce equipped with knowledge and skills plays a key role in global economic competitiveness. Brown (2001) also suggest that there is a close link between skills and productivity. The skills of workers are thus viewed to have a positive influence on productivity and economic growth. In this sense, the role of skill education and training of workers is important in the process of building a ‘high skills society,’ a term proposed by Brown (2001, p.3). In order to be competitive in the global economy, Kazamias (2009, p.1081), in agreement with the argument by Castells (1998, p.345, cited in Brown, 2001, p.1), states that investment in education and learning for all people is suggested to benefit the future economic growth of the country from the impact of a global labour market by upgrading the ‘marketable’ skill base.

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<sup>14</sup> This refers to the spaces and activities intentionally planned to mobilise particular practices, behaviours and ideas related to paid work).

In a high skills society, Brown (2001, p.3) suggests that building 'societal capacity' has an impact on high skill formation. Under the impact of globalisation, there is an increasingly high demand for generic skills in the workplace of developed and developing countries that intend to pursue to have knowledge workers in the competitive global economy. Generic skills are considered to be of great importance in the workplace due to the fact that they are service-oriented and that jobs available are task-based (Callan, 2003).

The generic skills set most commonly adapted internationally as a guideline for vocational education and training purposes is that designed by the Australian Chamber of Commerce and Industry & Business Council of Australia. The Australian government began to focus on developing generic skills in the 1980s and the establishment of generic skills in Australia first appeared in the Mayer Committee report (Australian Education Council, 1992). In this report, the Mayer committee not only clearly defines what generic skills or key competencies refer to but also articulates six principles of proposed skills to serve the purpose of meeting the high demand for generic skills in the workplace in Australia (Australian Education Council, 1992). Generic skills or key competencies are defined by the Mayer Committee report as

[...] competencies essential for effective participation in the emerging patterns of work and work organisation. They focus on the capacity to apply knowledge and skills in an integrated way in work situations. Key competencies are generic in that they apply to work generally rather than being specific to work in particular occupations or industries. This characteristic means that the key competencies are not only essential for participation in work, but are also essential for effective participation in further education and in adult life more generally. (Australian Education Council, Mayer Committee, 1992, p.7, cited in NCVER, 2003, p.4)

In other words, based on the above definition by the Australian Education Council, the generic skills or key competencies refer to the skills or competencies that are 'essential' for participation not only in the workplace but also in educational settings with life-long learning-oriented.

Moreover, as proposed by an OECD report (1996b), the world has become an 'information society,' in which the transmission of knowledge is conducted in the form of communications and computer networks. Based on the OECD's

position on the generic skills in a knowledge-based society, the Forfás Expert Group lists a range of generic skills (this version is identified by the above mentioned NCVER) essential for the knowledge-based workplace and is represented in Table 4-6.

Basic/fundamental skills	People-related skills	Conceptual/thinking skills
<ul style="list-style-type: none"> <li>• Literacy</li> <li>• Numeracy (using numbers)</li> <li>• IT (using technology)</li> <li>• Science literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Communication (written)</li> <li>• Communication (interpersonal)</li> <li>• Team-working</li> <li>• Customer-service skills</li> <li>• Broader citizenship skills (self-awareness / negotiation / networking)</li> <li>• Enterprise skills (commercial awareness)</li> <li>• Professional development</li> <li>• Negotiation</li> <li>• Adaptability</li> <li>• Flexibility</li> <li>• Leadership</li> </ul>	<ul style="list-style-type: none"> <li>• Collecting and organising information</li> <li>• Problem-solving</li> <li>• Planning and organising</li> <li>• Learning-to-learn skills</li> <li>• Innovatively and creatively</li> <li>• Systems thinking</li> <li>• Decision-making</li> <li>• Creativity</li> </ul>

**Table 4-6: Generic skills**

Source: devised for this research based on Forfás Expert Group on Future Skills Needs (2007,p. 26)

In brief, generic skills are the non-technical skills that are highly associated with employability and such skills can be applied across a variety of system domains, for example, work productivity, and community life (Callan, 2003). Since the term originates from the word “general”, Moy (1999) notes that generic skills refer to the overarching skills, qualities, knowledge, abilities and traits that a person should possess in order to succeed in his or her education and career. With such skills, Cornford (2006) asserts that graduates are able to contribute effectively to solving problems, communicating effectively, thinking creatively and functioning effectively in teams or groups.

## 4.6 Summary

The key to knowledge economy development lies in education, where individuals learn how to use knowledge through formal educational training. Currently, the global economy, also known as a high-skills economy (Farrell and Fenwick, 2007) has replaced physical labour with mental labour as the basis of economic productivity in most developed and developing countries. Ramady (2010b, p.396) States that the relationship between knowledge and economic growth is, ‘a process of knowledge accumulation is equally viewed as a process of capital accumulation.’ That is to say, in the current global economy, any countries (particularly developing countries) willing to allocate fund to national educational projects in ‘knowledge-based intangibles,’ i.e. training, research and development, patents, licensing and design, should be emphasised more strongly in any labour market, where there is a gap between labour demand and the quality of its supply (Ramady, 2010b, p.416).

Ramady (2010b) mentions three development approaches to a knowledge-driven economic growth strategy:

- 1) training a qualified and adaptable labour force
- 2) generating new knowledge
- 3) building the capacity to access existing stores of global knowledge and to adapt that knowledge to local use

Moreover, concerning the role of education in human development, educational attainment (e.g. the acquisition of knowledge and skills) is considered to have a positive relationship with productivity growth and higher incomes in a country. Such a positive relationship is clearly stated by Davis et al (2006, p.234) and the Kingdom of Saudi Arabia Human Development Report (Ministry of Economy and Planning, 2003,p.55), who indicate the significant role of education has played in boosting the competitiveness of individuals, firms and nations in an increasingly integrated, information and knowledge-driven global economy. Brown (2005) and the *Kingdom of Saudi Arabia Human Development Report* (Ministry of Economy and Planning, 2003,p.9) both address the issue of how to improve the supply of intermediate and highly-skilled workers to meet the growing demand for professional, technical, and managerial jobs. For example, the education issues in the Eighth Development Plan (Ministry of Economy and

Planning, 2005) place great emphasis on developing the skills needed to enable Saudis to become productive members of the society through the Saudi education system, particularly the vocational education dimension. Therefore, if Saudi Arabia attempts to gain a competitive edge over others in the global economy, it is of urgent need to invest in offering training to Saudi nationals in the information and communication technology field by commencing such training programmes at the secondary technical and vocational education degree level.

# Chapter 5 Industrial Education in Saudi Arabia

## 5.1 Introduction

Since the discovery of oil in Saudi Arabia, the Kingdom has experienced rapid economic development and growth. This 'rich' life from the prosperity of oil revenue commencing in the 1970s has also lead to the country's national development plans for improvement at all levels, such as education, infrastructure and health-care service (Ramady, 2010a, p.479).

However, the population in the Kingdom is still rising sharply and the unemployment rate among Saudis is growing higher ever; in particular, the Saudi youth unemployment rate reached more than forty percent in 2010 (Middle East Online, 2010). Although the oil revenues facilitate the Kingdom's economic development, a shortage of skilled and qualified Saudi workers with decent work ethics still remains as a big challenge in the process of implementing a series of five-year national development plans (Shah, 2010, Arab News, 2009, Khan, 2009).

As discussed in Chapter 4, in the era of the knowledge-based economy, education policymakers in Saudi Arabia are faced with specific issues in terms of the extent to which current vocational and technical education is able to prepare workers for a knowledge-based economy:

- 1) In order not to run the risk of being marginalised in a competitive global knowledge economy, how can a reformed technical education and vocational training help produce workers equipped with the skills required by the labour market in Saudi Arabia?
- 2) How to formulate an educational policy which will ensure the quality of knowledge base education in the context of Saudi Arabia?
- 3) What type of knowledge is necessary for trainees of vocational education, particularly for those enrolling in certificate courses on manufacturing or manual-based industry?

Information-based, teacher-directed rote learning still functions as the primary formal educational approach to educating the Saudi workforce (Ashoor, 2005). To meet the challenges of the global economy and to respond to the rapid advances in high skills and technologies of the competitive global knowledge economy, a new type of learning is necessary. This new type of learning needs

emphasise a change in Saudis' cultural attitudes towards vocational education and training (i.e. usually perceived as a system of education for the poor and for educationally inferior groups-known as 'academic failures'), gender (encouraging more female participation in technical and vocational education), curriculum relevancy, lifelong learning and technological changes.

In the light of these issues which could hinder the progress of the Saudi economy, it is of great importance to address the key role of education (particularly the technical education and vocational training dimension) in national development. According to Alam (2008, p.30), a nation can attain modernisation through education, which Hallak (1990, cited in Alam, 2008, p.31) regards as a key tool to increase a nation's skilled workforce. Alam (2007, cited in Alam, 2008, p.33) refers to how national development can be accomplished through education, which is often regarded as the tool for establishing an appropriate workforce to satisfy the needs of the labour market. In other words, based on human capital theory, the role of education in national development is regarded as a key tool to enable a nation's level of global competitiveness and economic growth by means of producing a skilled workforce who are well-equipped with adequate knowledge to cope with their jobs in the workplace (Fagerlind and Saha, 1989).

Moreover, with the increasing recognition of the significant role of the private sector in the Saudi economy in terms of the GDP growth rate, Sfakianakis (2010a) and Kawach (2010) assume that a well-trained, educated and experienced indigenous labour force may influence the level of the private sector's productivity in the Kingdom's economic growth. Their proposition reflects the argument that a nation's economic growth depends on the extent to which the quality and quantity of education increase. Becker (1975, p.15) considers education as a form of capital that 'yields income and other useful outputs over long periods of time. Becker (1975) argues that a nation's economic development and growth relies on the extent to which a nation makes an investment in human capital (particularly through education and training) to produce a well-trained, educated, hard-working and conscientious labour force. In Becker's view (1975), education and training are the most important investments in human capital. In this sense, regarding the relationship between education and economic performance, Maroun et al (2008, p.1) describe the



significant role of a good education system as a 'cornerstone' of economic progress. Almergren (1996, p.13) suggests that the foundation of a nation's strong economic development is built on a strong vocational education system as the most reliable means for developing a highly educated and skilled work force. Worswich (1985, p.1) proposes a similar argument:

[...]the volume of education, on one side, (particularly vocational training) is positively associated with and has a direct and strong influence in future economic performance; while on the other side, the nation's economic strength also has effects on the volume of expenses on education and training[...]

The Ministry of Education (2008) also argues that the educational vision of the Kingdom of Saudi Arabia achieved through an effective and practical system of education will help accelerate the nation's overall growth, development and the ability of facing international competition. This is clearly stated:

[...] male and female youth who embody the Islamic values in their persons, both theoretical as well as practical, are equipped with necessary knowledge, skills, and endowed with the right orientations [...] be able to face international competition both at the scientific as well as technological levels to be able to meaningfully participate in overall growth and development. This is to be achieved through an effective and practical system of education. (Ministry of Education, 2008)

In other words, education as part of human resource development in Saudi Arabia can be seen as being fundamental to the nation's economic development (Alsahlawi and Gardener, 2004, Hallak, 1990).

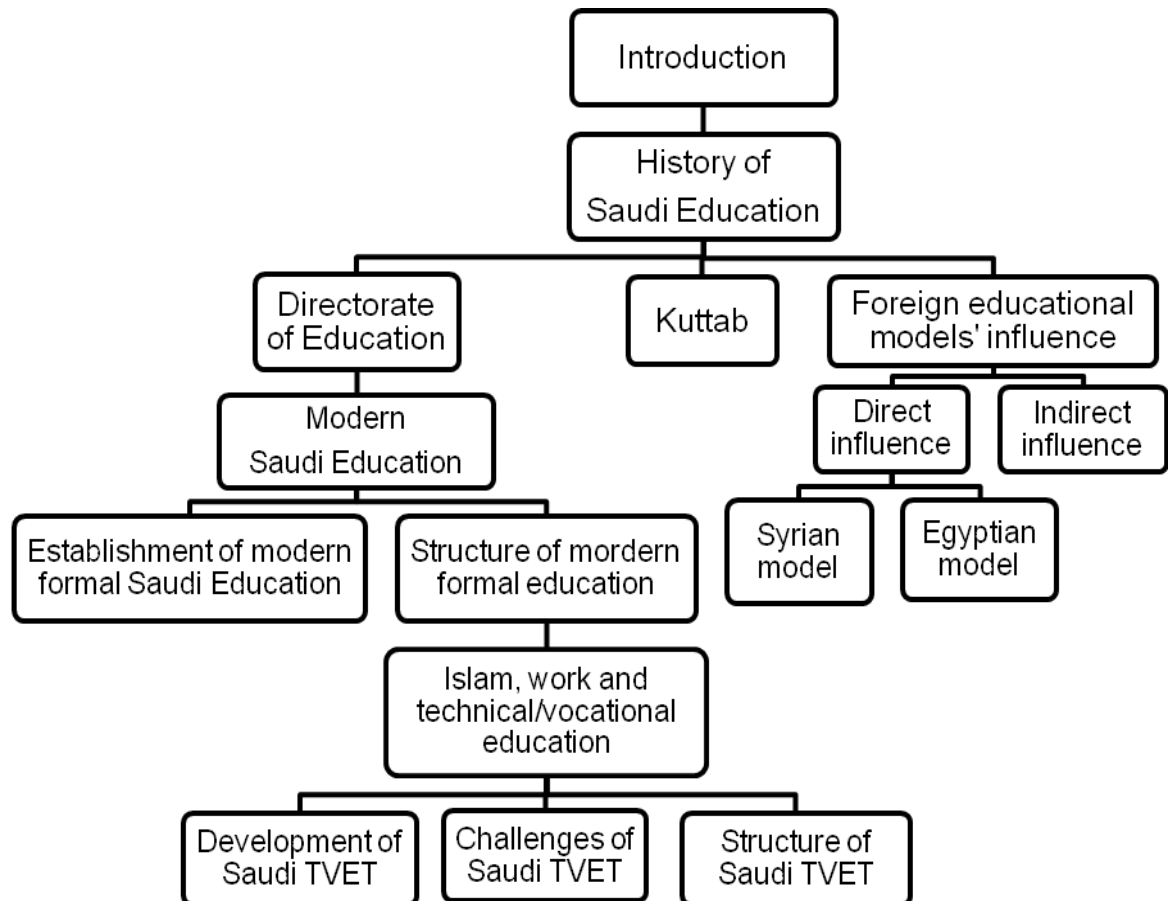
On this premise, the Saudi government has been making a great deal of investment in education and training. Both the Eighth and the Ninth Five-Year Development Plans consider education as one of the key tools for the prosperity of the Kingdom's development in the knowledge economy, where its major feature is each nation's ability to cope with competitiveness of global economy and to gain sustainable development. In this sense, through education, the quality of Saudi employees in the labour market in the private sector in the knowledge-based economy could have been expected to improve.

To contextualise these issues, this chapter will now give a brief historical description of Saudi Arabian education, before giving an overview of technical and vocational education in Saudi Arabia. This chapter concludes with an analysis of how industrial education as part of the TVET system in Saudi Arabia might be developed to the Knowledge Economy to produce a knowledgeable workforce to meet the requirements of the private sector for large number of skilled and well-trained Saudis with appropriate work ethics and attitudes.

This chapter is designed to explore the question:

*Why are Saudi graduates still not able to find jobs with the skills and knowledge they have acquired from technical and vocational education?*

To do this, it adopts the following structure (see Figure 5-1).



**Figure 5-1 The structure of Chapter 5**

## 5.2 History of Saudi Education

### ***5.2.1 Kuttab as the start of Saudi formal education in the early era of the Arabian Peninsula***

Trial and Winder (1950, p.122) noted that In the early era of Arabian Peninsula (the seventh century A.D.), home was the first place for children to receive their education and formal education began in the Kuttab<sup>15</sup> at the age of six when they were required to be responsible for the ritual prayer. According to Rugh (2002, p.40) and Wiseman et al (2008, p.2), Kuttab as a traditional formal education system on the Arabian Peninsula can be traced back to as early as the first Islamic century (corresponding to the seventh century A.D.) in the western region of the Arabian Peninsula (the Hijaz), providing elementary education to children from the age of six.

#### **5.2.1.1 Development of Kuttab**

When the Ottoman Empire came to rule the Arabian Peninsula, particularly the two holy cities of the western region (the Hijaz)-Makkah and Madinah<sup>16</sup>, they established schools offering six years of education in Turkish, which included subjects such as geography, history, art, politics and religion (Albonyan, 1991, p.34). However, Rugh (2002, p.40) and Sebai (1979, p.580) both point out that a lot of parents were reluctant to send their children to these ‘Turkish’ Kuttab schools due to two concerns:

- 1) dissatisfaction with the limited education;
- 2) fear of the Ottoman government’s plan to force their children to enrol in the Ottoman army after completing their studies.

For this reason, in the ninth century, some merchants in the Hijaz created private schools in Jeddah, Makkah and Medinah for children to learn a range of subjects in Arabic instead of Turkish.

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<sup>15</sup> This is considered as the initial stage of the formal education before the establishment of the Kingdom of Saudi Arabia.

<sup>16</sup> The Ottoman government also established schools in the wheaten region in some parts of eastern region (e.g. oases and ports).

From the first Islamic century until its official replacement in 1925, Kuttabs were located in various places, such as specific quarters outside of the mosque, the open air, a tent, or in the teacher's house (Wiseman et al., 2008, Kadi, 2006). According to Wiseman et al (2008) and Kadi (2003), the manager of the Kuttab was a teacher, known by different names in different regions of the Arabian Peninsula-Mulla (eastern region), Mutawa (central region), Fageeh (southern region) and mu'allim (in general). The mu'allim or the mosque's Imam was in charge of examining students' mastery of Qur'an memorisation and writing.

#### **5.2.1.2 Main features of Kuttabs**

Generally speaking Kuttabs were free and it was optional for children to attend them (Kadi, 2006, p.313). However, in some Kuttab schools, parents of the wealthy and the elite would give the teacher a certain amount of money as the tutorial fee. Lipsky (1959, p.278, cited in Wiseman et al,2008, p.2) and Hitti (1943, pp.408-409, cited in Kadi, 1950, pp.122-123) describe another feature of the Kuttab, that it was segregated by gender; namely that, at first, Kuttab schools were open for boys only, but later were open to girls at the lower levels;

The third feature of the Kuttab refers to its limited accessibility. Alquraini (2010) and Al-Sadan (2000) agree with the proposition of Lipsky (1959) that the Kuttab was not accessible to every child but limited as a privilege to children of the elite and the rich.

Until twenty-five years ago, formal education in Saudi Arabia was entirely in the Islamic tradition of religious and classical learning, and was available to a tiny segment of the country's youth.[...] Formal education of any kind reaches only a small fraction of the population, [...] At the center of the traditional system of education was the kuttab, or Koranic elementary school. (Lipsky, 1959, p.277)

The fourth feature refers to the highly centralised control of the government. Rugh (2002), Roy (1992), and Albonyan (1991,p.42) mention that during the period of Ottoman Empire, the Ottoman government required all Kuttab schools in the western region and some parts of the eastern region in the Arabian Peninsula to follow the same curriculum-memorising the Qur'an.

The fifth feature entails the rote memorisation as the major learning style. As was noted by Kadi (2006), Doumato (2006) and Rugh (2002), the Kuttāb was a learning place for students memorised the Qur'an and learned to read and write Arabic, which were the main features of the curriculum. Its curriculum also included the learning of foreign languages, simple mathematics and morals.

In short, as mentioned above, the researcher assumes in this thesis that the Kuttāb laid the foundations of the learning and teaching style of the modern Saudi formal education system in terms of the aforementioned features and its core study subject: the knowledge and understanding of the Qur'an.

Accordingly, the roots of the Saudi education system are seen as a continuation of its Islamic educational heritage; namely that the Islamic religion is considered a way of life and the essence of the Saudi education to have an effect on the quality and quantity of the education system in the Kingdom of Saudi Arabia in terms of its main educational purpose to cultivate the cultural values, beliefs and ideology of the Saudi people (Hendrickson, 2007, Rugh, 2002). In particular, as noted by Al-Salloom (1991), Islamic principles have greatly affected the curriculum at all educational levels for both boys and girls. 'Islam is not only integral to Saudi education but also serves as the very essence of the curriculum (Al-Salloom, 1991, p.9).

### **5.2.2 Directorate of Education (1925-1953)**

Luqman (1983) and Albonyan (1991) note that the Directorate of Education was the earliest modern formal educational organisation in the Kingdom of Saudi Arabia. In 1925, the late King Abdulaziz Ibn Saud established this department and issued Article 23 of the Basic Instruction, which served as the first educational policy to lay the cornerstone of a centralised and unified education system to ensure the quality and quantity of the education in Saudi Arabia (Ministry of Higher Education, 2006). As noted by Wiseman et al (2008) and Rugh (2002), Saudi Arabia encountered a shortage of qualified and educated people to establish a special department at the beginning of the emergence of the kingdom. Due to this, the Ministry of the Interior was in charge of the Directorate of Education, and supervised four private schools in the Hijaz (Rugh, 2002). In 1938, the Directorate of Education declared its authority with regard to its control of the educational policy making and the design of the curriculum in the kingdom, exclusive of the military academies (Rugh, 2002).

### **5.2.3 Syrian and Egyptian influences and the indirect influence from the Great Britain in the early stage of Saudi education**

Saudi Arabia created its educational model based on those in Syria and Egypt, where the education systems were successful and organised (Al-Romi, 2001). Wiseman et al (2008) and Al-Romi (2001) mention that the initial stages of the Saudi educational system were greatly influenced by both the Syrian and Egyptian educational models as the Saudi government resorted to assistance from these countries. For instance, Helmi (1982, cited in Al-Romi, 2001, pp.16-17) explains the Syrian's influence, stating that

After the resignation of Saleh Shatta (1925-1926), the Saudi government called Mohammad Al-Gussab from Syria to be the General Manager of Saudi education.

Mohammad Al-Gussab created the first curriculum, which was modified twice, once in 1932 and again in 1935. The foci of this curriculum included curricula for religion, Arabic language, health education and moral development.

On the other hand, Al-Romi (2001, p.18) notes that the Egyptian influence was stronger than that of Syria for the following reasons:

- 1) Staff of the Directorate of Education (e.g. administrators, educational policy planners, curriculum planners and creators) and school teachers were recruited from Egypt.
- 2) Mohammad Al-Gussab's decision to duplicate the issuing of graduate certificates for all levels of school by following the Egyptian example.
- 3) The Saudi government sent Saudi students with full governmental scholarships to Egypt to obtain useful educational learning experiences and teaching styles from Egypt's educational model.

Al-Romi (2001) further explains how the Egyptian educational model strongly affected the initial Saudi educational system in terms of operating and managing formal education, reporting that the fourth minister of the Ministry of Education in Saudi Arabia, Dr. Abdulaziz Al-Gwatir was awarded a PhD in Egypt in 1960.

Furthermore, with regard to the indirect influence from the British educational system, the early stage of the Saudi educational system was indirectly influenced by the British educational model (especially the 'school-to-work transition' pathway of vocational education) due to the Egypt's colonisation by the Britain (Wiseman and Alromi, 2003, Al-Romi, 2001, Al-Salloom, 1991, Lipsky, 1959)

### **5.3 Saudi education - an overview**

The first section of this chapter describes how an education system affects a nation's economy. This section attempts to give a brief overview of education in Saudi Arabia to obtain a basic understanding of its development. Through this overview, an attempt is made to discover why it is often reported that private sector employers have negative perceptions of the output of Saudi education (Arab News, 2009).

#### ***5.3.1 Establishment of Saudi formal education***

Al-Saif (2003) notes that the intention of a country's educational system is to cultivate appropriate attitudes, behaviours and worldview in young people. Hendrickson (2007), Al-Saif (2003) and Rugh (2002) comment that the 'backbone' of Saudi society is a well-entrenched religious educational system. Their comments are supported by Hurst regarding the role of Islam in the life of Saudi people, who stated

Saudi Arabia is the heartland of Islam and guardian of Holy Places; and nowhere is the influence of religion felt more directly or explicitly (Hurst, 1983, p.755).

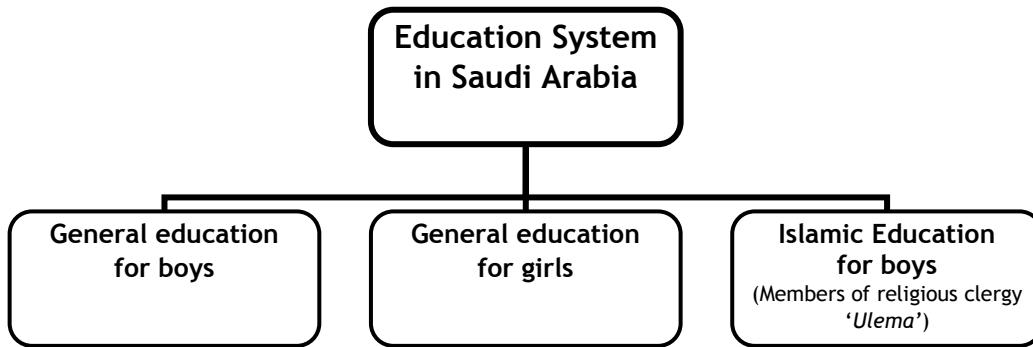
This proposition reflects one fact: Islam plays a central role in Saudi society and has a strong influence in shaping the character, customs and traditions of the Saudi people in terms of values, such as liberality, generosity and early marriage as well as Arab poetry and proverbs (Al-Sadan, 2000). In other words, it is evident that the formal Saudi education system is deeply rooted in the study of Islam and the sacred language of the holy Qur'an-Arabic (Doumato, 2006, Kadi, 2006, Stalinsky, 2002, Albonyan, 1991).

#### ***5.3.2 Structure of Saudi education***

Until recently, there were five parallel systems, apart from private and international schools in the Kingdom, as well as the Saudi schools of various levels abroad. According to the Ministry of Education, education in Saudi Arabia is not compulsory but is free for each Saudi citizen, textbooks and health services for students included.

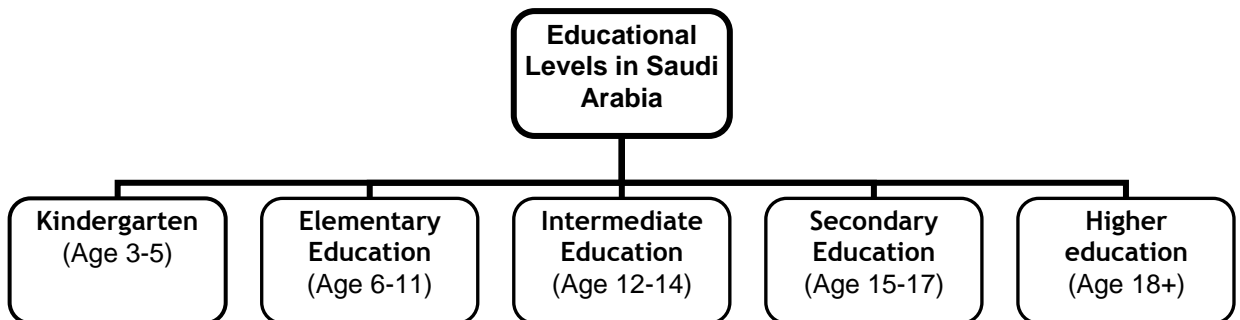


Figure 5-2 shows the basic structure of the educational system in Saudi Arabia. It is gender-segregated and follows a '6+3+3' system. The educational system of the Kingdom of Saudi Arabia is administered in three separate systems: general education for boys, general education for girls and traditional Islamic education for boys. The curriculum and the annual examinations for the first two systems are the same.



**Figure 5-2 The basic components of the Saudi educational system**

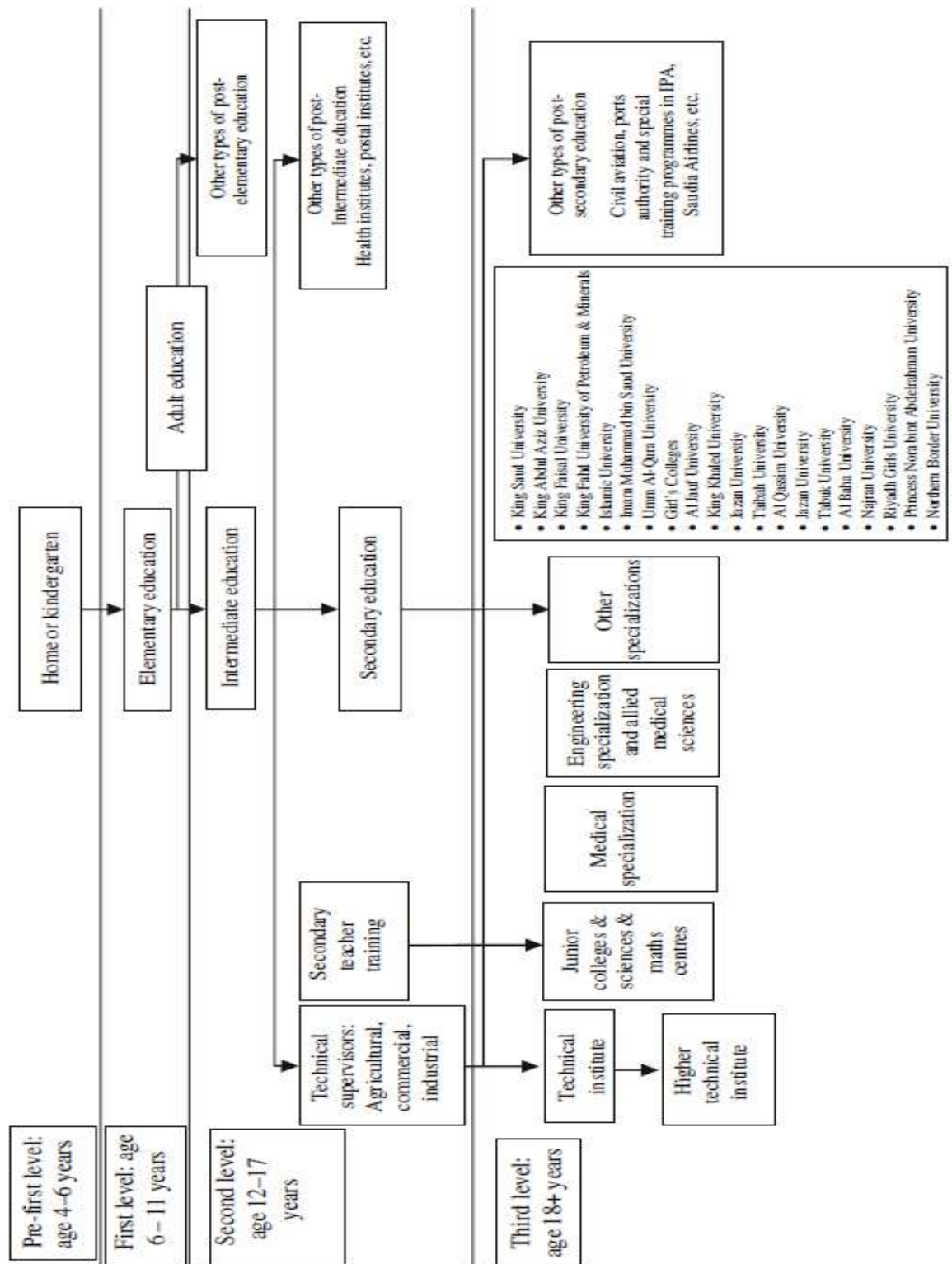
Figure 5-3 presents the 'educational ladder' of Saudi Arabia. In terms of age group, Ramady (2010b,p.408) reports that the education system in Saudi Arabia is composed of five levels of study: kindergarten (pre-school), elementary, intermediate, secondary, and tertiary education (university and higher education).



**Figure 5-3 Educational Levels in Saudi Arabia**

Source: based on the work by Ramady (2010b, p.409)

Addressing a need for the Saudi educational system's output to be made fit for the current and future global economic trends, Ramady (2010b, p.409) examines the education and training (regarded as the main dimension of human resources development) available in the Kingdom by a flow chart (Figure 5-4).

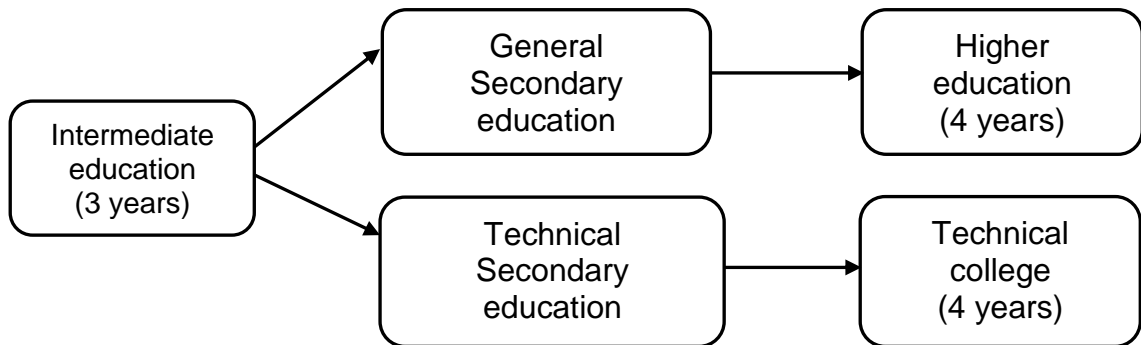


**Figure 5-4 A flow chart of education and training in Saudi Arabia**

Source: Ramady (2010b, p.409)

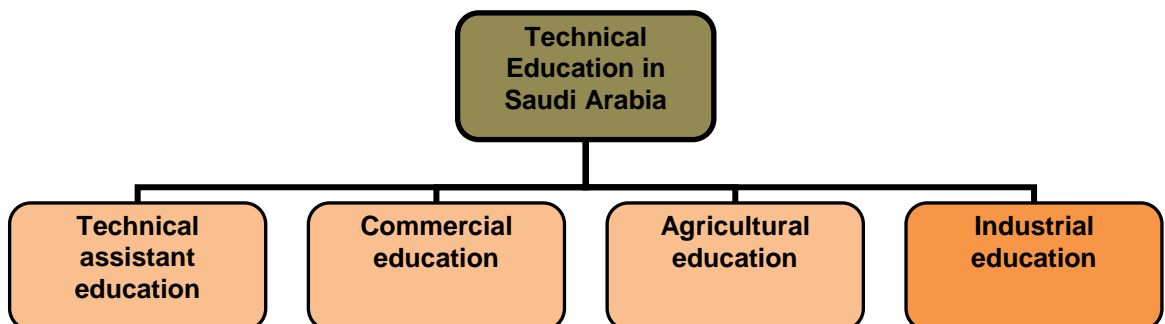
Figure 5-5 presents two routes of education after intermediate education level: general education and technical education. Students who choose the technical education route after completing their secondary education enter technical college to obtain their highest level of qualification as 'graduates of technical

college' after four years of study; however, this level of qualification is not equivalent to a university degree.



**Figure 5-5 The secondary education option after intermediate education**

As can be seen from the flow chart shown in Figure 5-4, there are four fields of technical education: technical assistant education, agricultural education, commercial education and industrial education (Figure 5-6). In particular, the study fields of Industrial education whose output is the main focus of this research.



**Figure 5-6 Fields of technical education in Saudi Arabia**

Source: devised by the researcher based on the work by Ramady (2010b, p.409)

However, students who choose the general education route can chose to enter either technical college or university to obtain a higher education degree after completing their secondary education.

## 5.4 Context–Islam, work and technical/vocational education

When Saudi Arabia was established in the year 1932, not everyone was able to have access to education. This was because education was limited to urban areas where religious schools provided individualised instruction in mosques (Ahmed et al., 2006). Islam, or to be more specific, the Wahhabi interpretation of Sunni Islam as the official religion has great impact on all aspects of life (including in the social, judicial and educational systems) throughout the Kingdom of Saudi Arabia (Walsh, 2009, p.33, Sedgwick, 2001). Anzar (2003) and Groiss (2003) point out that the dominant role of Islamic tradition is giving guidance to Saudi nationals to integrate the acquisition of knowledge in their lives by reading, writing and recitation of the Qur'an. Generally speaking, this has led to the overemphasis on the learning of Islamic studies and little attention has been paid to technical and vocational education. This phenomenon has resulted in Saudi nationals' lacking necessary vocational skills and professional knowledge to meet the great demand of skilled and qualified labour in the labour market (Ramady, 2010b, Looney, 2004d)

However, Islam, is essentially a religion that puts great emphasis on work and that encourages all Muslims to work because work is an act of worship (Badr, 2005). Badr (2005) describes the concept of work by addressing the role of Islam in Muslims' life:

Islam is a religion that orders its followers to be part and parcel of a working and productive society.

In other words, the true message of Islam encompasses the idea that all Muslims should affirm themselves in the faith of the Islamic tradition and make efforts to obtain their sustenance (e.g. food and clothing) from their work. In this way, they demonstrate 'sincere deeds in terms of their experience and working skills to benefit the progress of society' under the principles of the truth faith, Islam (Al-Ma'idah 5:2, cited in Badr, 2005). In addition, the Prophet Mohammed (S.A.A.W) himself give clear instructions to Muslims on the importance of work as a constant act of worship, believing that working hard to make a living is indeed a praiseworthy act of worship for the progress of society (Badr, 2005).

In this sense, Saudi youth who receive technical and vocational education at school are supposed to acquire appropriate skills training to prepare to work in the society in the future so that they can make a praiseworthy act of worship according to Islamic principles. This also raises an important issue: technical and vocational education is supposed to give vocational educational training to Saudi youth but is also supposed to impart a strong work ethic in accordance with what the labour demand side is asking for.

