

AHMED AL-SA'D

EVALUATION OF STUDENTS' ATTITUDES TOWARDS VOCATIONAL EDUCATION IN JORDAN



MALMÖ HÖGSKOLA

**EVALUATION OF STUDENTS' ATTITUDES TOWARDS
VOCATIONAL EDUCATION IN JORDAN**

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Dedication

This doctoral thesis is modestly dedicated to my mother and father for their everlasting love and encouragement. It is also dedicated to my wife Mahera and our wonderful children Osama, Dania, and Mohammed for their love, patience, and support.

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FOREWORD

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Ahmed Al-sa'd
January 2007
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Sweden

1 INTRODUCTION AND BACKGROUND

1.1 Introduction

Jordan is a small and developing Arab country situated in the heart of the Middle East region between north longitude (33.29°) and east latitude (39.34°), and its area is 92,300 square kilometres (Ministry Of Education, 2004). Most of the area consists mainly of semi-desert and arid desert land with a rapidly growing population, and it has a lack of natural resources. The population of Jordan, according to the survey made by the government of Jordan in 2004, was about 5.48 million people, while the estimation of the population from CIA-The world fact book in July 2006 is 5,906,760 inhabitants. Most of the population (80%) lives in urban areas, especially in the capital and its surroundings.

Jordan is a very young country; about 33.8 percent of its population is within the age range 0-14 years; 62.4 percent of the population within the age range 15-64 years; and 3.8 percent of the population is 65 years and over. Jordan's population is expected to reach 7.1 million by the year 2010, which is a result of the population growth rate of 4.4 percent, the highest in the Arab World. Moreover, Jordan has suffered a lot from the consequences of many wars and conflicts in the Middle East region. These wars and conflicts not only negatively affected economic and educational reforms, but also created other humanitarian and refugee problems. The scarcity of natural resources and the high rate of population growth constitute great challenges, which necessitate developing human resources and, indeed, make it inevitable for the successive development plans in Jordan to achieve their intended goals. Per

capita GDP is \$1756, and the total number of schools is 5,526 (Statistics Department, 2005).

The Jordanian economy developed its own productive basis at a late stage, on the initiative of the state. It is still weak and comprises a few large public and quasi-private companies, mainly in mining and minerals production, and a large majority of small and medium sized businesses that provide the vast majority of employment in the private sector. Jordan is basically a service economy with the state acting as the main employer. The main challenge for the government has been to turn the traditional economy into an extractive one, which is based on local tax incomes to finance the national budget. This should make the country less dependent on foreign financial assistance and increasingly uncertain workers' remittances. It would involve strengthening (quantitatively and qualitatively) national productive capacities in order to be able to survive in an increasingly open and competitive environment.

Jordan has very limited natural resources (phosphate and potash are the most important ones), but it has abundant skilled human resources. It has suffered from a high public debt, estimated at JD 5912 million (US\$ 8335.92 million) at the end of February 2001, which means 93.8 percent of estimated GDP for 2001 compared to JD 5958 million (US\$ 8400.78 million) or 100.8 percent of GDP for 2000 (Ministry of Finance, 2001).

The population census indicated that about one third of the population is involved in some form of education. The total illiteracy rate was 33.5 percent in 1979, and 19 percent in 1990, but for 2001 it was 10.3 percent (5.4% for males and 15.2% for females), and it became 5.6 percent in 2004 (Statistics Department, 2005). The Ministry of Education controls the work of most schools (70.51%); some schools are controlled by other governmental institutions (1.34%), some by the United Nations Relief and Works Agency for Palestinian Refugees (UNRWA, 8.89%), and others by the private sector (19.26%) (Ministry of Education, 2004).

The overall unemployment rate was 15.8 percent among males with less than secondary education and 15.4 percent for those with secondary education or above. As for females, the rates were 24.2 percent and 27.6 percent among those with less than secondary and those with secondary education respectively (Statistics De-

partment, 2002). But according to the figures published in CIA's fact book about Jordan, the official unemployment rate is 12.5 percent, while the unofficial rate is approximately 30 percent (2004 est.), which is more realistic taking into consideration the percent of people below the poverty line that is 30 percent (2001 est.). Jordan has been facing many challenges. The most important ones are, first, a high level of poverty and unemployment. Second, the stagnant growth in per capita income. Third, labour market distortions that mean a mismatch between education outcomes and labour market requirements, and large numbers of foreign labour. Fourth, inability of the economy to attract the desirable levels of investment, which is a result of slow decision-making processes and inefficient and cumbersome delivery of basic government services. Finally, a large government sector and emergent but small private sector (Ministry of Education, 2005).

1.2 The structure and curriculum of the educational system In Jordan

Jordan's government started a profound and comprehensive review of its educational system in the mid-eighties. Due to the scarcity of natural resources and weak industry, the government realised that investment in education is the best strategy to achieve the goals of economic and social development. The first phase of the educational reform plan (1989-1995), which was a result of the first national conference on education held in 1987, aimed to achieve some objectives in various fields such as teacher training, general exam and school tests, curricula and textbooks, educational technology and school buildings, restructuring of the education system, and reform of vocational education and training.

The second phase of the educational reform plan (1996-2000) placed greater emphasis on the qualitative impact of educational reform. Some aspects of the reform are school-based innovations, testing and assessment, technical and vocational education and training (TVET), pre-school education, non-formal education, Learning Resource Centres, school textbooks, maintenance of old schools and construction of new schools, reducing the percentage of rented buildings 8 percent and avoiding double shifting.

The education law issued in 1964 set compulsory basic school to be nine years; six years of primary or elementary schooling and three years of preparatory schooling. The 1994 education law extended basic education to ten years and shortened secondary education to become two years and encompass grades eleven and twelve. Secondary education is free but not compulsory, and students must be at least fifteen years old to enter a secondary school. Secondary education is segregated by gender in all government schools except those in some remote rural areas and only for four basic grades, but private schools can be coeducational.

The two-year secondary education, which is controlled by the Ministry of Education, has academic and vocational tracks. But the three-year applied vocational centres programme, which is controlled by the Ministry of Labour, is intended to provide the labour market with the needed work force. Therefore, students from vocational centres cannot apply for admission to study at the university. Students from academic secondary schools often continue their higher education in a university or community college. While most students from vocational secondary schools often either find their own way in the labour market or are unemployed, only very few of them can get university admission if they have already studied some additional subjects. The general exam, which is based on the secondary school twelfth grade textbooks and organised by the Ministry of Education, is a pre-requisite for admission to higher education (Ministry of Education, 1996).

The three-year applied vocational centres are divided into one year of theoretical study at the vocational centre and two years of practice in the relevant vocations in the labour market. Students with very low achievement at the basic school cannot study at a secondary school, but they can still have the opportunity to study at a vocational centre, which provides the labour market with skilled and semi-skilled workers in different vocations. Vocational training centres offer basic academic studies and practical vocational training that prepare students for employment in lower-level technical positions.

Students from vocational schools who have passed the general exam do not have the same opportunity to apply for university admission as their academic counterparts from academic schools.

They can only be allowed to apply for admission into some specific university programs under some strictly specified rules and restrictions, but even under such rules and restrictions they must compete with students from academic schools, who almost always have better achievements than they do. Academic education consists of literary, scientific, information management (begun in 2004) and Islamic religion tracks. Vocational education consists of many tracks. These are industrial (33 lines or specialisations), commercial (cancelled in 2004), agriculture (two lines), nursing, hotel training, and home economics (five lines). Students from vocational education programmes can apply for university admission only upon completion of some additional subjects, such as mathematics, science and advanced English. Each year, tenth grade students are categorized into academic and vocational schools according to their achievement levels at the basic school. The scientific track is the most competitive and attractive, followed by information management and literary tracks (Ministry of Education, 2004).