## **5.5 The development of technical and vocational education in Saudi Arabia**

### ***5.5.1 Challenges facing technical and vocational education***

The economic development from the oil revenue and preserves since the 1960s led to rapid growth at the industrial and commercial sectors in Saudi Arabia (Looney, 2004c, Ramady, 2010e, Sirageldin et al., 1984). The oil revenues as financial resources for the Saudi 'educational infrastructure' have been increasing and this is evident in the growth of Saudi expenditure on human resource development (Ministry of Planning, 2002).

According to Ramady (2005,p.387), education expenditure increased from 24% of 2002's budget allocation to 28% of 2004's budget allocation. However, the educational issue requiring great attention is the orientation of the system itself in Saudi Arabia. For example, when Ramady (2005) raises the issue of having an appropriate training system for young Saudis in terms of the implementation of Saudisation in the private sector, he argues that there is a need to focus on education and the skill base because the kingdom's education and training system has failed to provide what the economy needs. From the statistics from the Arab News (8 January, 2003) about the areas of studies young Saudis enrol at university level, it is evident that only 12% of young Saudis graduate in fields such as engineering and sciences, while more than 40% graduate in social sciences and religious studies (Ramady, 2005, p.405). Therefore, Ramady (2005, pp.412-414) points out that scant attention is paid to the technical and vocational education by the Saudi nationals because of the association of 'high social prestige with university or higher education'. He also mentions that receiving technical training is viewed as a symbol of academic-failures, for instance relating to school dropouts and students with poor academic performance (Ramady, 2005). Technical and vocational education in Saudi Arabia seems therefore to be perceived negatively, whereas it is felt that university graduates benefit from their degree and are offered better employment opportunities (mostly in the government sector) even if they acquire more knowledge but possibly poorer skills than technical and vocational educational graduates (The Economist, 1997b, cited in Ramady, 2005, p.388). Another issue is raised here: Saudi graduates with higher education degrees are

not necessarily able to be as productive as those from technical and vocational education degree because ‘technological progress and the “diffusion” of scientific and technical innovations lead to higher productivity’ (Ramady, 2005, p.388).

### ***5.5.2 A brief summary of the structure of technical and vocational education***

In the education system of Saudi Arabia, technical and vocational education starts at secondary education in the form of three-year programme, in which there are four types of school, i.e. general secondary schools, religious secondary schools, technical secondary schools and further technical and vocational training schools (Sedgwick, 2001). In particular, within the technical secondary school level, vocational/technical, commercial and agricultural are the three types of technical education offered with the requirement of the Shahadat Al-Kafa'at Al-Mutawassita (Intermediate School Certificate).

Vocational education and training have been at the heart of the Five-Year Development Plans with their aim to promote employment and human resource development since 1970. In particular, it is clear that from the Fourth 5-year Development Plan to the current Ninth Development Plan, education has become one of the major objectives that Saudi government aims to achieve. Generally speaking, all technical and vocational training programmes at secondary educational level came under the authority of the General Organisation for Technical Education and Vocational Training (GOTEVOT) since the Fourth National Five-year Development Plan and then under the authority of the Technical and Vocational Training Corporation (TVTC) from the Seventh National Five-year Development Plan. The following is a brief summary of these two authorities and their roles the upgrading the quality and the quantity of the technical education and vocational training output as to supply labour in Saudi Arabia.

### 5.5.2.1 The General Organisation for Technical Education and Vocational Training (GOTEVT)

The idea of establishing the General Organisation for Technical Education and Vocational Training (GOTEVT) was to have a government authority in charge of developing technical education and vocational training programmes in Saudi Arabia. The aim of such a government agency is to provide a range of vocational educational training programmes to meet the national manpower requirements and the need for development at all levels (e.g. economical, social and cultural) in the kingdom. For this reason, the General Organisation for Technical Education and Vocational Training (GOTEVT) was announced as the sole government authority for the kingdom's technical education and vocational training by King Fahad in 1980 shortly after he launched the Third Development Plan period (Althuaini, 2002, Ministry of Planning, 1985b).

Before the creation of GOTEVT, its functions were carried out by other government agencies, e.g. vocational training centres by the Ministry of Labour and Social Affairs and technical institutes and schools by the Ministry of Education (Fourth Development Plan, Ministry of Planning, 1985a). The charter of the Royal Decree announced the responsibilities of GOTEVT as follows:

- 1) All matters pertaining to technical education in industry, agriculture, and commerce;
- 2) All matters pertaining to vocational training, such as for (a) adults seeking to upgrade vocational qualifications, (b) persons in preliminary or preparatory stages of occupational training, and (c) workers on the job;
- 3) Research and technical studies directed towards extending the capabilities and efficiency of national manpower.

(extract from Fourth Development Plan, Ministry of Planning, 1985b, p.293)

In addition to these three major responsibilities, the GOTEVT also initiated vocational and technical training in areas where other government agencies did not offer them or where the Supreme Manpower Council specified. Thus, the activities under the supervision of GOTEVT were divided into two subgroups- vocational training and technical education. The functions of each subgroup are described as follows:



<p><b>Vocational Training</b></p> <ul style="list-style-type: none"> <li>- Pre-vocational training for persons requiring specialised training to qualify for occupational entry or acceptance by a Vocational Training Centre;</li> <li>- Vocational training for adults and youths;</li> <li>- On-job training in collaboration with private companies or public corporations;</li> <li>- Training of vocational instructors;</li> <li>- Development of curricula and instructional materials.</li> </ul>
<p><b>Technical Education</b></p> <ul style="list-style-type: none"> <li>- Industrial Secondary Schools;</li> <li>- Commercial Secondary Schools;</li> <li>- Agricultural Secondary Schools;</li> <li>- Polytechnic (Intermediate Technical College).</li> </ul>

**Table 5-1 Functions of two subgroups of GOTEVT**

Source: Fourth Development Plan (Ministry of Planning, 1985b, p.293)

#### **5.5.2.2 The Technical and Vocational Training Corporation (TVTC)**

The Kingdom of Saudi Arabia focuses on the issue of national manpower by planning government institutions with their responsibilities to plan and to supervise educational and training programmes. The Technical and Vocational Training Corporation (TVTC) - formerly known as the General Organisation for Technical Education and Vocational Training (GOTEVT)-has acted as the authority for the technical and vocational training since the Royal Decree issued in 1980 (Ministry of Economy and Planning, 2011,p.418). This is due to the fact that the government realised the importance of enhancing technical and vocational education output as labour supply in an attempt to meet the urgent manpower demands from the local labour market. As a result of this strong support given by the government, the TVTC has been able to increase the number of its graduates and to spread technical education and vocational training in the cities and the provinces of the Kingdom. In addition, the objectives of technical and vocational training in each Five-year Development Plan indicates that there is an urgent need to encourage Saudi graduates from all technical and vocational training institutes supervised by the TVTC to become a competitive workforce in the era of globalisation (Ministry of Economy and Planning, 2011, TVTC, 2009).

Regarding the development of technical education and vocational training programmes under the supervision of the TVTC, the subdivisions have expanded from two groups to three groups: -technological education, technical education and vocational training. A further description of each group's tasks is given illustrated as follows (Technical and Vocational Training Corporation, 2010):

### (A) Technological Education

This kind of education is represented by the colleges of technology that were established to meet the Kingdom's labour market with its need for new technology-qualified individuals in different fields. Colleges of technology offer courses in electricity, electronics, computer, mechanics, administration, communications, construction and agriculture.

### (B) Technical Education

This kind of education is represented by four types of general educational groups: technical inspectors' education, industrial education, commercial education and agricultural education. Those who have completed intermediate school would obtain admission to the training programmes on special skills in industrial, commercial, technical inspection and agricultural fields based on their own interest or future career choice. The duration of study at this level under the supervision of TVTC is three years with theoretical and practical instruction and students will be awarded for their studies with 'the Secondary Institute Diploma' when they graduate. With this diploma, they are regarded as qualified to join the government or private organisations. The following is a list of the special skills in these four sectors.

Sector types	Special Skills received
<b>Industrial education</b>	computer, communications, medical equipment, electronics, mechanics, electric installations and metal construction
<b>Commercial education</b>	accounting, book keeping, marketing, typing, word processing, office and secretarial work
<b>Technical inspectors education</b>	survey , architectural works, architectural drawing and civil works
<b>Agricultural education</b>	the operation and maintenance of agricultural machines like pumps, reaping machines and greenhouse technology; land reform, bee breeding, horticulture, irrigation, animal breeding and feeding, poultry, dairy production

**Table 5-2 Training for special skills at technical education level**

Source: TVTC Annual Achievement Report 2009-2010 (TVTC, 2009)

As shown in Table 5-2, it is clear that each secondary institute at the technical education level supervised by the TVTC provides courses on special skills for students to train to be skilled, qualified and knowledgeable workers when they graduate. Taking the secondary industrial education supervised by the TVTC as an example, students in this type of education have to learn how to operate medical equipment, how to carry out the procedures of completing electric installations, and how to carry out metal construction. Such skills are often perceived as manual-based work for people with low wages and with low social status (Ramady, 2005). However, at the secondary technical institute level supervised by the TVTC, learning how to use a computer and having a good command of communication skills (both interpersonal and written telecommunication) are associated with the two major components of a knowledge-based economy-computers and communications. In this way, when students graduate from the secondary industrial institute with the diploma, they are expected to be able to demonstrate their employability with such skills.

### **(C) Vocational Training**

The aim of this level of education is to offer training programmes to Saudis who would like to refurbish their vocational skills to join the labour market. When these Saudis finish their training programmes at this level, they are assumed to be qualified national manpower; therefore the output of such training is expected to meet the labour market needs. There are two phases for vocational training programmes under the supervision of the TVTC: one is 'theoretical subjects' and the other is the 'practical training.' In addition, there are two types of vocational training programmes: one is the 'morning training programmes' and the other is 'evening training programmes.' Those aged 15 to 45 years old, with the primary or intermediate certificate attend the '2-semester morning training programme'; while '1-semester evening training programme' offer courses to people who do not have primary or intermediate certificate or government employees who are not able to attend the '2-semester morning training programme.

## 5.6 Summary: the challenges for Saudi education in the labour market

On one hand, the private sector in Saudi Arabia has similar complaints to other countries in the GCC region (the Gulf Cooperation Council) about the Saudi education system outputs not being able to respond to the needs of the labour market. For example, one firm, Booz Allen Hamilton Inc., reports the results of a private-sector survey on the perceptions of education system outputs and lists six attributes relevant to the education system outputs' failure in responding to the labour market needs in the private sector. These attributes include (Maroun et al., 2008, p.4):

- 1) lack of key specialisations
- 2) lack of practice
- 3) inadequate coordination between business and education
- 4) insufficient 'soft skills'
- 5) lack of credibility in assessment systems
- 6) work ethics

On the other hand, as noted by Alzalabani (2002, p.127), there are three reasons for young Saudis choosing to enter the labour market after completing their studies at secondary school level:

- 1) their examination grades are not good enough for them to continue their studies;
- 2) they prefer to start work although they are qualified for a place at a university;
- 3) they choose to work while continuing their education through external study.

When these young people enter the labour market, they find it difficult to find their ideal jobs, as the educational qualifications they received at school are considered to some extent unrelated to the job descriptions required by the industry. Allam (2010) critically blames the Saudi education system's failure in preparing young Saudis for the job market for the high unemployment rate among Saudi youth, stating in the Financial Times:

[...]King Abdullah's government is grappling with the challenge of creating highly paid jobs for a young population with a strong sense of entitlement, poor education and, often, a weak work ethic. For decades, schools have focused on religious education at the expense of science and mathematics. The clerical establishment has hampered the king's efforts to reform education and change the curriculum to better prepare Saudis for the job market.[...] Many young Saudis fresh out of college feel entitled to a managerial post by virtue of their nationality, and complain that 'foreign' bosses order them around. The government has to work on changing nationals' attitude, which was pretty much cultivated during the first oil boom in the 1970s.

A result of this irrelevancy of educational qualifications and lack of positive attitudes towards work, the educational system fails these Saudi youth when it comes to employment opportunities in the labour market, particularly in the private sector (Almergren, 1996). This means that education is regarded as a 'stumbling block' for the employability of the young Saudi population (Lawson, 2010a, Billing, 2009)

Therefore, it is of great importance to explore the development of the Saudi education system from the past to the present in order to discover why the Saudi education system is a 'stumbling block,' not a 'springboard' to generate a sound and strong indigenous labour force to help accelerate the Kingdom's economic development with the expected high productivity to be able to cope with the competitiveness of the global economy.

# Chapter 6 Research Methodology

## 6.1 Introduction

This chapter sets out the methodology that guides the empirical element of this research which enabled relevant data to be collected and interpreted to respond to the research questions. As shown in Figure 6-1, it starts with a description of the research framework of this study. The second section entails the justifications of the selected research approach. The selected sampling procedures and strategy will be described in the third section. Next, two research instruments selected as the data collection tools will be presented together with a brief overview of how the collected data sets from the questionnaires and semi-structured interviews were analysed (Further information will be given on this aspect in Chapter 7 and 8). Finally, this chapter ends with a summary of the ethical issues involved in conducting the research.

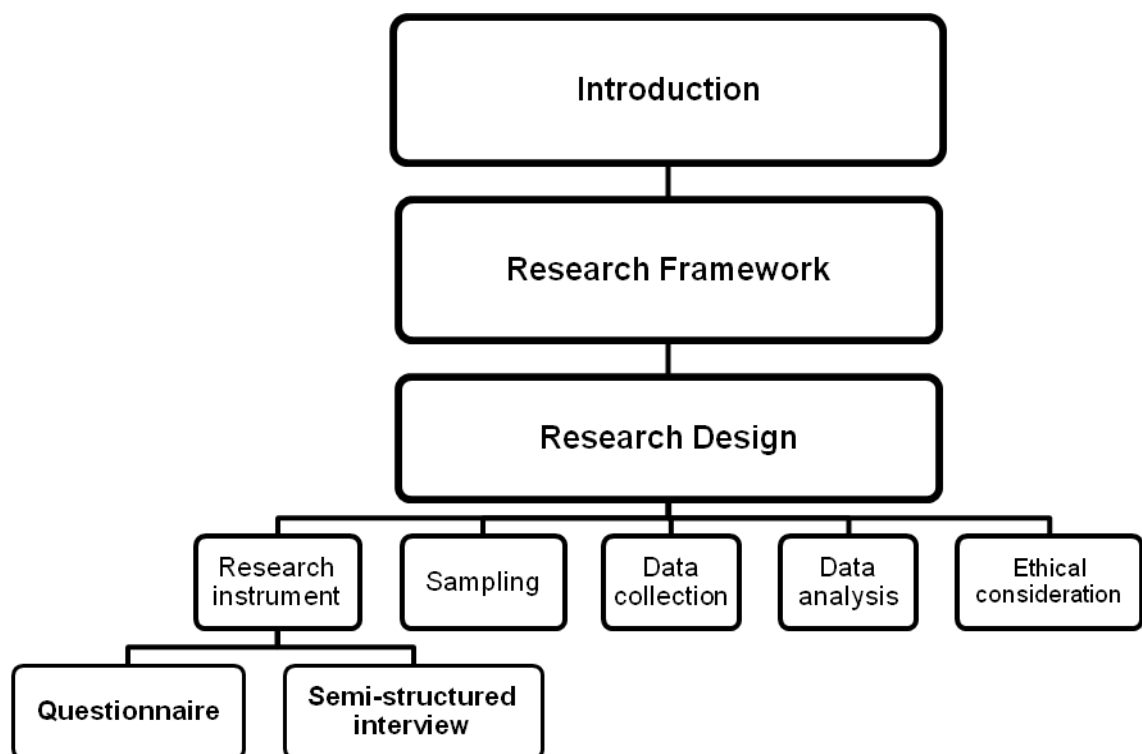


Figure 6-1 The structure of Chapter 6

## 6.2 Research framework

Mellahi and Wood (2001) Azzam (1997) and Al Nafii (1993) argue that the private sector has become the major agent in the creation of new jobs for Saudi workers since the mid 1990s. However, Ramady (2010g) points out that the unemployment rate remains high among young Saudi nationals even though the private sector has been encouraged to take up the responsibility of the Kingdom's economic development by creating as many new jobs for locals as possible, confronting the disparity between economic growth since the 1970s' oil windfalls and population growth. Al-Shammari (2009) also indicates that the major educational challenge is a product of a perceived labour supply-demand mismatch (especially seriously exists in the private sector) in the Saudi labour market due to the three factors proposed by Maroun *et al* (2008), including inadequate coordination between business and education, lack of specialisation of workforce skills, and lack of relevant employment practice among potential workers.

As noted in chapters 1-5 which contextualised the research study, Saudisation has not yet been implemented successfully in the private sector for a range of reasons that have been explored during the earlier chapters. Accordingly, the empirical element of this research was designed to explore stakeholders' perceptions. In particular, the research explores stakeholder's perceptions of

- 1) the quality of industrial education;
- 2) how effective industrial education is in preparing Saudi graduates for work in private manufacturing industry with regard to vocational skills and knowledge;
- 3) the extent to which appropriate work ethics, broader professional knowledge and attitudes can help enhance Saudi graduates' employability in private manufacturing industry

Another key research objective is to analyse whether or not stakeholders believe there is a skills gap, and if so, to then synthesise reasons why a skills gap exists and to suggest possible ways forward in Chapter 9. In the face of strategies for coping with the competitiveness and sustainability in the knowledge-based economy, the third research objective is to evaluate the role of education and training as the key HRD strategy in a knowledge-based economy in preparing the young Saudi workforce to become knowledge workers equipped with the

appropriate work ethics, the expected professional knowledge, specific as well as generic skills for the world of work and the importance of this to business development. These aspects will be discussed in Chapter 9 based on a synthesis of the empirical data findings and the findings from the literature review (see Chapters 1-5).



### 6.3 Research design: a mixed methods approach

Traced back to its use among fieldwork sociologists and cultural anthropologists early in the 20<sup>th</sup> century, Creswell (1999b) and Johnson et al (2007) claim that mixed methods research has developed since the 1990s to be the third methodological or research paradigm coexisting alongside quantitative and qualitative research. Creswell and Plano Clark (2007) propose a comprehensive definition of the term *mixed methods research*, stating that

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.

Regarding the reliability and validity of utilising a mixed methods approach, Denscombe (2008) synthesizes work by Greene et al (1989), Rocco et al (2003), Bryman (2006) and Collins et al (2006) who reviewed four broad rationales and 65 specific purposes of using mixed methods research, to describe as follows the distinctive nature of a mixed methods approach:

- 1) to improve the accuracy of the collected data;
- 2) to produce a more complete picture by combining information from complementary kinds of data or sources;
- 3) to be used as a means of avoiding biases intrinsic to single-method approaches;
- 4) to be used as a way of developing the analysis and building upon initial findings using contrasting kinds of data or methods;
- 5) to be considered as the compatibility of quantitative and qualitative research. (Denscombe, 2008)

Denscombe (2008) further articulates three defining characteristics identified by several leading authors of mixed methods research such as Creswell(1999a, 2003), Tashakkori & Teddlie (2003) as well as Creswell & Plano Clark (2007):

- 1) quantitative and qualitative methods within the same research project;

- 2) a research design that clearly specifies the sequencing and priority that is given to the quantitative and qualitative elements of data collection and analysis;
- 3) an explicit account of the manner in which the quantitative and qualitative aspects of the research relate to each other, with heightened emphasis on the manner in which triangulation is used.

Based on the aforementioned definition and characteristics, this research adopts a sequential exploratory strategy, in which there are two main stages of data collection and analysis. Firstly a survey questionnaire was initially developed for quantitative data collection and analysis. Cohen and Manion (2007) view surveys as the most commonly used descriptive method in educational research. According to Gay *et al* (2003), a survey refers to an investigation of an educational problem or issue in terms of assessing beliefs, attitudes, opinions, preferences, demographics, practices and procedures. Leedy and Ormrod (2001) suggest that the main purpose of a survey is to describe the characteristics (opinions, preferences, attitudes and perceptions, and so forth.) of a group of people about a particular topic or issue by asking a number of questions.

In the second stage, semi-structured interviews were designed for collecting qualitative data to further explore the findings of the quantitative data. The semi-structured interviews were carried out following the model outlined by Keats (2000), using an opening phase to gather factual information, a body phase to explore key issues, and a closing phase to explore further points and draw the discussion to a conclusion. The analysis of interview transcripts was conducted through line-by-line analysis to investigate the main issues and themes arising from each phase of the interview. The design of the research instruments is explained in detail in section 6.6.

## 6.4 Sampling

According to Cohen et al (2007), a probability (random) sample and a non-probability (purposive) sample are two major strategies for selecting the research subjects. The main difference between these two sampling methods lies in the knowledge of selecting members of the wider population, in which a probability sample seeks to obtain a sample representative of the whole population so as to make generalization while a non-probability sample has no attempt to generalize (Cohen et al., 2007). This research adopts a probability sample, from which a stratified sampling technique is chosen based on the following descriptions of the research participants.

With regard to a stratified random sampling technique, Hunt and Tyrrell (2004) argue that it involves the division of the sampling frame (members of the wider population) into homogeneous, non-overlapping groups in terms of criteria such as geographical areas, age-groups or genders. The original intention in this research was to use stratified random sampling: the wider population of this research referring to people working, teaching or studying in the private 'other' manufacturing industry. To seek representativeness of the sample, the researcher divided the wider population into trainers and trainees of industrial education by educational levels (secondary or technical college), and by institution types (public or private school of industrial education) to fill out the questionnaire; meanwhile, private manufacturing employers in manufacturing fields like domestic appliances, plastics, food industry were selected to participate the semi-structured interviews. It was found difficult to gather a large sample size due to the following limitations:

- 1) there was a small number of vocational schools specialised in the field, i.e. industrial education related to skills and knowledge for manufacturing industry in the western part of Saudi Arabia;
- 2) the trainees of industrial education selected in this research were those in the final year of study.

Regardless of such difficulties, the data gathered does give important insight into the perceptions of the participants who took part in this research.

### 6.4.1 Locations

The subjects of this research were selected from three cities—Jeddah, Makkah and Taife in the western part of Saudi Arabia to participate in expressing their opinions on the given survey instruments (Table 6-1). By browsing the TVTC (Technical and Vocational Training Corporation) website for a list of secondary as well as technical college of industrial education within the Kingdom of Saudi Arabia, quantitative data (questionnaire data) were collected from the three cities, where most of the schools of industrial education are located while qualitative data (semi-structured interview data) were collected from Jeddah and Makkah, where a range of factories have been established and the central trading places for livestock and handcraft goods used to be these cities during the Arabian Peninsula period (Information Office of the Royal Embassy of Saudi Arabia, 2010). In addition, Makkah, the holy city of Islam, has received abundant revenue from the two pilgrimages: the Hajj and the Umrah on an annual base (Ahmed, 2002).

City	Subjects	
Makkah	Questionnaire	Makkah Industrial Vocational Education (MIVE)
		Makkah Technical College (MTC)
	Interview	Air cooler manufacturer (Hydraulics)
		Plastic shopping bag factory (Plastics)
		White good manufacturer (Domestic appliances)
Jeddah	Questionnaire	Jeddah Industrial Vocational Education (JIVE)
		Jeddah Technical College (JTC)
		Saudi Japanese Automobile Higher Institute (SJAHI)*
	Interview	Bottled water packaging
		Food packaging machine factory (Plastic trays)
		Aluminium factory
		Cannery factory (Food processing industry)
		Boiler manufacturer factory
		Mitsubshi car company
		Automobile Technology and Maintenance
		Carton manufacturer (Packaging)
		Furniture manufacturer
		Air conditioner manufacturer
Taife	Questionnaire	Taife Industrial Vocational Education (TIVE)

\* This is a private job-oriented technical training institute established by the cooperation between Saudi Arabia and Japan.

**Table 6-1 Sampling sites**

### 6.4.2 Questionnaire subjects

A total of 1200 trainers and trainees of industrial education were initially invited to participate in the study. Due to the difficulty in gaining access to the classrooms to distribute the questionnaire, three hundred and fifty-seven participants took part in this survey research by filling out the questionnaire: 71 trainers and 286 trainees. Table 6-2 represents the details of the participants.

<b>(A) 71 Trainer respondents</b>			
<b>No.</b>	<b>City</b>	<b>Name of the School</b>	<b>Number of respondents</b>
<b>1</b>	<b>Makkah</b>	Makkah Industrial Vocational Education (MIVET)	13
<b>2</b>	<b>Jeddah</b>	Jeddah Industrial Vocational Education (JIVET)	20
<b>3</b>		Jeddah Technical College (JTCT)	12
<b>4</b>		Saudi Japanese Automobile Higher Institute (SJA HIT)*	14
<b>5</b>	<b>Taife</b>	Taife Industrial Vocational Education (TIVET)	12
<b>(B) 286 Trainee respondents</b>			
<b>No.</b>	<b>City</b>	<b>Name of the School</b>	<b>Number of respondents</b>
<b>1</b>	<b>Makkah</b>	Makkah Industrial Vocational Education (MIVES)	33
<b>2</b>		Makkah Technical College (MTCS)	22
<b>2</b>	<b>Jeddah</b>	Jeddah Industrial Vocational Education (JIVES)	56
<b>3</b>		Jeddah Technical College (JTCS)	22
<b>4</b>		Saudi Japanese Automobile Higher Institute (SJA HIS)*	120
<b>6</b>	<b>Taife</b>	Taife Industrial Vocational Education (TIVES)	33

**Table 6-2 Questionnaire subjects**

#### **6.4.3 Semi-structured interview subjects: Private sector 'other manufacturing' employers**

The researcher conducted semi-structured interviews as part of the sequential strategy in order to enrich the findings of the qualitative data analysis. Initially, the researcher visited local ministry of labour offices in Jeddah and Makkah to get a list of private manufacturing factories to contact. Twenty-three managers of private manufacturing factories in Jeddah and Makkah were contacted, among whom three did not wish to take part. Thirteen were willing to participate in the first interview. Regarding the second data collection phase, the researcher interviewed seven interviewees, among whom five were the same participants in the first interview. In order to identify with more concrete ideas about the desired technical and generic skills for a pool of capable knowledge workers in the private manufacturing industry, these five interviewees who took part in the interview twice were invited to offer their perspectives in this regard. Two new participants—one general manager of aluminium factory and one public secondary school head teacher—joined after long period of time spent on explaining the research background as well as the benefits of participating in the research.

The researcher conducted the first semi-structured interviews with thirteen participants working in the private manufacturing industry. Table 6-3 represents the manufacturing activities and job titles that the interviewed participants fall into.

Code	Technology/ Manufacturing Category	Job Title
1.	Air conditioner manufacturer	Human resource manager
2.	White goods manufacturer	Human resource manager
3.	Fast-food processing manufacturer	Production line manager
4.	Cannery factory (Food processing industry)	English tutor <sup>17</sup>
5.	Plastic shopping packaging factory	Owner
6.	Air cooler manufacturer/supplier	Owner
7.	bottled water manufacturer	General manager
8.	bottled drinking water packaging factory	Factory manager
9.	Carton packaging manufacturer	General manager
10.	Furniture manufacturing company	Owner
11.	Boiler manufacturer	General manager
12.	Mitsubishi automobile company	Mechanic engineer Engineering division <sup>18</sup>
13.	Automobile technology and maintenance	Director <sup>19</sup> of SJAHI

**Table 6-3 Description of thirteen manufacturing categories in this research**

There were seven interviewees taking part in the second semi-structured interview. The seven interviewees are six managers from the industrial factories of the private sector and one school manager of a secondary industrial education in Jeddah (Table 6-4).

Code	Technology/ Manufacturing Category	Job Title
2	White goods manufacturer	Human resource manager
5	Plastic shopping packaging factory	Owner
6	Air cooler manufacturing factory	Owner
9	Carton manufacturing factory	Factory Manager
10	Furniture manufacturing company	Owner
14	Aluminium factory	Human resource manager
15	Jeddah Industrial Vocational Education	Head teacher

**Table 6-4 Description of seven interviewees in this research**

<sup>17</sup> This person is identified as an expatriate worker giving tuition in English.

<sup>18</sup> This person is a graduate of the Saudi Japanese Automobile Higher Institute (SJAHI) working as an engineer in the Mitsubishi Car Company.

<sup>19</sup> The SJAHI is a private technical training school providing job-oriented technical training for young Saudi high school graduates in the field of automobile engineering and maintenance. (SJAHI English website <http://www.sjahi.org/index1.php>).

## 6.5 Data collection procedures

Before proceeding with the data collection it is of great importance to conduct a pilot study (Schnetler, 1989, p.87). According to the definition by the International Development Research Centre website, a pilot study is ‘the preliminary stage of an entire research project and serves as a “trial run” by using a small sample to identify potential problems in the proposed study. Consequently, a good deal of time, effort and money can be saved in the long run (Varkevisser et al., 2003).

Before the questionnaire items were formulated, some Saudi postgraduate students were asked to fill in the questionnaire. These students’ have a professional background as trainers in various technical education and vocational training fields at either secondary or technical college level. They came to Glasgow to study their postgraduate courses with an aim at advancing their professional knowledge and vocational skills. The questionnaire for the study was adopted and modified by the researcher from relevant literature and the questionnaire pilot phase.

The pilot study of the interview and the qualitative questionnaire elements was conducted when the researcher attended the Fifth Saudi Technical Conference and Exhibition (STCEX 2009). This phase helped to identify potential problems with the research instruments (interview questions and the question items of the two sets of questionnaires in this case). Participants in the conference had knowledge of vocational training in Saudi Arabia, and knowledge of cultural aspects of interviewing, therefore the researcher was able to gain valuable insight from them in order to refine the qualitative instruments.

The pilot study also entailed the proofreading of the question items as well as the semi-structured interview questions in English by a native English speaker.



## 6.6 Research Instruments

### 6.6.1 Questionnaire design

A survey method was conducted in the form of a questionnaire as one part of the research instruments in this research. This research developed two sets of questionnaires: a questionnaire for trainers and one for trainees. Each questionnaire set encompasses two parts: (1) 23 question items and (2) two open-ended questions.

The first section was designed to survey stakeholders' opinions across three attributes—perceptions, attitudes, and knowledge—in terms of their perceptions a skills gap between industrial education output and private manufacturing employers' demands for indigenous skilled workers. Namely, each set explores the same three themes investigation: perceptions of industrial education (Question Nos.1-8), attitudes towards industrial education (Question Nos.9-16) and knowledge types essential for industrial education (Question Nos.17-23). These three themes were formulated with reference to the two key issues investigated in this survey:

- 1) a skills gap between industrial education output and private manufacturing industry expectations;
- 2) the implementation of Saudisation in the private sector, with a particular focus on the 'other manufacturing' industries (excluding oil refining and petrochemicals).

The only slight difference between the trainers' questionnaire and the trainees' questionnaire relates to the phrasing of each question. For example, the second theme (attitudes towards industrial education) refers to teaching attitudes in the trainers' questionnaire and to learning attitudes in the trainees' questionnaire. Similarly, the third theme (knowledge types essential for industrial education) refers to 'must-learn' knowledge in the trainees' questionnaire and to 'must-teach' knowledge in the trainers' questionnaire.

The second part included two optional open-ended questions for participants to give their answers in one or two sentences. It is expected to gather more opinions to know what suggestions trainers and trainees would make with regard

to the improvement of the available education and training in the industrial education and job creation for young Saudi entrants in the private sector.

Subjects were asked to express agreement or disagreement on a five-point Likert scale to assess the extent to which the participants of their studies agree or disagree with a particular statement in the given questionnaire (Mcleod, 2008). Participants were asked to respond on the scale across the items: 1 for strongly disagree, 2 for disagree, 3 for not sure, 4 for agree and 5 for strongly agree.

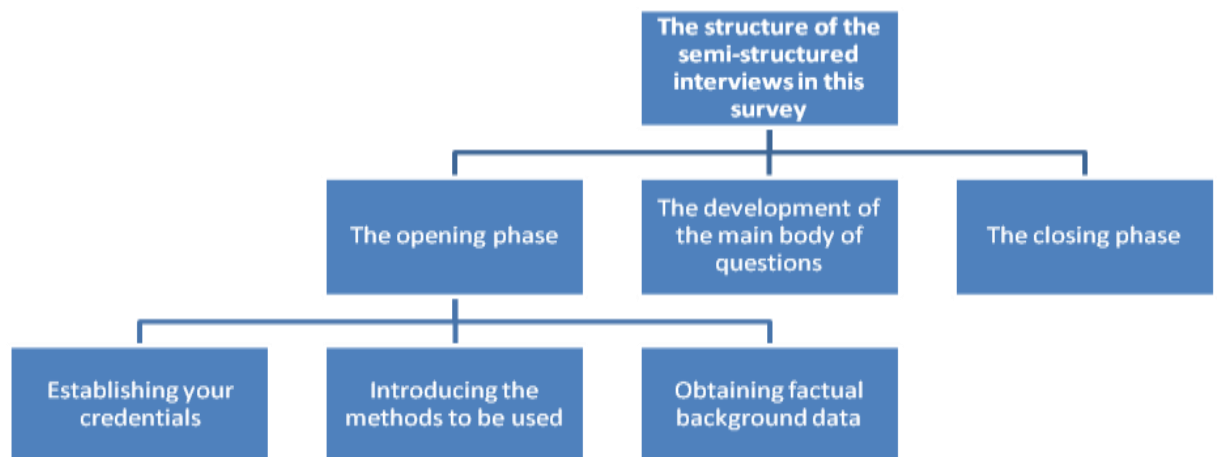
### **6.6.2 Interview design**

The second phase of data collection used in this thesis is the semi-structured interview. Kahn and Cannell (1957) define an interview as ‘a purposeful discussion’ between two or more people. Saunders et al. (2002,p.245) further point out that the purpose of using interviews is to ‘gather valid and reliable data relevant to research question(s) and objectives.’ Buckingham and Saunders(2004), Cohen et al (2007) and Fowler(2002) hold similar views on the purpose of conducting semi-structured personal interviews. They claim that the primary objective of conducting semi-structured personal interviews is to obtain first-hand, in-depth insights into the investigated research problem from selected participants. In this sense, this research seeks to collect the ‘true voice’ of private manufacturing employers about the investigated HRD strategy issues in Saudi labour market context, leading to investigate the main research question:

*How can the output of Saudi Arabian technical education and vocational training be more responsive to labour market needs in terms of the Saudisation policy implemented in the private sector?*

#### **6.6.2.1 Semi-structured interview process and content**

The researcher conducted the semi-structured interview twice in the form of open-ended questions. The total number of first interview was thirteen and they were all conducted over a period of one month from the beginning of February to the beginning of March, 2009. The structure of the semi-structured interviews followed the three phases proposed by Keats (2000): the opening phase, the development of the main body of questions and the closing phase (see Figure 6-2 below).



**Figure 6-2 The Structure of the interviews**

Source: adapted from Keats (2000, pp.47-50)

The researcher conducted the interviews using a fairly open framework which allowed for focused, conversational, two-way communication starting with general questions or topics. Namely, the majority of questions were generated in the course of the interview, allowing the interviewer the flexibility to probe for details and the person being interviewed to discuss issues in detail (Table 6-5).

Interview process	Questions asked	Purpose of this phase
The opening phase	1) Could you please give me some general information on your factory?  (e.g. When was your company established? How many kinds of products does your factory produce?)	To obtain the essential background of the interviewee.
The main body	2) Could you please explain the criteria for selecting new employees in your company/factory?  3) Could you please tell me about how many Saudi graduates from the secondary technical and vocational education system have you been recruiting and about your feelings of their job performance in your company/factory?  4) What is your opinion on the Saudisation policy?	To develop the main themes and explore the responses with probing questions.
The closing phase	5) Could you please share your comments on how to link the practice and the knowledge of manual-based technical and vocational educational training for your company?	To make some recommendations and suggestions for the research question probed

**Table 6-5 The semi-structured interview question protocol in this research**

Source: devised by the researcher based on the work by Keats (2000, pp.47-50)

The first interview was preceded after the distribution of questionnaire to trainers and trainees of industrial education in order to obtain critical, insightful and constructive comments from private manufacturing employers on issues like

- 1) the dynamic impact of specific manufacturing skills, knowledge and work ethics on the productivity, employability and capability that they expected Saudi youths to obtain when entering the workplace;
- 2) factors of their resistance of recruiting Saudi nationals, resulting in the unsuccessful implementation of Saudisation in their factories;

- 3) key criteria in the decision-making of the investment in indigenous HRD strategy with an attempt to meet the demand of the rapid economic growth since the oil windfalls of the 1970s and the early 1980s.

In other words, the purpose of first semi-structured interviews in this survey research was to obtain a deeper understanding from Saudi labour demand side (i.e. private manufacturing industry managers' perspectives) of attributes and of reasons why they are reluctant to implement Saudisation in their factories. In addition, through interviewing these managers, this research attempted to examine the following aspects of Saudi industrial education (Table 6-6):

Aspect	Food for Thought
1) Equivalency of TVET qualifications	<ul style="list-style-type: none"> <li>• What do they mean by asking Saudi job applicants to have the 'equivalent educational qualifications'?</li> <li>• What educational qualifications do they expect these Saudi job applicants to obtain before applying for manufacturing job vacancies?</li> </ul>
2) Necessity of in-service manufacturing skills training	<ul style="list-style-type: none"> <li>• When Saudi workers are recruited without fully qualified manufacturing skills and knowledge, why are these managers reluctant to offer them in-service manufacturing skills training courses?</li> <li>• Could be one major factor resulting in the unsuccessful implementation of Saudisation in the private sector?</li> </ul>
3) Significance of 'in field' internship scheme in collaboration with the school	<ul style="list-style-type: none"> <li>• What are the primary reasons for these managers still preferring recruiting expatriate workers, and not Saudi</li> <li>• How useful will the 'in field' internship be in changing their stereotype of Saudis when recruiting?</li> </ul>

**Table 6-6 Aspects of Saudi industrial education investigated during the interviews**

The second semi-structured interview was conducted with an attempt to enrich the qualitative data by means of categorising the specific technical skills essential for the likelihood of producing knowledge workers in the private manufacturing industry so as to cope with the competitiveness of knowledge-based economy.

Before proceeding with the seven interviews of the second semi-structured interviewing phase, an outline of the concept of knowledge-based economy and the essential concerns—employability, productivity and capability—within the scope of this concept were identified for participants to read in advance. The purpose of doing so was to encourage them to prepare for rich responses to the two parts of interview questions. The interview questions are divided into two

parts: the concept of knowledge-based economy and the understanding of the current Saudi vocational education and training. The interview questions concern a new issue of three types of skills, of which they are regarded necessary and influential to the enhancement of employability, productivity, capability of the Saudi employees in the industrial factories at the private sector (see Appendix 4 ).

The duration of each interview for the first semi-structured interview was approximately thirty to forty-five minutes. Regarding the second semi-structured interview, the duration of each private sector employer interview was approximately thirty to forty minutes; whilst, the interview with a school manager of a secondary industrial education in Jeddah takes up to one hour and thirty minutes with in-depth conversations on the obstacles, challenges, and dilemmas teachers of industrial studies in this public secondary industrial education encounter in reality.

## 6.7 Data analysis techniques

Statistics is the tool employed in this thesis to analyse the quantitative data collected through questionnaire, since quantitative research involves ‘measurements across a sample’ (Punch, 2005, p.109). The interpretation of data in this thesis is performed using statistical techniques (Chi-square, an independent t-test) in terms of descriptive statistics (level of responses, i.e. agreement and disagreement). Then, One-way ANOVA followed by a Scheffe post-hoc analysis to make a further comparison of the three groups of participants’ responses to the survey, i.e. public college trainers, public secondary trainers and SJAHI trainers as one part and public college trainees, public secondary trainees and SJAHI trainees. Quantitative data analysis is carried out by Chi-square to find whether there is a significant association and an independent t-test for comparison of means between two groups of independent variables to examine whether there is a significant difference. One-way ANOVA is utilised to examine whether there is a significant difference in the responses given among three groups of independent variables.

Regarding the method for analysing the qualitative data, coding was utilised to analyse the collected interview transcripts. In the process of coding the collected qualitative data, the researcher adopted a thematic analysis approach to identify the main themes emerging from the data. According to Aronson (1994) and Bazely (2009), there are three key steps to perform a themantic analysis:

- 1) Making a list of the transcribed conversations, patterns of experiences in the form of direct quotes or common ideas’ paraphrasing;
- 2) identifying all data that relate to the specific patterns;
- 3) combining and making a catalogue related patterns into sub-themes.

Themes were then analysed against the literature review and relevant issues were then explored. In particular, during the analysis, themes were compared with segmented labour theory in order to determine the extent of the fit between the themes arising from the data and the main aspects of segmented labour theory as set out in literature.

## 6.8 Ethical considerations

At the initial stage, following the guidelines of the Ethics Committee of Glasgow University, the researcher was required to submit an ethic form to get approval and permission granted before any of the fieldwork and data collection process launched. Expressing respect to human dignity and privacy right, the researcher made every participant recruited aware of his right of the subject to withdraw at anytime by means of a consent form. For example, in the two sets of questionnaire designed for this research, research participants were informed of remaining anonymity in the completion of a questionnaire; namely, they were not required to write their full names since data were not presented at an individual level and the information they provided were treated as confidential.

The researcher also spent a great deal of time explaining the research background and motives of conducting the study as well as the purpose of survey in the form of questionnaire and semi-structured interview, most of the participants consented to take part. In addition, during the interview process, the researcher informed interviewees of their rights and his ethical obligation towards them whenever questions raised an issue of cultural sensitivity (i.e. the subject of Saudisation). In such case, the majority of private sector HR managers or owners participated in this study tend to avoid disclosing honest opinions on this policy; yet two private sector managers in the manufacturing industry were still keen to refuse to take part in the interview for fear that it would lead to the following frustrating situations:

- 1) being in a critical position with the Labour Office when they fail to meet the required quotas of Saudi workers by the government;
- 2) getting heavy financial fines due to their resistance of implementing Saudisation in their companies;
- 3) running a risk at future dealing with the Ministry of Labour with regard to the number of expatriate workers' working visa issued;
- 4) receiving government's official notice of forcing them to close their companies due to their failure of meeting the government's required percentage of Saudi employees.

Furthermore, it is deeply rooted in the Saudi society that Saudis are not free to express personal viewpoints by discussing or by criticising government initiatives, reform schemes or policies (e.g. education reform, new Saudisation scheme).



When recruiting participants working in the public school of industrial education, the researcher encountered a great difficulty in inviting them for a 30-45 minute interview. Even a consent form was given to them as a proof of ensuring confidentiality and privacy right, few head teachers or senior school administrators refused to participate in the interview by informing the researcher of their worries and anxieties of being questioned about any critical vocational educational training issues. In some cases interviewees did not feel free to give their 'true voice' and share valuable information on the ways of upgrading the available workshop facilities and curriculum objectives of industrial education until the researcher stopped recording their responses.

# Chapter 7 Quantitative Data Analysis

## 7.1 Introduction

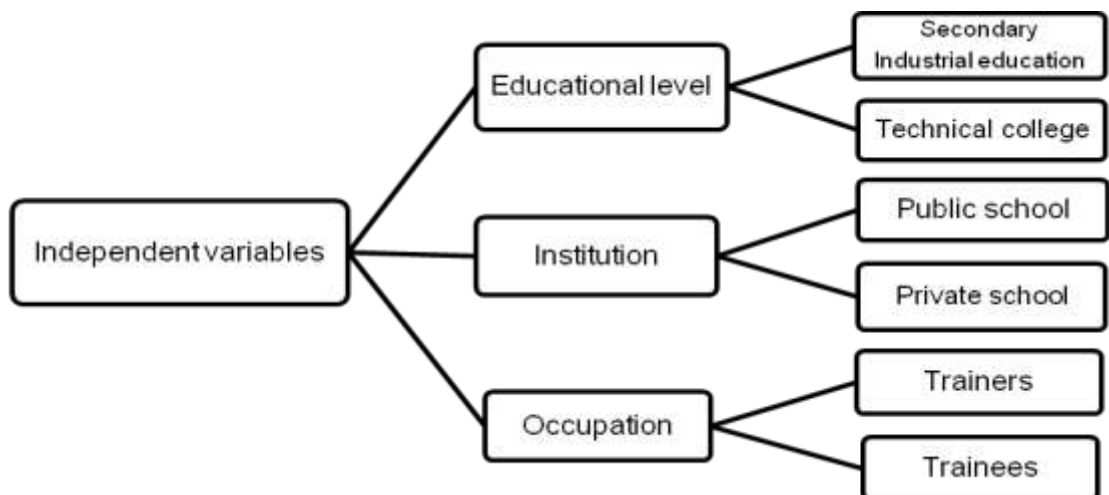
This chapter reports the results of quantitative data analysis to examine perceptions of the effectiveness of Saudi vocational education to support private industry in developing a knowledge-based economy. By examining research participants' responses to perceptions of, attitude towards and knowledge from school to work, it attempts to answer the research question '*How effective is Saudi vocational education system in preparing trainees for employment in the private sector?*'

The quantitative data analysis focuses on the responses given by key stakeholders on the labour supply side: trainers and trainees of industrial education in Saudi Arabia. The purpose of this chapter is, therefore, to analyse the survey results so as to generate findings relevant to the following research questions:

- 1) What kind of vocational educational training do trainers of industrial education consider important and beneficial to prepare Saudi young people to gain private sector employment in the manufacturing industry?
- 2) What kind of vocational educational training do trainees of industrial education consider helpful for them to gain private sector employment in the manufacturing industry?

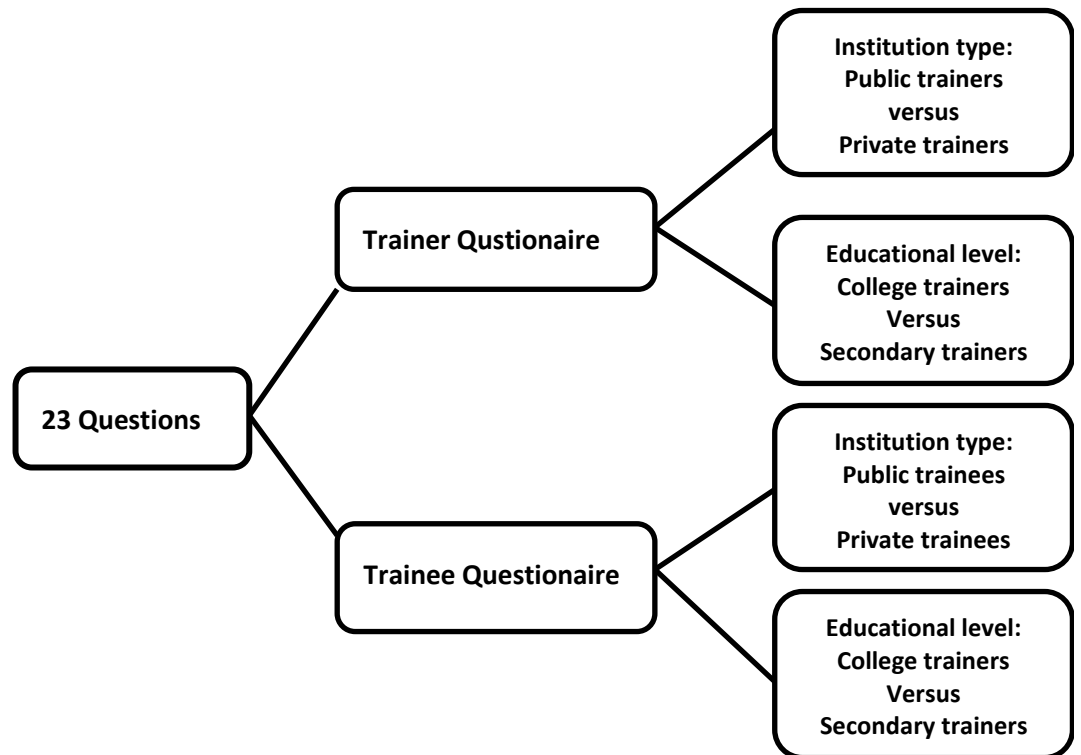
## 7.2 A framework for quantitative data analysis

The completed questionnaires were analysed using various statistical methods. Firstly, descriptive statistics were used with respect to the distribution of samples over independent and dependent variables. As shown in Figure 7-1, the independent variables in this research consisted of three groups—occupations, sectors of employment / study and educational levels. Each independent variable was further sub-divided into two groups. Occupations was divided into trainers and trainees of industrial education. Sectors of employment / study was divided into public and private schools of industrial education. As mentioned in Chapter 5, after completing intermediate education, Saudis can choose from two types of secondary education: general secondary and technical secondary. For this reason, the educational levels addressed are secondary industrial education and technical college.



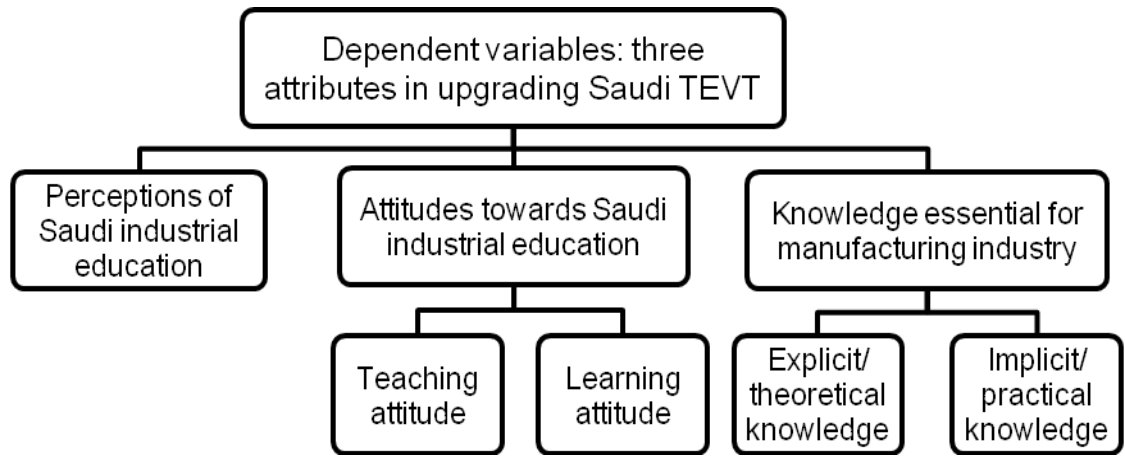
**Figure 7-1 Independent variables of this research**

As shown in Figure 7-2, the questionnaire responses for both groups of participants (trainers and trainees) were analysed to compare the responses according to the other two independent variables-institution type (sectors of employment / study) and educational level.



**Figure 7-2 Questionnaire response analysis classification**

From the literature reviewed in the previous chapters, the researcher is aware that there are three major attributes (social, cultural, and economic) which are frequently a matter of debate in the context of the obstacles and challenges relating to the employment (Saudisation) of Saudi nationals in the private sector. The perception of the key stakeholders to the major attributes already identified effectively shapes their definition of the skills gap. Therefore, the data obtained via the questionnaire has been examined with a view to understanding the perception of specific groups to the key attributes. For this reason, these three attributes were identified as the dependent variables of this research. Figure 7-3 presents three aspects of the dependent variables related to the upgrading of Saudi industrial education: Perceptions of Saudi industrial education, teaching/learning attitudes towards Saudi industrial education and explicit/implicit knowledge essential for the manufacturing industry. Each dependent variable involves some matters of concern, as mentioned in (Chapter 2-5).



**Figure 7-3** Dependent variables in this research

### 7.3 Method of data analysis

The statistical package for social sciences (SPSS software) and Excel spreadsheets were utilised to analyse the quantitative data. Three layers of statistical tests were employed since no single test showed strong associations. However, by using the staged approach the subtleties in the data could be explored. To test for associations between attributes, Chi-square tests were used while T-tests were used to compare responses of two groups. When more than 2 groups are to be compared, one-way ANOVA or Welch tests were conducted as appropriate. Following ANOVA, either Scheffé's multiple comparisons test or the Games Howell test was used (see Appendix 5 for more details on the tests and how they were used).

The first step was to report the Chi-square results. The purpose of this was to find associations between responses to questionnaire items and respondents' characteristics (sector of employment / study and educational level) for trainer / trainee groups.

The second step was to re-examine the quantitative results by performing a t-test, which used the five responses categories from the Likert scale across the items in each dependent variable of the questionnaire. They were used to determine the effects of participants' sectors of employment / study (public versus private school of education) and educational levels on their perceptions of, attitudes towards and knowledge of industrial education.

The third step was to employ One-way ANOVA followed by an appropriate post-hoc test when necessary. ANOVA would find if there was a significant difference in the responses between the 3 trainer and trainee groups. If differences were found, the post-hoc test was used to make pair wise comparisons of the means to determine specific differences in the ratings of trainers and trainees of industrial education on the perceptions of, attitudes towards and knowledge of industrial education.

The final step was to explore the two optional open-ended questions in the two sets of questionnaire. The purpose of analysing the answers to these two open-

ended questions was to explore further in-depth the role of vocational education and the issue of Saudisation implemented in the private sector.

The purpose of using this approach to analyse all the responses to the questionnaires is to obtain an understanding of the following:

- 1) What are the variations in agreement and disagreement among the respondents (for example public trainers versus private trainers)?
- 2) Based on the analysis of the level of difference in responses, the researcher will attempt to discover the answers to the research questions.
- 3)  $\chi^2$  tests can be used to investigate associations between sub groups of the main variables.
- 4) Each variable can be divided into two independent groups and therefore it is possible to use a T-test (2 independent) to investigate differences between the two groups' responses to questionnaire items.
- 5) ANOVA was used to investigate significant differences in responses between groups when 3 trainer or trainee groups were involved.

In addition, the sample size, while not large, gives some indication of the views of the subjects and the following considerations are relevant.

- 1) the limited research population (i.e. prospective Saudi young workforce who are specialised in manufacturing studies);
- 2) participants' characteristics (i.e. trainers or trainees would be conservative, especially in a cultural context like the Middle East and unlikely to wish to criticise the training they offer or received)
- 3) a concern for the fact that some questions of a critical nature have not been truthfully answered.
- 4) Due to insufficient variation in responses, categories were collapsed from 5 categories down to 3 (1=agree, 2=not sure, 3=disagree) when performing Chi-square tests and T-tests. 5 response categories were still used for ANOVA.

The main findings of the quantitative analysis will now be discussed, first with respect to the trainers' perceptions, and then with regard to the trainees' perceptions of industrial education.

## 7.4 Social factors

According to Ramady (2010c), Saudi nationals' poor perception of industrial education has led to a skills gap emerging in the job market of the private sector. Part 1 of the questionnaires concern eight questions designed to explore the perceived image of the industrial education in Saudi Arabia. These eight issues were then divided into three conceptual categories for the purpose of reporting the statistical results. Items 1 and 2 concern the social status of vocational and technical education. Items 3, 5 and 6 refer to the content and underlying philosophy of vocational education. Items 4, 7 and 8 refer to the individual and economic outcomes of vocational education.

### 7.4.1 Trainers' perceptions of industrial education

Chi-square tests were used to examine whether there was a significant association between questionnaire respondents' characteristics (employment sector and educational level) and levels of responses to statements regarding perceptions of industrial education. Due to small cell counts, the assumptions for Chi-square were violated and responses had to be collapsed into 3 categories but this still sometimes resulted in violation of assumptions. Furthermore, Independent-samples t-tests were conducted to compare the means of the independent variables between 2 groups. Table 7-1 summarises the significant relationships of the eight questionnaire items in relation to trainers' perceptions of industrial education.

Variable		$\chi^2$	T-test
employment sector	public	Items 1,2,3,7,8	Items 2,6,7,8
	private		
educational sector of employment	College	Items 2,3	Items 2,3,6
	secondary		

**Table 7-1 Items with significance on  $\chi^2$  and T-test for attribute 1 (trainer group comparison)**

As shown in Table 7-2, there was a significant association between trainers' employment sector and levels of responses related to social status (Items 1 and 2), content (Item 3) and economic outcomes of vocational education (Items 7 and 8). However, these results should be interpreted with caution as Chi-square assumptions were violated in all cases here.



Conceptual category	Item	$\chi^2$	Significance
social status	1 <sup>a</sup>	8.590	**
	2 <sup>a</sup>	36.490	*
Content	3 <sup>a</sup>	6.956	**
economic outcome	7 <sup>a</sup>	6.401	**
	8 <sup>a</sup>	13.380	*

**Table 7-2 Chi-square results by conceptual category for attribute 1 (public versus private trainers)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%.

<sup>a</sup> indicates that Chi-square assumptions were violated.

Table 7-3 shows that there was a significant association between trainers' educational level of employment and their levels of responses given for Items 2 (social status) and 3 (content). Note that Chi-square assumptions were violated for Item 2.

Conceptual category	Item	$\chi^2$	Significance
social status	2 <sup>a</sup>	13.626	*
Content	3	8.732	**

**Table 7-3 Chi-square results by conceptual category for attribute 1 (college versus secondary trainers)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%.

<sup>a</sup> indicates that Chi-square assumptions were violated.

A t-test was adopted to examine if there was a significant difference in the responses given by trainers of different employment sectors or different educational level of employment (see Table 7-4 and Table 7-5). Levene's test was used to check the assumption of equality of variances in the 2 groups.

Item 1-8 (in order)	Public	Private	Significance
largely associated with manual jobs	1.20	1.71	Ns
a symbol of low social status	1.20	2.50	*
merely about skills for operating machines	2.44	2.00	Ns
training beneficial to trainees' future employment	1.39	1.23	Ns
more hands-on practice than theoretical concepts	1.32	1.64	Ns
improving labour supply quality in terms of up-to-date skills	1.51	1.07	*
key role in the country's industrial development	1.58	1.14	**
bridge the gap between education output and business expectations	1.95	1.14	*

**Table 7-4 T-test for attribute 1 (public versus private trainers)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%.

Assumptions were violated for Items 1, 2, 3, 5, 6, 7 and 8; T-test results not assuming equal variances are reported for these Items.

Comparing the mean scores split by trainers' employment sector, there was a significant difference found in their responses to Item 2 ( $t=-5.491$ ,  $df=15.136$ ,  $p<0.01$ ), Item 6 ( $t=3.703$ ,  $df=57.233$ ,  $p<0.01$ ), Item 7 ( $t=2.501$ ,  $df=27.326$ ,  $p<0.05$ ) and Item 8 ( $t=4.415$ ,  $df=31.534$ ,  $p<0.01$ ). The private trainers at the SJAHI consider industrial education to be more important in preparing Saudi workers for private sector employment as they expressed more disagreement to the notion it is a symbol of low social status. Furthermore, public trainers were more likely to disagree that industrial education provides up-to-date skills and suitably prepares people for business according to expectations.

As shown in Table 7-5, there were significant differences in the mean scores of responses to Item 2 ( $t=3.369$ ,  $df=33.618$ ,  $p<0.01$ ), Item 3 ( $t=-3.066$ ,  $df=69$ ,  $p<0.01$ ) and Item 6 ( $t=-2.643$ ,  $df=68.666$ ,  $p=0.01$ ) between technical college trainers and secondary industrial education trainers. Therefore, these results suggest that secondary trainers have a more negative attitude towards industrial education. They agree that it is a symbol of low social status, think it just provides skills for operating machinery and do not believe that it gives up-to-date skills.

Item 1-8 (in order)	college	secondary	Significance
largely associated with manual jobs	1.46	1.20	Ns
a symbol of low social status	1.88	1.20	*
merely about skills for operating machines	1.96	2.58	*
training beneficial to trainees' future employment	1.36	1.36	Ns
more hands-on practice than theoretical concepts	1.62	1.24	Ns
improving labour supply quality in terms of up-to-date skills	1.19	1.56	*
key role in the country's industrial development	1.42	1.53	Ns
bridge the gap between education output and business expectations	1.54	1.93	Ns

**Table 7-5 T-test for attribute 1 (college versus secondary trainers)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Assumptions were violated for Items 1, 2, 5 and 6; T-test results not assuming equal variances are reported for these items.

Analysis of variance (ANOVA) was used as the third layer of statistical analysis to determine statistical significances among the three identified demographic groups, i.e. public college trainers, public secondary trainers and SAHI trainers. If a demographic group was determined to have a statistically significant difference from ANOVA, results were further examined using appropriate post-hoc analysis, which was used to find any statistically significant differences

among demographic subgroups. If the homogeneity of variances assumption was violated, the Welch test was used instead of ANOVA and the Games Howell test was used instead of the Scheffé test. It should be noted that responses based on 5 categories were used for these analyses.

According to Table 7-6, results of the post-hoc analysis indicated that SJAHI trainers were significantly different from public college trainers and secondary industrial trainers with their ratings on the level of response to the first conceptual category (social status of industrial education, Item 2) of the perceived industrial education. This result implied that SJAHI trainers paid more attention to the social status of industrial education than the other two trainer groups. Note that significant differences between groups was also found for Item 1 but post-hoc analysis did not find any specific differences between pairs of groups.

In addition, the post-hoc tests indicated that public secondary industrial education trainers were significantly different from SJAHI trainers with their ratings on the second conceptual category (the content and philosophy of industrial education) of trainers' perceptions on the image of industrial education. The results regarding Item 3 showed that public secondary trainers were more likely to disagree with the opinion that industrial education is only about skills for operating machines compared with public college trainers. The results for Item 6 revealed that public secondary industrial education trainers expressed more disagreement to the statement that industrial education provides up-to-date skills than SJAHI trainers. These results reflect that Saudi trainers teaching at public schools of industrial education still hold a traditional value of industrial education, indicating important human resources implications of national culture. Based on Cassell and Blake's (2012) analysis of Saudi nationals' employment in the private sector using Hofstede's 5-D model of national culture, Saudi Arabia falls into the category of

- 1) high power distance;
- 2) employee selection tends to give more emphasis to social class
- 3) training tends to emphasize conformity,
- 4) evaluations focus on compliance or trustworthiness, and

- 5) motivation is based on the assumption that subordinates dislike work and hence is more coercive (rather than assuming employees like work and trying to strengthen their motivation through intrinsic and extrinsic rewards).

Furthermore, the post-hoc test implied that SJAHI trainers were significantly different from public college trainers and public secondary industrial education trainers with their ratings on the level of response to the third conceptual category (the individual / economic outcome of industrial education) of trainers' perceptions on the image of industrial education. This result implied that SJAHI trainers had more positive impressions to the economic outcomes of industrial education than the other two trainer groups.

Item 1-8 (in order)	Public college (A)	Public secondary (B)	SJAHI (C)	Sig	Post Hoc
largely associated with manual jobs	2.00	1.61	2.64	**	ns
a symbol of low social status	1.75	1.95	3.79	*	C > B* C > A*
merely about skills for operating machines	2.83	3.76	3.29	**	B > A**
training beneficial to trainees' future employment	2.25	2.18	1.62	Ns	Ns
more hands-on practice than theoretical concepts	2.33	2.02	2.50	Ns	Ns
improving labour supply quality in terms of up-to-date skills	2.17	2.33	1.43	*	A > C** B > C*
key role in the country's industrial development	2.58	2.36	1.57	**	Ns
bridge the gap between education output and business expectations	3.00	2.89	1.79	*	A > C** B > C*

**Table 7-6 ANOVA and Post-hoc results for attribute 1 (3 trainer groups)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Homogeneity of variances was violated for Items 1, 2, 3 and 6; Welch test and Games Howell test results are reported for these items.

To sum up, both college and secondary school trainers agree that there is a need to upgrade industrial education. Public and private trainers share a high degree of similarity in their responses with respect to the aim, role, and potential outcomes of Saudi industrial education. This result indicates that trainers of industrial education are aware of a need to change the traditional image of industrial education. This result supports the argument by AlQurashi (2009, p. 110-111), in which he assumes that family and cultural values strongly influence how Saudi nationals perceive the nature of vocational educational training.

Since the ties and obligations of family, relatives and tribe are central to the establishment of values, ambition and self-image of individuals (AlQurashi, 2009, p. 110-111), this result also implies that both public and private schools of Saudi industrial education should help young Saudis to develop more positive perceptions of industrial education in the process of preparing for the workplace.

Since public school trainers have higher levels of agreement with the claim that industrial education is commonly perceived to have low social value in Saudi society, this result implies that they believe that the skills training courses available in industrial education were to help Saudi nationals to find low-wage, physical-oriented, menial jobs. Such a poor impression of industrial education resulted in their attempts to direct trainees with a set of manual-oriented skills training, for they do not take it seriously to relate their teaching content to the career path of manufacturing jobs in the private sector.

### 7.4.2 Trainees' perceptions of industrial education

The same method of statistical analysis (Chi-square followed by Independent-sample t-test and One-way ANOVA with appropriate post-hoc analysis) was adopted to explore the responses from the trainee groups with regard to their perceptions of industrial education. Table 7-7 summarises the main results from trainees for the eight questionnaire items related to perceptions of industrial education.

Variable		$\chi^2$	T-test
Enrolment institution (study sector)	public	Item 2,3,5,6	Item 2,3,5,6
	private		
educational level of enrolment	College	Item 2,3,4,5,6	Item 2,4,5,6
	secondary		

**Table 7-7 Items with significance on  $\chi^2$  and T-test for attribute 1 (trainee group comparison)**

The Chi-square results indicated that trainees' enrolment institution (study sector) was significantly associated with the level of responses to Items 2, 3, 5 and 6 which concerned the social status and content of industrial education. As shown in Table 7-8, there was a significant association between trainees' sector of study (public / private school of education) and levels of responses related to the social status (Item 2), and the content and underlying philosophy of vocational education (Items 3, 5 and 6). Table 7-9 shows that there was a significant association between trainees' educational level of enrolment and the level of responses in relation to Items 2-6 by the four identified conceptual categories. In contrast to the analysis on trainers, the Chi-square assumptions were never violated when using responses collapsed into 3 categories.

Conceptual category	Item	$\chi^2$	Significance
social status	2	9.217	*
Content	3	11.889	*
underlying philosophy	5	28.813	*
	6	7.016	**

**Table 7-8 Chi-square results by conceptual category for attribute 1 (public versus private trainees)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%

Conceptual category	Item	$\chi^2$	Significance
social status	2	18.898	*
Content	3	9.575	*
Individual outcome	4	9.913	*
underlying philosophy	5	19.226	*
	6	6.639	**

**Table 7-9 Chi-square results by conceptual category for attribute 1 (college versus secondary trainees)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%

T-tests were also conducted to examine whether there was a significant difference between the two trainee groups by two different comparison techniques, i.e. the school they enrol and the educational level they study. It was found that there was a significant difference in their opinions on Item 2 ( $t=-2.897$ ,  $df=281$ ,  $p<0.01$ ), Item 3 ( $t=-3.551$ ,  $df=262.926$ ,  $p<0.01$ ), Item 5 ( $t=-5.208$ ,  $df=212.218$ ,  $p<0.01$ ) and Item 6 ( $t=2.474$ ,  $df=282.969$ ,  $p<0.05$ ) when comparing public and private trainees. These results are summarised in Table 7-10.

Therefore, private trainees are more likely to disagree to the statements that industrial education is a symbol of low social status, is merely about skills for operating machinery and involves more hands-on practice than theoretical concepts. However, private trainees are slightly more likely to agree on the opinion that industrial education improves the labour supply quality by offering up-to-date skills.

Item 1-8 (in order)	public	Private	Significance
largely associated with manual jobs	1.16	1.11	Ns
a symbol of low social status	2.02	2.33	*
merely about skills for operating machines	2.04	2.41	*
training beneficial to trainees' future employment	1.85	2.04	Ns
more hands-on practice than theoretical concepts	1.31	1.79	*
improving labour supply quality in terms of up-to-date skills	1.27	1.13	**
key role in the country's industrial development	1.15	1.15	Ns
bridge the gap between education output and business expectations	1.32	1.27	Ns

**Table 7-10 T-test for attribute 1 (public versus private trainees)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Assumptions were violated for Items 3, 5 and 6; T-test results not assuming equal variances are reported for these items.

In addition, a significant difference was found in the comparison of college and secondary industrial education trainees' response to Item 2 ( $t=3.744$ ,  $df=241.995$ ,

$p < 0.01$ ), Item 4 ( $t = 3.123$ ,  $df = 281$ ,  $p < 0.01$ ), Item 5 ( $t = 4.342$ ,  $df = 281.337$ ,  $p < 0.01$ ), and Item 6 ( $t = -2.370$ ,  $df = 217.797$ ,  $p < 0.05$ ) (see Table 7-11). Hence, this suggests that college trainees (compared with secondary trainees) are more likely to express disagreement with the statements that industrial education training is a symbol of low social status, is beneficial for future employment and gives more hands-on practice than theoretical concepts. On the contrary, secondary college trainees are a little more likely to disagree with the statement that industrial education improves labour supply by providing up-to-date skills.

Item (No.1-8 in order)	college	Secondary	Significance
largely associated with manual jobs	1.15	1.12	Ns
a symbol of low social status	2.32	1.93	*
merely about skills for operating machines	2.27	2.08	Ns
training beneficial for future employment	2.07	1.73	*
more hands-on practice than theoretical concepts	1.67	1.30	*
improving labour supply quality in terms of up-to-date skills	1.15	1.30	**
key role in the country's industrial development	1.13	1.17	Ns
bridge the gap between education output and business expectations	1.27	1.34	Ns

**Table 7-11 T-test for attribute 1 (college versus secondary trainees)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Assumptions were violated for Items 2, 3, 5, 6 and 8; T-test results not assuming equal variances are reported for these items.

Table 7-12 shows the ANOVA and post-hoc results for attribute 1 from three trainee groups' perspectives. Note that ANOVA is performed using responses based on 5 categories. Items 2, 3 and 5 gave statistically significant differences in the mean scores given by the three trainees groups. Post-hoc analysis suggests that SJAHI trainees were significantly different from public secondary industrial trainees with their ratings on the level of response to the first conceptual category (social status of industrial education, Item 2) of the perceived industrial education. This result implied that SJAHI trainees expressed more disagreement to the statement that industrial education has low social status compared with secondary trainees.

With regard to the content of industrial education (Item 3), the result of the post-hoc tests implied that public college trainees and public secondary trainees were not significantly different. SJAHI trainees' mean scores significantly differed from the other 2 groups of trainees. This suggests that SJAHI trainees were more likely to disagree that industrial education is merely about skills for operating machines.



Item 1-8 (in order)	Public college (A)	Public secondary (B)	SJAHl (C)	Sig	Post Hoc
largely associated with manual jobs	1.80	1.56	1.60	Ns	Ns
a symbol of low social status	3.33	2.98	3.53	*	C > B*
merely about skills for operating machines	2.86	3.13	3.61	*	C > A* C > B**
training beneficial for future employment	3.26	2.63	2.97	**	Ns
more hands-on practice than theoretical concepts	1.91	1.86	2.68	*	C > A* C > B*
improving labour supply quality in terms of up-to-date skills	1.77	1.91	1.70	Ns	Ns
key role in the country's industrial development	1.47	1.60	1.56	Ns	Ns
bridge the gap between education output and business expectations	2.00	1.98	1.88	Ns	Ns

**Table 7-12 ANOVA and Post-hoc results for attribute 1 (3 trainee groups)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Homogeneity of variances was violated for Items 2, 3 and 5; Welch test and Games Howell test results are reported for these items.

The post-hoc contrasts determined that public college trainees and public secondary industrial education trainees differed significantly from SJAHl trainees with regard to the underlying philosophy of industrial education (Item 5). This result indicated that SJAHl trainees disagreed more than the other 2 trainee groups to the statement that industrial education offers more hands-on practice than theoretical concepts. To sum up, the key issues arising from trainee groups' responses include the following:

- 1) Skills training in the content of industrial education should be up-to-date.
- 2) Concerning approaches for better career preparation, the classroom activities of industrial education should focus more on hands-on practices.
- 3) Entering the era of knowledge-based economy, the image of industrial education in the Saudi society should no longer be limited to the acquisition of physical efforts for productivity. Instead, a new outlook of industrial education should be associated with a picture of producing human capital with 'first class mentality' (Hamzah and Abdullah, 2009).
- 4) Concerning the increasingly significant role of manufacturing industry in the Kingdom's economic development, there is a need for restructuring the orientations of industrial education; a shift in perception from a symbol of 'manual,' 'low social status,' 'academic failures/dropouts' to a new symbol of 'creative,' 'innovative,' 'career specialist preparation' (Ramady, 2010b).

## 7.5 Cultural factors

Ramady (2010c) and Looney (2004d) both assume that a deeply-rooted cultural attitude towards certain types of work such as private sector employment and manual-based jobs has been inherent in Saudi society. Concerning factors affecting work performance, some researchers argue that attitudes have a great effect on how much employees can be dedicated to their jobs (Beidas, 2009). Metle (2002) argues that the influence of traditional culture on attitudes towards employment sector is commonly seen in most GCC countries.

The seven issues (Questions 9 to 15) in relation to the expected attitude toward industrial education from labour demands' perspective are addressed in different ways in the trainers' questionnaire and the trainees' questionnaire. For this reason, this part attempts to analyse separately the appropriate attitude toward industrial education in terms of two types of attitude identified in this chapter-teaching attitude and learning attitude served as cultural factors for bridging a skills gap.

Under this premise, three conceptual categories were identified. The statements of Items 9-11 were related to employability outcomes of vocational educational training. Items 12-14 comprised issues related to the fit between vocational educational training and the needs of the economy and business. The statement of Item 15 concerned the value of receiving up-to-date industrial education.

### 7.5.1 Trainers' teaching attitudes towards industrial education

Using 3 response categories was necessary due to small cell counts but this still resulted in violation of assumptions. Significant results using Chi-square and T-tests were only observed for Item 12 which was a statement related to the fit between industrial education and the requirements of the economy and business (see Table 7-13).

Variable		$\chi^2$	T-test
employment sector	public	Item 12	Item 12
	private		
educational sector of employment	College	Item 12	No Items
	secondary		

**Table 7-13 Items with significance on 12 and T-test for attribute 2 (trainer group comparison)**

Table 7-14 shows there was a significant association found between trainers' employment sector (public versus private) and levels of responses to Item 12. As shown in Table 7-15, there was also a significant association found between trainers' educational level of employment and their levels of responses given in relation to Item 12. However, in both cases, the assumptions for Chi-square were not valid.

Conceptual category	Item	$\chi^2$	Significance
School-industry collaboration	12 <sup>a</sup>	17.217	*

**Table 7-14 Chi-square results by conceptual category (public versus private trainers)**

Note: \* indicates significance at better than 1%. <sup>a</sup> indicates that Chi-square assumptions were violated.

Conceptual category	Item	$\chi^2$	Significance
School-industry collaboration	12 <sup>a</sup>	6.167	**

**Table 7-15 Chi-square results by conceptual category (college versus secondary trainers)**

Note: \*\* indicates significance at better than 5%. <sup>a</sup> indicates that Chi-square assumptions were violated.