According to the educational reform, tenth grade students are normally categorized, according to their achievement levels, either to study in an academic school, a vocational school, or a vocational centre. The two-year secondary school program, leading to the general exam, consists of the aforementioned academic and vocational tracks, whereas the three-year applied vocational program provides practical training at vocational centres, on an apprenticeship basis, which aims to meet the societal needs of a skilled labour force. The government plan has been to channel up to 50 percent male students and 35 percent female students at the end of the basic school into vocational schools and centres. Tenth-grade students' achievements at eighth (20%), ninth (30%), and tenth (50%) grades constitute the sole criteria for selection and categorization. The classification or screening process of tenth-grade students into either academic or vocational schools is mainly based on students' achievement from the last three grades at the basic school. This policy, which prevents low-achievement students from attending an academic school, has created problems for the policy makers and school principals. It is difficult to convince students and their parents to agree on the results of the achievement-based categorization process, and consequently this situation promoted a

negative image in the society concerning vocational and manual work (Ministry of Education, 2004).

The Ministry of Education has introduced what is called a pre-vocational education subject for grades 1-10. The main goal of this subject is to create awareness among students at the basic school about vocational work and to prepare them to be productive and independent citizens by helping them to discover their abilities and interests at an early age. Moreover, this school subject is intended to promote the formation of positive attitudes towards vocational and technical schooling. The Jordanian value system is such that parents and students prefer academic programmes to vocational programmes, because the former lead to university education. This is based on my notes as a participant observer of students and their parent during my work at the Ministry of Education. The preference for academic education instead of vocational education is historically based on the sociocultural development of our value system which, over the years, has given white collar professions like medical doctors, engineers, and lawyers a higher prestige and reputation than blue collar occupations like mechanics, carpenters, bakers, or even farmers. Even our social relations, customs and such traditions as marriage have been deeply affected by such a negative value system. Students, who passed tenth grade with lower achievement, have often opted to join a vocational school. There is no other choice for them except to drop out of the school system. Low achievers who belong to middle class and rich families are allowed to study at private academic schools. But low achievement students often belong to lower class and poor families, who cannot afford private schooling. Students' achievement has been the sole criterion for classification of students into academic and vocational tracks, while other factors, like students' interests and attitudes, are less important in the categorization process. On the other hand, many other background factors drive students away from vocational schools (Ministry of Education, 2002).

The scarcity of natural resources and the high rate of population growth constitute great challenges, which necessitates developing human resources and makes it crucial for the successive development plans to achieve their goals. The Government has responded to these challenges with a new educational reform project called

Education Reform for Knowledge Economy (ERfKE project for short). This project is a comprehensive and inclusive national education reform programme scheduled over five years (2003-2008) and based on principles of relevance, access, equity and quality. The purpose of the ERfKE project is to substantially and measurably improve the quality of schooling all over the country in terms of improved teacher training programmes, and curriculum reform and assessment, supported by improved facilities and resources and the deployment of new ways of learning through information and communications technology.

The project is the first of its kind in the region and has four major intersecting and interdependent components of reform, which are:

1. Reorient education policy objectives and strategies through governance and administrative reform. The first component is designed to provide a redefinition of the vision and associated policy objectives of the educational system that will enable the required transformation to meet the emerging needs of the knowledge economy.
2. Transform educational programmes and practices for the knowledge economy. The second component aims to transform teaching and learning processes to achieve learning outcomes consistent with the requirements of the knowledge-based economy.
3. Support the provision of quality physical learning environments. The third component aims to ensure adequate provision of structurally safe school buildings and improved learning environments.
4. Promote readiness for learning through early childhood education; this envisages enhancing equity through public provision of kindergartens in the low-income areas (Ministry of Education, 2005; National Centre for Human Resources Development-NCHRD, 2005).

The ultimate goal of the ERfKE project is to transform the entire educational system (K-12) to produce students equipped with knowledge, skills, attitudes, and competencies required for a globally competitive knowledge economy. It is an innovative, integrated project designed to help in preparing the Jordanians for the knowl-

edge economy. This project tries to improve the teaching/learning process by providing access to modern instructional technologies, methods, contents, policies, and structures for students and teachers. Ultimately, the project intends to improve learning, especially higher order thinking skills like critical thinking and problem solving (National Centre for Human Resources Development, 2005).

Jordan is trying to cope with the current trends in educational reform in which the productivity of non-manual workers is a main concern, i.e. the application of knowledge-to-knowledge is a key factor for development. The basic economic resource is no longer capital or natural resources, but knowledge. The economic activities that create wealth are based increasingly on productivity and innovation, which means applying knowledge to work. The leading groups in the knowledge society will be the “knowledge workers”, who know how to apply new knowledge in production, exactly as the capitalists knew how to invest their money. Thus knowledge is being applied in systematic innovation (Antunes, 1998). This new direction in educational reform, based on a knowledge economy, is behind Jordan’s interest in educational reform projects for a knowledge economy.

1.3 Main differences and similarities between the Educational systems in Jordan and Sweden

The purpose of presenting the differences and similarities between the educational systems in Jordan and Sweden is to give a brief idea about the two educational systems and encourage the reader to make some reflections. It is also meant to compare how secondary education is organised in the two countries.

The current structure and organisation of the school system in Jordan is classified into the following levels:

1. Pre-school or kindergarten (normally two years 4-6): Kindergartens are not compulsory, and are run by the private sector. About 25 percent of first grade students have attended a year or more of kindergarten schooling. Within the Educational Reform for Knowledge Economy project, the Ministry of Education has established 100 government kindergartens, in some areas where there is no possibility to establish kindergartens by the private sector.

2. Basic or compulsory school (6-16 years): by law, all children at the age of six must study at a basic school up to tenth grade or age 16. The Ministry of Education normally classifies tenth grade students into either academic or vocational schools according to their achievement from grades eight, nine, and ten.
3. Secondary school (16-18): academic and vocational schools.

The Swedish school system, as compared to the Jordanian school system, is composed of:

1. Preschool activities, which include preschool, family day-care (age 1-5 years), and open preschool. In Jordan, children normally enter kindergarten at the age of four, but there are many nursery schools for children who are younger than four, especially for working mothers. Nursery schools are not common, and are run by the private sector, and mainly situated in the cities. Some lucky working mothers can have a baby sitter during the day, either the grandmother of the baby or a woman from the neighbourhood who is well known by the parents.
2. Preschool class (6-7 one year). There is no preschool class in Jordan.
3. Compulsory school (7- 16) for 9 years. Compulsory school in Jordan is 10 years (6-16 years)
4. Upper secondary school (16-19) for 3 years. In Jordan upper secondary school is only for two years (16-18).
5. University and higher education. The structure is nearly the same in Jordan and Sweden. But there are many differences in terms of the content, curriculum, grading system, economic resources, infrastructure for teaching and learning, in addition to sociocultural differences. Jordan, for some reason, adopted the American system of higher education, which is based on credit hours, while the Swedish system is based on credit points. In Jordan, there is probably more value and prestige placed on university qualifications or diplomas than in Sweden. The Swedish school system is a goal-based system with a high degree of local responsibility. The main responsibility lies upon the municipalities and authorities, which are also responsible for independent schools (or free schools). The Jordanian school system is also goal-based, with a high degree of responsibility for the Ministry of Education. The overall national goals in

Sweden are set by the Parliament and the Government through education legislation, curricula, and course syllabi for the compulsory school etc., and program goals for upper secondary school, which resemble the situation in Jordan.

The Swedish National Agency of Education (*Skolverket* in Swedish, 2004) draws up and takes decisions on course syllabi for upper secondary school etc., grading criteria for all types of Swedish schools, and general recommendations. Individual schools, pre-schools and leisure-time centres can then choose work methods suited to their local conditions. In Jordan, decisions related to course syllabi or curricula are taken by the Board of Education, which is considered the highest authority at the government level.

In Sweden, there are 17 national programmes at the upper secondary school. These are: child recreation, construction, electrical engineering, energy, arts, vehicle engineering, business administration, handicrafts, hotel, restaurant and catering, industry, foods, media, use of national resources, natural science, health care, social science, and technology. In Jordan, there are tracks at the secondary school, which can be grouped into academic and vocational tracks that are similar (in their names) to the programmes at the Swedish secondary school. The academic tracks are scientific, literary, information management, and the Islamic religion track. The vocational tracks are industrial, agricultural, nursing, hotel catering, and home economics. Table 1.1 presents some of the differences between the Swedish and the Jordanian school systems.

Table 1.1

Presentation of some differences between Swedish and Jordanian school systems.

School system	Jordan	Sweden
1. Preschool activities	Child age at the Kindergarten is normally 4-6 years. Nursery schools are not common and mainly in the big cities. Most of the Kindergartens and almost all nursery schools are run by the private sector.	Preschool, family day care, and open preschool for all children within the age range 1-5 years
2. Preschool class	No preschool class in Jordan	Preschool class for one year within the age range 6-7 years
3. compulsory school	Grades 1-10 with the age range 6-16 (10 years)	Grades 1-9 with the age range 7-16 (9 years)
4. upper secondary school	Grades 11-12 with the age range 16-18 (2 years)	Grades 10-12 with the age range 16-19 (3 years)

1.4 The status of vocational education in Jordan – Societal and environmental background

A large body of research shows that vocational education provides the kinds of educational experiences needed by a diverse future work force, especially those who traditionally have not had much success in school. For example, in the United States, at-risk stu-

dents who earn more vocational credits in an occupational specialty are more likely to graduate from high school (Hamby, 1992). Also, research by cognitive psychologists has shown that students have a better understanding of abstractions and theory when taught in a practical context and specific situations where they apply. The findings from the growing movement to integrate academic and vocational education reveal that this process will allow for improvement of occupational skills and, at the same time, provide a means to strengthen students' basic and higher order thinking skills. This kind of hands-on, real life learning is the essence of good vocational education for the future (U.S. Department of Education, 2004).

Vocational education has suffered from the situation of being a second alternative for low achievement students. Initiatives and reform programmes to improve the quality of education in general and vocational education in particular have been continued in Jordan and worldwide as well. Although the reform programmes are encouraging, they do not represent an organized response to the challenges facing vocational education. The status of vocational education is not well accepted in the society. Therefore, in order to get a better understanding of the societal and environmental situation that contributes to the status of vocational education and to the formation of attitudes towards vocational education in Jordan, policy documents, some articles, and publications about vocational education have been investigated. In addition, discussions with staff from the Ministry of Education and policy makers in the government, Senators, Parliament members, school principals, teachers, parents and students have been held. These discussions were informative and helpful to provide insights and prepare well for the interview questions of the explorative study.

Every year, the Ministry of Education set a plan in which students are categorized into either academic or vocational tracks. The intended policy percentages have been such that 50 percent of males and 35 percent of females should join some type of vocational education. These percentages, set by the government, have been based on some recommendations from the national conference on educational development, which was held in 1987. However, the documents of the conference were investigated for some

rationale or argument behind such strict percentages, but all such efforts were in vain.

The real percentages of enrolment into vocational education for the school year 2002 were 44.3 percent, and 24.3 percent for males and females respectively (Ministry of Education, 2002). The real percentages were even lower for the following years, which indicate a general preference for academic education among students and their parents as well. These percentages suggest that even though student's achievement has been used for screening and categorization purposes, they are still far away from the intended percentages. Students who have selected vocational education constitute only 35.7 percent out of the total number of students who were categorized to study at some vocational school (Ministry of Education, 2002). This is a clear indication that most students do not want to join a vocational school. However, it might be that parents, siblings, and others who have some influence on students' attitudes and their decisions look down on vocational education as well.

In addition, Table 1.2 gives some idea about the number of tenth-grade students who decided to study at vocational schools in 2003 and the relevant percents. These figures shed light on students' interests in vocational education as indicated by their actual behaviour in choosing some vocational track. Only 17.1 percent of students decided to join vocational schools. According to Table 1.2, there are more males (22.7%) than females (11.5%), who expressed their desire to join a vocational school (Ministry of Education, 2004).

Table 1.2
Tenth-grade students' decision to join vocational education - 2003

No. of students	Tenth grade students		
	Male	Female	Total
Tenth-grade students (total no.)	45945	45824	91769
Tenth-grade students who decided to study at vocational schools	10441	5271	15712
Percent (%)	22.7	11.5	17.1

Comparison of the figures from 2002 and 2003 indicates that there is a decrease in free enrolment percentages into vocational schools. This is also an indication that achievement-based categorization of students into vocational and academic schools is not a successful policy. It is also inconsistent with the students' free will to choose what they want to study, and consequently this policy has been ineffective and undemocratic. Moreover, the real percents of enrolment of eleventh grade students also support the idea that vocational education is not attractive for those students as well, as is shown in Table 1.3

Table 1.3

The real enrolments of eleventh grade students into academic and vocational schools - 2002

Eleventh grade school children						
Secondary school type	Male	%	Female	%	Total	%
Academic	31761	67.5	36983	80.3	68744	73.8
Vocational	15290	32.5	9076	19.7	24366	26.2
Total	47051	50.5	46059	49.5	93110	100

It is clear from the table that only 26.2 percent of eleventh grade students enrolled in vocational schools and 73.8 percent enrolled in academic schools. Percents of enrolment in vocational schools were 32.5% for male students and 19.7 percent for female students (Ministry of Education, 2002). These figures contradict the intended percentages of sorting out 50 percent male and 35 percent female tenth grade students into vocational education. They also indicate that achievement-based categorization of tenth grade students to join vocational schools is ineffective. Students often either find a bogus excuse to escape from being assigned into a vocational school or drop out of the school system.

Moreover, such an achievement-based categorization policy of students into two groups, which consequently means grouping lower achieving students to study at vocational schools, creates difficulties like disciplinary, psychological, social and many other problems. In fact, it is difficult to find a convincing argument to

support the current policy of achievement-based categorization of students into theoretical and vocational tracks. Above all, this achievement-based selection policy is not only undemocratic, but also contributes to the public negative image about vocational education in the society.

There is also a gender issue in the figures of the previous tables. Table 1.2 indicates that the percent of female students who selected vocational schools is only half the percent of male students. This difference can be explained by factors related to the conservative ideas in the Jordanian society and also to other social traditions and customs. Table 1.3 also indicates that the percent of male students in vocational schools (32.5) is more than the percent of female students (19.7), which also can be explained by some sociological and cultural factors in the Jordanian society.

1.5 Public attitudes towards vocational education

Vocational education, increasingly known as career and technical education, is a longstanding programme whose place in education continues to evolve (U.S. Department of Education, 2004). It is a major and essential part of any educational system worldwide. According to Smith (2006), if education is the key to economic and social development then technical vocational education and training is the master key that opens the doors to poverty alleviation, greater equity and justice in the society. Jarvis (1983) has stated that the aims of vocational education should be more meaningful and realistic. It should produce recruits to the profession that have a professional ideology, especially in relation to understanding good practice and service. In addition, it should provide the new recruit with sufficient knowledge and skills.

Instructional objectives, in vocational education programmes which have an affective nature, are often expressed in terms of developing a degree of pride in craftsmanship, a sense of responsibility towards one's employer and co-workers, or a positive attitude toward the dignity in a job well done no matter how menial the task (Erickson & Wentling, 1976).

Vocational education has traditionally been considered an inferior alternative reserved for students who have been considered unable to benefit from further general or academic education. Ps-

charapoulos (1991) has discussed a number of theoretical reasons why vocational-technical education may fail to achieve its intended objectives. One of the most relevant reasons is the sociological argument, which implies that the main reason vocational education at the secondary level fails is that students forced into the technical vocational stream would never have chosen it.

Education is being seen by all families, whether the father is a farmer or already in a manual profession, as a way of escaping into a modern job in the city. When the general education stream is closed for the sake of stopping the one-way street from the secondary school to the university, or because the country needs only a certain number of technicians, the inherent dynamics of behavioural choice by students and their families is ignored. If forced into the vocational stream, the students after graduation will find some way out of that stream to seek complementary general education in order to be admitted to the university.

Cohen and Besharov (2002) have indicated that technical education offers poor quality in the United States. In addition to preferring the college preparatory option, many parents, students, and educators seem to have a negative view of vocational education, seeing it as dumped down and a dumping ground for poor students. Many families in Jordan, especially the rich, whose children have low achievement from the basic school, find the private schools a solution to escape from having their children in a vocational school.