Table 7-16 indicated that there was significant difference between public and private trainers' opinions on Item 12 ( $t=-2.694$ ,  $df=14.233$ ,  $p<0.05$ ). The result suggests that private trainers show higher levels of disagreement towards the statement the industrial education curriculums should include the understanding of global concepts. For all other Items concerning teaching attitudes, public and private trainers generally responded with agreement. Table 7-17 shows that no

significant differences between college and secondary industrial trainers could be found concerning Items 9-15.

Item (No.9-15 in order)	public	private	Significance
teaching skills sought by the labour market in relation to employability	1.26	1.21	Ns
preparing VET trainees for the world of work	1.21	1.07	Ns
providing a generic skills base and expertise in manufacturing	1.26	1.29	Ns
Understanding of global concepts such knowledge economy and knowledge workers	1.16	1.86	**
creating collaborative projects with the private sector	1.11	1.14	Ns
linking the VET with the economic objectives and business performance in the workplace	1.23	1.29	Ns
receiving up-dated trainer education related to the trend in manufacturing development	1.06	1.14	Ns

**Table 7-16 T-test for attribute 2 (public versus private trainers)**

Note: \*\* indicates significance at better than 5%. Assumptions were violated for Items 10 and 12; T-test results not assuming equal variances are reported for these items.

Item (No.9-15 in order)	college	secondary	Significance
teaching skills sought by the labour market in relation to employability	1.15	1.31	Ns
preparing VET trainees for the world of work	1.19	1.18	Ns
providing a generic skills base and expertise in manufacturing	1.19	1.31	Ns
Understanding of global concepts such knowledge economy and knowledge workers	1.50	1.18	Ns
creating collaborative projects with the private sector	1.08	1.13	Ns
linking the VET with the economic objectives and business performance in the workplace	1.27	1.22	Ns
receiving up-dated trainer education related to the trend in manufacturing development	1.12	1.05	Ns

**Table 7-17 T-test for attribute 2 (college versus secondary trainers)**

Note: \*\* indicates significance at better than 5%. Assumptions were violated for Items 9 and 12; T-test results not assuming equal variances are reported for these items.

Table 7-18 shows the ANOVA and post-hoc test results for attribute 2, i.e. appropriate attitude towards industrial education from three trainer groups' perspectives. The result of the post-hoc tests determined two items (Items 12 and 15) that reached statistically significant differences in the mean scores given by three trainers groups. SJAHI trainers' mean scores on item 12 were significantly higher than public college and public secondary trainers mean scores indicating more disagreement. This result implied that SJAHI trainers disagreed more on the statement that industrial education should put more emphasis on understanding knowledge economy and globalisation compared with the other 2 groups. SJAHI trainers also expressed significantly more disagreement towards the statement that receiving up-dated trainer education is beneficial compared with public secondary trainers.

Item 9-15 (in order)	Public college (A)	Public secondary (B)	SJAHl (C)	Sig	Post Hoc
teaching skills sought by the labour market in relation to employability	1.42	1.69	2.07	ns	Ns
preparing VET trainees for the world of work	2.08	1.69	1.71	ns	Ns
providing a generic skills base and expertise in manufacturing	1.83	1.87	2.00	ns	Ns
Understanding of global concepts such knowledge economy and knowledge workers	1.58	1.84	2.86	*	C > A* C > B**
creating collaborative projects with the private sector	1.67	1.67	2.00	ns	Ns
linking the VET with the economic objectives and business performance in the workplace	1.75	1.84	2.29	ns	Ns
receiving up-dated trainer education related to the trend in manufacturing development	1.64	1.24	1.86	**	C > B**

**Table 7-18 ANOVA and Post-hoc results for attribute 2 (3 trainer groups)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Homogeneity of variances was violated for Item 12; Welch test and Games Howell test results are reported for this item.

### 7.5.2 Trainees' learning attitudes towards industrial education

The statements with regard to trainees' learning attitudes were designed slightly differently from those of trainers' teaching attitudes towards industrial education. The seven statements were designed in such a way as to account for certain typical culturally-rooted concerns in the GCC countries, where vocational educational training along with manual-based jobs in the private sector have been associated with people having low skills, physically-loaded working conditions as well as low income (Al-Munajjed et al., 2011). These conceptual categories in relation to trainees' learning attitudes toward industrial education were primary orientations of skills training for private sector employment (Items 9 and 10), school-to-work linkage by an access to up-to-date private sector developmental information (Item 12), family / social value for employment sector (Items 11 and 15) and individual concerns in the decision-making of private sector employment (Items 13 and 14).

Variables	Conceptual category	Item	$\chi^2$	Significance
Sector of study (public vs private)	School-to-work linkage	12 <sup>a</sup>	6.980	**
	family / social value for employment	15	6.777	**
Educational level (college vs secondary)	Primary orientations of skills training	10 <sup>a</sup>	7.343	**

**Table 7-19 Chi-square results by conceptual category for attribute 2 (public versus private trainees and college vs secondary trainees)**

Note: \*\* indicates significance at better than 5%. <sup>a</sup> indicates that Chi-square assumptions were violated.

Table 7-19 showed three items that revealed a significant degree of association, two of which violated Chi-square assumptions (Items 10 and 12). This result indicated that the work values of the training available in the industrial education are significantly associated with Saudi trainees' study sectors. It is also implied that how Saudi family members perceive and how the Saudi society values on employment categories (public / private sector employment) had a significant association with Saudi trainees' study sector. On the other hand, the Saudi trainees' educational level was significantly associated with the benefits of receiving skills training necessary for work conditions.

Item (No.9-15 in order)	public	private	Significance
a manual based job in the public sector	1.36	1.44	Ns
VET serves as a springboard for manual-based employment	1.18	1.08	**
higher social value on VET	1.14	1.07	Ns
receiving up-to-date VET training for manufacturing employment in the private sector	1.16	1.04	*
major financial concern, i.e. the amount of salary in the decision-making of private sector employment	1.48	1.55	Ns
major employment location concern in the decision-making of private sector employment	1.56	1.61	Ns
family expectations on the sector of employment	1.64	1.90	*

**Table 7-20 T-test for attribute 2 (public versus private trainees)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Assumptions were violated for Items 10, 11 and 12; T-test results not assuming equal variances are reported for these items.

Table 7-20 presents the t-test results on the seven items in relation to trainees' learning attitude towards industrial education. There were three items that showed a significant difference in the comparison of public and private industrial education trainees' response—Item 10 ( $t=2.167$ ,  $df=275.741$ ,  $p<0.05$ ), Item 12 ( $t=2.788$ ,  $df=260.425$ ,  $p<0.01$ ) and Item 15 ( $t=-2.602$ ,  $df=275$ ,  $p=0.01$ ). For Items 10 and 12, despite significant differences being found, mean scores seemed to indicate agreement for both public and private trainees (mean scores were both close to 1 which is the score given to agreement). On the whole, public and private trainees both expressed agreement to all of the Items with the exception of Item 15 where private trainees appeared to express a slightly greater degree of disagreement than public trainees.

Comparing college trainees with secondary trainees using T-tests showed significant differences in their responses to Items 10 ( $t=-2.344$ ,  $df=176.784$ ,  $p<0.05$ ) and 15 ( $t=2.022$ ,  $df=275$ ,  $p<0.05$ ) (see Table 7-21), indicating that college trainees may not have been as affected by their family situation while on the whole, college and secondary trainees generally expressed agreement to the notion that industrial education acts as a springboard for manual-based employment despite significant differences being discovered.

Item (No.9-15 in order)	college	secondary	Significance
a manual based job in the public sector	1.43	1.34	Ns
VET serves as a springboard for manual-based employment	1.08	1.20	**
higher social value on VET	1.08	1.15	Ns
receiving up-to-date VET training for manufacturing employment in the private sector	1.08	1.15	Ns
major financial concern, i.e. the amount of salary in the decision-making of private sector employment	1.55	1.45	Ns
major employment location concern in the decision-making of private sector employment	1.56	1.61	Ns
family expectations on the sector of employment	1.84	1.63	**

**Table 7-21 T-test for attribute 2 (college versus secondary trainees)**

Note: \*\* indicates significance at better than 5%. Assumptions were violated for Items 10, 11, 12 and 13; T-test results not assuming equal variances are reported for these items.

Item 9-15 (in order)	Public college (A)	Public secondary (B)	SJAHl (C)	Sig	Post Hoc
a manual based job in the public sector	2.07	1.91	2.07	ns	Ns
VET serves as a springboard for manual-based employment	1.65	1.64	1.49	ns	Ns
higher social value on VET	1.57	1.59	1.45	ns	Ns
receiving up-to-date VET training for manufacturing employment in the private sector	1.77	1.61	1.36	*	A > C* B > C**
major financial concern, i.e. the amount of salary in the decision-making of private sector employment	2.34	2.07	2.18	ns	Ns
major employment location concern in the decision-making of private sector employment	2.20	2.35	2.26	ns	Ns
family expectations on the sector of employment	2.52	2.40	2.83	**	Ns

**Table 7-22 ANOVA and Post-hoc results for attribute 2 (3 trainee groups)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Homogeneity of variances was violated for Items 10, 12 and 14; Welch test and Games Howell test results are reported for this item.

According to Table 7-22, the results of the one-way ANOVA indicated that there was significant difference among three trainee groups' response to the school-work linkage (Item 12) and the value of up-to-date industry development trends (Item 15). However, ANOVA only showed borderline significance ( $p=0.047$ ) for Item 15 and the Scheffé post-hoc test indicated that no significant difference existed among the means of the three trainee groups. For Item 12, public college and public secondary trainees showed higher levels of disagreement to the statement that receiving up-to-date training in industrial education is beneficial compared with SJAHl trainees.



To sum up, among the seven issues addressed in relation to trainees' appropriate learning attitude towards industrial education, there are three key issues that trainees considered to be beneficial for their future career development. These were:

- 1) perceptions of the importance of receiving up to date vocational education;
- 2) perception that vocational education has low status and may not necessarily lead to higher status work;
- 3) perceptions that effective teaching in vocational education could lead to them being better prepared for work in industry

Other issues suggested in the data analysis relate to issues already identified in existing literature, for example:

- 1) the importance of cultivating a positive attitude towards work in the private sector (Alghofaily, 1980, Al-Shammari, 2009);
- 2) developing a flexible attitude towards the location of job allocation (Al-Dosary et al., 2005) ;
- 3) cultivating an appropriate attitude towards manual-based job through vocational skills training courses on work ethics (literature highlights the importance of so-called worker behaviour in the manufacturing industry, particularly attitudes of courtesy, reliability and punctuality) (Hendrickson, 2007, Hussain, 2007);
- 4) modifying the conventional attitude of low socio-cultural value on manual-based jobs in the private sector (Mellahi and Wood, 2001).

## 7.6 Economic factors

Since knowledge and skills are the global currency of the 21st century, Aldammas and Al-Mudimigh (2011) indicate that maintaining a workforce with proper knowledge and skills has become a critical factor in keeping manufacturing jobs in the Kingdom of Saudi Arabia and fostering economic growth. Lawson *et al* (2010b) give a very clear picture of the relationship between knowledge and technical education and vocational training. This relationship includes six components: knowledge, understanding, interpretation, application, analysis and evaluation. According to their definition, knowledge is one of the central skills in which trainees of industrial education (or technical and vocational education in a broader sense) are required to demonstrate what they have learnt over three-years of study. For example, before they receive vocational qualifications on graduation, they need to show whether they have acquired a good command of industrial concepts, evidence and theories relevant to their future employment in the industrial and manufacturing workplace.

This section of the analysis is designed to obtain an understanding of the types of knowledge beneficial to improve industrial education with certain changes through enhancing the quality of teaching. To achieve this goal, the statistical analysis applied to this section (Chi-square, t-test and ANOVA) is in accordance with the knowledge essential for private manufacturing industry, of which the knowledge acquired through the vocational educational training including explicit and implicit knowledge. Based on these two types of knowledge, two conceptual categories were generated in order to obtain the viewpoints by trainers and trainees participating in this study. These categories refer to professional knowledge development needs, i.e. implicit / practical knowledge (Items 16-19) and development of broader generic skills, i.e. explicit / theoretical knowledge (Items 20-23).

### 7.6.1 Trainers' knowledge essential for trainees' career preparation

A Chi-square test was adopted to see whether there was a significant association between trainers' employment sector (public versus private school of industrial education) and levels of responses. However, no significant associations were found among the eight issues with regard to trainers' knowledge essential for trainees' career preparation.

Variables	Conceptual category	Item	$\chi^2$	Significance
Educational level (college vs secondary)	professional knowledge development needs	19 <sup>a</sup>	6.258	**

**Table 7-23 Chi-square results by conceptual category for attribute 3 (college versus secondary trainers)**

Note: \*\* indicates significance at better than 5%. <sup>a</sup> indicates that Chi-square assumptions were violated.

As shown in Table 7-23, a significant association was found between trainers' educational level of employment (college versus secondary industrial education) and levels of response to Item 19 '*Experiences in regular monitoring trainees' internship performance at their work stations can assist my teaching of suitable generic skills that meet the needs of business*'. However, Chi-square assumptions were violated in finding this association.

Item (No.16-23 in order)	public	private	Significance
attendance in practical workshops by manufacturing industry	1.11	1.14	Ns
conducting fieldwork in private manufacturing factories	1.09	1.21	Ns
computer and English language proficiency enhancement	1.18	1.14	Ns
Internship experiences	1.09	1.36	Ns
Interpersonal communication and critical thinking skills	1.25	1.29	Ns
the making of portfolio as a record of VET training	1.27	1.21	Ns
work ethics	1.11	1.14	Ns
knowledge for better work performance	1.23	1.36	Ns

**Table 7-24 T-test for attribute 3 (public versus private trainers)**

Note: \*\* indicates significance at better than 5%. Assumptions were violated for Item 19; T-test results not assuming equal variances are reported for this item.

Table 7-24 showed the t-test results, indicating that there were no significant differences in the comparison of public and private industrial education trainers' responses to Items 16-23. Mean values are all close to 1 which indicates that public and private trainers have generally responded with 'agree' to all of the statements here.

Item (No.16-23 in order)	college	Secondary	Significance
attendance in practical workshops by manufacturing industry	1.15	1.09	Ns
conducting fieldwork in private manufacturing factories	1.19	1.07	Ns
computer and English language proficiency enhancement	1.12	1.20	Ns
Internship experiences	1.27	1.07	Ns
Interpersonal communication and critical thinking skills	1.23	1.28	Ns
the making of portfolio as a record of VET training	1.19	1.30	Ns
work ethics	1.08	1.14	Ns

**Table 7-25 T-test for attribute 3 (college versus secondary trainers)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Assumptions were violated for Items 17 and 19; T-test results not assuming equal variances are reported for these items.

Table 7-25 showed no significant differences in the comparison of college and secondary industrial education trainers' responses. Both college and secondary trainers generally agreed to all statements. With regard to the third attribute for bridging a skills gap, the one-way ANOVA results indicated that no significant differences existed among the means of three trainer groups (results not shown), which is consistent with results found from T-tests.

These results indicate that Saudi trainers of public and private industrial education hold a positive opinion on the role of knowledge as part of training Saudi nationals to be knowledge workers in coping with all the global economical challenges faced by the private sector. Alzu'be (2012) indicates that it is only through uplifting the quality of Saudi graduates by means of instilling the latest knowledge of the global economy can they be ready to enter the competitive job market. The following summarises the key issues suggested by trainers' opinions on the type of knowledge essential for trainees' career preparation.

- 1) attending manufacturing industry workshops is a good way of reinforcing and upgrading trainers' knowledge in giving better industrial education teaching quality;
- 2) visiting manufacturing factories may help trainers to link 'authentic material' to the 'theoretical concepts' in the textbook represented in front of their trainees;
- 3) it is of great importance to obtain knowledge in using the computer to assist their teaching as well as the knowledge for specific purposes in English (for example English for engineering purposes).
- 4) it is a good idea to apply the knowledge they observe from their trainees' internship experiences to find a set of fundamentally necessary generic skills and technical skills to meet the needs of manufacturing enterprises;

- 5) there is a need to help Saudi trainees of industrial education to acquire interpersonal communication skills and critical thinking skills-two important features of what a knowledge worker refers to;
- 6) in teaching practical knowledge, it is a good idea to design a portfolio for recording the progress of manufacturing-related job vocational skills training;
- 7) it is of great importance to establish Saudi trainees' awareness of the impact of work ethics to better prepare them for what is expected from the private manufacturing industry employers;
- 8) it is more important to teach trainees practical knowledge related to the reality of a manual-based job market instead of lengthy 'textbook knowledge.'

### 7.6.2 Trainees' knowledge essential for career preparation

Using Chi-square tests (see Table 7-26 below), a significant association between trainees' sector of study and levels of responses to Items 18 and 20 was discovered. Therefore, there appears to be some association between trainees' sector of study and statements regarding internship experiences (practical knowledge) and the value of good communication and critical thinking skills (theoretical knowledge) for a manual-based job.

Variables	Conceptual category	Item	$\chi^2$	Significance
Sector of study (public vs private)	professional knowledge development needs	18	.727	**
	development of broader generic skills	20	.057	**
Educational level (college vs secondary)	professional knowledge development needs	17	.251	**

**Table 7-26 Chi-square results by conceptual category for attribute 3 (public versus private trainees and college versus secondary trainees)**

Note: \*\* indicates significance at better than 5%.

There was also a significant association between trainees' educational level and levels of responses in relation to Item 17 "*Visiting manufacturing factories can help to understand 'theoretical concepts' taught in textbooks*".

Item (No.16-23 in order)	public	private	Significance
attendance in practical workshops by manufacturing industry	1.13	1.13	Ns
conducting fieldwork in private manufacturing factories	1.26	1.16	Ns
internship experiences	1.21	1.07	*
computer and English language proficiency enhancement	1.22	1.25	Ns
Interpersonal communication and critical thinking skills	1.27	1.16	Ns
the making of portfolio as a record of VET training	1.17	1.09	Ns
work ethics	1.18	1.07	**
knowledge for better work performance	1.49	1.50	Ns

**Table 7-27 T-test for attribute 3 (public versus private trainees)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Assumptions were violated for Items 17, 18, 20, 21 and 22; T-test results not assuming equal variances are reported for these items.

Table 7-27 showed the t-test results, indicating that there was a significant difference in the comparison of public and private industrial education trainees' responses to Item 18 ( $t=3.043$ ,  $df=262.030$ ,  $p<0.01$ ) and Item 22 ( $t=2.534$ ,  $df=270.015$ ,  $p<0.05$ ). The results suggest that public trainees are a little less positive about the value of internship experiences and the value of a positive

work ethic compared with private trainees. In general, both groups responded with agreement to all the statements concerning knowledge with perhaps the exception of the last statement that industrial education gives adequate knowledge to perform well on the job. Performing t-tests on trainee groups split by educational level resulted in no significant differences between groups (results not shown).

Item 16-23 (in order)	Public college (A)	Public secondary (B)	SJAHl (C)	Sig	Post Hoc
attendance in practical workshops by manufacturing industry	1.75	1.49	1.54	ns	Ns
conducting fieldwork in private manufacturing factories	1.82	1.82	1.56	ns	ns
internship experiences	1.91	1.71	1.41	*	A > C* B > C*
computer and English language proficiency enhancement	1.60	1.60	1.68	ns	ns
Interpersonal communication and critical thinking skills	2.02	1.76	1.63	**	A > C**
the making of portfolio as a record of VET training	1.70	1.52	1.41	ns	ns
work ethics	1.80	1.57	1.44	ns	ns
knowledge for better work performance	2.07	2.33	2.24	ns	ns

**Table 7-28 ANOVA and Post-hoc result for attribute 3 (3 trainee groups)**

Note: \* indicates significance at better than 1%; \*\* indicates significance at better than 5%. Homogeneity of variances was violated for Items 18, 21, 22 and 23; Welch test and Games Howell test results are reported for this item.

Table 7-28 shows the ANOVA and post-hoc test results for attribute 3 from three trainee groups' perspectives. There were two items with regard to the knowledge trainees expected to acquire through vocational educational training to prepare them for private sector employment which reached statistically significant differences in the mean scores given by three trainees groups. These were Items 18 and 20.

SJAHl trainees were significantly different from public college trainees and secondary industrial trainees with their ratings on the level of response to the first conceptual category (implicit / practical knowledge) of the perceived industrial education. This result implied that SJAHl trainees considered it more important to acquire practical knowledge so as to be better-prepared for private manufacturing employment than the other two trainee groups.

Similarly, with regard to the development of broader generic skills (explicit / theoretical knowledge)—Item 20, the post-hoc test results implied that SJAHI trainees' mean scores were different from public college trainees. This result revealed that SJAHI trainees put more emphasis on the effect of developing broader generic skills on the career preparation for private manufacturing employment than the public college trainees.

Based on the aforementioned responses to statements in the third section of the trainee questionnaire, the following provides a list of the essential knowledge to be acquired through the vocational training courses available in industrial education from the perspective of trainees.

- 1) Basic IT skills (for example the use of Microsoft office Word, Excel, and PowerPoint).
- 2) English language skills.
- 3) Knowledge on work ethics in the workplace.
- 4) Authentic, practical knowledge on the technological development and trends of manufacturing industry through the attendance to a diverse workshops and seminars organised by the manufacturing industry.
- 5) Apprenticeship (for example 'entering the field' 'participant observation' 'portfolio records of practical aspects of manufacturing-related studies').
- 6) Interpersonal communication skills.
- 7) Critical thinking skills.
- 8) 'Expertise and specialist' knowledge on specific manufacturing production technology.



## 7.7 Analysis of two optional questions

This section reviews the responses to question 24 and 25 in which respondents were given the option to records their comments.

Q 24 - the relationship between Saudisation and industrial education;

Q 25 - approaches to enhancing the quality of industrial education.

### ***7.7.1 Approaches to bridge the gap-trainers' perspective***

#### **7.7.1.1 A summary of trainers' responses to Question No.24**

For Q24 thirty-four trainers responded fully, 37 gave no comment or the responses were not legible. For example, three trainers wrote in a similar way to response to Question No.24,

The majority of the responses identified the following points;

- 1) on-the-job training
- 2) skills and knowledge related to the workplace
- 3) career development seminars
- 4) 'high skills'
- 5) well-designed work placement packages
- 6) creating a manufacturing industry manpower data base from the school system
- 7) updating the curriculum, textbook contents, and trainer education
- 8) creating a generic skills training course on work ethics
- 9) enriching the content of all types of technician certificates or qualifications
- 10) modifying the predominant stereotype of private sector jobs
- 11) reducing the number of working visas for expatriate workers
- 12) encouraging the organisational partners' involvement through collaborative school-to-work projects

Some responses addressed the issues of Saudisation as the example below demonstrated.

“Saudisation can help replace expatriate workers with Saudis so that Saudi workers will have the chance to work and make a contribution to the growth of the Saudi economy.”

Five trainers wrote their answers to Question No.24, summarised as follows:

“Saudisation could bridge the gap by providing the best quality of trainees, but at present many young Saudis simply get a degree and stay at home without thinking about how to make the best use of their degrees. Sometimes, I feel it is a pity that we trainers discipline our trainees to be hard-working in their studies to ensure they have a good outcome to their learning.”

### **7.7.1.2 A summary of trainers’ responses to Question No.25**

The response for trainers to Q25 followed the same pattern as Q24.

A perceived lack of government support for schools of industrial education was evident, for example, one trainer from the Saudi Japanese Automobile Higher Institute (SJAHI) responded to Question No.25 as follows:

“Schools of industrial education should have more support from our government, not from private companies.”

Another trainer from the secondary industrial education in Makkah City also provided a similar answer to this question, suggesting that

“The government should help the private sector to make a guaranteed work contract with the school so that trainees are able to be assigned to work in the private sector through the government-led work placement system when they graduate.”

A teaching profession that has suffered from limited resources over a period of time will tend to produce staff who are demotivated (33 did not respond at all) or as noted by some writers ‘slogans without real action’ (Alkhazim, 2003, Dew, 2003).’

Further examples are illustrated in the following responses:

Comments on infrastructure:

“We really need our government to provide funding for upgrading the infrastructure dimension of the school environment. All the machines, computers, facilities at school are too old and we really need to catch up with the current trends in the manufacturing industry, particularly in the private sector. The speed of updating facilities, equipment, manufacturing technical devices is faster in the private sector than in the school environment. So, this is the first thing from the labour-supply side to bridge the gap between education and private sector.”

Cooperation between education and industry:

“The private sector and the vocational education training should cooperate with each other so that trainees can learn the skills and knowledge that are exactly what the labour market expects them to obtain. As for we trainers, we can also receive the latest information about new developments in the private sector so that our teaching materials can be updated from it.”

Curriculum revision and updating - the key points are listed below:

- 1) inviting outstanding alumni of the school to tell current trainees about their successful experiences in finding their ideal jobs with their expected salary and reputations in the form of a regular meeting or seminars held at school;
- 2) inviting employers from the private sector to visit schools and offer their valuable suggestions to improve the quality of industrial education;
- 3) putting more emphasis on enhancing English language skills;
- 4) an increase in the number of ‘practice’ courses;
- 5) an increase in the number of ‘field trip’ courses to visit different types of manufacturing enterprises in the private sector;
- 6) an increase in the number of workshops and seminars organised by both the private sector and the education institutes at least once a semester;
- 7) an increase in the number of courses on introducing new approaches to operate manufacturing machines, equipments and devices (for example CNC machines) with advanced computer-assisted technologies;

It appears from the responses that the trainers in the main cities are more up to date than those in the more urban areas. In summary, the above analysis of the responses to Question No.24 and No.25 from trainers’ perspectives indicates that

they believe significant changes are necessary in order to provide training that is appropriate for a modern manufacturing industry. In other words the process of Saudisation can benefit from a revised curriculum of industrial education the output of which will enhance labour force of the Kingdom's labour market (Al-Shammari, 2009, Looney, 2004c, Mahdi, 2000).

### ***7.7.2 Approaches to bridge the gap-trainees' perspectives***

#### **7.7.2.1 A summary of trainees' responses to Question No.24**

104 trainees responded and 171 did not and 11 responded with no comment. Question No.24 concerns to what extent final-year trainees understand the policy of Saudisation. The responses demonstrate they have a basic understanding of this policy. Some of the 104 trainees have a pessimistic view of the Saudisation policy in terms of a guaranteed employment. For example, half of the 104 trainees reflected the view below:

“I don't think Saudisation can help me find my ideal job in the private sector with a good salary and a nice job position in the company. In reality, Saudisation really has little value in helping Saudi youth studying in the fields of industrial education to be placed in nice employment after graduation because I think I am studying a subject which is not included in any category of Saudisation.”

In addition to their understanding of Saudisation, one third of the 104 trainees described the advantages of Saudisation in relation to their employment after graduation from industrial education as:

1) ***Encouraging entrepreneurship among the Saudi youth***

“Saudisation can help us by stimulating our desire to accept work with a low social status; for example, Saudisation can help some young Saudis to create their own business in the manufacturing industry by offering us a start up loan for entrepreneurship.”

2) ***Raising social image of manual-based jobs in the private sector***

“Saudisation is a policy that can help us to apply for manual-based jobs with confidence through its vocational skills training packages specialising in high skills. In this way, the conventional social image of manual-based jobs would change to a higher level of social recognition.”

3) ***Promoting cooperation between the school and the private sector***

“It has been announced through the media that the first step of the successful implementation of Saudisation particularly in the private sector, is to encourage the private sector to work with schools by offering internship opportunities for trainees of technical education and vocational training and by encouraging schools of technical education and vocational training to organise a series of ‘school-to-work’ projects with the private sector.”

On the other hand, the majority of the 104 trainees still hold positive opinions of Saudisation's ability to bridge the gap between industrial education output and labour market needs. According to their responses, they believe that Saudisation can be successfully implemented in the private sector if the Saudi government pays a great deal of attention to the following aspects in relation to Saudisation:

- 1) an increase in cultivating a component of 'humanity' in the 'work ethics' courses;
- 2) an increase in developing 'high skills' in the 'technical specialists' courses;
- 3) an increase in the creation of a series of courses on 'knowledge-based economy' and relevant concepts such as 'knowledge workers' or 'school-to-work model of vocational training;'
- 4) a need to balance the number of school subject matters and the qualification of technical skills in the manufacturing industry;
- 5) a need to balance or address the significance of 'sustainable development' in the curriculum for technical education and vocational training;
- 6) a need for identifying key categories of employment in the manufacturing industry in the private sector;
- 7) a need for improving the environment for learning, teaching and internship working since buildings, classes and materials used at school are old-fashioned, out-of-date and of great mass.

In short, the 104 trainees' responses to Question No.24 demonstrate they see Saudisation policy as a 'plus'. It is clear they have concerns about its sustainability without effective government support in relation to education. These trainees were quite concerned about the skills and knowledge they were learning at school. For example, one trainee expressed the sentiments of many, saying:

Trainers always give us a very bad quality of teaching and they are not well-trained for teaching us the skills and knowledge to help us develop appropriate skills for 'on-the-job' applications. That's why we are not able to show to the private sector managers in the interview that we are capable workers with appropriate skills, attitudes and knowledge.

Their responses also indicate that Saudisation should prioritise a review of technical and vocational education to ensure it is up to date and fit for purpose and is reviewed regularly to maintain that status. In this way, not only trainees but also trainers could benefit from such a curriculum to demonstrate to the

private sector that Saudisation can help to bridge the skills gap between educational output and labour market needs by ensuring there is a higher quality Saudi workforce.

### 7.7.2.2 A summary of trainees' responses to Question No.25

Overall, when asking trainees to write down their comments on how to improve the quality of industrial education from their perspectives, 106 trainees responded however 151 trainees did not respond and 29 trainees simply wrote 'I don't have any comments for this question.' A common complaint related to delays in bursary payments however most of the 106 trainees have another major concern for the quality of industrial education-trainers' experiences and attitudes towards teaching skills and knowledge relevant to the manufacturing industry. For example, one commented that

“Experienced trainers with abundant practical knowledge in the field of manufacturing industry are what we are really looking for; such trainers will attract more Saudi young people to come to study because we believe that they can provide us with a better teaching quality based on their years of experiences working in the manufacturing industry.”

A common claim was that trainers did not have the necessary range of teaching skills to be effective in engaging students in vocational education. In addition, students identified a lack of English language skills among the trainer staff. For example, the response to Question No.25: quoted below is typical

“Schools of industrial education should update the teaching quality so that their reputation can also be improved in order to attract more Saudi young people to come to study. At present, trainers are impatient with us and never care whether or not we really understand the teaching content. If we don't listen to them in class, they always give us loads of written assignments as their serious punishment. To be honest, most of the time, trainers just read aloud what is written in the textbook without any explanation. In this way, how can we really learn the skills or knowledge that employers in the private sector expect us to obtain?

Respondents to Question 25 expressed concern that the curriculum needed significant review and updating. Key concerns are listed below:

- 1) English language courses from the first year

- 2) mock exams for national technician certificates or qualifications;
- 3) mock job interviews at school in the final-year of study;
- 4) term-based internship in the manufacturing industry;
- 5) basic computer skills (for example Microsoft office skills);
- 6) generic skills (for example interpersonal communication skills, problem-solving, critical thinking skills, team-work attitudes, etc);
- 7) work ethics (for example punctuality, loyalty, reliability, etc);
- 8) observation in the field;
- 9) seminars and workshops organised by the manufacturing industry and the school.

The remaining major comment related to the fact that the equipment in the training facilities was not industry standard. Consequently their training did not give them skills on equipment currently in use in manufacturing companies. In this context, Hamilton (2009) on bridging the skills gap noted that out-of-date technological facilities are considered to be one of the major obstacles trainees encounter in learning to operate manufacturing machines in the work stations at school.

To sum up, 106 trainees' responses to Question No.25 indicated that most of the trainees in industrial education are not satisfied with the following aspects of industrial education:

- 1) the practicality of the current industrial education curriculum framework and objectives;
- 2) quality of trainers' teaching;
- 3) technological facilities;
- 4) learning environment in terms of the conditions of buildings;
- 5) the bursaries they receive every month.

Considering the responses it is evident that there are concerns amongst the students for the level of teaching skills of the staff, the relevance of the curriculum and the appropriateness of the equipment, yet it is evident that for many the delay in bursary payments is of paramount concern. They are aware of the need to improve their English language proficiency. In summary, trainees think that the quality of industrial education could be improved if the curriculum is revised with an emphasis on the following aspects:



- 1) the utilisation of work-based learning (Coll, 2003);
- 2) upgrading the teaching quality-requiring trainers to update their teaching skills and knowledge in the field of manufacturing (Danka, 2009, Guzman, 2009, Black and Halliwell, 2000)
- 3) upgrading the technological facilities available at school with newer, more advanced conditions for 'practice' purposes.

## 7.8 Summary

This chapter gave a report on the quantitative results of the perceived effectiveness of Saudi vocational education from the perspectives of the indigenous labour supply side, i.e. trainers and trainees of industrial education. This analysis provided the basis to identify gaps between the current Saudi educational policy for industrial education and the Saudi labour market policy as well as the demands of private sector employers and the provision to meet these demands through the educational system.

Generally speaking, the responses to the 23 questionnaire items given by 71 trainers and 286 trainees of industrial education who participated in this research indicated that the current Saudi vocational education does not effectively prepare Saudi youths to be ready for private sector employment. The reason behind this ineffectiveness was found to be in relation to three factors (social, cultural and economic). The following is a summary of the statistical results with regard to these three factors for bridging a skills gap.

### (A) social factors for bridging a skills gap

- 1) trainers teaching at public schools of industrial education hold more positive response attitudes and strong beliefs that the ultimate outcome of industrial education is led by teaching up-to-date technical skills;
- 2) private trainers at the SJAHl hold stronger beliefs than those from public schools of industrial education when considering that the main function of vocational educational training provided in the industrial education acts as a channel for Saudi trainees to be equipped with all the necessary skills, knowledge and behaviour to cope with all the challenges ahead of them.

### (B) cultural factors for bridging a skills gap

- 1) college trainers showed more positive response attitudes towards the expertise content taught in industrial education than secondary industrial education trainers, whose teaching mainly focused more on theoretical aspects of manufacturing studies, such as the elements of CMC machines or the process of assembling lines;
- 2) a need to develop a positive socio-cultural attitude towards industrial education and manufacturing industry jobs based on the Kingdom's ambitions to be competitive in the global economy;

- 3) a need to cultivate an active attitude towards continuous learning (for example, lifelong learning) about the latest trends of the manufacturing industry jobs through industrial education as a career preparation platform;
- 4) a need for career attitude modification in terms of
  - a) wages
  - b) socio-cultural value of jobs in the public or private sector (that is pressures from family members' expectations)
  - c) the degree of flexibility with shift work schedules
  - d) the degree of mobility in job postings to urban/rural areas within the Kingdom of Saudi Arabia.

### **(C) economic factors for bridging a skills gap**

- 1) With regard to the skills and knowledge delivered in the vocational education, trainers did not consider that the role of industrial education was subject to the teaching of limited knowledge and skills for operating manufacturing machines only.
- 2) A positive outlook of Saudi industrial education needs to be reinforced and cultivated by developing the awareness of the following issues:
  - a) industrial education acts as an 'up-to-date' knowledge provider in both theoretical and practical ways;
  - b) industrial education acts as a springboard for career development specialised in the manufacturing industry;
  - c) industrial education acts as a quality labour supplier with regard to its impact on a nation's sustainable development, competitiveness and productivity in the knowledge society.

## **Chapter 8- Bridging a skills gap: private sector employers' perspective**

### **8.1 Introduction**

Overall, analysis of the questionnaire responses indicated that participants perceived a skills gap between the expectations of private sector employers with regard to Saudi workers and the skills provided by current technical education and vocational training. To further explore the apparent issue of a lack of enough skilled and qualified Saudi-nationals in the labour market, especially in the private sector, the qualitative data will now be analysed.

The data explored in this section relate to fifteen interviews with employment sector workers. While the main focus of the qualitative data gathering was on the perceptions of employers in the private sector, it was considered important to determine what the perceptions of vocational education were among students (who will become prospective employees of private industries) and among teachers who deliver vocational education. Therefore, interviews with two teachers (from the public secondary industrial education college) and four students (one student from a private technical college and three students from a technical college) were included.

The employment sector participants are Saudis who have a range of roles in manufacturing industries (small and medium enterprises, or SMEs, with a composition of fifty up to two hundred and fifty employees). Table 8-1 represents the four age groups into which the fifteen interview participant's fall.

No.	Age group	Manufacturing factory / Industrial education	Job title	Number
1.	30-34	Mitsubishi automobile company	Mechanic engineer supervisor	3
		Fast-food processing manufacturer	Production line manager	
		Air conditioner manufacturer	Human resource manager	
2.	35-39	White goods manufacturer	Human resource manager	4
		bottled water manufacturer	General manager	
		bottled water packaging factory	Factory manager	
		Aluminium factory	Human resource manager	
3.	40-44	Cannery factory (Food processing industry)	English tutor	6
		Plastic shopping packaging factory	Production line manager	
		Carton packaging manufacturer	Factory manager	
		Furniture manufacturer	Owner	
		Boiler manufacturer	General manager	
		Automobile technology and maintenance	SJAHl director	
4.	45-49	Jeddah Industrial Vocational Education	Head teacher	2
		Air cooler manufacturer/supplier	Owner	
Total number		15		

**Table 8-1: Age category of fifteen private manufacturing SMEs interviewees**

The researcher also asked the fifteen interviewees about the type of products their factories produce for sales since the manufacturing industry is identified as one production sector among the non-oil sectors in the Kingdom (see Table 8-2).