There is a high commitment in Jordan, both within the government and among the main vocational education and training stakeholders, for a reform of the vocational education and training system as part of an overall human resources development system. Given the great scarcity of natural resources and the increasingly competitive environment in the region, it has become recognised that a competent workforce, characterised by a balanced distribution of qualifications (from semi-skilled workers to professionals) will be a *sine qua non* for the successful achievement of both the necessary diversification of national industry in Jordan and the continuing competition for jobs in the regional Arab labour market. More students should be channelled into vocational education and fewer into academic higher education. Vocational education

and training is becoming increasingly regarded as an effective tool for combating poverty and unemployment (European Training Foundation, 1999).

Students sometimes try to find fabricated excuses and tricks to escape from being assigned to a vocational school. Programs of vocational guidance and counselling have been implemented every year, all over the country, to promote favourable attitudes towards vocational education. However, these programs seem to be far from reaching the planned enrolment percents mentioned before. Furthermore, the real enrolment percents to vocational schools are not based on students' free choice. Instead of forcing students against their will into vocational school, their attitudes should be changed to make them willing participants in vocational or technical education. Attitude change is not an easy process and it takes a long time. In fact, attitudes are greatly influenced by and highly dependent on values, which are very difficult to change and require longer input than attitudes.

2 RESEARCH PROBLEM AND PURPOSE OF THE STUDY

2.1 Research problem and need for the study

Objectives in the affective domain are commonly found in modern school curricula (Schwarz, 2004). The interest in the affective domain objectives has logically stimulated interest in the measurement of the objectives in that domain, particularly those that could be labelled attitude objectives. Negative attitudes are assumed to hinder students' learning and motivation. Promoting positive attitudes in students' towards school and school curricula like mathematics, science, or vocational education has been one of the main goals of all educational policies. Therefore, attitude has been a major concern for psychologists, psychometricians, educators, policy makers and others, not only for its influence on other psychological concepts like learning and motivation, but also for the prediction of human behaviour from attitudes as well (Schibeci, 1982).

A well-known educational objective of any school or educational institution has been to develop positive attitudes towards school, school subjects, teamwork, and so on. The interest in the affective domain objectives like attitudes, values, interests, and others has been well established in school curricula and teacher training programs. The importance of achieving the goals in the affective domain, like attitudes, is not only to prepare students to acquire positive attitudes towards school and school subjects; it is also important to facilitate the achievement of goals in the cognitive domain as well. Affective and cognitive domains are interrelated in the teaching and learning process. Therefore, there is an eminent need in education, psychology, and behavioural research to develop instruments that are valid, reliable, and sensitive, with minimal response burden, to measure personality traits or constructs and consequently acquire new knowledge about them.

Attitude is an unobservable construct, such as any other construct in psychology and education, but it can be inferred from observable behaviours through measurement (Schwarz & Bohner, 2001). Therefore, construction and validation of an attitude instrument towards vocational education is a prerequisite for obtaining reliable and sound knowledge about students' attitudes. It is also necessary to find out how background factors might explain differences in students' attitudes. Vocational education is important, and its role in economic development has been quite evident in any country. In fact, we need technicians and skilful people of many vocations and technicalities in the labour market more than we need academicians or white collar occupations. Vocational or technical education is at least as important as academic education, or even more important, especially when the statistical figures indicate higher unemployment rates among university graduates than among their counterparts from vocational schools or other technical intermediate community colleges (Psacharopoulos, 1991).

As a teacher of mathematics and commercial subjects at a secondary comprehensive school (mainly academic school with some vocational classes) for three years and also as a teacher at vocational school for one year in Jordan, the present author has observed that students in vocational programs have a feeling of inferiority vis-à-vis their counterparts in academic programs. This negative self-image has deeply affected their learning and motivation, and drives many of them to become both careless and problematic students or even leave school and become dropouts. Most students from vocational schools have low achievement and consequently contribute to the negative image about them.

Moreover, I have heard from my colleagues in different vocational and comprehensive secondary schools many complaints and descriptions about students studying at vocational schools. They have mentioned the following characteristics of their students in vocational tracks: lazy, low achievement, unable to comprehend the subjects' material especially mathematics, careless, undisciplined, problematic, and having negative self-images. In addition, school principals, teachers, and counsellors promote and strengthen the negative image in society about students from vocational tracks through their public discussions and jokes. Counsel-

lors and school administrators view vocational education as a dumping ground for problematic or low achieving students. Most of the counsellors urge all students to attend university, even though their achievement is low or they have poor grades.

Therefore, I have become more aware and deeply convinced of the importance of investigating and exploring the attitudes of students towards vocational education. In other words, I want to acquire knowledge about students' attitudes towards vocational education, which constitutes the first aspect of the research problem under investigation.

The second aspect is whether students' qualities and their environment, represented by background variables, can significantly differentiate students' attitudes towards vocational education. Review of related literature has shown that many background factors were either significant or not in terms of differentiation between students' attitudes towards vocational or technical education. Therefore, many background factors were selected to investigate their influence on students' attitudes.

The attitude-behaviour relationship, which has been a vexatious and perplexing issue to social psychologists, is the third aspect of the research problem. The long standing problem, in social psychology, has been whether human behaviour can be predicted from attitudes. More specifically, is it possible to predict students' behaviour from their attitudes towards vocational education, and if so, to what extent? The aforementioned aspects constitute the essence of the research problem and the need for this study, for which the research goals and objectives are formulated in the next section.

2.2 Research goals and objectives

The main goal of the empirical study is to know and unveil students' attitudes towards vocational education; in other words, to acquire knowledge and explore what attitudes tenth-grade students have towards vocational education. The second goal is to investigate which of the background variables best explain and interpret the differences in students' attitudes towards vocational education. The third goal is to describe, explain and interpret the relationship between students' attitudes and their behaviour. Students' behav-

behaviour in this study has been defined as the actual selection of either academic or vocational track. The aforementioned three goals have been translated into the following three questions:

1. What attitudes do students have towards vocational education?
This question deals with the direction and intensity of students' attitudes towards vocational education. From a theoretical and measurement point of view, attitudes can be placed on a continuum from minus infinity to plus infinity. This continuum reflects the direction and intensity of attitudes, which means evaluations of objects on a dimension ranging from positive to negative. In this study, Likert's five point scale has been used to measure students' attitudes towards vocational education. Therefore, in this question, I will find out whether students have positive, negative, or neutral attitudes towards vocational education.
2. Which background factors best explain and interpret differences in students' attitudes towards vocational education? In this question, a major concern has been to locate the background variables that are influential in the prediction of students' attitudes within the contextual and cultural situation in the intended population. Literature review indicated different results of the relative influence of background variables. Therefore, in this study, I have tried to include most of the background variables to find an answer to the question of which variables are significant predictors of students' attitudes towards vocational education. Previous empirical research investigated the effects of only some of the background variables, but by no means most of them, which I am trying to do in this research endeavour. From the statistical point of view, this question can be translated into the following statistical hypothesis: There are no statistically significant differences in students' attitudes towards vocational education due to the background variables chosen in this study.
3. What is the relationship between students' attitudes towards vocational education and their behaviour? Can students' attitudes predict their behaviour? To be more specific, the third question deals with the attitude-behaviour relationship, which has been an elusive issue in the literature about the attitude-

behaviour relation. In this question, students' behaviour is said to be influenced by many variables, but students' attitudes is only one of them. Therefore, the attitude variable and other background variables have been investigated in this study, to find out which of them are significant predictors of students' behaviour and their relative influence on students' behaviour as well.

In addition to the aforementioned goals of the empirical study, the goal of the explorative study has been to investigate how decision makers think and perceive the status of vocational education. In other words: what perceptions and thoughts do decision makers have about vocational education?

2.3 Limitations of the study

This study is concerned with acquiring knowledge about students' attitudes toward vocational education in Jordan, and investigating how some background variables explain their attitudes. It may be assumed that locally dependent factors related to culture, history, norms and values etc. constitute a background which influences the variables investigated. Therefore, empirical study results can only be generalised to other populations with similar cultural and societal backgrounds.