Table 8-2 shows the range of non-oil manufacturing areas explored in this study.

No.	Manufacturing factory	Manufacturing production type	Number
1	air cooler manufacturer / supplier	Machinery & equipment	1
2	air conditioner manufacturer	electrical machinery & apparatus	2
3	boiler manufacturer		
4	white goods manufacturer	furniture industry	2
5	furniture manufacturer		
6	Fast-food processing manufacturer	Foodstuffs & beverages	2
7	bottled water manufacturer		
8	bottled water packaging factory	rubber & plastic products	2
9	plastic shopping bag factory		
10	carton packaging manufacturer	paper & paper products	1
11	aluminium factory	other non-metallic mineral products	1
12	Mitsubishi automobile company	motor vehicles	1

**Table 8-2 : Eight operational factories responded by 12 interviewees**

(excluded 3 interview participants with industrial educational / English language teaching background)

Table 8-2 does not include three interview participants since they are not employers, but are managers or trainers.

From the thematic analysis of the qualitative data, four main themes emerged as being important to the employment sector participants:

- 1) Challenges for the private sector relating to the policy of Saudisation (including difficulties relating to an unbalanced size of labour force between expatriate and Saudi workers);
- 2) Concerns over whether vocational education gives Saudi nationals the necessary skills for work in the private sector;
- 3) Work ethics (including workplace commitment and cultural issues);
- 4) Workplace learning and performance appraisal.

These themes will be explored in the following sections: during the analysis relevant links will be made to segmented labour theory in order to determine the extent of the fit between the themes arising from the data and the main aspects of segmented labour theory as set out in literature.

## 8.2 Challenges relating to the policy of Saudisation

The implementation of Saudisation in the private sector in terms of its policy aim (replacing expatriate workers with Saudi nationals, particularly in the manufacturing or so-called industry-related fields) has had limited success, according to the participants, because employers are reluctant to hire Saudi workers in their factories. This reluctance relates to a number of reasons including issues such as perceived low skills and work ethics (these will be discussed in the next two sections).

For example, one manager complained that

“The government forced us to hire as many Saudi workers as possible in our factory but these Saudis do not have enough knowledge and are not experienced in making white good furniture” [General manager: boiler manufacturer].

All the interviewees, including this HR manager, pointed out that the majority of job positions in the private sector are taken by non-Saudis:

“In fact, among more than two hundred employees in the factory, nearly 5% of them are Saudis and the rest are non-Saudis. Nearly 95% of the production line work is occupied by foreign workers from India, Pakistan, Indonesia, the Philippines, or Egypt. This is largely because Saudis, too often, leave their work in front of the busy, heavy physically-loaded production line of the factory all of a sudden without any early-leave / withdrawal notice in advance. This is even true for job positions dealing with paper-and-pen/pencil work as well as administration, management, new-product invention—roughly less than 10% are Saudis and more than 90% are non-Saudis.” [HR Manager: white goods firm]

When it comes to the percentage of Saudi and expatriate workers employed, some interviewees provided very definite responses: they did not, or had no willingness to, hire any Saudi workers in their factories:

“No way!!! No more Saudis!!! I can’t afford to supervise the machine repair work done by Saudis any more. I can’t trust them at all even though the government said that they will increase the subsidies if the company was cooperative in implementing the Saudisation policy in my factory. I feel the same as my boss resisting giving any jobs to Saudi workers.” [Manager: plastic shopping bag factory]

The comments of this employer clearly demonstrate their reluctance to put the Saudisation policy into action in their factories due to their experience of the poor quality of Saudi workers' performance in actual employment. Seymour (2012, pp. 162-165) asserts that this cultural characteristic i.e. poor work ethic is due to Saudi nationals' still discriminating between perceptions of different job status. One objective of the policy of Saudisation is to replace expatriate labour with local labour. However, this respondent makes it very clear that both skills and cultural issues need to be addressed before expatriate workers can be successfully replaced with local labour.

The general manager of a boiler manufacturing company explained that a few Saudi workers are hired to produce boilers for domestic use in his company, around 2% of the total number of employees. He explained:

“To be very honest, this factory has at least 187 employees—both Saudis and non-Saudis, but as a general manager of production line, there are not so many Saudis working in the production line of completing the manufacturing of boilers in the factory. So what can I do to solve this problem as soon as possible? I still clearly remembered that they were so keen to accept the job offer with big smiles on their face in the job interview with me by showing me the little-relevant certificate they obtained from the school of industrial education, but later on they changed their mind and complained a lot, a lot, a lot, far more than you can imagine about how noisy, dirty and boring the working conditions they faced every day from the first to the last minute of the working hour. Even their salary was much higher than that offered to non-Saudis, these Saudis didn't appreciate and just left my factory or asked to change into less physical job tasks, such as writing daily reports or labelling the factory logo onto the boilers produced. That's why I reduced the number of job vacancies to Saudi job applicants and found more expatriate workers to take over these Saudi workers' production line jobs.”

This comment demonstrates the private sector manager's lack of confidence in the local Saudi labour forces' commitment to good performance in the work place. This suggests that:

- 1) A number of Saudi employees lack basic skills for work conditions in the private sector (e.g. are not able to operate machines, to label the product with computerised program or to assemble items in front of the assembling lines or poor command of English communication skills).
- 2) Saudi nationals have a tendency for making requests for “clean” jobs, which hints at a cultural bias evident in Saudi nationals' preference for office style work without considering their deficit in obtaining relevant educational



qualifications to match the job content requirements.

According to the result of his survey, Yavas (1999, p.120) assumes that one reason for these private sector managers' low level of satisfaction is related to young Saudi graduates of technical education and vocational training having limited contextual knowledge that most employers want to see from their workers. Yavas (1999, p.119) strongly advises Saudi teachers of technical education and vocational training (especially those teaching at the technical college level) to modify their teaching content with supplementary materials that simulate real-work conditions. The comments of this manager reflect the underlying skills gap and cultural influences that need to be addressed for the implementation of Saudisation to have a realistic chance of succeeding.

Similar responses from other interviewees also showed that the percentage of Saudi workers for manual-based or so-called industrial-mechanical jobs could be very low, ranging from approximately 2% up to 10% of the total number of employees. One interviewee said:

“Frankly speaking I really wanted to ignore this bad policy in the beginning, but the government continued using a lot of strategies to push all the factories and firms to hire as many Saudis as they could. I am sorry that I cannot tell you the exact number of Saudi and non-Saudi employees in my factory due to my fear of the likelihood of losing the government subsidy of ‘Saudising’ in my factory or of being forced to close down my factory business once I got caught by the government giving me an official notice of not meeting the target of recruiting Saudis.” [Owner: air cooler manufacturer]

The comments of this respondent together with those of the boiler manufacturer refer more directly to the government attitude towards employers involved in implementing Saudisation. It is clear from the respondent's comments “losing the government subsidy” and “forced to close down my factory” that the government is prepared to bring significant pressure to bear on employers. The quotes above indicate the potential extent of the sanctions. According to Sfakianakis (2010a), the imbalance of employment between Saudi and non-Saudi was a result of private sector enterprises' low motivation to make any changes in their approach to employing local Saudi labour. The policy of Saudisation was introduced with the objective of increasing the percentage of Saudi youth active in the private sector to restore a balance between Saudi and non-Saudi worker

numbers. The Saudisation quota system was introduced to address the imbalance but does not address the lack of incentives in private sector work for national jobseekers (Looney, 2004d).

The government appears to be intent on pushing this policy in the face of established evidence of skills poverty and cultural inhibitors despite the potential damage to local employment opportunities if companies go out of business. The owner of a furniture manufacturer in Jeddah responded:

“I could have hired more Saudis as required by the government but in fact, they just stayed for one week up to two months and then left my factory. It was really not my fault to have so many workers from outside of Saudi Arabia. I cannot wait with nothing guaranteed to ensure that there would be sufficient amount of furniture product ready as requested by my customers. I cannot help but to resort to these cheap labourers from abroad to meet the productivity target I set. So, I feel so shameful to tell you that I have more than 80% of foreign workers helping me with all the physical-loaded jobs and less than 15% of Saudis working in administrative or other ‘desk-work’ departments.”

Regarding the relationship between Saudisation and industrial education, the teachers and students of industrial education who took part in this study believe that Saudisation should create new employment opportunities for Saudi workers. The government offers an incentive scheme to attract young Saudis to study industrial education as part of the Saudisation policy. However one teacher was critical of this scheme:

Most of my students studying here are simply for monthly salary given by the school. They don’t care about how much they can learn at school. They always complain about the school’s not giving them their bursary on time but never think about how much effort they make at their study. If we don’t give them their monthly salary on time, they always stop coming to school and just stay at home. So, how can we teachers have high motivation to teach students when they are not highly motivated to learn the skills and knowledge required by the private sector? (*Teacher, public secondary industrial education.*)

This comment also reflects the survey results on private sector employers’ perception of the Saudi vocational education system by Almegren (1996, p.16), which suggests that it is due to the general Saudi family’s low social values of vocational education that affects greatly how Saudi youths develop their awareness of job requirements, discipline, self-confidence and aspiration.

Similar survey findings are reported by Al-Dosary et al (2006, p.410) and Al-Humaid (2003), indicating that Saudi youths enrolling in vocational education tend to have a stereotype of private sector employment as unfit with what their families expect them to do at work.

The students who took part in the interviews also questioned whether it would help them to find the sort of work that they would want:

I don't think Saudisation can help me find my ideal job in the private sector with a good salary and job position in the company. In reality, Saudisation really has little value for helping Saudi youth studying in the fields of industrial education to be placed in good employment after graduation. I think I am studying a 'less-popular' subject and will only get base-line position in an automobile industry in the private sector. (*Student, private technical college.*)

The issues here are complex, arising from both cultural and social influences that appear to rate industrial education and employment in private sector manufacturing as a second choice. The technical college student's comments reflect a widespread societal perception that people who choose to study a vocational education course are looking for an easy option.

The teacher's comments are critical of the students and their attitude to study of industrial education while the students are critical of the system and the jobs on offer once they have completed their industrial education. The interaction of these different attitudes creates a complex situation in which teachers feel their efforts are not regarded well and students feel that the eventual outcome will be a second rate position hence they are not really motivated to learn. The potential employer is facing pressure from the government to employ local labour and at the same time market pressure to maintain profitability of the organisation. It is clear from the employer's comments that the productivity of the local Saudi labour force is well below that is needed to meet the associated salary costs. In this situation, the continued existence of the manufacturing organisation becomes problematic. The provision of a salary as an incentive to study industrial subjects appears to have no real incentive value other than encouraging students only to come to technical college for the salary rather than to study. El-Sawy et al (2012) comment on Saudisation that the Saudi government does not really understand that vocational education is a culturally-

rooted second choice for Saudi nationals to enrol in so that a salary paid during their study may have limited effect.

One employer was also critical of the administration of the incentives for employers saying that

the government ‘told us to recruit as many Saudi nationals as we can and then we can receive abundant government subsidies. But until now we haven’t really received the subsidies from the government’ [Manager: carton packaging factory].

It is evident that there has been limited success with the policy as compared to other GCC countries in terms of expatriates employed. For example, Mashood et al (2009) point out that the factors that hamper the implementation of localization in the private sector lie in the fact that nationals hold negative opinions about their career development prospects in the private sector and that they are concerned about limited opportunity for training and promotion. This further indicates that incentivisation is only one of the challenges in implementing Saudisation in the private sector. Responses overall from participants imply an imbalanced labour market which Saudisation is not changing significantly in the private sector.

Ramady (2010c) and Achoui (2009) assert that Saudisation policy fails to take into account the labour market structure and the development of human capital as well as the private sector preference to employ cheap foreign skilled labour from Asian countries such as India, Indonesia or the Philippines. Nelson (2004, p.16) criticises that such long-held negative perceptions of national workforce have given rise to workers being less productive, under skilled and unmotivated in work performance. Al-Ali (2008) further points out that low-level fluency in English as well as low-level trust inhibits nationals from dynamic workforce participation in multi-cultural workplace settings. According to Albawardy (2010) indicates one of the most important reasons for not achieving the full success of this policy may be the lack of participation from the private sector in the HRD (human resource management) aspects in Saudi Arabia. Bosbait and Rodney (2005) relate the unsuccessful implementation of Saudisation in the private sector to certain factors, including

- 1) a higher value and social status of public sector employment perceived by the Saudi society;
- 2) private sector employers' expectations on very high levels of vocational skills from prospective employees and they become more critical of Saudi employees when they do not show these skills in comparison with non-Saudi workers;

Similarly, Al-Waqfi and Forstenlechner (2010) assume that the reason why Saudisation policy is more successful in the public sector rests on the following two SLM (segmented labour market theory) characteristics: social identity and social categorisation. The former refers to 'guest workers (expatriate workers)' and 'domestic workers (Saudi nationals).' The latter can be regarded as an 'out-group, i.e. a group of workers do not behave with a corresponding social-cognitive schema (norms, values, and beliefs) that guides their group-related behaviour in the workplace (Korte, 2007)' and 'in-group, i.e. people identify with a group when they perceive themselves as having similar characteristics to their fellow group members (Turner, 1985). In this sense, Sfakianakis (2010a) argues that setting and enforcing minimum wages for private sector employment and limiting the working day officially to eight hours could help boost the numbers of Saudis working in private sector roles, in addition to offering them pension plans similar to those offered for the public sector.

### 8.3 Concerns over perceived lack of skills among Saudi nationals for work in the private sector

Saudi Arabia shares two features as similar to most OECD countries. The first feature refers to the vocational education and training structure: Bosch and Charest (2010, p.3) point out that most OECD countries have a distinction within the education and training systems at secondary level between general and vocational education. Regarding the second feature, Saudi vocational education and training (VET) has low status in Saudi society so that course enrolment rates are much lower than those of equivalent general education level courses.

The private sector managers interviewed held a negative opinion of the Saudisation policy in terms of Saudi workers' attitudes to work performance, productivity and technical skills. A list of negative factors derived from the employers' interview responses is summarised as follows:

- 1) laziness
- 2) not punctual at work and offering excuses for lateness
- 3) reluctant to work overtime
- 4) reluctant to be assigned to work in other branches away from their homes
- 5) ask for holidays and days off
- 6) lack of essential technical skills and knowledge
- 7) never give advance notice of leaving their jobs
- 8) always ask for salary increases even if they do not reach the target of productivity in their work
- 9) often do off-task activities for a long time during the office hours
- 10) low work motivation and productivity
- 11) leave the company without giving any notice to the employer straight after completing the in-service vocational skills training provided by the company
- 12) no patience at all to learn new skills and knowledge relevant to their tasks; particularly, no desire to learn from experts
- 13) dislike teamwork and night-shift work

- 14) careless of maintenance of tools
- 15) dishonesty in doing the job
- 16) low level of decision-making ability
- 17) untidy and careless about wearing the uniform required by the company
- 18) miss deadlines.

In contrast, regarding their impression of expatriate workers' work performance and degree of productivity, the interviewees gave positive comments and showed a preference for hiring as many expatriate workers as possible.

The employers believed that expatriate workers have the following characteristics:

- 1) self-confidence, patience, honesty and integrity
- 2) good appearance (e.g. wearing clean and tidy uniforms during working hours)
- 3) accuracy/precision in performing work
- 4) cooperation (team spirit/appreciating teamwork)
- 5) having work discipline and abiding by foremen's orders/applying orders
- 6) caution (e.g. good at tool maintenance and at protecting company property)
- 7) punctual and accomplish the given task by sticking to a schedule
- 8) trustworthy and respect confidentiality
- 9) truthful, dedicated to work and willing to take responsibility
- 10) flexible with the shift work schedule
- 11) respecting others (e.g. accepting constructive criticism and respecting appointments)
- 12) tact (i.e. developed sense of what to say or do to avoid giving offence and skilled in dealing with difficult or delicate situations)
- 13) raising production efficiency
- 14) interest in career development.

In light of the Saudi government's efforts on fostering participation and uplifting employability of nationals in the private sector, Forstenlechner and Mellahi (2011, p.138) regard wage levels and predominant expectation of welfare as two key determinants that could encourage Saudi nationals' motivation to work hard and show expected working behaviours in front of their employers. This argument supports the claim by Mellahi (2007), who attributes certain benefits (i.e. higher salaries, better employment conditions, greater job security, and shorter working hours) for this archetypal work performance among Saudi nationals employed in private manufacturing-related jobs.

In this sense, the Saudi labour market is seen as a highly segmented labour market, in which wages and the welfare in terms of the conditions of the workplace (i.e. dirty, noisy, limited space for relaxation during the break) as well as the conditions of tenure result in Saudi nationals' strong preference for public sector employment.

Some interviewees blamed government job centres for random allocation of Saudi job seekers to work in their factories without a thorough evaluation of their CV applications:

“You know, I really don't know what is inside the job centre officer's mind. Sometimes they just send to my factory a lot of Saudis without any single care, just in a random way. I suffer from their not being so serious to go through all the details and information these Saudi job applicants fill in the job application form and CV. As a result of this, after working for a few days, I discover that all these Saudis randomly allocated their jobs in my factory have little or no relevant experience or knowledge about how to operate the machines to produce aluminium products. What's even worse, these Saudis allocated their jobs in our factory seriously lack a sense of work ethics. They do not have high motivation to work here, just work to wait for the salary date every month” [HR manager: Aluminium factory]

This comment reflects the fact that private sector employers are faced with challenges in hiring technical expertise and competent, knowledgeable employees, despite the fact that various technical and vocational institutions have been established by the Government to support technical and vocational training (Ramady, 2010b). Alsarhani (2005) argues that a systematic indigenous manpower screening is of urgent need so as to facilitate private sector employers' matching of Saudi nationals for assigned workload . However, this



comment ignores the argument by Alandas (2002, p. 46), who indicates that the main reason for Saudi nationals' low motivation of working in manual-based jobs in the private sector is largely related to the negative impact of social values and tribal customs, where labour-intensive employment is deemed undesirable.

"I really prefer hiring job applicants who have relevant working experiences in designing new multi-functional sofas. This is my top concern. However, those Saudis sent by the job centre do not actually have such experiences." [HR manager: white goods manufacturer]

"The job centre always sends us Saudi workers who do not know the importance of being punctual at work. Beside, their generic skills are quite low, such as very limited English language skills to communicate with foreign colleagues. They even do not know how to use the automatic system already set inside the computer. They do not want to work with others and have little level of interpersonal communication skills." [HR manager: air conditioning manufacturer]

The factory manager of the carton packaging factory complained as well

"Those Saudi nationals sent by the job centre really have a very low level of English. But every day we need to contact our foreign customers to take orders from them. Unfortunately, Saudi workers always refuse to communicate with our clients. It is really a frustrating thing for me."

This factory manager explicitly point out that Saudi employee's low levels of English has resulted in a barrier to communication between multi-national workers in the factory. As was noted by Abdullah (2009, p.13), a lot of national workers are resistant towards using English in the workplace. This comment further is in accordance with the claim by Schmid (2005), addressing that the current Saudi vocation system is strongly influenced by government statute, which then makes schools restricted in terms of designing the learning content and time-schedules of teaching to reach local industrial labour needs. He further (Schmid, 2005) makes critical comment on the orientation of vocational education curricula as showing a 'lack of explicit allocation of young people to study fields which they are required to acquire before entering the job market'

One suggestion from an employer to improve the situation was that the government should establish a national manpower or human resource database for employers to search for suitable employees. Another suggested that:

“In my opinion, the government should set up a national comprehensive awareness of generic skills and technical skills during the process of training Saudi workers. In this way, these Saudi workers may have a clearer idea of how they should learn to fit with the real workplace. Then, I do not have to spend extra money to offer them in-service training during their probation period (the first three months of employment)” [Production line manager: fast-food processing manufacturer]

According to Fakeeh (2009), while the Saudi Government’s Saudisation policy has been campaigning for employers and organisations to equip employees with the skills and knowledge to become knowledge workers, the HRD practitioners in these manufacturing firms are faced with the challenge of coping with the demand for knowledgeable and competent employees. This comment reflects the argument by Maroun et al (2008), urging that an assessment of a country’s environment to be linked to the education objectives entailing socioeconomic themes; in other words, what Maroun et al (2008) suggests is that an objective assessment of the current private sector employment situation should be included in the learning materials to familiarise students before they enter the workplace. In this sense, the Saudi government is expected to provide a concrete, clear and concise education-sector strategy to help guide the TEVT institutions to produce skilled Saudi youths for private sector employment.

The general manager of a boiler manufacturer also suggested that

“I personally think that it is very important for the workers to update their skills and knowledge after a period of working in the factory. Why do I say this? Because we need to keep up with the global trend, the products we design also need to be more user-friendly. That’s why continuous professional development or life-long learning is needed.”

In order to produce “quality of graduates from the TVET system,” Alzu’be (2012) argues that what students have to learn through the training provided should be connected to what the actual labour market needs in an increasingly competitive global economy. In this way, it is of great importance to confirm the training’s necessity to raise local manpower’s skills, abilities and qualifications, all of which aim at finding local manpower with talents and high abilities that are closely matched with the labour market needs (Al-Ansari, 2008).

Half of the interviewees were worried about hiring more new Saudi TVET graduates. One expressed this concern, saying:

“After I put an ad for a new job vacancy in the job centres, I receive a large number of job applicants’ CVs. Believe me, almost all of the descriptions on their CVs are not true. They just create these descriptions by doing the ‘copy and paste’ from some good CV samples available on websites or from their friends. Of course, I know they want to make their CVs impressive to have a chance for a job interview. When I meet them at the job interview, I discover that most of them don’t know how to answer my questions related to their CV descriptions. It is a more embarrassing situation if I ask them to show me how to operate a machine. They often say to me ‘I haven’t seen this kind of machine in my life until now because all the machines available in my school are very, very, very old. But I am willing to learn from you. So, can you show me how to operate it now? Then, I can do exactly the same as you do because I am a quick learner.” [HR manager: air conditioning manufacturer]

These human resource managers provided evidence of their strong belief that Saudi workers lack technical skills relating to the non-oil manufacturing sector (i.e. capability to operate heavy manufacturing equipment and machinery); meanwhile, they also need to obtain a high level of familiarity with specific terms for the non-oil manufacturing sector (e.g. capability to identify manufacturing machinery tools, equipment and raw materials both in Arabic and in English). Synthesising responses from these managers of human resource departments, it can be seen that there are still quite a large number of young Saudis applying for entry level jobs in the private sector factories, but most of them are thought by their employers to lack the skills and knowledge required in the manufacturing workplace. In other words, Sfakianakis (2010b) and Al-Sayari (2007) indicate that the long-term goal should be to create an education system and jobs market that is able to rely on a highly skilled indigenous labour pool. But this will demand drastic shifts in cultural perceptions of work and entitlement. This mentality needs to change as it has curtailed efforts to offer on-the-job training.

Some employers blamed industrial education for the lack of skills and work ethics. For example, the general manager of the bottled water manufacturer explained his personal opinion on the misconduct of behaviour by the former Saudi workers:

“Once I had an informal chat with some Saudi colleagues in my department about what they have learned at school of industrial education. They simply said that most of their teachers gave them a lot of paper-and-pencil tests on writing down the names of the machinery components’ in both Arabic and English. They never heard of anything about being loyal to the company, keeping the company’s confidential information in secret, or any other workplace ethics. They just knew it is very important to pass all the tests so that they can get the certificate to get a job right after graduation in the job market. After sharing this with me, I felt quite frustrated with what has been taught to the Saudi trainees at school. At least, the school should teach them the basic knowledge, responsible manner as a worker in the private sector. But schools of industrial education never teach such things and keep ignoring how important it is to let more Saudis be accepted in the job market of the private sector.”

This general manager’s comment reflects the ‘tokenism practice’ proposed by Mellahi (2007, p.97). Namely, this term refers to the current mismatch between labour supply and demand, in which teachers of vocational education simply educate their students to be able to show private sector employers that they can be trained to make commitment to and be supportive of the Saudisation strategy. On the other hand, these private sector employers simply engage in costly one-time initiatives to successfully roll out their Saudisation strategy (Kuntze and Hormann, 2006).

This general manager of the bottled water manufacturer also make a critical comment on one key factor to inhibit the Saudisation policy implemented in the private sector—work ethics as an important criterion for private sector employers’ selection of Saudi workers. Yousef (2001, p.152) mentions that work ethics are closely related to how individuals show their attitudes between tasks at work. He (Yousef, 2001) further indicates that work ethics can also engage employees with more enthusiasm for work so as to make a higher degree of productivity expected. However, this general manager’s comment shows a frustrating fact from private sector employers’ perspective that work ethics as an essential TVET learning component has not yet received much attention but merely a neglected one by the Saudi industrial education so far. Considering the economic role of work ethics in the workplace, Congleton(1991) and Mellahi (2007, p.97) suggest that technical and vocational educational training should place great emphasis on the value of work ethics served as a facilitator of a nation’s economic development. In fact, Khan (2008) and Baki (2004) both make critical comments on the urgent need for Saudi vocational education to pay

more attention to the positive outcome of teaching work ethics in preparing young Saudi graduates of vocational education for entering the private sector employment.

The production line manager of the plastic shopping packaging factory said that

“I really feel frustrated to keep seeing Saudi workers in my factories use their electronic Arabic-English dictionary to look at the meaning of the name of the machine in English. I really do not know why schools do not teach them all the names of the machines used in the manufacturing industry. Besides, these Saudi workers lack a great deal of professional knowledge in relation to working in front of the production line. In this way, they are always delaying the time to deliver our order to our clients. I think a better solution can be provided by the school by asking the principal to send some enthusiastic trainers to keep a record of some updated information happening in the manufacturing industry and then go back to teach trainees about this.”

This production line manager’s comment reflects another key factor of Saudi education system’s failure in young Saudis for the competitive global economy—English proficiency as one ‘soft skill’ in the workplace. His comment indicates that the urgent expectation from private sector employers’ perspective is that young Saudis need to have a good command of English to communicate effectively and efficiently with their foreign customers in order to help companies have more production ordering to accumulate valuable profits.

On the other hand, the head-teacher of the Jeddah Industrial Vocational Education expressed the difficulty in satisfying private sector employers’ expectations from the current Saudi education system, complaining during the interview that

“It is really a difficult thing for the school to take full responsibility of helping trainees to make a good transition from their learning to the work. I can give you a perfect example. One trainee studying in the department of furniture design one day came to the academic affair office to ask for a change of his internship place. He said that every day the factory supervisor just asked him to make a cup of tea for him in the beginning of the working hour and then asked him to type all the names of the machines as a record with a very old and slow computer. He wanted to learn more than this but the factory supervisor said to him ‘You do not need to learn this because they are all in English and our foreign workers will do this for me. You just have to finish typing all the names of the machines in English with this

computer.’ This is why I said to you in the beginning that it is like ‘mission impossible’ for the school of industrial education to take full responsibility of helping trainees to make a good transition from school to work. In fact, all of our instructors simply teach what they have learned at work before coming here to teach. They often come to my office to complain about the old and out-of-date equipment and machines available at school. I also honestly tell them that the government does not provide sufficient funding for every industrial education to purchase new machines and equipment. However, we do mention to our students about all the new machines and trends happening in the manufacturing industry. But the truth is that they do not spend too much time memorising all the things their instructors tell them.”

Therefore, the above implies that private sector employers may have to assess and examine their hiring and promotional criteria to ensure that their employees are competent according to their job specifications (Hansen, 2003). Moreover, aspects such as training, retraining and career progression may require some serious attention to enable skilled and competent workers to be trained, retrained within the organisation. Indeed, attracting and retaining capable human resources has become the key challenge for most organisations, as the workforce has become more challenging in terms of their valuable expertise and the working environment has become more competitive (O’Connell, 1999, Wedell, 1999, Chermack et al., 2003).

However, the employer interviewees thought Saudi workers’ skills (both generic and specific) were very low and blamed the content of the vocational curriculum for this:

“There is an urgent need to revise the curriculum objectives of technical education and vocational training with a major focus and emphasis on skills, knowledge and working behaviours.” (Production line manager: food processing factory)

“There is an urgent need to design and develop a well-structured occupational skills and knowledge assessment system, which helps to evaluate the teaching and learning output of technical education and vocational training. This means that every Saudi student of technical education and vocational training would be required to take an exam to this end before graduation. Such an assessment system would be practice-oriented, not theory-oriented and would require examinees to demonstrate their understanding of industrial-relevant specialties by orally identifying and operating the given machines, tools or equipment.” (Factory manager: bottle water packaging factory)

This factory manager's comment supports the argument by Baki (2004), criticising that the Saudi educational system, in reality, does not prepare Saudi males for the occupational needs (especially in the private sector industries) of making the Kingdom's economy more competitive in the knowledge economy era. In fact, Torofdar (2011) points out the reasons for the Saudi educational system's failure in fulfilling private sector employers' occupational needs is closely related to the following aspects:

- a) high social value on Saudis obtaining ulama over TVET diploma leads to young Saudis' favouritism in 'white-collar' managerial positions in the public sector
- b) insufficient practices of job-specific skills results in young Saudi workers' holding relaxed attitudes towards productivity in the workplace;
- c) disincline to acculturation in multi-cultural working environment causes cultural barriers between Saudi and expatriate workers.

In this sense, Torofdar (2011) strongly advises that it is of great importance to make a shift in young Saudis' mindset through the reformed Saudi TVET curriculum, on which it places the cultivation of Islamic value as the main focus. With the nature of Islamic values in mandating Muslims to participate in all sectors of employment, he also urges to alter the Saudi graduate of TVET through a range of human resource development mechanisms, such as career guidance and counselling centres served as a job-prospect consultation resource for the final-year TVET trainees.

“Both governmental-led agencies (e.g. GOTEVOT) and private vocational educational training institutes should use the media as a force to extol the benefits of working in the private sector and to address the increasingly significant role of the private sector in contributing to the Kingdom's economic growth. By doing so, the following three goals may be achieved: reducing labour cost, changing the traditional negative socio-cultural stereotype of manual-based jobs and improving the quality of the Saudi labour force by encouraging an appropriate attitude, skills and knowledge. Therefore, there is an urgent need to revise the current TVET curriculum, particularly for industrial or manufacturing-related studies.” (Human resource manager of the furniture factory)

Three generic skills were repeatedly emphasised by the interviewees as being in need of improvement:

- 1) a good command of the English language (e.g. being able to read operational handbooks about technical and machinery terms/labels in English);
- 2) good interpersonal communication skills (e.g. being able to appreciate others' willingness of sharing their experiences for the given team work);
- 3) technical skills, particularly those skills relevant to the production line.

Similarly, Al-Sharmari (2009) suggests in his PhD thesis that the government when developing policies on technical education and vocational training, should strongly emphasise skills formation, which plays a critical role in providing a good quality human capital for the labour force in Saudi Arabia. In this sense, the three skills listed above (English language skills, interpersonal communication skills and technical skills in relation to production line tasks) should be updated in the technical education and vocational training curriculum.

Regarding the relationship between Saudisation, industrial education and skills, teachers and students of industrial education have an understanding of the policy as being designed to create new employment opportunities for Saudi workers. However, one teacher commented on the difficulties:

Saudisation could bridge the skills gap by providing the best quality of students so that more Saudi workers can have chances to work and make a contribution to the growth of the Saudi economy, but at present many Saudi youths simply have a degree from school and would rather only look for jobs in the public sector, not the private sector. They seldom think about how to make the best use of the educational qualifications they obtain from school. (*Teacher: private technical college.*)

Another mentioned young Saudis' reluctance to engage with the vocational education offered on his course:

I found it difficult to encourage students in my class to actively participate in the activity I designed especially for them to have a clearer idea of their future work patterns in the manufacturing industry. Some of them simply tell me not to waste so much time to teach them with old machines and out-of-date textbook knowledge because they think they are already labelled as 'academically poor' students in the eyes of the Saudi society. They feel it is a shame to have no other choice but to study in the vocational education and their future for better-paid jobs are of little hope. (*Teacher: public secondary industrial education.*)



The issue of student motivation in a field of education which is considered to have low status is a pertinent one. The government offers an incentive scheme to attract young Saudis to study industrial education. However one teacher was critical of this scheme:

Most of my students studying here are simply here for the monthly salary given by the school. They don't care about how much they can learn at school. They always complain about the school's not giving them their bursary on time but never think about how much effort they make at their study. If we don't give them their monthly salary on time, they always stop coming to school and just stay at home. So, how can we teachers have high motivation to teach students when they are not highly motivated to learn the skills and knowledge required by the private sector? (*Teacher: public secondary industrial education.*)

Yavas (1999, p. 120) addresses the positive effect of acquiring contextual knowledge (i.e. the ability to translate, integrate, operationalise and adapt functional knowledge to meet work environment conditions) as an incentive to encourage students of vocational education to learn more. On the other hand, Fakeeh (2009) indicates that in reality, what students learn from their TVET teachers are still old-fashioned, out-of-date materials.

The students who took part in the research were concerned that Saudisation policy still progresses at a slower pace than is required to speed up the improvement of the quality of industrial education provision. Some also questioned whether it would help them to find the sort of work that they would want:

I don't think Saudisation can help me find my ideal job in the private sector with a good salary, a nice job position in the company. In reality, Saudisation really has little value on helping Saudi youth studying in the fields of industrial education to be placed in nice employment after graduation. I think I am studying a 'less-popular' subject and will only get base-line position in an automobile industry at the private sector. (*Student: private technical college.*)

The above quote by the private technical college student demonstrated a prolonged poor image of manual work with low status in Saudi society (Vlaardingerbroek and El-Masri, 2008, p.20). Accordingly, as was noted by Mellahi (2007, p.90), the majority of Saudi citizens tend to refuse to choose

manual or technical jobs in the private sector due to their self-pride and the persistent low social value on manual work. Vlaardingbroek and El-Masri (2008, p.20).claim that such a negative perception of manual-based jobs in the private sector has made Saudi vocational education to be regarded as a last resort for ‘poor academic achievers’

Overall, the students who participated in this study showed dissatisfaction with the teaching quality offered on their courses. They suggested that the policy of Saudisation should put an emphasis on revising current curriculum content and objectives to meet business expectations. One student stated:

Teachers always give us a very bad quality of teaching and they are not well-trained for teaching us the skills and knowledge to help us develop appropriate skills for ‘on-the-job’ applications. That’s why we are not able to show to the private sector managers in the job interview that we are capable workers with appropriate skills, attitudes and knowledge obtained from school. Therefore, there is a need to revise the curriculum of industrial education in light of the implementation of Saudisation. (Student: state funded technical college.)

An empirical study Shediak and Samman (2010)criticise that there have been three reasons to hinder the real change in the process of the Kingdom’s transforming into a competitive, skilled workforce through the vocational education reform:

- 1) vocational schools’ lack of adequate physical infrastructure and qualified teachers;
- 2) vocational schools’ curriculum goals not always linked to economic strategies;
- 3) the private sector’s strong preference cheaper and more dedicated foreign workers, which gives rise to discourage nationals from pursuing vocational education.

Almunajjed (2012) also suggests that most young graduates from vocational education are in fear of facing the cruel reality of shifting themselves from education and employment since secondary and tertiary education is mostly geared toward providing diplomas rather than the skills, expertise and savoir-faire necessary to participate in the labour market. This means that the curricula, textbooks, and teaching methods do not meet the requirements of a new knowledge economy.

Another student also noted:

I find it really difficult for me to remember the specific technical terms essential for the food manufacturing industry, especially those terms often used in the process of the food packaging production line. I've asked many times to my teacher to guide me by showing relevant pictures or photos to let me have clearer ideas, but he never teaches me with authentic materials, just asked me to search from the Internet by myself. This really makes me frustrated and [I have] little confidence in front of the private sector managers when they interview me. (*Student: state funded technical college.*)

This state-funded technical college student's response reflected their concern for being offered relevant courses for their prospective jobs. Jossberger *et al* ( 2010, p.416) propose the significance of 'authentic learning environments' in the process of preparing students for the world of work. Jossberger *et al* ( 2010, p.426) further indicate that workplace simulations (WPS), i.e. authentic learning environment at school, may provide students with plenty of opportunities to learn the skills, knowledge and attitudes relevant for their desired jobs in the workplace when the given learning tasks are well-design to be realistic in accordance with / similar to the real world of work. As a consequence of this optimal status of workplace simulations, Jossberger *et al* ( 2010, p.426) assume that students are able to integrate theory and practice in the long run.

The issue of teaching quality was also highlighted as a concern by several participants: for example, one student stated:

Schools of industrial education should update the teaching quality so that their reputation can also be raised to a better one to attract more Saudi young people to come to study. At present, teachers are impatient with us and always ignore whether or not we really understand their teaching content. If we don't listen to their teaching in class, they always give us loads of written assignments as their serious punishment. To be honest, most of the time, teachers just read aloud what is written in the textbook without any explanation. In this way, how can we really learn the skills or knowledge that employers in the private sector expect us to obtain? (*Student: state funded technical college.*)

This student points out the classroom learning reality, where there is a contradict between what they can be encouraged to learn and what teaching contents have been delivered in class. Lindsey (2010) argues that there is an urgent need to upgrade the current vocational education teaching quality as the

Saudi government has been placing more emphasis on fields of study related to the job market over the past three or four years, desperately hoping turning the Kingdom into a 'knowledge economy'.

The comments above offer a range of views from the different participants in the private sector economy. The government through the policy of Saudisation seeks to increase the employment of young Saudi nationals in the private sector. To achieve this aim, it offers incentives to employers and students in the colleges of industrial education. The converse of this is sanctions that may be applied to organisations that do not conform to the policy needs.

The employer's comments are uniformly concerned with the poor quality of students produced by the industrial education institutes. The most common complaints centre on 1) lack of current knowledge, 2) poor English, 3) poor work ethic and 4) culturally rooted issues in relation to working in the private sector.

The teachers complain that the students are not motivated, that they are underfunded and that there is no national structure to assess student's progress and achievement of standards.

The students are unhappy about 1) the lack of current equipment for them to use and become proficient with, 2) the teachers didactic approach to teaching and 3) little information about private sector work practices.

Employers, teachers and students view the policy from different perspectives but it is possible to see that underlying this are some common issues such as

- 1) No national agreed curriculum or assessment process
- 2) Funding of the education institutes appears to be insufficient,
- 3) Little communication between Employers, Education service and government

In addition the social and cultural barriers (see pp.66-68) that students encounter need to be addressed by demonstrating that good rewarding careers are available in private manufacturing industry.

As a consequence there is general concern about the ability of vocational education to provide students with relevant skills for private sector employment. Referring to the earlier comments on cultural issues in chapter 3, it is clear that if the “stock of wealth” is to be increased then the manager’s comments about the quality of students emerging from current industrial education process must improve dramatically.

## 8.4 Work ethics (including workplace commitment and cultural issues)

Ramady (2010f), Fakeeh (2009), and Looney (2004d) all highlight the issues of work ethics and worker commitment as important in the context of Saudisation. A major issue is the perception from some interviewees for this research of Saudi nationals' lack of commitment to private sector work. The production line manager of plastic shopping packaging factory made the point:

“We are afraid of employing Saudi nationals because they are sent randomly by the job centre without careful screening of their qualifications and past working experience. Besides, they are not stable towards the given task and just leave the factory after two or three days. This is why I prefer employing foreign workers.”

In addition, due to the fear of Saudi workers' suddenly leaving their factories, the HR manager of the white goods manufacturer said that job vacancies are not open on a regular basis (e.g. open job vacancies every three or four months to Saudi nationals). He replied:

“I am so afraid of coming to the office to find that I have to give a ring to the job centre again to find someone ready to fill that production line job position with sufficient knowledge, skills and work attitude I need from this new employee.”

This response reflects a perception of the absence of appropriate skills and work ethics among Saudi workers. The production line managers of a plastic shopping bag factory and a fast-food processing manufacturer expressed their preference for hiring non-Saudis rather than Saudis based on their observations of the production line on a weekly basis for years. One said

“You can see a lot of foreign workers wearing factory uniforms working hard for hours, even the noon break... they really produce a large amount of work load I ask them to finish. In contrast, Saudi workers never behave the same as their foreign colleagues.”[Production line manager: fast-food processing manufacturer]

The private manufacturing manager believed that the better work ethics employees hold, the more productive they are. However, the underlying issue

for many of the interviewees was a belief that Saudi workers do not work as effectively and efficiently as foreign colleagues.

The issue of work ethics is raised with regard to vocational training. The director of the SJAHI contended that:

“Generally speaking, when we first introduced the importance of work ethics in the workplace to our students, they found it unnecessary to learn. To them, lessons on work ethics are like common sense and they do not think they need this kind of lesson because they have been hearing this over and over since childhood. Besides, Saudi instructors also tend to skip this type of lesson during the semester because they think the content written in the textbooks are like cliché. However, in our school, I still emphasise this again and again to our trainees and instructors.”

The head-teacher of a public industrial education highlighted that work ethics are can also be a problem at college:

“We have done our best to teach them to be ready for work. So, our instructors really teach all the skills and knowledge that the manufacturing industry requires our students to have. Unfortunately, our students need to be more hard-working to review what they have learned in the classroom.”

It might be that an active and productive sense of work ethics should be built up in the process of education; yet, the current Saudi education system does not specifically put much emphasis on this aspect according to Fakeeh (2009). The responses from the interviewees indicate an underlying cultural issue in terms of work ethics perceived by private sector employers with Saudi workers expecting high pay but not expecting to have to provide high productivity:

“They are really too lazy, have very low level of productivity at work, never come to work on time, always ask for an increase in their salaries and to be promoted to higher posts.” [Factory manager: bottle water packaging factory]

Also, the factory manager of the carton packaging manufacture complained that

“Saudi workers in the factory, in fact, produce just a little amount of the things we want to supply to our customers every day. Most of the time, they are not really serious about the profitability they can create for the factor’s income growth. They always want to ask for their salary increase without examining how much effort they have given to the factory.”

According to Rose et al (2009, p.55), a number of empirical studies indicate that there is a positive relationship between organisational commitment and employees' productivity. Also important, is implicit contract theory which refers to the informal agreement made by the employer and the employee under the condition that both parties are satisfied with expected workplace outcomes (effective work performance with efficient productivity) or behaviours (secured employment with expected salary and internal job promotion potential).

According to the proposition by Wachtel and Betsey (1975, p.290) on the dual labour market theory, especially the existence of a low-wage sector, i.e. secondary sector, two factors are assumed to be the measure of an employee's work performance: organisational commitment and employment stability. The meaning of organisational commitment refers to a sense of loyalty and responsibility as well as the ability to keep information about their factories' intellectual property confidential.

However, participants in this study indicated low commitment as an issue with Saudi nationals:

“A question always comes to my mind as to why my Saudi workers are not able to be confident and feel comfortable to stay working in my factory for the long-term, not just a very short period of time. I have provided my Saudi workers a higher salary than my foreign employees, but it is a frustrating fact that there has never been any organisational commitment seen from Saudis.” [Owner: air cooler manufacturer/supplier]

“Many times I have asked my Saudi workers to work as hard as their foreign colleagues, but they just chose to ignore me and at the same time argue over the salary they receive from me every month. I feel that they do not believe that they would stay here for a long time and just work here for a temporary period of time. They really showed me low organisational commitment.” [Production line manager: fast-food processing manufacturer]

The managers in this study generally complained that Saudi nationals' level of organisational commitment is much lower than that of non-Saudis. For example, the factory manager of the bottled water packaging factory responded that

“One time I asked a Saudi staff in the middle of his shift in front of the assembly line of the white goods (chest drawers) to extend his



time and informed him of the extra pay I would give him but he refused my request. He just replied to me 'Sorry boss, I can't because I have to pick up my son and daughter from the nursery home after my shift ends.' I made the same request to a foreign worker from India and he immediately replied to me 'Ok, no problem. I will do.'

Some interviewees even suggested that it is very common among Saudi workers to stay in one factory for a short period of time and afterwards change to another factory without handing in their notice in advance. The carton manufacturing factory manager complained that

"It really always annoys me when I discover a Saudi worker leaves my factory without saying anything to me, especially in the morning when everyone starts to work. It greatly affects the whole daily productivity target; say 2,000 units of carton are needed to be distributed to the market. In fact, the school of industrial education should have taught trainees about the cause-effect of behaving in this way in the workplace. But I found that this kind of behavioural aspect is never really mentioned in a serious way to make trainees to be aware of its significance in maximising the company's profit."

They also implied that some Saudi workers have little sense of keeping stable employment relations with their employers. The HR manager of the air conditioner manufacturer claimed that

"It is not often seen that Saudi workers in my factory, especially those job contents require more physical loads surrounded with lot of big machinery, stay more than one or two months. Usually they just stay two or three days and the next day, you never can see them come to work in the factory. Then, it would definitely cost me again to search for a new employee by calling the job centre to announce a job vacancy."

The general manager in the product design unit of a bottled water manufacturer explained that he has been suffering from his former Saudi employees' misconduct in taking confidential design information with them after leaving his factory. He said:

"I would definitely feel worried whenever a Saudi employee leaves this department of the factory. I tell you why. Because our department deals with researching and developing new business plans for inventing bottled water products. All of these plans are quite confidential and all employees, including myself, cannot say anything outside of the factory about what is happening inside this department. Unfortunately, maybe one or two months later, someone, usually the

expatriate worker, from my department would come to tell me that our market competitor, I mean another bottled water manufacturer, has exactly the same production plan as we just developed few months ago, upon the time when a former Saudi employee left our factory and found a better job position in the similar R&D unit in the market competitor's factory."

The interviewees expected an increase in the workers' commitment by means of a well-structured compensation policy:

"It is clearly mentioned in the work contract of our company that Saudi workers can enjoy a lot of benefits from the company's compensation policy, such as paid vacation or free-of-charge baby-sitting service during the working hours as long as the level of productivity is pretty high. Unfortunately, during the noon break, they always check emails or browse websites in search of new jobs which offers better salary and job positions related to managing a team. They just produce a little amount of work and wait for their shifts to end every day. This is really a frustrating thing from my point of view as a mechanical engineer supervisor." [Mechanical engineer supervisor: automobile company]

This quote reflects that employees are not so satisfied with the current compensation practices implemented in the private sector and that employers are reluctant to offer better compensation due to their doubts about the amount of workload their employees have produced. Al-Hamdan (2011, pp.37-38) points that a fair and clear compensation system plays a crucial role in forming a gap between salary expectations and the expected work commitment from employees.

"After the job centre sends me a group of new Saudi workers, the first question these Saudis ask me is 'will I be paid after I retire from this factory? If I give them an indefinite answer, such as 'it depends on how much you help the factory earn,' then they will say to me 'show me how to operate the machine and I will try my best to help the factory earn.' The next day I may find the new Saudi employee not coming to the factory to work again. This is exactly how I lost confidence in hiring Saudi workers. They just want to have a light, easy job with high salary and the welfare set up by the factory." [Human resource manager of the white goods manufacturer]

"Some Saudi workers are really unreliable. They just ask for a lot of job rewards but then they just produce a little bit of work. For example, they ask for not coming to work in the factory on Thursday because they want to have holidays as same as public sector workers to spend with their families. But as you know very well that all the firms and factories in the private sector need to have their employees

come to work on Thursday because they have a number of clients from foreign countries. How can we lose these clients by agreeing to Saudi workers not to work on Thursday? Even if they agree to come to the factory on Thursday, they just come for the morning session and refuse to continue their job in the afternoon by giving me a lot of excuses, such as they need to take care of their sick parents or small kids under age 2.” [General manager: boiler manufacturer]

Reward or remuneration systems can serve as an incentive that companies utilise as a way of compensating employees for their time and effort. It involves three forms of payments, i.e. monetary, non-monetary, and psychological, an organisation provides for its employees. However, the responses from participants in this study indicate that rewards do not have much impact on Saudi workers job commitment in their factories.

Another way of trying to encourage commitment is by offering job security. The HR manager of the aluminium factory complained critically that

“I feel really frustrated with the daily outcome of the products produced by Saudi employees in my factory. I have already given them my promise of securing their jobs in my factory for a longer period of time and of raising their salary if they meet the target and behave very well without making any trouble. I even told them many times that I would consider giving them the opportunity of internal job promotion as long as they can be more productive, active and enthusiastic. They all say ‘Yes, sir. I am happy to hear this and I agree with your advice. From now on, I will work very hard. I promise you.’ But really, nothing happens after that. Day after day, I just keep finding them not coming to work in my factory.”

Therefore, participant responses reveal that, in their opinion, Saudis have low levels of organisational commitment which results in short employment duration, and these may be regarded as two major concerns for these private manufacturing firms in recruiting Saudis under the Saudisation policy. These managers’ responses also indicated that short employment duration among Saudi nationals, in return, brings about high turnover of staff within the factories. Bhuian and Al-Jabri (1996) argue that it is evident that high turnover of staff affects both Saudi and expatriate workers in the secondary sector due to the level of job satisfaction. Bhuian and Al-Jabri (1996, p.393) further point out three categories that determine employees’ turnover tendencies, including work-related attitudes (i.e. job satisfaction and organisational commitment), personal characteristics (i.e. age, education, and experience), and external

environmental factors (organisational climate, management practices and supervisory behaviours). Synthesising the aforementioned private manufacturing managers' concern for their employees' turnover behaviour, it was found that work-related attitudes matter since the nature of the job (i.e. permanent and contractual) affects private sector employers' level of satisfaction about expatriate and Saudi nationals' work performance.

In addition, some private manufacturing managers pointed to a high employee turnover among Saudi manual-based workers. Basically, the term 'employee turnover' is used in the context of human resources to refer to the rate of employers' loss of or gains in employees (Beam, 2010). This thesis adopts the definition by Nobilis (2008), which is the number of employees leaving the company, exclusive of natural turnover (i.e. retirement, job resignation, or work contract termination). To be more specific, the type of employee turnover used in this study is 'voluntary turnover', classified by Aksu (2008, p.197) as referring to employees' sudden decision to leave the company/factory of their own free will. Aksu (2008, p.197) offers a list of reasons for which employees intend to leave their jobs (Table 8-3):

No.	Reasons for intending to leave their jobs
1	low wages / salary
2	dissatisfaction with company benefits,
3	poor relationship and interaction with colleagues and superiors
4	work stress from employers' measurement and evaluation of job performance
5	better job opportunities from other companies
6	family issues (particularly female employees)
7	level of working schedule flexibility
8	new jobs and alternative job offers from other companies/work fields (particularly skilled and high job position employees)

**Table 8-3 Employees' reasons for intending to leave their jobs**

Source: Aksu (2008, p.197)

Based on this list, the private manufacturing factory managers participating in this study complained a great deal about their Saudi employees, stating for example, that

"I can't afford to hire new Saudi workers in my factory anymore because they always come to my office to ask for higher salaries in

advance to solve their family financial issues (e.g. new babies, serious illness of their parents who are required to spend long periods of time in hospital). They also say they cannot work night shifts and this makes me feel that they are not flexible with the work shifts. Besides, they like to make small cliques with colleagues who have something in common (e.g. family background) with them and always come to tell me that they really don't like those foreign workers in the factory."

Saleh (1984) asserts that, from historical and cultural perspectives, traditional Islamic values function as a spiritual guide to motivate government policies toward education, industrialisation, and modernisation of Saudi society.

However, the response given by the interviewees suggests that the role of Islam in guiding Saudis' attitude to work is separated from their actual behaviour at work. For example, the English tutor of the cannery factory complained that

"Every day I just have to start from the beginning to teach another new group of Saudi workers who just arrive to start their work in this factory. Sometimes, I doubt that why the Saudi workers I just taught yesterday leave the factory without saying anything in my class. If I remember correctly, it is stated clearly in the Qur'an that workers have to be faithful and loyal towards their jobs as a means of showing appreciation to their bosses' offering jobs for them to maintain their living and to have the ability to take care of their family. The salary they have is pretty high, even just entry-level work. Their behaving in such a way really gives me a very strong impression about how far their actual behaviour at work is from what the Islamic principles for work have taught them."

Bhuian et al (1996) investigated this issue by examining the nature of organisational commitment and its impact on productivity in Saudi and non-Saudi workers. According to Bhuian *et al's* (1996) findings, formulating effective and efficient incentive programs and job descriptions is of greater importance in improving the level of productivity as well as organisational commitment and length of employment duration of both Saudi and expatriate workers.

Some Saudi workers are valued by their employers, but they can face discrimination in the workplace. In the segmented labour market literature, discrimination is a core issue of concern. It refers to the way certain groups of people are treated by others in terms of a variety of characteristics, such as ethnic groups, gender, race or age. There are three forms of discrimination addressed by some of the interviewees in this study, including wage discrimination, employment discrimination and gender discrimination. The

second form—employment discrimination was given a great deal of emphasis. For instance, the mechanical engineer supervisor shared his personal experience of how he has been struggling with his foreign colleagues' behaviour in terms of gaining internal promotion. He mentioned that

“I just wanted to show my boss I could work hard as same as he felt from my foreign colleagues. That's why sometimes I went to them to ask something I need to understand clearer before I went back to teach my staff. But those foreign colleagues were so afraid of teaching me, even small things because they are scared to be kicked out from the factory once my boss found that my ability is sufficient enough to take charge of the whole department, no need to spend more money to hire these foreign colleagues.”

The human resource manager of the aluminium factory gave similar responses, saying that

“My boss always reminds me of how much he prefers to have a better quality, higher productivity and profitability workforce in this factory. That's why he always asked me to ‘trim out’ those employees who are less productive. I started to create a competitive atmosphere to show both Saudi and non-Saudi workers in the factory. Later on, I discovered that both groups never interact with each other; even if they are allocated in the same team to finish the target work amount. Especially, non-Saudi workers always complained to the director of the production line that they feel threatened by the way Saudis behave in front of them. Saudi workers also complained that they feel discriminated if they work hard as same as their foreign workers.”

The general manager of the bottle water manufacturer shared with the researcher their experiences with Saudi workers in their factories, stating

“Sometimes I discover that some of my Saudi employees are really nice, cooperative and hard-working. Their knowledge, skills and attitudes are better than other Saudi employees in my factory. But these good Saudi employees usually don't stay in my factory very long. When they give me one-month's notice, I ask them why they are leaving. Some of them are honest enough to tell me that they are the sole breadwinner in their family and they need to support a large number of people. The salaries I give them are really not enough to support everyone in the family. They also tell me that some of the senior foreign workers who hold managerial positions in the factory often use very sarcastic language to criticise their English language proficiency. These senior foreign workers are really showing an attitude of discrimination. To be honest, when I hear them saying this, I really feel frustrated and just simply say to them ‘I'm so sorry to learn that you have decided to leave my factory. I really don't want you to go.’”

The Saudi labour market has a distinctive feature of segmentation in terms of Saudi nationals' deeply-rooted negative perceptions of private sector employment, i.e. low-pay, low-wage and low skills. This thesis advocates the assertion by Al-Asmari (2008, p.49) that such segmentation is closely linked to the Saudi social-value system. Private sector employers also indicated that Saudi workers' negative images of manual-based jobs are deeply rooted both individually and culturally. This is one of the major factors affecting Saudi young peoples' reluctance to enrol in technical education and vocational training. The employers also argued that this socio-cultural barrier leads to concerns about Saudi workers' sustainability and mobility in their factories.

In the responses given by the thirteen interviewees, some issues were repeatedly emphasised in relation to attitude modification, including the following:

“There is an urgent need for a change in Saudis' traditional cultural attitude towards technical education and vocational training as a 'second-class' education, as well as in their attitudes to and images of the manufacturing industry in the private sector.” (The air cooler factory owner)

“It is of great significance that one of the key learning objectives of technical education and vocational education is to emphasise social sustainability in terms of ethics, such as respect for cultural diversity, gender equality, workplace relations, teamwork in the workplace, relations between employers and employees, safety and citizenship.” (The director of SJAHI)

“Regarding the method of cultivating the appropriate work ethics and values in the manual-based jobs in the manufacturing industry in the private sector, the technical education and vocational training curriculum should identify a clear plan for nurturing the attitudes needed to behave and act ethically in the workplace.” (The English tutor of the food packaging factory)

Attitude modification plays a key role in changing the stereotype of private sector employers in recruiting any new Saudi job seekers who have limited knowledge and skills relevant to the specialties required by the manufacturing industry. It was evident that all thirteen interviewees mentioned frequently how dissatisfied they were with Saudi workers' behaviour in the workplace. As a result of this, private sector employers find it of no use or value to make any investment in offering such in-service or life-long career professional development training programmes for their employees.

## 8.5 Workplace learning and performance appraisal

Investment in the acquisition of skills or in the improvement of worker productivity has been emphasised in a series of five-year development plans since the First Development Plan was launched in 1970. Apprenticeship as one type of 'on-the-job training' refers to 'an excellent way of gaining qualifications and workplace experience (Mincer, 1962, p.50)'. However, in reality, many empirical studies (Ramady, 2010b, Fakeeh, 2009, Rae, 2007) have revealed complaints from the private sector about Saudis' lack of skills and knowledge relevant to achieving the expected productivity and the failure of education to give Saudis sufficient quality of training is blamed for this. Hussain (2007), Rae (2007), Stensgaard (2006), O'Brien (2003) and Billeh (2002b) all argue that on-the-job training should be considered, to connect education and labour force participation in order to achieve high productivity.

In other words, the more skill specificity an employer expects, the more likely it will be that he will have to provide on the job training. Dekker *et al* (2002) argue that reward can be seen as an incentive for workers to become highly skilled through on-the-job training. However, Looney (2004c) holds a slightly different viewpoint in this regard, stating that the typical conservative cultural nature of the GCC countries tends to be more motivated to work effectively and efficiently only for those jobs available in the public sector. With such a conservative cultural nature, many employers tend to look for skill specificity very often in the process of recruiting new labour market entrants who have just graduated from vocational education.

According to their responses, some factories in the private sector provide specialised in-service manufacturing skills courses to meet the demand of their factories. For example, one interviewee, the director of the Saudi Japanese Automobile Higher Institute (SJAHI) pointed out that public school teachers of industrial education have no willingness or motivation to visit factories to discover the precise manufacturing skills essential to raise the level of productivity, employability and capability of Saudi students of industrial education. The director of Saudi Japanese Automobile Higher Institute suggested that



“It is clearly stated on our school’s website that the major curriculum for every course put an emphasis on the needs of the automobile industry. For example, we ask our trainees to participate in the three-month work placement scheme to learn about the new car repairing techniques devised by our partner automobile factories. As well, we also ask our partner automobile factories to come to our school to give our trainees updated information about how cars are assembled in a more efficient way. At the same time, we also want our trainees to show an active learning attitude that is necessary for the workplace in front of these well-experienced instructors who have been working in the automobile industry for years. It is our belief that ‘the more trainees ask, the better they can pick up the skills and knowledge required by the industry.’”

The general manager of the boiler manufacturer suggested that

“The school should send some trainers to manufacturing factories to observe the skills and professional knowledge that are widely used by the industry. Not just give trainees the types of out-of-date knowledge and skills written more than ten years ago in the textbooks. That’s how learning and work can work side by side, in my opinion.”

Other interviewees in this study indicated that they were reluctant to make any investment in providing on-the-job training for new Saudi employees. From the managers’ perspectives, out of concern for making more profit, they believe that such training is necessary to enable Saudis to prepare for maintaining productivity. However they thought that the Saudi government and educational policy makers should integrate such training into the formal industrial education curriculum. In addition to this concern, some interviewees also suggested that during their internship, Saudi students should be assessed in the same way as current Saudi workers in the factory. It is their belief that by adopting a type of evaluation called ‘performance appraisal,’ both private sector employers and school teachers can track Saudi students’ progress in gaining valuable work experience and acquiring practical skills and knowledge in the work place.

Performance appraisal refers to an annual-based evaluation system used by any firm to assess several components of employees’ work outcome. These components usually comprise technical knowledge, professional knowledge, communication skills, work quality, fiscal responsibility, service orientation with special emphasis on the interaction with co-workers, initiative, and work

reliability. Based on this managerial mechanism, employers may then provide internal job promotion and increase salary to encourage workplace mobility.

However, Saudi society adheres to the strong influence of Islamic worldview; therefore such an appraisal system is seldom used due to its critical nature. For example, the human resource manager of the air-conditioning manufacturer noted that

“We do not have a formal way to assess workers’ performance; I mean we do not ask our workers to fill out a form with a lot of questions on how they self-evaluate their work performance. I know some foreign companies do use this system to keep good employees but in this factory, we never use this. This is a new thing for me to learn, but not now. Later I will apply for advancing this area of knowledge by getting some organisational learning courses sponsored by my boss.”

Another interviewee, the human resource manager of the white goods manufacturer contended that:

“Performance appraisal is a good way to know how productive, how enthusiastic, how active employees have been working in the factory. It is a good way for them to reflect the good and the bad things they have done in the year. According to the principle of decent work mentioned in the Qur’an, every Muslim needs to reflect what he / she does in life. If they find out that they do not do well for some part in life, they need to improve. If they find out that they do other parts in a satisfying way, they have to keep doing it in a good way as they always are taught.”

These interviewees’ responses indicate a belief in the importance of conducting performance appraisal. Their responses in this regard support relevant literature on the advantages of performance appraisal applied in the manufacturing industry of developing countries (e.g. Malaysia and Taiwan), which reveal that it is considered in the manufacturing industry as a means of long-term retention of personnel as well as allowing the use of qualitative criteria in appraisals (Abdullah et al., 2007, Chen and Chu, 2007).

Mitchell, in Snell and Dean, (1992, p.474) claims from the perspective of human capital theory that the comprehensiveness of training plays a key role in a firms’ decision of investment in employee development. In Mitchell’s view, a firm’s concerns for the potential economic impact of employees’ performance as well as their ‘marginal revenue product’, have an effect on its willingness to make an

investment in employees' development by offering them on-the-job training along with conducting 'performance appraisal' to verify an employee's productivity. In addition, Abdullah et al (2007,p.164) propose that criteria such as employment duration and organisational commitment should be focused on as the key elements of employee selection or of employees' work performance evaluation.

## 8.6 Conclusion

The employers of the private manufacturing industry claim that a gap indeed exists between their expectations of Saudi manpower and the current technical education and vocational training. This gap results from three factors: work ethics, skills specificity and manufacturing-related knowledge. These play a key role in employers' decision-making in terms of the creation of employment opportunities for Saudi workers. Secondly, an imbalanced employee size was found between Saudi and expatriate workers in the private manufacturing industry since these employers have negative views about implementing the Saudisation policy in their factories. They complain that the Saudi government does not have a well-established Saudi manpower database for them to access, which results in the following challenges for them:

- 1) Saudi job seekers' qualifications are not suitable for work in their factories and this leads to the need to have in-service vocational skills training relevant to their factories' manufacturing specialty.
- 2) Saudi job seekers always look for managerial positions first without having relevant work experience of management in related manufacturing fields, which means that private sector employers have too many Saudi job applications for managerial positions but few Saudi applications for production line positions.
- 3) Wages and the welfare for employees play a crucially significant role in the turnover rate of as well as the level of organisational commitment of both Saudi and expatriate workers in their factories.

Thirdly, from these interviews, private sector employers in the manufacturing industry also indicated that Saudi workers' negative image of manual-based jobs is deeply rooted in their mind. This is one of the major cultural factors in Saudi youth's reluctance to enrol in technical education and vocational training. This socio-cultural barrier also brings difficulties for the interviewees in this research in that they are worried about Saudi workers' sustainability and mobility in their factories.

In addition, the interview data explores the relationship between the skills and knowledge of Saudi workers and the skill requirements of the manufacturing jobs in which they work in the private sector (i.e. secondary sector of employment) of the Saudi labour market and pays particular attention to the Saudi young population who register at secondary industrial education / technical college of manufacturing-related subjects. The private sector managers' interview responses also indicated that a segmented labour theory exists in Saudi Arabia in terms of matching the Saudi young labour force' technical and generic skill development through vocational educational training to private manufacturing sector employment opportunities.

The following is a brief summary of key qualitative findings in relation to the segmented labour market theory.

- 1) It is evident that skill specificity in manufacturing-related tasks affects, to a large extent, private manufacturing managers' decision-making in recruiting Saudi nationals with relevant vocational education qualifications.
- 2) It is evident that the traditional Saudi social value on private sector employment still affects the way Saudi nationals behave in the workplace, which also results in their high rate of turnover.
- 3) It is also seen from the interview responses that wage and welfare are regarded as the primary incentives by the government to encourage Saudi workers to show a higher level of organisational commitment, but that this is leading to a dual internal labour market see (Mellahi, 2007).
- 4) Private manufacturing managers interviewed in this study placed a great emphasis on how much work ethics influence their opinions. They thought that the current study was to criticise the weaknesses of their industrial education system, not to help them find immediate solutions to improve their teaching and to increase recruitment of new Saudi students as well as assessing employees' work performance appraisals.

Saudi private sector employers who took part in this study perceived that the work skills, knowledge and attitude of Saudi graduates from industrial education are still below their expectations. Possible responses to this issue and the difficulties of Saudisation will be further discussed in the concluding chapter.

# Chapter 9 Conclusions and Recommendations

## 9.1 Introduction

Participation in a global knowledge market place requires a workforce that has the skills necessary to operate the equipment of modern manufacturing and understand the need to maintain personal skills. The basis of these skills is education and more importantly education that is relevant to economic development that is vocational education. Vocational education has to provide young people with the initial skills necessary to enter the work place and become successful. All developed economies rely on a workforce that has a high level of technical and practical skills. The highly competitive current global market place demands such a workforce if success is to be achieved. There is evidence from previous studies, such as Alghofaily (1980), Bosbait (2003) and Ibrahimkhan (2007), addressing the lack of appropriate vocational skills training for young Saudis in the current Saudi technical education and vocational training system. Al-Shammari (2009), Alsarhani (2005) and Al-Humaid (2003) suggest that this is a primary reason for the unsuccessful implementation of Saudisation in the private sector. However, these empirical studies have not addressed approaches to bridge a skills gap so as to offer Saudi students sufficient vocational training to teach them the level of skills, specialised knowledge and attitudes to work that private sector employers require.

The main aim of this study was to investigate whether or not a skills gap exists between Saudi industrial education output and Saudi labour market demands in the private sector. This thesis set out to explore the following issues:

- 1) The issues involved in implementing Saudisation in the private sector manufacturing industry;
- 2) the nature of manufacturing skills training (for both technical and generic skills) offered in Saudi industrial education, and;
- 3) Participants' understandings of the effectiveness of vocational training as preparation for private sector work in the modern Saudi economy.

## 9.2 Major research findings

Given the evidence in existing research literature of a skills gap, and given the emphasis on a skills gap in the 5-year plans, the overarching research question explored in this thesis was as follows:

*In the era of a knowledge-based economy, is there evidence for the continued existence of a skills gap between industrial education output and manufacturing labour needs in the private sector in the Kingdom of Saudi Arabia?*

To answer this question, five sub-questions were designed and these will now be related to the data from the literature review and the empirical element of the research.

1. *What are the perceptions of key stakeholders about the skills required in industrial manufacturing, and the extent to which these skills are shown by the workforce?*

The results of the survey conducted in this study imply that the industrial education in Saudi Arabia does not sufficiently prepare Saudi students for the world of work according to the participants in this research. Specifically, skills (both technical and generic skills), knowledge and working attitudes required by the private sector are lacking. The employers believed that Saudi students of industrial education at both secondary and college levels had not received sufficient training to be competent knowledge workers in a modern knowledge-based economy; they were not able to achieve the expected productivity with generic skills suitable for the current labour market.

The employers believed that there is no effective evaluation of students' knowledge and skills before sending them for internship in the allocated factories in the private sector. Instead, some manufacturing factories in the private sector provide specialised in-service manufacturing skills courses to meet the demand of their factories. The school manager (SJAHI) also pointed out that teachers of industrial education show no willingness or motivation to visit factories to identify the manufacturing skills essential for raising the level of

productivity, employability and capability of Saudi students of industrial education. Overall, the private sector interviewees highlighted two main issues:

- a) a skills gap exists and has been a serious problem in terms of unemployment among Saudi workers since the 1970's;
- b) there is a need to change the mentality of Saudi nationals by removing the traditional social attitude toward industrial education, which is that it is the kind of education only for 'academic failures' or those of 'low social status.'

**2. *What are the perceptions of key stakeholders about the effectiveness of existing vocational education in preparing Saudi workers for employment in the manufacturing sector?***

The Eighth Development Plan put great emphasis on increasing employment growth rates in the private sector (particularly the Saudi youth employment rate) as one of the long-term strategies for national economic development (Ministry of Economy and Planning, 2005, pp.76-77). To achieve this goal, the Saudi government has focused on skills improvement through an effective implementation of education and training policies. However, the research reported in this thesis shows that there are still issues regarding vocational training and education.

Private sector participants had limited knowledge of the concept of a knowledge-based economy, and little awareness of what 'generic skills' were and the significant role of such skills in contributing to the growth of productivity in their factories. They agree that there is a need for them to know more about this concept because they also needed to find out the latest information about the global market in order to keep up with the latest trends in the industrial field of the labour market and be competitive. However, they also feel frustrated and have pessimistic attitudes towards the current output of the industrial vocational education in Saudi Arabia. For example, the school manager of a public secondary industrial education school in Jeddah pointed out that the government's policy on promoting 'cooperation programmes' between the industrial education sector and the private sector had little impact on bridging the skills gap between the supply and the demand sides of the Saudi labour



force. Those in the private sector may not trust the ability (i.e. the vocational skills of the manufacturing industry) and relevant qualifications students receive from the current industrial education system.

### ***3. What are the perceptions of key stakeholders about the policy of Saudisation?***

The private sector managers are aware of the government's policy of Saudisation aims to solve the high unemployment among Saudi nationals. However, private sector employers, teachers and students of industrial education are not convinced that it is effective. The reality remains the same: lip-service is paid to policy while employers, teachers and students persist in their customary behaviour without any changes being made. The industrial education trainees' and instructors held a similar viewpoint that Saudisation policy is still progressing at a slower pace than expected in terms of accelerating the improvement of the quality of education provision, particularly industrial education. Industrial education students' suggested that the Saudisation policy should emphasise the revision of the current curriculum content and objectives to meet business expectations.

### ***4. What are the main recruitment issues that managers in private sector manufacturing industries encounter in offering jobs to the Saudi labour force?***

The majority of interviewees who make employment decisions are still reluctant to hire young TVET Saudi graduates. They point out that young Saudi graduates tend to have a low level of productivity at work but may request a light work load, a higher salary and better company benefits. The vocational skills training received at school is insufficient, irrelevant, too theoretical, and out-of-date to prepare these young Saudis for the immediate tasks they are required to carry out. Participants also indicated high employee turnover as a factor. For these reasons, they prefer hiring expatriate workers.

In addition, the private sector managers suggest that there is an urgent need to change the traditional social value of industrial education. They point out that Saudi society still perceives industrial education and manual labour jobs from an

extremely traditional perspective— ‘blue-collar workers,’ ‘manual-based and laboured jobs with lower social status and wages,’ and poor working conditions. This, as a consequence, greatly affects the way their Saudi employees’ behave at work, such as not being punctual to the factory, lazy, and lack of working schedule flexibility.

**5. *To what extent, and in what ways, might industrial education be adapted to better prepare Saudi trainees in industrial education for the world of work with the skills expected by the private manufacturing industry?***

Industrial education teachers thought that the government fills the TVET programmes with subjects not suitable or closely relevant to what the current labour market needs. Practical subjects like ‘Saudisation,’ or ‘Current Trends in the Industrial Sector’ must be included in the curriculum for students to study in the TVET programmes, not general subjects such as ‘Introduction to Electronics’ and ‘History of Saudi Electronic Engineering Development’. In other words, if the TVET programmes provided the right subjects for students to learn at school, the private sector would consider accepting them. Then, with the right practical skills training and knowledge at school, these newly-recruited graduates could immediately perform the assigned tasks with the expected production quantity and quality. Managers in the private sector would not need to spend extra money on providing in-service or pre-service training programmes (in terms of company’s specific needs) for these new employees to get started in the company.

Managers also thought that teachers in the government-owned TVET must improve their teaching content with updated skills and knowledge (both in theory and in practice) by attending workshops, seminars and conferences, where they can gain access to the latest information about the development and current trends of the industry or other sectors in the labour market.

Participating students were also critical of the teaching they received with one student saying that teachers “are not well-trained for teaching us the skills and knowledge to help us develop appropriate skills for ‘on-the-job’ applications”. Another student said: “teachers are impatient with us and never care whether or

not we really understand their teaching content most of the time, teachers just read aloud what is written in the textbook without any explanation.”

Trainers believed that government-owned TVET programmes and the private sector should cooperate with each other by making a work contract in an attempt to create guaranteed internships or job opportunities for graduates to demonstrate their employability. Finally, the industrial trainers thought that training needs to raise Saudi graduates’ competitiveness in the context of global economy by offering better communication-based English language courses within reformed TVET programmes. Given these findings, this thesis suggests that there is evidence for the continued existence of a skills gap between industrial education output and manufacturing labour needs in the private sector in the Kingdom of Saudi Arabia.

### 9.3 Limitations of the study

There are some limitations that need to be acknowledged and addressed regarding the present study: the credibility of the private sector managers' responses, access difficulties, gender issues, limited sites of data collection, issues relating to data collection methods and lack of interviewers from the policy or government departments.

The first limitation concerns the credibility of private sector managers' interview responses. For example, the researcher attempted to probe the actual number of Saudi workers recruited in the factories, but the private sector managers were reluctant to give the precise number of Saudi workers and often tended to exaggerate the actual number. This was due to the fact that they were afraid of being fined by the government and possibly even being forced to close the factory if the government discovered that their factory did not have the proportions of Saudi and expatriate workers set out in the Saudisation policy.

The second limitation has to do with access difficulties. During the phase of data collection, the researcher found it impossible to interview students of industrial education at both secondary and technical college levels. This was due to the fact that the directors or the head teachers of industrial education establishment refused the researcher's request mentioned in the cover letter for ethical approval. They thought that the current study was to criticise the weaknesses of their industrial education system, not to help them find immediate solutions to improve their teaching and to increase recruitment of new Saudi students.

The third limitation regards gender issues. The present study did not collect any data from females. This is due to the fact that in the Saudi society, it is nearly impossible to find any females working as a manual-based worker in sectors such as non-oil manufacturing industries, construction, or the automobile industry. The focused area of the labour market in the present study is the manual-based sector, where the overwhelming majority of Saudi workers are male. The samples used are gender biased in that they comprised only of male managers in the private sector, male teachers and male students of industrial education. This was due to two facts in the Saudi society:

- 1) manual-based jobs are currently only for males and not for females;
- 2) the Saudi Arabian education system is gender-segregated; i.e., female teachers teach female students and male teachers, male students.

However, during the data collection phase of this study, the researcher was informed that a newly-opened technical college has a one-year programme for female students to study industrial education subjects but so far, none have graduated from that school. Future studies could investigate what these female students think of the teaching quality, skills training and career development for the manufacturing industry in the private sector.