Analytical tools of Classical Test Theory (CTT) have been used in the analysis and development of the attitude measurement instrument. There are some shortcomings with Classical Test Theory, one of which is that the item statistics are sample dependent. This may cause problems, especially if the sample on which the pre-testing was made differs in some way from the examinee population (Hambleton, Swaminathan, & Rogers, 1991). Another limitation that may be important in item analysis is that CTT is test oriented rather than item oriented (Hambleton & Rovinelli, 1986; Stage, 1999). One important advantage of Item Response Theory (IRT) is the item parameter invariance. "The property of invariance of ability and item parameters is the corner stone of the IRT model. It is the major distinction between IRT and CTT" (Hambleton, 1994, p. 540). Therefore, results and conclusions must be carefully interpreted, taking into consideration the weak assumptions of CTT in comparison with the IRT strong assumptions.

3 ATTITUDES THEORY AND MEASUREMENT

3.1 Attitudes: nature, definition and importance

What are attitudes? Virtually any response can serve as an indicator of attitude toward an object so long as it is reliably associated with the respondent's tendency to evaluate the object in question (Ajzen, 2002). Attitudes are the stands a person takes about objects, people, groups, and issues. How do we know that a person is outgoing or reclusive, honest or dishonest, dominant or submissive; that she or he opposes or favours co-education in Jordan, approves or disapproves abortion, likes or dislikes mathematics? We cannot observe these traits and attitudes; they are not part of a person's physical characteristics, nor do we have direct access to the person's thoughts and feelings. Clearly, personality traits and attitudes are latent, hypothetical characteristics that can only be inferred from external, observable cues. The most important such cues are the individual's behaviour, verbal or non-verbal, and the context in which the behaviour occurs (Ajzen, 1988 & Fabrigar, MacDonald & Wegener, 2005).

Responses are used to infer personality traits that exert pervasive influence on a broad range of trait-relevant responses. Assumed to be behavioural manifestations of an underlying trait, people's responses are taken as indications of their standing on the trait in question (Ajzen, 1988). The term *attitude* refers to a hypothetical construct, namely a predisposition to evaluate some object in a favourable or unfavourable manner. This predisposition cannot be directly observed, but it can be inferred from individuals' responses to the attitude object, which can run from overt behaviour, such as

approaching or avoiding the object and explicit verbal statements to covert responses, which may be outside of the individual's awareness, such as minute facial expressions (Oskamp, 1991). The attitude construct continued to be a major focus of theory and research in the social and behavioural sciences, as evidenced by the proliferation of research articles, chapters, and books on attitude-related topics (Ajzen, 2001).

Attitude was hailed quite early as the most distinctive and indispensable concept in social psychology (Allport, 1935), and despite some ups and downs, it has retained this status ever since. Although the term *attitude* is one of all the ubiquitous terms used in the literature, precise definitions are less common (Fabrigar et al., 2005 & Lemon, 1973). Allport (1935) has even described attitudes as "social psychology's central problem, and the concept is heavily represented in practically all of the social sciences" (p.1). Research efforts over the past few decades have thus reconfirmed the importance of attitude as the prime theoretical construct in social psychology, and scholars have verified the relevance of attitude measurement as an indispensable tool for our understanding of social behaviour (Ajzen, 1993 & Fabrigar et al., 2005).

Over the years, psychologists have proposed many definitions of the attitude concept. Those offered by many working in the field serve to illustrate this variety. One of the attitude definitions is to think of attitude as "an underlying disposition, which enters along with other influences, into the determination of a variety of behaviours toward an object or class of objects, including statements of beliefs and feelings about the object and approach-avoidance actions with respect to it" (Ajzen, 2001, P.28). There is general agreement that attitude represents a summary evaluation of a psychological object captured in such attribute dimensions as good-bad, harmful-beneficial, pleasant-unpleasant, and likeable-dislikeable (Ajzen, 2001).

Despite the wide variety of interpretations of the meaning of attitude, there are areas of substantial agreement. First, there is consensus that an attitude is a predisposition to respond to an object rather than the actual behaviour toward such object. The readiness to behave is one of the qualities that are characteristic of the attitude. A second area of substantial agreement is that attitude is rela-

tively persistent over time. The persistence of attitude contributes greatly to the relative consistency of behaviour, which introduces a third area of agreement. Attitude produces consistency in behavioural outcroppings. Fourth and finally, attitude has a directional quality (Ajzen & Fishbein, 2000). There is general agreement that attitude connotes preference regarding outcomes involving the object, evaluations of the object, or positive-neutral-negative affections for the object. Affect is an important dimension of attitude. The most popular conception of attitude is that an attitude consists of three components: cognitive, emotional, and action tendency. While all beliefs one has about an object are subsumed under the cognitive component, it is the evaluative beliefs that are the most critical to attitude as a disposition concept (Ajzen, 2001).

The emotional component is sometimes known as the feeling component, and refers to the emotions or feelings attached to an attitude object. Bipolar adjectives commonly used in discussing elements of this component are love-hate, like-dislike, admire-detest, and other connoting feelings of a favourable or unfavourable order. The action tendency component incorporates the behavioural readiness of the individual to respond to the object. It is generally accepted that there is a linkage between cognitive components, particularly evaluative beliefs, and the readiness to respond to the object. In addition, there is a linkage between the emotional and action tendency components. The physiological relation of emotional status of the organism and readiness to respond presumably mediates this second linkage (Fabrigar et al., 2005).

The conceptualization of attitude just outlined appears to incorporate the major areas of agreements among the wide variety of attitude definitions. One of the unfortunate aspects of the development of attitude theory and attitude measurement is that each has developed more or less without reference to the other (Ostrom, 1989). The conceptualization of attitude presented above does, however, allow for a closer interplay between theory of attitude and measurement. The degree of correspondence between attitude and behaviour on the theoretical level or between self-reported attitudes and overt behaviour on the measurement level has been an important issue in the history of attitude research (Wilson & Hodges, 1992). Studies that have dealt with this issue concluded

that verbally expressed or self-reported attitudes do not correspond perfectly with overt behaviour toward the attitudinal object (Krosnick, Judd & Wittenbrink, 2005).

Specifying affective outcomes such as attitudes, interests, and values may be as important as, or even more important than, specifying cognitive or psychomotor outcomes. Cognitive and affective outcomes interact to the degree that they are virtually inseparable. Affective outcomes directly influence learning and constitute desirable educational outcomes in themselves. How an individual feels about subject matter, school, and learning may be as important as how much he or she achieves (Payne, 1974). Everyone has learned personal responses to the significant individuals, objects, and events in the surrounding world, responses that represent evaluations that arise from our emotions; these are attitudes (Jones et al., 1985). The concept of attitude has played a major role throughout the history of social psychology. Many early theorists virtually defined the field of social psychology as the scientific study of attitudes (Allport, 1967; Dawes, 1972 & Fabrigar et al., 2005).

Social psychology focuses mainly on the task of understanding the causes of social behaviour, identifying factors that shape our feelings, behaviour and thought in social situations. It seeks to accomplish this goal using essentially scientific methods. Attitudes are an important part of social psychology; furthermore, attitudes play a pervasive part of human life (Baron, Byrne, & Suls, 1988). Attitudes are a central concept in social psychology because they play an important role in influencing much different behaviour (Goldstein, 1994). Ahlawat and Zaghal (1989) have indicated a good characteristic of attitudes: attitudes stem from peoples' deep-rooted values and accumulated experiences.

It is useful to distinguish the attitude concept from other related terms such as interests, values, emotions, and appreciation, which are involved in the affective domain. Evans (1965) indicated that the concepts of attitude and interest can be confused, and they are sometimes used in ways that suggest that they are almost interchangeable. Attitude is the broader term, and an attitude represents a general orientation of the individual. Interest, on the other hand, is more specific and is directed towards a particular object or activity. It is a response of liking or attraction, and it is an aspect of be-

haviour and not an entity in itself. Also, beliefs, opinions, and habits are concepts related to the concept of attitude, but are not synonymous with it. Whereas an attitude is a general evaluative orientation toward an object, a belief or opinion is narrower in scope and generally more cognitive in nature (Oskamp & Schultz, 2005).