Another limitation is that this study focused on only one economic activity of the non-oil-producing sector in the private sector ('other' manufacturing industries, exclusive of oil refining and petrochemicals). However, there are several other economic activities in the category of the non-oil productive sector in the private sector such as electricity, gas, water, construction (Eighth Development Plan,, 2005, p.79). This gives possibilities for future research to explore other areas of activity. Since 2007, the Saudi government has been paying an increasing amount of attention to the economic growth contributed by manufacturing industries in the private sector (GDP of 8.6% in 2008) (AMEinfo.com, 2007, Maghrabi et al., 2009, Ramkumar, 2010a, Rose, 2010b). To obtain an in-depth and detailed understanding of the Saudi manpower issues in the private sector, there is a need to conduct more studies in the future by expanding the present study to cover multiple economic activities classified within the non-oil-production sector in the private sector in Saudi Arabia.

The research design of the current study involves a survey, i.e. two sets of questionnaire and semi-structured interviews. However, further research into this area could collect data through observation techniques in the classroom to obtain a 'truer voice' from students and teachers. This would allow the researcher to explore industrial education further by gaining formal access with ethical approval to observe the reality of classroom teaching. At the same time, the interaction between students and teachers may also be probed. In this way, the results of observational data analysis could contribute to enriching viewpoints on the educational side and would help in making recommendations

for policy makers to develop constructive policies to bridge the skills gap between industrial education output and private sector manufacturing industry expectations.

The other limitation refers to a lack of research participants from the policy makers and government departments. Their view points on how to bridge a skills gap would enrich perspectives on the implementation of Saudisation in the private sector and on the framework of an up-to-date vocational education in Saudi Arabia. Therefore, future research should involve exploration of the issues raised in this thesis with policy makers.

## 9.4 Discussion

The evidence gathered for this research offers some support for the continued existence of a skills gap between industrial education output and manufacturing labour needs in the private sector in the Kingdom of Saudi Arabia. The thesis aimed to explore issues associated with providing a knowledgeable and capable workforce that can support competitive economic development for Saudi Arabia in globalised markets. One of the implications of the survey results is that there should be further exploration of the identified skills needs on both sides (private sector and industrial education) through a dialogue between the business and education communities. The long-term aim would be to enable students of industrial education to enter the labour market with the specific manufacturing and generic skills to meet the needs of business, to enhance their own employability and to provide the resources necessary for business expansion.

From the Forth Development Plan onwards, the government has placed great emphasis on the leading role of the private sector contributing to the rapid growth of GDP and the economic development of the Kingdom. Accordingly, the creation of jobs (labour demand) and the importance of human resources development (labour supply) in the private sector are considered to affect the level of competitiveness and productivity as the ultimate goal of a labour force in Saudi Arabia (Eighth Development Plan, Ministry of Economy and Planning, 2005). In other words, regarding the labour supply on one side, the current study found that the government needs to improve and upgrade the quality of human resources development at the level of technical education and vocational training. Concerning the expectations of labour demands in the private sector, this research suggests that there should be a continuous communication channel between the government and the private sector to deal with the challenge of the successful implementation of Saudisation in this sector.

However, current Saudi technical education and vocational training policies do not seem to be directly linked to economic objectives and business performance and do not seem to support competitive economic development in globalised markets through the development of knowledge-based businesses. Developed and developing economies recognise that achieving economic development and growth requires a labour force that can cope with the increasingly complex

demands of the workplace. In addition, the labour force must be able to adjust to changing knowledge requirements in the work place by updating their personal skills. To achieve these aims, education policies in all developed and developing economies have become directly linked through skills development to economic objectives and business performance. In terms of the significant role of education in facilitating Saudi economic growth, one of the long-term strategies for the Saudi economy mentioned in the Eighth Development Plan (Ministry of Economy and Planning, 2005, pp.53-54)—sustainable development achievement—is to create productive employment of Saudi manpower, particularly young Saudis, through extending high quality education and training throughout the Kingdom of Saudi Arabia. Morgan (2010a) also suggests that the foundation of the creation of a knowledge-based economy in Saudi Arabia is through education.

According to Kombe (2008, p.1), to demonstrate competent work performance and meet the expectations of employers, it is of great importance for any employee to develop a range of skills. In order to prepare the Kingdom of Saudi Arabia to be competitive in the global economy, the government has made considerable efforts to empower its human resource development, which plays a significant role in helping to facilitate the nation's economic growth. Regarding this significant role of education in preparing the Kingdom for long-term economic growth in a knowledge-based economy, Hanware (2010) agrees with the proposition by John Micklethwait, chief editor of the Economist, who suggests that education should be the focus of concern in the future economic development of Saudi Arabia. In other words, both Hanware (2010) and Micklethwait consider the significant role of education in facilitating Saudi Arabia to create a knowledge-based economy, which may help create more job opportunities for young Saudis.

Therefore, in today's knowledge-driven global economy, there is a need for Saudi industrial education to reorient its curriculum and learning objectives. The curriculum should include skills essential for effective participation in the emerging patterns of work and work organisations and the promotion of the idea of producing a knowledge-based, skilled workforce at an accelerated pace. Training and education, generic and core skills, together with broader employment, attitude and life skills, could help cultivate the basic profile of a



knowledge worker. The ultimate outcome of a 'knowledge-based' curriculum for reorienting Saudi industrial education is the development of skills sustainability. Regarding sustainable development through industrial education, this study suggests three priorities knowledge, skills and attitude (work ethics). The proposed curriculum is expected to offer training to inform young Saudis of accepted practices and procedures in performing specific tasks in the private sector manufacturing industry. The curriculum forms a link between industrial expectations and education output together with a suggested model of assessment to ensure high quality industrial education from secondary school level up to higher education level in the Saudi context. In other words, reformed industrial education could be a socially transforming process that gives young Saudis knowledge, skills, attitudes and values with which they can participate in and contribute to their own well-being and that of their workplace.

## 9.5 Recommendations

Education has been central to the Kingdom's development agenda from the first to the current eighth Five-year Plan (Ministry of Economy and Planning, 2005). In these plans the Saudi workforce's development of the technical knowledge and skills required by the private sector labour market needs has been a recurring theme, as has the policy of Saudisation (which has been met with limited success). There is a range of empirical studies which discuss possible solutions to Saudi employment issues in relation to the implementation of Saudisation in the private sector. Typically these studies have suggested the following possible solutions:

- 1) skills formation (Al-Shammari, 2009),
- 2) effective measurement and evaluation of job performance and organisational effectiveness (Alsarhani, 2005),
- 3) increase in income as an incentive for skilled Saudi manpower development (Ibrahimkhan, 2007).

The output of Saudi vocational training for the industrial employment market and subsequent youth employment are seen as core linked issues. However, the research reported here indicates that the extent to which vocational education can make a difference to individual skills and the wider economy rests not just on cultural attitudes but also the quality of vocational education itself and its responsiveness to the needs of employers. Research in the field of human resource management suggests that new employment opportunities among Saudi nationals could be created in the manufacturing sector if there was an appropriate quality of vocational skills training courses (e.g. Cornford, 2006, Sheldon and Thornthwaite, 2005, Rae, 2007, Fakeeh, 2009, Hager and Holland, 2006). This thesis argues that a reformed technical and vocational curriculum is required to respond to the needs of the Saudi labour market in the private sector.

Al-Shammari (2009, p.339) indicates that skills formation for the employment of young Saudis is of crucial importance in terms of employable skills, knowledge and attitudes to work in the private sector. Similarly, Bajunaid (2008, p.255) suggests that a reformed technical and vocational curriculum in Saudi Arabia

should include generic skills, since the role of schools in preparing students for making an effective transition to work depends on helping students to be aware of the significant role generic competencies play in their career development. Park et al (2009, p.226) propose that a reformed technical and vocational curriculum should include teaching materials in an attempt to produce competent knowledge workers equipped with job-specific technical competencies, a set of life skills and generic competencies at an accelerated pace in order that trainees of technical education and vocational training can participate effectively in the emerging patterns of work.

It can therefore be argued that a proposed knowledge-based curriculum for TVET in Saudi Arabia should include three types of skills: job-specific technical skills, generic skills and sustainable life skills. Based on Park et al.'s (2009, pp.232-233) model of a skilled, knowledge-based workforce the curriculum should focus on the following generic skills as a basis on which to build specific knowledge and technical skills (Table 9-1):

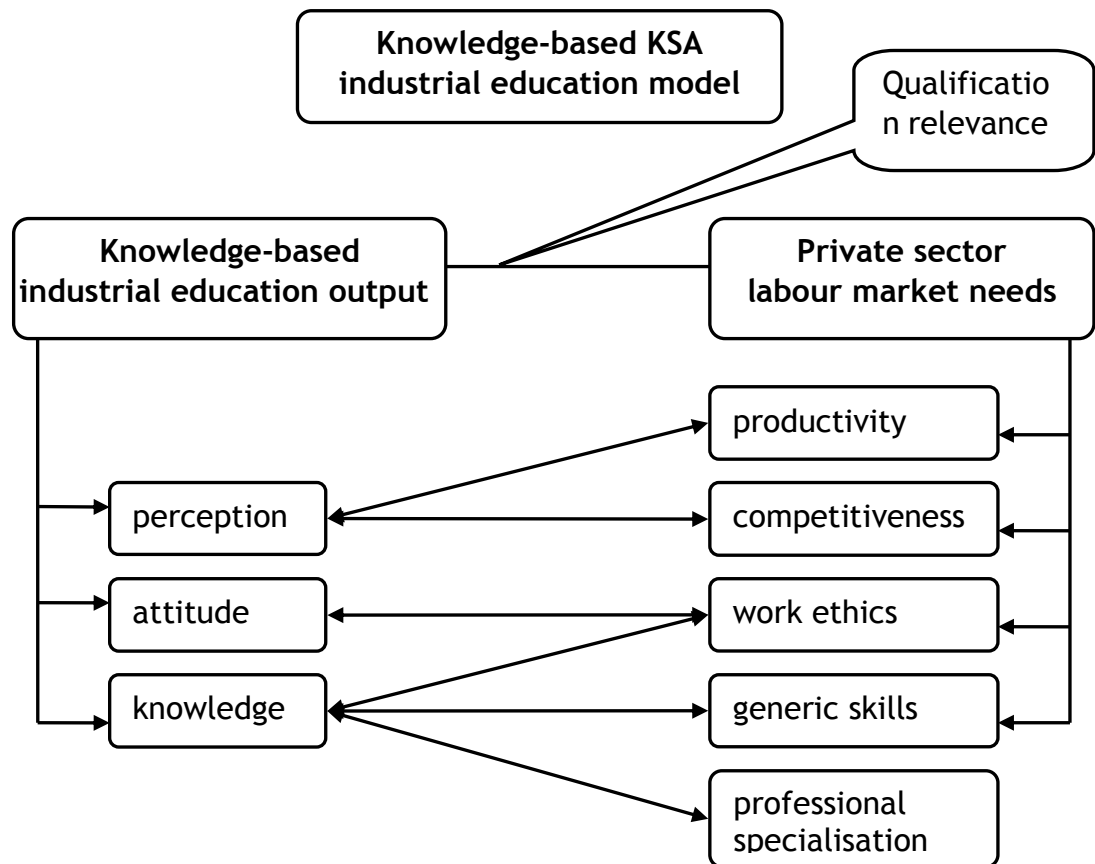
No	Generic skills	No	Generic skills
1	Critical thinking skills	6	Teamwork skills
2	Problem-solving skills	7	Technology application skills
3	Information handling skills	8	Autonomous learning skills
4	Creative thinking skills	9	Cross-cultural understanding skills
5	Communication skills		

**Table 9-1 Generic skills for a skilled, knowledge-based workforce**

Source: Park et al (2009, pp.232-233)

Therefore, this chapter proposes a model to modify the current industrial education curriculum based on the analysis of the thirteen interviewees' responses. This model is called the 'knowledge-based industrial education model' (see Figure 9-1 below) and combines the principles of work-based learning and the concepts of the knowledge-based economy. On the labour supply side, i.e. knowledge-based industrial education output, trainees are given a variety of courses on strengthening their perceptions of manufacturing jobs in the private sector, on refining appropriate attitudes towards private manufacturing employment and on upgrading their specialist knowledge in manufacturing-related fields. On the labour demand side, the private sector

employers need to explicitly describe their requirements with regard to the expected amount of productivity, level of competitiveness, the range of work ethics and generic skills as well as professional specialisation.



**Figure 9-1 Model for knowledge-based industrial education output in Saudi Arabia**

In general, issues of sustainability are also important and students need to be encouraged to think about sustainability in general and personal terms: what knowledge and skills will lead them to have a sustainable career? There are then four elements which vocational education should enhance (see Figure 9-2). At the first stage, through a variety of vocational training courses at school, students should be able to build an awareness of the significance of increasing their capabilities in manufacturing skills and level of productivity as knowledge workers in the labour market. With the required capabilities and level of productivity through systematic vocational training, students of industrial education would be able to equip themselves with all the essential generic skills to demonstrate their employability to employers.



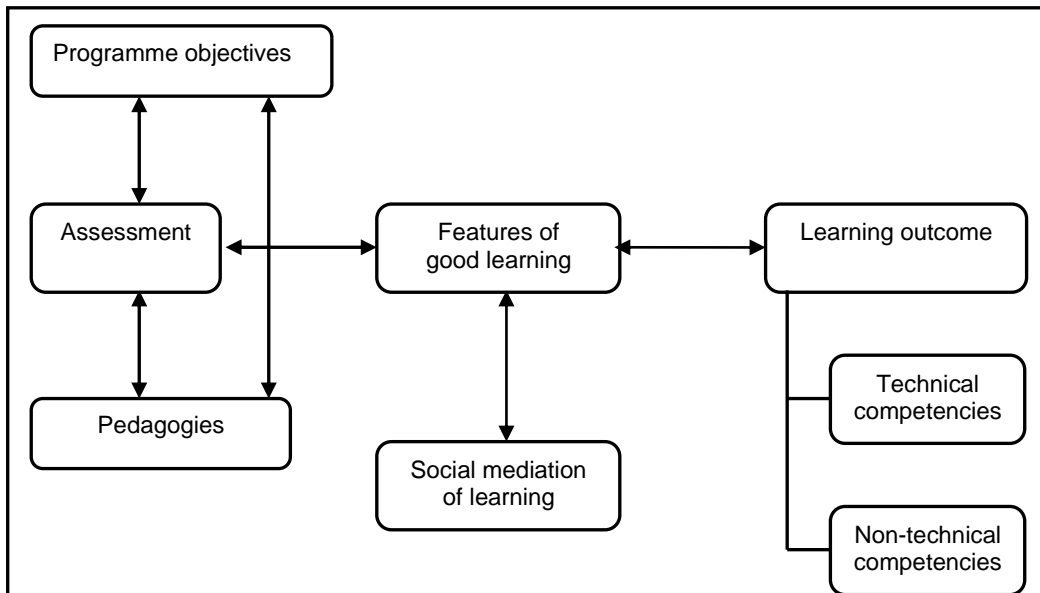
**Figure 9-2 Knowledge-based TVET Curriculum in Saudi Arabia (devised by the author)**

In this model, capability refers to a range of skills, knowledge and attitudes and productivity refers to the assigned production tasks workers will be required to achieve. Employability refers to Saudi graduates' ability to make a successful 'school-to-work' transition with the generic and specific skills, while sustainability refers to continuous professional development to secure the quality of life and career development of Saudi workers. The foundation of these four elements is the quality of vocational training received and the ability of vocational training to encourage students to openly consider how they can develop across these aspects.

Following from the research project outlined in this thesis, taking account of the views of employers and students, a reformed TVET curriculum should aim to guide Saudi students of technical education and vocational training to learn through the following methods:

- 1) projects and problems
- 2) inquiry and design
- 3) discovery and invention
- 4) creativity and diversity
- 5) action and reflection.

With skills across these bases, Saudi students in industrial education should be able to make a more successful college-to-work transition with the generic and specific skills required in modern manufacturing industries in Saudi Arabia. In addition, an assessment model which focuses on further enhancing learning would also be required. We propose the following model adapted from that proposed by Zegawward, Coll and Hodge (2003, p.16):



**Figure 9-3 A model for the assessment of work-based learning**

Source: Zegawward, Coll and Hodge (2003, p.16)

At the initial stage, instructors and trainees of industrial education need to have a clear idea of their programme objectives, in which they refer to institution expectations, employer expectations, student expectations and internship. Then, instructors of industrial education would use forms of assessment which ensure

- 1) the effectiveness of the various pedagogies that instructors adopt for on-campus and off-campus activities, and
- 2) whether or not trainees of industrial education really reach the required programme objectives.

Here, the term 'pedagogies' refers to four components:

- 1) On-campus lectures and tutorials for content knowledge of manufacturing industry.
- 2) On-campus practical classes for technical competency development.

- 3) Off-campus activities.
- 4) Internship in factories.

In particular, the model stresses the need to embed assessment in effective learning, and the model proposes that a key feature is the importance of the social mediation of learning. Learning is conducted in a ‘socially-situated’ process within which there is knowledge and understanding of effective learning. It may be that there are cultural issues here with respect to acknowledged forms of ‘effective’ learning in technical education.

Without a change in pedagogy, changes to curriculum and assessment may not achieve the changes to vocational education which will ensure that students leave college with the high levels of skills needed by employers in the private sector. To this end, students and teachers need to be much more fully aware of the demands of employers; however, these demands should not be the driving force for curricular and pedagogic change. That driver should be rooted in the needs of the individual learner while at the same time acknowledging the needs of society and the employment sector.

## Appendices



## **Appendix 1—Trainers' Questionnaire**



### A Questionnaire for TVTC Trainers of Industrial Education

Please answer the following questions by putting a check on the box given.

**1= Strongly Agree    2= Agree    3= Not Sure    4=Disagree    5=Strongly Disagree**

#### **I. Perceptions – Trainers' perceptions of industrial education**

No.	What do you think of the following statements?	Answer				
1	Industrial education is largely associated with manual jobs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
2	Industrial education is viewed as a symbol of low social status.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
3	Industrial education provides knowledge merely about skills for operating machines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
4	Industrial education provides training beneficial to trainees' future employment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
5	Industrial education teaches more hands-on practice than theoretical concepts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
6	Industrial education aims at improving labour supply quality in terms of up-to-date skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
7	Industrial education plays a key role in the country's industrial development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
8	Industrial education can bridge the gap between education output and business expectations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5

#### **II. Attitudes—Trainers' teaching attitudes towards industrial education**

No.	What do you think of the following statements?	Answer				
9	It is important to teach skills sought by the labour market in relation to employability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
10	The role of industrial education in a modern knowledge-based economy is to prepare trainees for the world of work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
11	The industrial education system should maintain a generic skills base as well as allow some specialisation to meet specific labour market needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
12	The curriculum of industrial education should include the understanding of the concepts knowledge economy and globalisation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
13	Through cooperative projects with the private sector, there will be a direct link between the industrial education and business expectations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
14	The teaching materials should be directly linked to economic objectives and business performance in the workplace.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
15	Receiving up-dated trainer education in industrial training is beneficial for my teaching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5



### A Questionnaire for TVTC Trainers of Industrial Education

Please answer the following questions by putting a check on the box given.

1= Strongly Agree    2= Agree    3= Not Sure    4=Disagree    5=Strongly Disagree

#### **III. Knowledge—Trainers' knowledge essential for trainees' career preparation**

No.	What do you think of the following statements?	Answer				
16	Attending Industry workshops helps me update teaching materials for my trainees' learning more new practical aspects of manual-based jobs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
17	Visiting manufacturing factories can help me to teach 'theoretical concepts' in the textbook in a way that is relevant to the workplace.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
18	Technical education and vocational training should also include the teaching of using the computer and having good command of English.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
19	Experiences in regular monitoring trainees' internship performance at their work stations can assist my teaching of suitable generic skills that meet the needs of business.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
20	Industrial education should include the teaching of interpersonal communication and critical thinking skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
21	Designing a portfolio of practical knowledge for manual-based job training is an important within the technical education and vocational training curriculum.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
22	Encouraging trainees to develop a positive work ethic essential to help them to be capable workers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
23	It is more important to teach trainees knowledge relevant to the actual need to do their jobs well at work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5

24. (optional)

How do you think Saudisation can help bridge the gap between industrial education output and labour market needs?

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25. (optional)

Do you have any further comments on improving industrial education?

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ستبيان لمدربي المعهد المهني الصناعي

نرجو الإجابة على الاسئلة التالية ووضع علامة صح في الخانة المطلوبة.

١ = أوافق بشدة ٢ = أوافق ٣ = غير متأكد ٤ = أعترض ٥ = أعترض بشدة

## ١. آراء - الآراء الحالية للمدرين بخصوص المعهد المهني الصناعي

الإجابة	ما رأيك في الحالات التالية؟	الرقم
١	المعهد المهني الصناعي مرتبط ارتباط وثيق بالأعمال اليدوية	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢	يُنظر إلى المعهد المهني الصناعي كوضع إجتماعي متدني المستوى	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٣	المعهد المهني الصناعي يوفر معرفة فقط عن المهارات المتعلقة بتشغيل الآلات.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٤	المعهد المهني الصناعي يقدم تدريب مفيد للطلاب للعمل المستقبلي.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٥	المعهد المهني الصناعي يعني بتقديم خبرات عملية أكثر من المفاهيم النظرية	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٦	يهدف المعهد المهني الصناعي إلى تحسين نوعية العمالة من حيث إكتساب مهارات حديثة.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٧	المعهد المهني الصناعي يقدم دوراً مهماً في التطوير الصناعي للدولة	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٨	المعهد المهني الصناعي يربط بين مخرجات التعليم ومتطلبات سوق العمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥

## ٢. المواقف - مواقف المدرين من المعهد المهني الصناعي

الإجابة	ما رأيك في الحالات التالية؟	الرقم
٩	من المهم أن يتم تدريس المهارات التي يطلبها سوق العمل من أجل التوظيف	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٠	دور المعهد المهني الصناعي في المعرفة الإقتصادية الحديثة هو إعداد طلاب مؤهلين في مجال العمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١١	نظام المعهد المهني الصناعي يجب أن يحافظ على المهارات العامة للمتدربين ، هذا بالإضافة إلى السماح بتوفير بعض التخصصات اللازمة لتلبية احتياجات سوق العمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٢	يجب على منهج التعليم المهني الصناعي أن يشتمل على إدراك مفاهيم المعرفة الإقتصادية والعولمة.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٣	من خلال المشاريع التعاونية مع القطاع الخاص سيكون هناك ارتباط مباشر بين المعهد المهني الصناعي ومتطلبات سوق العمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٤	يجب أن تكون المواد الدراسية مرتبطة ارتباط مباشر بالأهداف الاقتصادية والأداء الوظيفي في مكان العمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٥	حصول المدرب على تعليم حديث في التدريب المهني الصناعي مفيد للعملية التعليمية.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥



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ستبيان للمدربي المعهد المهني الصناعي

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٣. المعرفة - معرفة المدرب التي تمكنه من التدريب في المعهد المهني الصناعي

الإجابة	ما رأيك في الجمل التالية؟	الرقم
١٦	حضور ورش عمل صناعية يساعدني على تحديث المواد الدراسية لكي يتمكن طلابي من تعلم جوانب تطبيقية جديدة خاصة بالأعمال اليدوية.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٧	زيارة المصانع يمكن أن تساعدني في تدريس المفاهيم النظرية الموجودة في الكتاب المدرسي بطريقة تجعلها مرتبطة بمكان العمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٨	يجب على المعهد المهني الصناعي أن يولي الأهتمام بالتدريب على كيفية استخدام الحاسب الآلي، والتدريس بحيث يتم امتلاك لغة إنجليزية جيدة	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٩	الخبرة العملية يمكن أن تساعدني في تدريس مهارات عامة مناسبة في مواجهة إحتياجات سوق العمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢٠	المعهد المهني الصناعي يجب أن يشمل التدريب على مهارات الاتصال والتفكير الناقد بالنسبة للمعرفة.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢١	تصميم ملف متضمن لجوانب المعرفة التطبيقية للتدريب على الاعمال اليدوية مهم لمنهج التدريب المهني الصناعي	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢٢	تشجيع المتدربين على تطوير أخلاق مهنية إيجابية أمر جوهري لمساعدتهم في أن يكونوا مهنيين قادرين.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢٣	من الأمور المهمة تدريب الطلاب لتلقي معرفة أكثر مما يحتاجون اليه لأداء وظائفهم.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥

٢٤. (اختياري)

من خلال آرائكم ، كيف يمكن أن تساعد العودة في سد الفجوة بين مخرجات المعهد المهني الصناعي وإحتياجات سوق العمالة؟

٢٥. (اختياري)

هل لديكم أية تعليقات إضافية بخصوص تطوير التربية المهنية الصناعية؟

## **Appendix 2—Trainees' Questionnaire**

### A Questionnaire for TVTC Trainees of Industrial Education

Please answer the following questions by putting a check on the box given

**1= Strongly Agree    2= Agree    3= Not Sure    4=Disagree    5=Strongly Disagree**

#### **I. Perceptions – Trainees' perceptions (first impression) of industrial education**

No.	What do you think of the following statements?	Answer				
1	Industrial education is largely associated with manual jobs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
2	Industrial education is viewed as a symbol of low social status.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
3	Industrial education only provides knowledge about skills for operating machinery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
4	Industrial education is the last place for receiving training beneficial to my job-searching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
5	Industrial education teaches more hands-on practice than theoretical concepts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
6	Industrial education aims at improving the quality of the labour supply in terms of up-to-date skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
7	Industrial education plays a key role in the country's industrial development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
8	Industrial education can bridge the gap between education output and business expectations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5

#### **II. Attitudes—Trainees' learning attitudes towards industrial education**

No.	What do you think of the following statements?	Answer				
9	A manual-based job in the public sector is my first priority when accepting a job offer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
10	Industrial education acts as a springboard to having a manual-based job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
11	Industrial education should be given a higher value in society.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
12	Getting up-to-date training in industrial education is beneficial to my career.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
13	The amount of salary a job offers affects my decision of staying or changing jobs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
14	The distance between the work place and my home affects my job satisfaction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
15	My family situation influences my decision to have a job in the public sector.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5



## A Questionnaire for TVTC Trainees of Industrial Education

Please answer the following questions by putting a check on the box given

1= Strongly Agree    2= Agree    3= Not Sure    4=Disagree    5=Strongly Disagree

### III. Knowledge—Trainees' knowledge essential for career preparation

No.	What do you think of the following statements?	Answer				
16	Attending industry workshops can help me obtain the latest information about industry development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
17	Visiting manufacturing factories can help to understand 'theoretical concepts' taught in textbooks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
18	The internship experiences help me build up generic skills that meet business requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
19	Using the computer and having a good command of English are essential for improving my knowledge in industrial education.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
20	Having good communication and critical thinking skills can help me become a capable worker in a manual-based job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
21	Keeping a portfolio of manual-based job training is an important step for job applications to be used to obtain future employment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
22	Developing a positive work ethic is an essential part of manual-based job training.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5
23	Industrial education gives us as much knowledge as we need to do our jobs well.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	2	3	4	5

24. (Optional)

How do you think Saudisation can help you to find the ideal job you want?

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25. (optional)

Do you have any further comments on improving industrial education?

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## ستبيان لمتدربي المعهد المهني الصناعي

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١ = أوافق بشدة ٢ = أوافق ٣ = غير متأكد ٤ = أعترض ٥ = أعترض بشدة

### ١. الإدراك - مدى إدراك متدربي المرحلة النهائية للمعهد المهني الصناعي

الإجابة	ما رأيك في الجمل التالية؟	الرقم
١	المعهد المهني الصناعي مرتبطة ارتباط وثيق بالأعمال اليدوية	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢	يُنظر إلى المعهد المهني الصناعي كوضع إجتماعي متدني المستوى	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٣	المعهد المهني الصناعي يوفر معرفة فقط عن المهارات المتعلقة بتشغيل الآلات.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٤	المعهد المهني الصناعي يعتبر الاختيار الأخير في الحصول على تدريب يؤهلني للحصول على وظيفة	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٥	المعهد المهني الصناعي يقدم خبرة عملية أكثر من المفاهيم النظرية.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٦	يهدف المعهد المهني الصناعي إلى تحسين نوعية العمالة التي تمتلك مهارات حديثة.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٧	المعهد المهني الصناعي يلعب دوراً مهماً في التطوير الصناعي للدولة.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٨	المعهد المهني الصناعي يربط بين مخرجات التعليم ومتطلبات سوق العمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥

### ٢. المواقف - مواقف المتدربين المرحلة النهائية من المعهد المهني الصناعي

الإجابة	ما رأيك في الجمل التالية؟	الرقم
٩	العمل اليدوي في القطاع العام يعتبر بمثابة الأولوية الرئيسية للبحث عن عمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٠	المعهد المهني الصناعي هي نقطة انطلاق لكسب العمل اليدوي؟	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١١	يجب إعطاء قيمة معنوية لتلقي التدريب في المعهد المهني الصناعي في المجتمع السعودي	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٢	حصولي على تدريب حديث في المعهد المهني الصناعي مفيد لمهنتي	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٣	قيمة الراتب المقدم من العمل تؤثر على قراري في البقاء في العمل أو تغييره	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٤	المسافة بين مكان العمل والبيت يؤثر على مدى رضائي عن العمل	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٥	وضع عائلتي المالي يؤثر على قراري في الحصول على عمل في القطاع الخاص	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥



# University of Glasgow | College of Social Sciences

The University of Glasgow, charity number SC004401

ستبيان لمتدربي المعهد المهني الصناعي

نرجو الإجابة على الاسئلة التالية ووضع علامة صح في الخانة المطلوبة.

١ = أوافق بشدة ٢ = أوافق ٣ = غير متأكد ٤ = أعتراض ٥ = أعتراض بشدة

٣. المعرفة – المعرفة المكتسبة لمتدربي المرحلة النهائية في المعهد المهني الصناعي لتأهيلهم للأعمال اليدوية.

الإجابة	ما رأيك في الجمل التالية؟	الرقم
١٦	حضور لورش عمل صناعية يمكن أن تساعدني في الحصول على معلومات حديثة حول تطور الصناعة.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٧	زيارة للمصانع يمكن أن تساعدني علي إدراك المفاهيم النظرية التي تدرس في الكتب المقررة.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٨	الخبرة العملية يمكن أن تساعدني في بناء مهارات عامة مناسبة لتلبية احتياجات سوق العمل	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
١٩	استعمال الحاسب الآلي وإتقان اللغة الإنجليزية من الأمور الضرورية لتحسين المعرفة في التربية المهنية الصناعية.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢٠	إملاكي مهارات التواصل والتفكير الناقد يمكن أن تساعدني أن أكون موظف قادر على مواكبة العمل اليدوي.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢١	إحتفاظي بملف يتضمن جميع خبراتي من الأعمال المهنية يساعدني على ايجاد فرصة عمل.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢٢	تطوير الأخلاق المهنية الإيجابية يعتبر أمراً ضرورياً للتدريب على الأعمال اليدوية.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥
٢٣	المعهد المهني الصناعي يقدم معرفة أكثر مما نحتاج لأداء أعمالنا بكفاءة.	<input type="checkbox"/> ١ <input type="checkbox"/> ٢ <input type="checkbox"/> ٣ <input type="checkbox"/> ٤ <input type="checkbox"/> ٥

٢٤. (اختياري)

كيف يمكن أن تساعدك السعادة في إيجاد العمل المثالي الذي تريده؟

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٢٥. (اختياري)

هل لديكم أية تعليقات إضافية بخصوص تطوير المعاهد المهنية الصناعي؟

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## **Appendix 3—Plain Language Statement**

## **Private Manufacturing Industry Managers**



25 February 2009

Dear Participant,

I am currently a PhD student in the Department of Educational Studies at University of Glasgow. I am doing this research project to pursue my PhD degree under the supervision of Dr. George Burns and Dr. Fiona Patrick.

I would like to invite you to take part in my research that aims to explore how well the current technical and vocational education available to you is suitable for the job market. Your participation will involve a 30-minute interview. Participation in this research is voluntary; however, you may decline to participate. Once you have commenced, you may withdraw at any time. If you choose not to participate or to exercise the right to withdraw, there will be no consequences regarding your current education or position in work.

The data collected will be analysed for my thesis. All data collected will be destroyed once the study is complete and during the project it will be stored in secure password protected computer files and / or locked filing cabinets with access limited to me and my supervisors. The results will be reported in a manner which does not enable you to be identified from any published material resulting from the study. Thus the reporting will protect your anonymity.

If you have any queries regarding this project, please contact:

Dr. George R Burns B. Sc (Hons), Ph.D., FIMT, M Inst. Pc., C. Eng. C Phys  
Department of Educational Studies, Faculty of Education  
St Andrew's Building  
University of Glasgow

Dr. Fiona Patrick  
Department of Educational Studies, Faculty of Education  
St Andrew's Building  
University of Glasgow

Mr. Abdullah Baqadir B.Sc in Business Administration, MSc in Enterprise and Business Growth  
PhD Student in the Department of Educational Studies  
St Andrew's Building  
University of Glasgow



# University of Glasgow | College of Social Sciences

The University of Glasgow, charity number SC004401

جامعة غلاسكو

قسم الدراسات التربوية

إفادة لمديري القطاع الخاص

التاريخ: 2009/02/25م

عزيزي المشارك،

أنا طالب أخصر بحثي هذا لنيل درجة الدكتوراه بجامعة غلاسكو، قسم الدراسات التربوية وأقوم بتطبيق هذا البحث تحت إشراف د/جورج بيرنز ود/فيونا باتريك.

أود أن أدعوك للمشاركة في بحثي هذا بطرح أرائك لاستكشاف مدى فعالية المعهد المهني الصناعي من تخريج طلاب مؤهلين لسوق العمل. مشاركتك سوف تستغرق ثلاثين دقيقة كمحادثة حول أرائك التي سوف تخدم هذا البحث، علماً بأن المشاركة تطوعية ويحق لك رفض المشاركة في أي وقت حتى بعد البدء بالمقابلة، هذا بالإضافة إلى أنه في حالة عدم قبولك بالمشاركة فإنه لا يترتب على ذلك تحميلك أي مسؤولية ولن يكون هناك أية عواقب بخصوص مستواك التعليمي أو منصبك في العمل. علماً بأن البيانات التي يتم تجميعها وتحليلها لهذه الرسالة سوف يتم إتلافها حالما يتم الانتهاء من كتابة هذه الأطروحة وسوف يتم تخزينها في ملفات كمبيوتر محفوظة بكلمة مرور تحت حماية تامة ودخول مقيد من قبلي وقبل مشرفيني على هذا البحث. سوف يتم إرسال النتائج بطريقة لا تسمح بإظهار اسمك أو التعرف عليه من المواد المنشورة وأنه سوف يتم حماية خصوصيتكم.

إذا كانت لديكم أية استفسارات حول المشروع أرجو الاتصال بـ:

د/جورج بيرنز – بكالوريوس علوم (مع درجة الشرف)، دكتوراه  
قسم الدراسات التربوية – كلية التربية  
مبنى سينت اندروز  
جامعة غلاسكو

د/فيونا باتريك  
قسم الدراسات التربوية – كلية التربية  
مبنى سينت اندروز  
جامعة غلاسكو

عبدالله عبدالقادر باقادر  
بكالوريوس علوم تخصص إدارة أعمال  
ماجستير نمو المؤسسات التجارية  
طالب دكتوراه في قسم الدراسات التربوية  
مبنى سينت اندروز  
جامعة غلاسكو

## **Trainers and Trainees of Industrial Education**



10 January 2009

Dear Participant,

I am currently a PhD student in the Department of Educational Studies at University of Glasgow. I am doing this research project to pursue my PhD degree under the supervision of Dr. George Burns and Dr. Fiona Patrick.

I would like to invite you to take part in my research that aims to explore how well the current technical and vocational education available to you is suitable for the job market. Your participation will involve completing a 20-minute questionnaire with 25 questions. Participation in this research is voluntary; however, you may decline to participate. Once you have commenced, you may withdraw at any time. If you choose not to participate or to exercise the right to withdraw, there will be no consequences regarding your current education or position in work.

The data collected will be analysed for my thesis. All data collected will be destroyed once the study is complete and during the project it will be stored in secure password protected computer files and / or locked filing cabinets with access limited to me and my supervisors. The results will be reported in a manner which does not enable you to be identified from any published material resulting from the study. Thus the reporting will protect your anonymity.

If you have any queries regarding this project, please contact:

Dr. George R Burns B. Sc (Hons), Ph.D., FIMT, M Inst. Pc., C. Eng. C Phys  
Department of Educational Studies, Faculty of Education  
St Andrew's Building  
University of Glasgow

Dr. Fiona Patrick  
Department of Educational Studies, Faculty of Education  
St Andrew's Building  
University of Glasgow

Mr. Abdullah Baqadir B.Sc in Business Administration, MSc in Enterprise and Business Growth  
PhD Student in the Department of Educational Studies  
St Andrew's Building

**University of Glasgow**





University of Glasgow | College of Social Sciences

The University of Glasgow, charity number SC004401

جامعة غلاسكو

قسم الدراسات التربوية

إفادة لمدرسي و متدربي المعهد المهني الصناعي

التاريخ: 2009/01/10م

عزيزي المشارك،

أنا طالب أخصر بحثي هذا لنيل درجة الدكتوراه بجامعة غلاسكو، قسم الدراسات التربوية وأقوم بتطبيق هذا البحث تحت إشراف د/جورج بيرنز ود/فيونا باتريك.