Attitude is an inclination or response set towards an object. It is the result of the combined beliefs (and feelings) that a person holds with regard to that object. The major dimension of attitude is affect (evaluation). In some regards, attitude and emotion are identical; both have a cognitive basis and can be placed along an evaluative or affective dimension. Both include an action tendency toward the stimulus object. The major distinctions between these constructs are that affect is the major (if not the only) dimension of all attitudes, whereas emotions may fall along other dimensions as well as being positive or negative, and emotions always include a physiological arousal, whereas only very strong attitudes are accompanied by activation. This means that very strong attitudes are, in fact, a special case of emotion (Mueller, 1977).

Throughout its history in social psychology, the attitude construct has been defined in myriad ways. The core of most definitions has been that attitudes reflect evaluations of objects on a dimension ranging from positive to negative. Thus, researchers have characterised attitudes in terms of their valence and extremity. In practice, attitudes have been routinely represented by a single numerical index reflecting the position of an attitude object on an evaluative continuum. However, social scientists have long recognised that characterizing attitudes solely in terms of valence and extremity is insufficient to fully capture all relevant properties of an attitude (Fabrigar et al., 2005).

Allport (1967) has defined attitude as “a mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence, upon the individual’s response to all objects and situations with which it is related” (p.8). This definition has the merit of including recognised types of attitudes: the quasi-need, interest and subjective value, prejudice, stereotype, and even the broadest conception of all the philosophy of life. It excludes those types of readiness, which are expressly innate, that are bound rigidly and individually to the stimulus, that lack flexibility, and that

lack directionality and reference to some external or conceptual object (Allport, 1967).

Attitudes are individual mental processes that determine both the actual and potential responses of each person in the social world. Since an attitude is always directed toward some object, it may be defined as a “state of mind of the individual toward a value” (Allport, 1967, p.6). Allport (1967) defined social value as “any datum having an empirical content accessible to the members of some social group and a meaning with regard to which it is or may be an object of activity” (p.6). Allport (1967) stated that new social values are created by attitudes common to many people, but these attitudes themselves depend upon pre-existing social values. This indicates that social values are either mediated by attitudes or developed from acquired attitudes through social interaction. The feature that distinguishes attitudes from interest and values is that attitudes always concern a particular target or object. In contrast, interest and values concern numerous activities (Nunnally, 1978). Erickson and Wentling (1976) combine attitudes, interests, values and appreciation into one category called acquired behavioural dispositions, each of which indicates a tendency to act or react in a certain way when faced with a situation or object.

Ajzen (1988) defined attitude as “a disposition to respond favourably or unfavourably to an object, person, institution or event - or to any other discriminable aspect of the individual's world” (p.4). In addition, Fishbein and Ajzen (1975) defined attitude as a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object. Ajzen (1989) stated that although formal definitions of attitude vary, most social psychologists seem to agree that the characteristic attribute of attitude is its evaluative nature. This view is strengthened by the fact that standard attitude scaling techniques result in a score that locates an individual on an evaluative dimension vis-à-vis the attitude object. It is important to note that, according to theory, attitude is a function of beliefs that are salient for the individual, and only of those beliefs. It is possible to infer attitudes from responses to various kinds of belief statements, but only beliefs that are salient in the individual's mind are assumed to have a causal impact on attitudes (Fishbein & Ajzen, 1975).

Thurstone, a famous psychometrician who has been considered the "father" of psychological measurement, defined attitudes as "the sum total of a man's inclinations and feelings, prejudice and bias, preconceived notions, ideas, fears, threats, and convictions about any specified topic" (Mueller 1986, p.3). Thurstone (1946) also defined attitude "as the degree of positive or negative affect associated with some psychological object" (p. 39). By a psychological object, Thurstone means any symbol, phrase, slogan, person, institution, ideal, or idea towards which people can differ with respect to positive or negative affect (Edwards, 1957). Mueller (1986) defined attitude as "the extent of liking or disliking something" (p.8). Eagly and Chaiken (1993) provided what may be the most conventional contemporary definition; specifically, an "attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1).

In the literature of psychology, the terms *affect* and *feeling* are used interchangeably (Edwards, 1957). An individual who has associated positive affect or feeling with some psychological object is said to like that object or to have a favourable attitude toward the object. An individual who has associated negative affect with the same psychological object would be said to dislike that object or to have an unfavourable attitude towards the object.

Despite a plethora of definitions of attitude in contemporary social science, some consensus and agreement is evident, particularly with respect to the major properties that attitudes are assumed to possess. Attitudes are learned and implicit, they are inferred states of the organism that are presumably acquired in much the same manner that other such internal learned activity is acquired. Further, they are predispositions to respond, but are distinguished from other such states of readiness in that they predispose toward an evaluative response. Thus, attitudes are referred to as tendencies of approach or avoidance, or as favourable or unfavourable and so on (Osgood, Suci, & Tannenbaum, 1957).

Like personality traits, attitude is a hypothetical construct that, being inaccessible to direct observation, must be inferred from measurable responses. Given the nature of the construct, these responses must reflect positive or negative evaluations of the attitude object. Beyond this limitation, however, there is virtually no limita-

tion on the kinds of responses that can be considered. However, the most popular classification system goes back at least to Plato and distinguishes between three Categories of responses: cognition, affect, and conation (Ajzen, 1988). Within each of these categories, it is also useful to separate verbal from non-verbal responses. Table 3.1 shows the different types of responses from which attitudes can thus be inferred (Ajzen, 1988, p. 5).

Table 3.1
Responses used to infer attitudes

Response category			
Response mode	Cognition	Affect	Conation
Verbal	Expressions of beliefs about attitude object	Expressions of feelings Toward the attitude object	Expressions of behavioural Intentions
Non verbal	Perceptual reactions to the attitude object	Physiological reactions to the attitude object	Overt behaviours with respect to the attitude object

This tripartite model of attitude, which serves as the starting point of most contemporary analyses, is a hierarchical model that includes cognition, affect, and conation as first-order factors, and attitude as a single second order factor. In this model, the three components are defined independently and yet comprise, at a higher level of abstraction, the single construct of attitude (Ajzen, 1987). It is like a pyramid in which the three aspects of attitude (cognition, affect, and conation) are the ground of the pyramid and the top of the pyramid is the attitude construct.

Why do we have attitudes? People form attitudes about many aspects of life and for many different reasons. They simplify complex issues, they protect self-esteem, they help us adjust to the world, and they allow us to express fundamental values (Triandis, 1971). Socialization, which includes the formation of attitudes, is a

continuous process by which we develop and change from children into adults. Friends, family, school, and media all influence how we learn attitudes. Groups influence many of our attitudes, and family is the first group; the socialization process deals with transformation. This transformation process of the child into the adult includes the learning of attitudes and values (Hallorah, 1967).

3.2 Attitude Formation and Structure

The concept of attitude was a very important one in social psychology's formative years and still remains so today. It is probably the most distinctive and indispensable concept in contemporary social psychology, and no other term appears more frequently in experimental and theoretical literature (Edwards, 1957). Although many varied definitions have been offered, in general an attitude can be defined as predispositions to respond in a favourable or unfavourable manner to a particular object or class of objects. One traditional view of attitudes is that they have three interrelated cognitive, affective, and behavioural components. A later approach is to consider these three aspects as separate and distinct entities, calling them beliefs, attitudes, and behavioural intentions (Fabrigar et al., 2005). A third view point, called a latent process, which considers attitude as an "unobservable intervening variable and it must be inferred from observable responses. It holds that attitudes can arise from stimulus events through cognitive, affective, and/or behavioural process, and that they can be demonstrated by any or all of these three types of responses" (Oskamp & Schultz, 2005, p. 17).

A widely accepted hierarchical model of attitude is described in which attitudes are made up of three components; a cognitive component that is human thinking or beliefs, an affective component that is emotions, and a conative or behavioural component that is a predisposition to action or behaviour (Fabrigar et al., 2005; Traindis, 1971). Evaluative responses could be classified into the categories of affect, behaviour, and cognition. Further, in accordance with an information-processing approach, attitudes are shown to develop as a consequence of salient beliefs formed about the attitude object (Ajzen, 1993). It is these salient beliefs that are the immediate determinants of a person's attitude (Ajzen, 1988).

Although the three-component description does describe attitudes in many cases, some theorists have pointed out that emotions or actions do not necessarily accompany all attitudes (Fazio, 1990; Tesser & Shoffer, 1990). Another way to describe attitudes is by considering the following characteristics:

1. Attitudes are evaluations. They involve positive or negative responses such as liking or disliking (Fishbein & Ajzen, 1975; Oskamp, 1977).
2. Attitudes are learned. People acquire their attitudes through socialisation and learning processes (Ajzen, 2001).
3. Attitudes serve important functions (Shavitt, 1990). For example, attitudes help us process information about the world. Thus, your political attitudes help you interpret information, which helps you decide which levers to pull in the voting booth. Attitudes may also serve a protective function.
4. Attitudes are relatively enduring. Unlike moods or emotions, which can change rapidly, attitudes tend to be relatively stable over time. In this respect, they are like personality traits. Although they can change, it is not unusual for people to hold certain attitudes such as liberal or conservative political views throughout their lives (Ajzen, 1987).
5. Attitudes influence a person's behaviour. People interested in changing others' behaviour often try to influence the attitudes thought to underlie their behaviour. Public health organisations try to influence our attitudes towards smoking; advertisers try to create positive responses to their products; civil rights activists try to reduce discrimination by changing prejudicial attitudes (Goldstein, 1994).

Most contemporary social psychologists take a cognitive or information-processing approach to attitude formation. This approach is exemplified by Fishbein and Ajzen's (1975) expectancy-value model of attitudes. According to this model, attitudes develop reasonably from the beliefs people hold about the object of the attitude. Generally speaking, we form beliefs about an object by associating it with certain attitudes. Although people can form many different beliefs about an attitude object, it is assumed that only beliefs that are readily accessible in memory influence attitude at any given moment (Ajzen 2001). It is these salient beliefs that are con-

sidered the immediate determinants of a person's attitude. "A belief's chronic accessibility tends to increase as a function of the frequency with which the expectancy is activated and the recency of its activation, as well as the belief's importance" (Ajzen, 2001, p. 30). According to Ajzen (2001), the expectancy-value model is a conceptual framework for attitude formation and activation; it assumes that an object's evaluative meaning arises spontaneously, without conscious effort.

Any reaction, whether verbal or non-verbal, cognitive, affective, or conative, that reflects a positive or negative disposition toward an object can be used to infer the latent attitude, but only cognitions that come to mind spontaneously (salient beliefs) provide a picture of an attitude's informational foundation (Ajzen, 1993, 1988). In sum, it has been found that individuals differ in their reliance on cognition versus affect as determinants of attitude, and that the two components also take on different degrees of importance for different attitude objects (Ajzen, 2001).

Since the attributes that come to be linked to the object are already valued positively or negatively, we automatically and simultaneously acquire an attitude toward the object. In this fashion, we learn to like objects we believe have largely desirable characteristics, and we form unfavourable attitudes toward objects that we associate with mostly undesirable characteristics. Specifically, the subjective value of each attribute contributes to the attitude in direct proportion to the strength of the belief (Ajzen, 1993; Ajzen & Fishbein, 2000). One important implication of the expectancy – value model is that attitudes towards an object are formed automatically and inevitably as we acquire new information about the object's attributes, and as the subjective values of these attributes become linked to the object. This process is what Ajzen and Fishbein (2000) have called on-line attitude formation.

Research at the behavioural level of analysis has focused on the processes of conditioning and modelling, as well as on the role of direct experience in shaping attitudes (Goldstein, 1994). One of the most effective mechanisms of attitude formation is through personal experience. Many of our attitudes evolve from evaluating our experiences; we find that we enjoy certain kinds of music or certain types of food by experiencing those kinds of music and food. Atti-

tudes formed through direct experience are more confidently held and more resistant to change than are attitudes formed by indirect methods such as conditioning (Fazio et al., 1982; Fazio & Zanna, 1978; Wu & Shaffer, 1987).

There are three main sources of attitude formation: direct experience with the objects and situations, explicit and implicit learning from others, and personality development. If we experience disappointment associated with something, we will develop unfavourable attitudes about that thing. On the other hand, when we succeed or hold a powerful position in a situation, we will develop favourable attitudes (Hallorah, 1967). Linn (1977) has indicated that

Prejudice and discrimination are the products of learning the customs, beliefs, values, and norms of these various social groups and institutions. Thus the group, whether community, family, or friendship, becomes the agent of attitude formation for the individual through the processes of interaction, identification, or association (p. 448).

Prejudices, like other attitudes, are generally acquired slowly and over a period of time. The child acquires his ethnic and racial attitudes as he learns other social lessons, from adults, from his peers, and from his life experiences etc. For example, few parents actually teach their children to be prejudiced; however, their own attitudes and behaviour, their restrictions on the playmates of their children, and the tendency to stereotype all individuals of a given racial or religious group with certain physical, behavioural, and mental characteristics results in a pattern of prejudice which their children imitate. It is not the parents' attitudes alone, but the whole home influence or even the societal influence that is responsible for the development of prejudice (Hallorah, 1967).

Thus, by the same token, the values and norms of the general society, which often characterize vocational work as being dirty, dangerous, and less rewarding, may be learned, overtly or covertly, within the context of the family, the community or the school. These values about vocational work and the associated norms of low level socioeconomic status are part of what is taught and what is learned in our society. Attitudes are taught and learned in every social setting like home, school, and so on through social interac-

tion. Evaluative beliefs, about vocational education for example, are mediated through psychological tools from adults to students within the context of social interaction. The mediated evaluative beliefs are also influential in the formation of attitudes. Adults and peers are reference groups who are important agents for attitude formation and change, through their influence on students' evaluative beliefs.

The traditional and most prevalent conceptualization of attitudes is that attitudes are global evaluations that people can access from memory when called on to do so. However, some researchers have suggested that it may be useful to conceptualize attitudes as temporary constructions, created at the time people are asked to make attitudinal judgements (e.g. Bem, 1972; Schwarz & Bohner, 2001; Wilson & Hodges, 1992). According to this perspective, people often lack reconsolidated general evaluations. When asked to report attitudes, people consider readily available information and integrate this information into an overall attitudinal judgment (Fabrigar et al., 2005). Attitudes can be formed by many situations in life, and they are constantly evolving to accommodate new information. When someone takes a stand on an issue, it is rendered in terms of his attitude; when one has an attitude, he is no longer neutral, he will keep that attitude until he adopts or develops a new and different one (Sherif, 1965).

The contemporary view of attitude holds that it is an entity distinguishable from the classes of affect, behaviour and cognition. An attitude, therefore, does not consist of these elements, but is instead a general evaluative summary of the information derived from these bases (Fabrigar et al., 2005). With this shift to considering attitude as conceptually separable from the bases of the attitude, research has addressed the potential differences among attitudes primarily based on affect, cognition, or behaviour (Albarracin, Zanna, Johnson, & Kumkale, 2005).

3.3 Attitude behaviour relationship

Making direct observations of respondents' overt responses to the attitudinal object might appear, at first glance, to be the most desirable approach to gathering behavioural specimens. After all, the ultimate aim of attitude research is better understanding and pre-

diction of overt behaviour (Ajzen, 2001). The degree of correspondence between attitude and behaviour on the theoretical level, or between self-reported attitudes and overt behaviour on the measurement level, has been an important issue in the history of attitude research. The overall conclusion, in the literature up to the seventies, is that verbally expressed or self-reported attitudes do not correspond perfectly with overt behaviour toward the attitudinal object (Summers, 1977). Attitudes are relatively enduring patterns of beliefs that are assumed to be predictive of behaviour. If someone expresses generally positive attitudes about a hospital service, then it might be expected that the person would be highly likely to use that service. Similarly, if patients say they are dissatisfied with the standard of care offered by the National Health Service, then we probably wouldn't be too surprised to find that they use private health care services instead.