أود أن أدعوك للمشاركة في بحثي هذا بطرح ارائك لاستكشاف مدى فعالية المعهد المهني الصناعي في تخريج طلاب مؤهلين لسوق العمل. مشاركتك سوف تستغرق عشرون دقيقة للإجابة على إستبيان مكون من 25 سؤال. علماً بأن المشاركة تطوعية ويحق لك رفض المشاركة في أي وقت حتى بعد البدء في تعبئة الإستبيان ، هذا بالإضافة الى أنه في حالة عدم قبولك بالمشاركة فإنه لا يترتب على ذلك تحميلك أي مسؤولية ولن يكون هناك أية عواقب بخصوص مستواك التعليمي. علماً بأن البيانات التي يتم تجميعها وتحليلها لهذه الرسالة سوف يتم إتلافها حالما يتم الإنتهاء من كتابة هذه الاطروحة وسوف يتم تخزينها في ملفات كمبيوتر محفوظة بكلمة مرور تحت حماية تامة ودخول مقيد من قبلي وقبل مشرفيني على هذا البحث. سوف يتم إرسال النتائج بطريقة لا تسمح بإظهار اسمك أو التعرف عليه من المواد المنشورة ، كما أنه سوف يكون هناك حماية تامة لخصوصيتكم.

إذا كانت لديكم أية استفسارات حول المشروع أرجو الاتصال بـ:

د/جورج بيرنز – بكالوريوس علوم (مع درجة الشرف)، دكتوراه  
قسم الدراسات التربوية – كلية التربية  
مبنى سينت اندروز  
جامعة غلاسكو

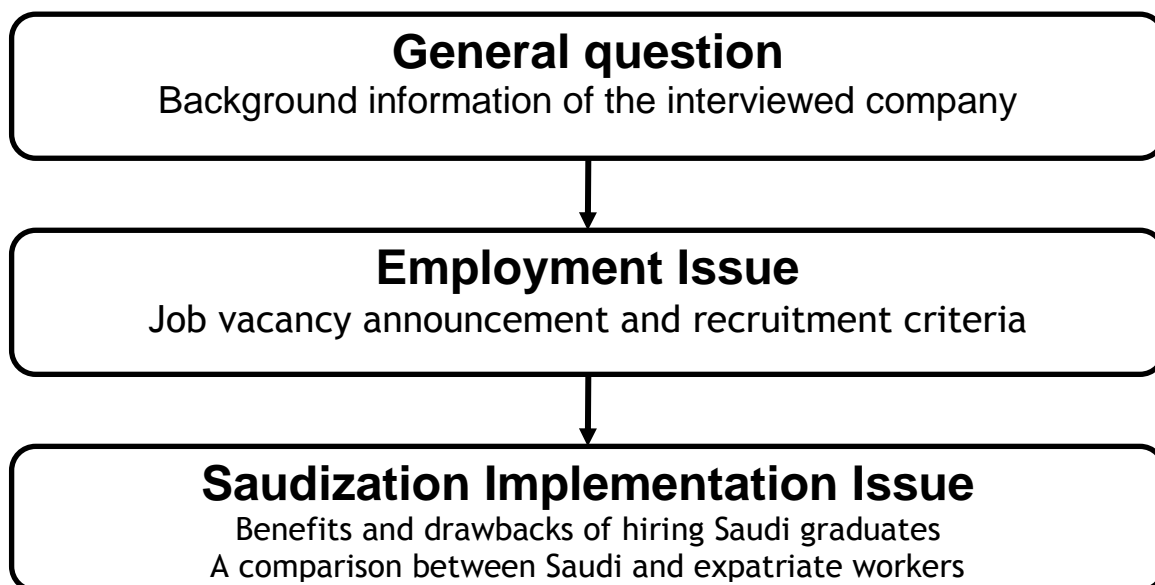
د/فيونا باتريك  
قسم الدراسات التربوية – كلية التربية  
مبنى سينت اندروز  
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عبدالله عبدالقادر باقادر  
بكالوريوس علوم تخصص إدارة أعمال  
ماجستير نمو المؤسسات التجارية  
طالب دكتوراه في قسم الدراسات التربوية  
مبنى سينت اندروز  
جامعة غلاسكو

## **Appendix 4— Semi-structured interview**

## Details of the semi-structured interview design

### 1. A flowchart of 30-minute interview procedure



### 2. A list of identified themes for interview questions

No.	Theme
1.	Professional type (factory production category)
2.	Generic skills required
3.	Specific technical (manufacturing) skills required
4.	Worker behaviour (i.e. work ethics, attitude)
5.	General knowledge
6.	Specific knowledge
7.	Saudisation policy

## Details of the semi-structured interview design

### 3. Employer's interview questions

#### I. General questions

- (1) Company background  
Could you please tell me about some general information of your factory?  
(e.g When did your company establish? How many kinds of products does your factory produce?)
- (2) An understanding of the available Saudi vocational education and training  
Do you think it is better to run vocational skills training courses to meet the specific needs fitting into your factory's environment? Why?
- (3) An understanding of the concept of knowledge-based economy  
How much do you understand the concept of knowledge-based economy and its relation to manufacturing industry?

#### II. Employment issues in general

- (1) When you recruit new employees, what skills in terms of manufacturing productivity are your biggest concerns for recruitment?
- (2) What are the criteria for selecting new employees when opening job vacancies?
- (3) How many job vacancies are open to recruit new employees every month?

#### III. Specific employment issues

##### (a) Hiring Saudi graduates

- What skills are essential to obtain when Saudi graduates from secondary technical and vocational education system apply for jobs in your company?
- What kinds of jobs do you usually assign to Saudi graduates from secondary technical and vocational education system recruited in your company?
- How many Saudi graduates from secondary technical and vocational education system have you been recruiting so far?
- What do you think about these Saudi graduates' job performance?
- Would you like to tell me about the current challenges concerning new Saudi employee recruitment you are facing now?

- What skills and work ethics do you feel satisfied with the current Saudi workers in your company? In other words, those Saudi workers hired in your company have some skills and work ethics with which you are quite happy and satisfied. Could you please share your ideas in this aspect with me?
- What's your expectation for high school graduates to have in terms of their work attitudes and values on manual-based jobs?
- Do you think it is important to have students' internship performance appraisal as an alternative method of evaluating their progress? Why?

**(b) Hiring foreign workers**

- What are the main reasons that you still prefer hiring foreign workers?
- In your opinion, what strengths and limitations do you think about hiring foreign workers instead of Saudi graduates from secondary technical and vocational education system?

**(c) Implementing Saudisation policy**

- If the TVTC give you some guidelines about giving a trial period of employment in your company when they send Saudi graduates selected through them, would you like to follow the guidelines with your cooperation?
- What is your opinion to Saudisation policy?
- What things in Saudisation policy do you consider worthy implementing?
- What comments do you want to make in order to link the practice and the knowledge of manual-based technical and vocational educational training for your company?
- In your opinion, do you think there is a gap between what you really expect from the technical-vocational education output as the labour supply and what you can offer as a role in the labour demand side?
- Do you believe that there will be a success in implementing Saudisation policy at the private sector through the cooperative work with the TVTC, in which this agency will have a well-packaged vocational educational training programme with an attempt to produce as many qualified and skilled Saudi graduates as possible to work in your company?
- In which way do you plan to implement Saudisation policy in your company with an attempt to show that the gap between the vocational educational training output and the labour demand no longer exist in the case of your company?

(d) **Productivity, competitiveness, skills formation in a knowledge-based economy**

- 1) Regarding the skills, what types of skills are your major concerns for employees' employability, capability, productivity and sustainability in the knowledge-based economy era all over the world?
- 2) Regarding the desired skills, could you please tell me the most important skills in the following three categories to become more competitive in the manual job market of the private sector?
- 3) Category 1: Generic skills or key competencies for employability
- 4) Category 2: Technical skills specific for capability in the manufacturing industry
- 5) Category 3: Behavioural skills for employee's productivity—this type of skills refers to employees' personal characteristics in terms of principles, attitude, values and motives towards manual and menial jobs in the private sector.

<b>Skill Category</b>	<b>Components / Elements</b>
<b>Generic skills</b>	<ul style="list-style-type: none"> <li>• Critical thinking and problem-solving skills</li> <li>• Creative thinking skills</li> <li>• Information handling skills</li> <li>• Communication skills</li> <li>• Teamwork skills</li> <li>• Technology application skills</li> <li>• Autonomous learning skills</li> <li>• Cross-cultural understanding skills</li> </ul>
<b>Technical skills</b>	<ul style="list-style-type: none"> <li>• A command of using computer software concerning with manufacturing</li> <li>• Knowledge of heavy equipment types</li> <li>• Using raw materials required for manufacturing to make products</li> </ul>
<b>Behavioural skills</b>	<ul style="list-style-type: none"> <li>• Enthusiasm / Motivation</li> <li>• (i.e. energy and passion)</li> <li>• Self confidence</li> <li>• Self control</li> <li>• Initiative</li> <li>• Concern for order, quality and accuracy</li> <li>• Organizational awareness</li> </ul>

## **Appendix 5 –SPSS Results**

Numerous tests were used throughout the analysis of the questionnaire data. These are listed in detail below:

1) **Chi-square test ( $\chi^2$ ):** this tests the effect of all independent variables on non-parametric variables (occupation, sector of employment / study and educational level). This will find whether two attributes are associated or not.

2) **T test:** its purpose is to determine if the mean responses of two groups are significantly different. It was applied as the study tended to look at the effect of independent variables on parametric variables (perceptions of, attitudes towards and knowledge of industrial education). Levene's test was used to check that the assumption of equal variances is valid. If the assumption was violated, t-test results when equal variances are not assumed are reported.

3) **One-way ANOVA:** It was used to determine statistically significant differences attributed to “perceptions of industrial education”, “attitudes towards industrial education” and “knowledge for manufacturing-related employment” variables on the responses of the three selected groups participants (three trainer groups—public college trainers, public secondary trainers, SJAHI trainer and three trainee groups—public college trainees, public secondary trainees, SJAHI trainees). Homogeneity of variances between groups was tested using Levene's test. If this assumption is violated, significant differences between groups are tested for by using the **Welch test** (a robust test of equality of means).

4) **Post-Hoc Comparisons of Means:** If the one-way ANOVA results determined significant differences for a questionnaire statement of the three trainer / trainee groups, a post-hoc test was used to reveal where the group differences occurred. This test helps to clarify which of the means contributed to the effect after obtaining a statistically significant *F* test from the ANOVA / Welch test (i.e., which groups are particularly different from each other). The choice of post-hoc test used depends on if the homogeneity of assumption was valid.

- i. **Scheffé Multiple Comparisons Test:** It was used when homogeneity of variances between groups is valid. [This is when Levene's test gives a p-value of more than 0.05.](#)
- ii. **Games Howell Test:** It was used when homogeneity of variances between groups was not valid, [indicated by when Levene's test gives a p-value less than or equal to 0.05](#)



## F-test results

### 1) 71 Trainers versus 286 Trainees

		Sum of squares	df	Mean Square	F	Sig.
PERCEPTION	Between groups	18.431	1	18.431	1.057	.305
	Within Groups	6191.754	355	17.442		
	Total	6210.185	356			
ATTITUDE	Between groups	78.644	1	78.644	5.896	.016
	Within Groups	4735.473	355	13.339		
	Total	4814.118	356			
KNOWLEDGE	Between groups	5.421	1	5.421	.236	.627
	Within Groups	8148.299	355	22.953		
	Total	8153.720	356			

### 2) 57 public trainers versus 14 private trainers

		Sum of squares	df	Mean Square	F	Sig.
PERCEPTION	Between groups	2.810	1	2.810	.138	.711
	Within Groups	1403.500	69	20.341		
	Total	1406.310	70			
ATTITUDE	Between groups	103.279	1	103.279	5.761	.019
	Within Groups	1236.919	69	17.926		
	Total	1340.197	70			
KNOWLEDGE	Between groups	64.523	1	64.523	2.164	.146
	Within Groups	2057.674	69	29.821		
	Total	2122.197	70			

### 3) 166 public trainees versus 120 private trainees

		Sum of squares	df	Mean Square	F	Sig.
PERCEPTION	Between groups	197.009	1	197.009	12.194	.001
	Within Groups	4588.435	284	16.156		
	Total	4785.444	285			
ATTITUDE	Between groups	.839	1	.839	.070	.791
	Within Groups	3394.437	284	11.952		
	Total	3395.276	285			
KNOWLEDGE	Between groups	54.656	1	54.656	2.599	.108
	Within Groups	5971.445	284	21.026		
	Total	6026.101	285			

## 4) 122 secondary education trainees versus 45 secondary education trainers

		Sum of squares	df	Mean Square	F	Sig.
PER_MEAN	Between groups	1.255	1	1.255	4.503	.035
	Within Groups	45.989	165	.279		
	Total	47.244	166			
ATT_MEAN	Between groups	1.568	1	1.568	5.108	.025
	Within Groups	50.661	165	.307		
	Total	52.230	166			
KNO_MEAN	Between groups	.000	1	.000	.000	.999
	Within Groups	61.769	165	.374		
	Total	61.769	166			

## 5) 57 public trainers versus 166 public trainees

		Sum of squares	df	Mean Square	F	Sig.
PERCEPTION	Between groups	80.045	1	80.045	4.475	.036
	Within Groups	3952.843	221	17.886		
	Total	4032.888	222			
ATTITUDE	Between groups	126.630	1	126.630	9.347	.003
	Within Groups	2994.007	221	13.548		
	Total	3120.637	222			
KNOWLEDGE	Between groups	12.163	1	12.163	.478	.490
	Within Groups	5618.366	221	25.422		
	Total	5630.529	222			

## 6) 14 private trainers versus 120 private trainees

		Sum of squares	df	Mean Square	F	Sig.
PER_MEAN	Between groups	.128	1	.128	.530	.468
	Within Groups	31.861	132	.241		
	Total	31.989	133			
ATT_MEAN	Between groups	.365	1	.365	1.441	.232
	Within Groups	33.415	132	.253		
	Total	33.780	133			
KNO_MEAN	Between groups	1.478	1	1.478	5.178	.024
	Within Groups	37.668	132	.285		
	Total	39.146	133			

## Descriptive statistical results

### 1) Part 1

#### (A) 357 Questionnaire responses by occupation type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	teacher	71	19.9	19.9	19.9
	student	286	80.1	80.1	100.0
	Total	357	100.0	100.0	

#### (B) 357 Questionnaire responses by institution type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	public	223	62.5	62.5	62.5
	private	134	37.5	37.5	100.0
	Total	357	100.0	100.0	

#### (C) 357 Questionnaire responses by education level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	college	190	53.2	53.2	53.2
	secondary	167	46.8	46.8	100.0
	Total	357	100.0	100.0	

#### (D) 71 Trainers' questionnaire responses by institution type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	public	57	80.3	80.3	80.3
	private	14	19.7	19.7	100.0
	Total	71	100.0	100.0	

#### (E) 71 Trainers' questionnaire responses by education level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	college	26	36.6	36.6	36.6
	secondary	45	63.4	63.4	100.0
	Total	71	100.0	100.0	

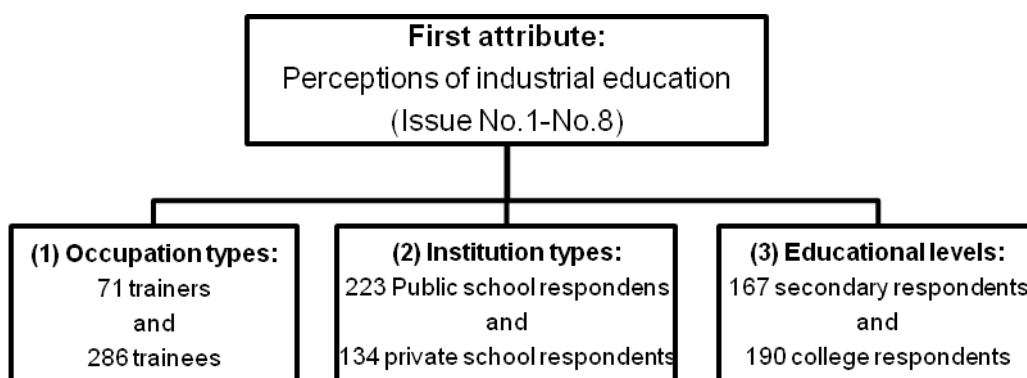
#### (F) 286 Trainees' questionnaire responses by institution type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	public	166	58.0	58.0	58.0
	private	120	42.0	42.0	100.0
	Total	286	100.0	100.0	

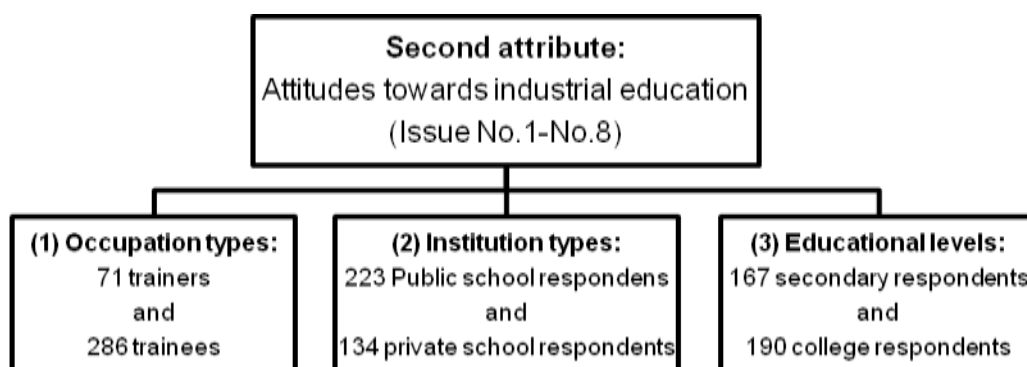
#### (G) 286 Trainees' questionnaire responses by education level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	college	164	57.3	57.3	57.3
	secondary	122	42.7	42.7	100.0
	Total	286	100.0	100.0	

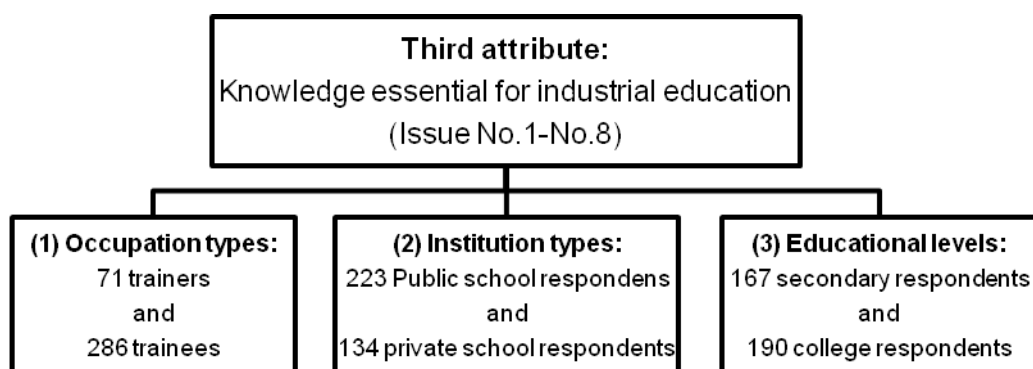
## 2) Part 2

**Appendix 5-1 Descriptive statistics for First Attribute**

Source: devised by the researcher

**Appendix 5-2 Descriptive statistics for Second Attribute**

Source: devised by the researcher

**Appendix 5-3 Descriptive statistics for Third Attribute**

Source: devised by the researcher

**(A) Trainer questionnaire data analysis****a) Institution type—Public versus private school trainers' responses**

Question	Agree		Disagree	
	57 Public trainers	14 Private trainers	57 Public trainers	14 Private trainers
<b>I. Perception</b>				
1	87.5%	64.3%	7.2%	35.7%
2	83.9%	21.4%	3.6%	71.4%
3	19.3%	50%	63.2%	50%
4	71.9%	84.6%	10.6%	7.7%
5	78.9%	64.3%	10.5%	28.5%
6	61.4%	92.9%	12.3%	0%
7	57.9%	92.9%	15.8%	7.1%
8	38.6%	92.9%	33.3%	7.1%
<b>II. Attitude</b>				
9	86%	85.7%	12.3%	7.1%
10	82.5%	92.9%	3.6%	0%
11	84.2%	85.7%	10.6%	14.2%
12	86%	50%	1.8%	35.7%
13	91.2%	92.9%	1.8%	7.1%
14	80.7%	85.7%	3.5%	14.2%
15	96.2%	96.2%	1.9%	1.9%
<b>III. Knowledge</b>				
16	94.6%	92.9%	5.4%	7.1%
17	94.6%	85.7%	3.6%	7.1%
18	87.5%	92.9%	5.4%	7.1%
19	92.9%	71.4%	1.8%	7.1%
20	80%	85.7%	5.4%	14.2%
21	78.2%	85.7%	5.5%	7.1%
22	94.6%	92.9%	5.4%	7.1%
23	83.9%	78.6%	7.2%	14.2%

Source: devised by the researcher

b) Educational level—technical college versus secondary education trainers' responses

Question	Agree		Disagree	
	45 College trainers	26 Secondary trainers	45 College trainers	26 Secondary trainers
<b>I. Perception</b>				
1	73.1%	88.6%	19.2%	9%
2	50%	84.1%	38.4%	4.5%
3	42.3%	15.6%	38.4%	73.3%
4	72%	75.6%	8%	11.1%
5	61.5%	84.4%	23%	8.8%
6	80.8%	60%	0%	15.5%
7	73.1%	60%	15.3%	13.3%
8	65.4%	40%	19.2%	33.3%
<b>II. Attitude</b>				
9	88.5%	84.4%	3.8%	15.5%
10	80.8%	86.7%	0%	4.4%
11	88.5%	82.2%	7.6%	13.3%
12	69.2%	84.4%	19.2%	2.2%
13	96.2%	88.9%	3.8%	2.2%
14	84.6%	80%	11.5%	2.2%
15	92%	97.6%	4%	2.4%
<b>III. Knowledge</b>				
16	92.3%	95.5%	7.6%	4.6%
17	88.5%	95.5%	7.6%	2.3%
18	92.3%	86.4%	3.8%	6.8%
19	76.9%	95.5%	3.8%	2.3%
20	84.6%	79.1%	7.6%	7%
21	84.6%	76.7%	3.8%	7%
22	96.2%	93.2%	3.8%	6.8%
23	84.6%	81.8%	7.6%	9.1%

Source: devised by the researcher

**(B) Trainee questionnaire data analysis****a) Institution type—Public versus private school trainees' responses**

Question	Agree		Disagree	
	166 Public trainees	120 Private trainees	166 Public trainees	120 Private trainees
<b>I. Perception</b>				
1	88.5%	90.7%	4.2%	1.6%
2	40%	22.9%	42.4%	55.9%
3	39.3%	20.7%	43%	61.2%
4	49.7%	40.8%	34.4%	45%
5	78.7%	48.3%	9.8%	27.5%
6	77.1%	89.2%	4.2%	3.5%
7	89%	87.5%	4.2%	3.5%
8	77.4%	78.2%	9.8%	5.1%
<b>II. Attitude</b>				
9	73.5%	66.7%	9%	10.9%
10	86.7%	93.3%	4.2%	0.8%
11	88.5%	94.1%	2.4%	0.8%
12	87.9%	96.7%	3.6%	3.3%
13	64.8%	61.7%	12.7%	16.7%
14	67.3%	62.5%	23.5%	23.3%
15	56.7%	43.3%	20.4%	33.3%
<b>III. Knowledge</b>				
16	90.8%	90.8%	4.3%	4.2%
17	82.3%	88.3%	8.6%	4.2%
18	83.4%	94.1%	4.8%	0.8%
19	85.8%	82.5%	8%	7.5%
20	80.1%	85%	6.8%	0.8%
21	87.7%	91.5%	4.4%	0.8%
22	85.1%	94.1%	3.1%	0.8%
23	67.9%	63.9%	17.2%	13.5%

Source: devised by the researcher

b) Educational level—technical college versus secondary education trainers' responses

Question	Agree		Disagree	
	164 College trainees	122 Secondary trainees	164 College trainees	122 Secondary trainees
<b>I. Perception</b>				
1	88.3%	90.9%	3.3%	3.3%
2	22.4%	46.7%	54.6%	49.4%
3	25.2%	40%	52.2%	48.3%
4	38%	56.7%	45.4%	40%
5	55.2%	80.2%	22.7%	9.9%
6	87.2%	75.4%	2.4%	5%
7	89%	87.6%	2.4%	5%
8	79.1%	75.8%	6.2%	10%
<b>II. Attitude</b>				
9	67.7%	74.6%	10.3%	9%
10	92.6%	85.2%	0.6%	5.7%
11	92.6%	88.4%	0.6%	3.3%
12	94.5%	87.6%	2.4%	2.5%
13	61.6%	66.1%	17.1%	10.7%
14	65.9%	64.4%	21.9%	25.5%
15	46.3%	57.5%	29.9%	20.3%
<b>III. Knowledge</b>				
16	89.6%	92.4%	5.4%	2.5%
17	86.6%	82.5%	3.6%	10.9%
18	90.1%	84.9%	3.1%	3.4%
19	82.8%	86.6%	8%	7.6%
20	81.7%	82.9%	3%	6%
21	89.5%	89%	3.1%	2.5%
22	91.4%	85.5%	2.4%	1.7%
23	67.5%	64.4%	12.9%	19.5%

Source: devised by the researcher



## 3) Part 3

## (A) Trainers' versus Trainees' responses to the questionnaire

Question	Agree		Disagree	
	71 trainers	286 trainees	71 trainers	286 Trainees
<b>I. Perception</b>				
1	82.9%	89.4%	12.8%	3.2%
2	71.4%	32.9%	17.1%	48.1%
3	25.4%	31.5%	60.5%	50.6%
4	74.3%	45.9%	10%	38.9%
5	76.1%	65.8%	14.1%	17.2%
6	67.6%	82.2%	9.8%	3.5%
7	64.8%	88.4%	14.1%	3.5%
8	49.3%	77.7%	4.2%	7.8%
<b>II. Attitude</b>				
9	85.9%	70.6%	11.3%	9.7%
10	84.5%	89.4%	2.8%	2.8%
11	84.5%	90.8%	11.3%	1.8%
12	78.9%	91.6%	8.4%	2.5%
13	91.5%	63.5%	2.8%	14.4%
14	81.7%	65.2%	5.6%	23.4%
15	95.5%	50.9%	3%	26%
<b>III. Knowledge</b>				
16	94.3%	90.8%	5.8%	4.3%
17	92.9%	84.9%	4.3%	6.7%
18	88.6%	87.9%	2.9%	3.2%
19	88.6%	84.4%	5.8%	7.8%
20	81.2%	82.2%	7.2%	4.2%
21	79.7%	89.3%	5.7%	2.9%
22	94.3%	88.9%	5.7%	2.1%
23	82.9%	66.2%	8.6%	15.7%

Source: devised by the researcher

**(B) Overall 357 Questionnaire Result**

Question	Agree				Disagree			
	All	Occupation 71 teacher 286 student	Institution 223 public 134 private	Education 190 college 167 secondary	All	Occupation 71 teacher 286 student	Institution 223 public 134 private	Education 190 college 167 secondary
I. Perception								
1	88.1%	82.9%	88.2%	86.2%	5%	12.8%	5%	5.3%
		89.4%	87.9%	90.3%		3.2%	5.3%	4.8%
2	40.5%	71.4%	51.1%	26.2%	42%	17.1%	31.5%	52.4%
		32.9%	22.7%	56.6%		48.1%	57.5%	30.2%
3	30.3%	25.4%	34.1%	27.6%	52.6%	60.5%	48.2%	50.3%
		31.5%	23.8%	33.3%		50.6%	60%	55.1%
4	51.6%	74.3%	55.5%	42.6%	33.1%	10%	28.1%	40.4%
		45.9%	45.1%	61.8%		38.9%	31.4%	24.8%
5	67.9%	76.1%	78.7%	56.1%	16.6%	14.1%	9.9%	32.8%
		65.8%	50%	81.3%		17.2%	27.6%	9.6%
6	79.3%	67.6%	73.1%	86.3%	4.7%	9.8%	6.3%	2.1%
		82.2%	89.6%	71.3%		3.5%	2.2%	7.8%
7	83.7%	64.8%	81%	86.8%	5.6%	14.1%	7.2%	4.2%
		88.4%	88.1%	80.1%		3.5%	2.9%	7.2%
8	72%	49.3%	67.4%	77.2%	11.9%	4.2%	15.9%	8%
		77.7%	79.7%	66.1%		7.8%	5.3%	16.3%
II. Attitude (can't be compared due to the content of questions are different)								
9								
10								
11								
12								
13								
14								
15								
III. Knowledge								
16	91.5%	94.3%	91.8%	90%	4.5%	5.8%	4.6%	5.8%
		90.8%	91%	93.3%		4.3%	4.5%	3%
17	86.4%	92.9%	85.5%	86.8%	6.2%	4.3%	7.3%	4.2%
		84.9%	88.1%	86%		6.7%	4.4%	8.6%
18	85.2%	88.6%	86.2%	84.1%	7.4%	2.9%	7.4%	7.4%
		87.9%	83.6%	86.5%		3.2%	7.5%	7.4%
19	88%	88.6%	85.8%	88.3%	3.1%	5.8%	4.1%	3.2%
		84.4%	91.7%	87.7%		7.8%	1.6%	3%
20	82%	81.2%	80.1%	82.1%	4.9%	7.2%	6.4%	3.7%
		82.2%	85.1%	81.9%		4.2%	2.2%	6.3%
21	87.4%	79.7%	85.3%	88.8%	3.4%	5.7%	4.6%	3.2%
		89.3%	90.9%	85.7%		2.9%	1.6%	3.7%
22	90%	94.3%	87.6%	92.1%	2.8%	5.7%	3.6%	2.7%
		88.9%	94%	87.6%		2.1%	1.6%	3.1%
23	69.5%	82.9%	72%	69.8%	14.3%	8.6%	14.7%	12.2%
		66.2%	65.4%	69.1%		15.7%	13.5%	16.6%

Source: devised by the researcher

## **Appendix 6-Definitions**

## 1. Domain-Independent Generic Skills

<b>Domain-Independent Generic skills</b>	<b>Description</b>
<b>Critical thinking and problem-solving skills</b>	Knowledge workers need to develop critical thinking skills to define problems in complex, overlapping, ill-defined domains; use available tools and expertise for searching, formulating the problem, analysing, interpreting, categorizing ideas and finding alternatives, and choosing the best solution.
<b>Creative thinking skills</b>	Knowledge workers need to develop creative thinking to generate new ideas for solving problems, discover new principles and new processes and products. Diagnostic and design skills will play an important role in this.
<b>Information handling skills</b>	Knowledge workers need to develop the capacity to acquire, locate, search and find information for effective decision-making. They need to evaluate the information and know-how to use and communicate it.
<b>Communicating skills</b>	Knowledge workers need to develop communication skills in a variety of media for diverse audiences, using variety of modern tools, particularly the Internet.
<b>Teamwork skills</b>	Knowledge workers need to be able to work in a team to solve complex problems, create complex tools, services and products. Collaboration, co-ordination and teamwork will be the key for success.
<b>Technology application skills</b>	The capacity to apply technology, particularly computing technology, with physical and sensory skills is essential in the knowledge age. Knowledge workers need to operate equipment with an understanding of the scientific and technological principles needed to explore, acquire, adapt and operate systems.
<b>Autonomous learning skills</b>	Rapid technological changes require an ability to diagnose and prescribe one's own training needs. Knowledge workers will have to manage their own career paths and their own continuous learning of new skills. Learning to learn and lifelong learning will be the key parameter of survival in this era.
<b>Cross-cultural understanding skills</b>	In the era of globalization, knowledge workers will have to work in multicultural society. They need to have the cross-cultural understanding for effective teamwork.

Source: Park, M., Majumdar, S., & Dhameja, S. K. (2009). Sustainable Development Through a Skilled, Knowledge-Based Workforce (pp.230-231). In J. Fien, R. Maclean & M.-G. Park (Eds.), Work, Learning and Sustainable Development: Opportunities and Challenges (pp. 225-237): Springer Netherlands.

## 2. Competency descriptions

Competency descriptions	Description
<b>Teamwork &amp; cooperation</b>	<ul style="list-style-type: none"> <li>• fosters group facilitation and management,</li> <li>• conflict resolution,</li> <li>• motivation of others,</li> <li>• creating a good workplace climate</li> </ul>
<b>Flexibility</b>	<ul style="list-style-type: none"> <li>• adaptability</li> <li>• perceptual objectivity</li> <li>• staying objective</li> <li>• resilience</li> <li>• behaviour is contingent on the situation</li> </ul>
<b>Relationship building</b>	<ul style="list-style-type: none"> <li>• networking</li> <li>• establish rapport</li> <li>• use of contacts</li> <li>• concern for stakeholders eg clients</li> </ul>
<b>Computer literacy</b>	<ul style="list-style-type: none"> <li>• able to operate a number of packages and has information management awareness</li> </ul>
<b>Conceptual thinking</b>	<ul style="list-style-type: none"> <li>• pattern recognition</li> <li>• insight</li> <li>• critical thinking</li> <li>• problem definition</li> <li>• can generate hypotheses</li> <li>• linking</li> </ul>
<b>Technical expertise</b>	<ul style="list-style-type: none"> <li>• job related technical knowledge and skills</li> <li>• depth and breadth</li> <li>• acquires expertise</li> <li>• donates expertise</li> </ul>
<b>Organisational awareness</b>	<ul style="list-style-type: none"> <li>• understands organisation</li> <li>• knows constraints</li> <li>• power and political astuteness</li> <li>• cultural knowledge</li> </ul>
<b>Concern for order, quality &amp; accuracy</b>	<ul style="list-style-type: none"> <li>• monitoring</li> <li>• concern for clarity</li> <li>• reduces uncertainty</li> <li>• keeping track of events and issues</li> </ul>
<b>Impact &amp; influence on others</b>	<ul style="list-style-type: none"> <li>• strategic influence</li> <li>• impression management</li> <li>• showmanship</li> <li>• persuasion</li> <li>• collaborative influence</li> </ul>
<b>Initiative</b>	<ul style="list-style-type: none"> <li>• bias for action</li> <li>• decisiveness</li> <li>• strategic orientation</li> <li>• proactive</li> <li>• seizes opportunities</li> <li>• self motivation</li> <li>• persistence</li> </ul>
<b>Customer service orientation</b>	<ul style="list-style-type: none"> <li>• helping and service orientation</li> <li>• focus on client needs</li> <li>• actively solves client problems</li> </ul>

(Conti.)

Competency descriptions	Description
Developing others	<ul style="list-style-type: none"> <li>• training</li> <li>• developing others</li> <li>• coaching</li> <li>• mentoring</li> <li>• providing support</li> <li>• positive regard</li> </ul>
Directiveness	<ul style="list-style-type: none"> <li>• assertiveness</li> <li>• decisiveness</li> <li>• use of power</li> <li>• taking charge</li> <li>• firmness of standards</li> <li>• group control and discipline</li> </ul>
Team leadership	<ul style="list-style-type: none"> <li>• being in charge</li> <li>• vision</li> <li>• concern for subordinates</li> <li>• builds a sense of group purpose</li> </ul>
Analytical thinking	<ul style="list-style-type: none"> <li>• thinking for self</li> <li>• reasoning</li> <li>• practical intelligence</li> <li>• planning skills</li> <li>• problem analysing</li> <li>• systematic</li> </ul>
Self control	<ul style="list-style-type: none"> <li>• stamina</li> <li>• resistance to stress</li> <li>• staying calm</li> <li>• high emotional quotient</li> <li>• resists temptation</li> <li>• not impulsive</li> <li>• can calm others</li> </ul>
Organisational commitment	<ul style="list-style-type: none"> <li>• align self and others to organisational needs</li> <li>• business mindedness</li> <li>• self sacrifice</li> </ul>
Ability and willingness to learn	<ul style="list-style-type: none"> <li>• desire and aptitude for learning</li> <li>• learning as a basis for action</li> </ul>
Interpersonal understanding	<ul style="list-style-type: none"> <li>• empathy</li> <li>• listening</li> <li>• sensitivity to others</li> <li>• diagnostic understanding</li> <li>• awareness of others' feeling</li> </ul>
Self confidence	<ul style="list-style-type: none"> <li>• strong self concept</li> <li>• internal locus of control</li> <li>• independence</li> <li>• positive ego strength</li> <li>• decisive</li> <li>• accepts responsibility</li> </ul>
Personal planning and organisational skills	<ul style="list-style-type: none"> <li>• Ability to organize self and others</li> <li>• Effective time management</li> <li>• Organizes and completes tasks effectively and efficiently</li> </ul>

(Conti.)

Competency descriptions	Description
Personal planning and organisational skills	<ul style="list-style-type: none"> <li>• Ability to organize self and others</li> <li>• Effective time management</li> <li>• Organizes and completes tasks effectively and efficiently</li> </ul>
Written communication	<ul style="list-style-type: none"> <li>• Relevant skills/appropriate use of emails</li> <li>• Internal memos</li> <li>• Internal and external reports</li> <li>• Letters to clients</li> </ul>
Information seeking	<ul style="list-style-type: none"> <li>• Problem definition</li> <li>• Diagnostic focus</li> <li>• Looking deeper</li> <li>• Contextual sensitivity</li> </ul>
Achievement orientation	<ul style="list-style-type: none"> <li>• Task accomplishment</li> <li>• Seeks results</li> <li>• Employs innovation</li> <li>• Has competitiveness</li> <li>• Seeks impact</li> <li>• Aims for standards and efficiency</li> </ul>

Source: Hodges, D., & Burchell, N. (2003). Business Graduate Competencies: Employers' Views on Importance and Performance. *Asia-Pacific Journal of Cooperative Education*, 4(2),

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