Just as attitudes are said to flow reasonably and spontaneously from beliefs, so are intentions and actions seen to follow reasonably from attitudes. Ajzen's and Fishbein's (1980) theory of reasoned action postulates that, as a general rule, we intend to behave in favourable ways with respect to things and people we like and to display unfavourable behaviours toward things and people we dislike. Barring unforeseen events, we translate our plans into actions. The theory of reasoned action posits a causal sequence of events in which actions with respect to an object follow directly from behavioural intentions, the intentions are evaluative and consistent with the attitude toward the object, and this attitude derives reasonably from salient beliefs about the object (Ajzen, 1988).

The problem of predicting behaviour from attitude is an old one, going back more than sixty years to the classic Lapiere (1934) research on the discrepancy between expressed attitudes toward Chinese couples and their actual reception by hotel managers and restaurants (Ajzen, 1993; Ajzen, 1988; & Goldstein, 1994). Since Lapiere, there have been numerous efforts to summarize where we stand on this matter and to offer suggestions regarding the proper way to conceive it. Despite the fact that a number of these reviews are sophisticated, balanced and perceptive, it would seem that very little progress has been made in solving the longstanding problem

of the relationship between attitude and behaviour (Seeman, 1993; & Hill, 1981).

As has been discussed, past studies examining racial attitudes and overt behaviour have found varying relationships between the two variables. For example, Lapiere (1934) and others showed that when people who have racially prejudiced attitudes are placed in a situation calling for overt action, they fail to behave in a discriminatory fashion. Although the magnitude of the results of these studies was impressive, the methodological problems inherent in each study were so large that a more careful analysis of the problem was necessary (Linn, 1977).

Some researchers who have tried to explain the lack of a straight-line relationship between attitudes and action suggest that a conscious consideration of reference groups intervenes and is responsible for making the decision to act or not to act consistently with one's attitudes. They therefore conclude that the decision to pose or not to pose for a photograph with a Negro was a peer-directed one. In other words, reference groups influence the individual by being part of his normative system, which reflects the attitudes and norms of the society, in which he lives as well as his community, family, friends, and school (Macmillan, 1980).

The expectancy-value model, together with the hierarchical conception of attitude, offers the following account of the way in which attitudes affect behaviour. As a result of various experiences, we form beliefs about an object that combine to produce an attitude toward it, an attitude that remains relatively stable across time and situations. The actual or symbolic presence of the object elicits this attitude in the form of a generally favourable or unfavourable implicit evaluative reaction. The attitude in turn predisposes cognitive, affective, and conative responses to the object, responses whose evaluative tone is consistent with the overall attitude. It follows that individuals with positive attitudes towards, say, vocational education should exhibit various favourable responses with respect to objects related to vocational education, whereas individuals with negative attitudes toward vocational education should exhibit unfavourable responses toward these objects (Ajzen, 1993).

Causal observation indeed appears to support consistencies of this kind. We generally associate with people we like and avoid people we dislike; we tend to eat foods we consider tasty and nutritious. We watch television programs we enjoy, and so on. Yet in their empirical research, investigators have failed to obtain support for attitude-behaviour correspondence (Ajzen, 1993).

Wicker (1969) reviewed attitude-behaviour studies. He summarised that

Taken as a whole, these studies suggest that it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviour than that attitude will be closely related to actions. Product-moment correlation coefficients relating the two kinds of responses are rarely above .30, and often near zero (p. 65).

Wicker concluded that “the present review provides little evidence to support the postulated existence of stable, underlying attitudes within the individual which influence both his verbal expressions and his actions” (p. 75).

The story did not end there, however. Later researchers re-examined the attitude-behaviour question and were able to show a stronger connection than earlier researchers had. Why had the connection been so elusive? The answer lies in how earlier researchers went about measuring the relationship between attitudes and behaviour (Goldstein, 1994). The relationship between attitudes and behaviour is more complex than many people assume, but there is no question that this relationship is one of the driving forces behind social psychologists' interest in attitudes. The insights provided by more recent research suggest that the connection between attitudes and behaviour is both stronger and more complex than earlier research had revealed. The present view of social psychologists is that attitudes do influence behaviour (Ajzen, 2001; Goldstein, 1994). This view raises the question of whether the attitude behaviour relationship is causal or correlational.

3.4 Attitude change and social influence

The development of reliable measurement techniques in the 1920s and 1930s allowed investigators to commence with the scientific study of attitudes. Concern with validation of attitude measures

quickly gave way to interests in attitude formation and change (Ajzen & Fishbein, 2000). The earliest studies of attitudes and attitude change were made in the 1920s and 1930s. Since the 1930s, there has been an increasing concern with the basic psychological processes underlying attitudes and their modification (Cohen, 1964). Perhaps the simplest way to influence people's accessible beliefs in a positive or negative direction is to ask them to think about positive or negative aspects of the attitude object, a directed thinking task that can at least temporarily impact even such a fundamental aspect of personality as self-esteem (McGuire & McGuire 1996).

Attitudes are acquired through experience and social interaction, but once established they tend to be relatively enduring. How, then, would you go about getting others to change their attitudes so that they would buy some product, eat healthy food, vote for some party and so on? This question has long interested social psychologists, who have studied factors that influence deliberate attempts to change attitude through persuasion. In addition, researchers have investigated ways in which people's perception of their own behaviour can lead them to change their attitudes (Goldstein, 1994). Many early studies of persuasion focused on three factors affecting persuasion: the communicator, the message, and the audience. Each of these factors has an effect on persuasion.

This model of persuasion has focused on the process of persuasive communication rather than on the cognitive activity taking place within the individual. Thus, this line of research sheds light on when attitude change occurs and how to produce it, but it does not tell us why the attitude change is occurring. Another line of research on persuasion has focused on the cognitive level of analysis, asking what thinking processes are involved in persuasion. One of the ideas that have come out of this cognitive approach is that persuasion can occur along two pathways: central and peripheral. In the central route of persuasion, attitude change is based more on the intrinsic quality of the arguments presented, while in the peripheral route of persuasion, attitude change is based on single persuasion cues such as the attractiveness or credibility of the communicator or the repeated presentation of the message (Goldstein, 1994).

Another line of research regarding attitude change has investigated ways in which people's attitudes may change because of their awareness of their own thoughts, feelings, and behaviour. One of the principal theories that have emerged from this work is called cognitive dissonance theory. According to Leon Festinger (1957), cognitive dissonance is the unpleasant state of arousal that occurs when we discover inconsistencies in our beliefs, or between our beliefs and our behaviour. Festinger argued that cognitive dissonance is a type of drive state, like being thirsty. Once we are aware of dissonance, we are motivated to do something to reduce it, just as thirst motivates us to drink. Festinger and Carlsmith (1959) have executed some experiments on cognitive dissonance theory, and they found that dissonance could cause a change in a person's attitude. Dissonance seems to produce the greatest attitude change when there is no external justification available for the inconsistency between people's behaviour and their attitude.

Another prediction of dissonance theory is that you will value a goal more the harder you have to work to achieve it. Many experiments have confirmed this effort-justification effect: people will be more likely to change their attitudes if they invest a large amount of effort or expense toward achieving a goal. Dissonance theory, then, holds that attitudes sometimes change to reduce a conflict between behaviour and an existing attitude. This change in attitude occurs not because of an outside "commentator", but because of forces within the person, whose attitude is changed (Goldstein, 1994).

Another explanation of such internally triggered attitude change is that we sometimes form or change attitudes based on our observation of our own behaviour, a phenomenon called self-perception. According to Daryl Bem's (1965, 1970, 1972) self-perception theory, we often draw conclusions about our own attitudes after observing our own behaviour. Self-perception theory is another way of explaining the results observed in dissonance studies. Thus, whereas dissonance theory explains apparent attitude change as a response to an unpleasant state of arousal, self-perception theory explains the same result in terms of logical information processing. More generally, self-perception theory offers a way of explaining

how at least some attitudes are formed, we discover what our attitudes are by observing how we behave (Goldstein, 1994).

This does not mean that self-perception theory has completely replaced other accounts of attitude formation and change, including dissonance theory. Instead, research suggests that self-perception theory is most applicable when attitudes are non-existent, weak, or ambiguous (Fazio, 1987). This makes sense if we consider that when we hold strong attitudes we do not need to examine our own behaviour for clues. Thus, when somebody votes for a political candidate who vows to help the homeless, chances are it is his or her attitude toward this issue and toward the candidate that determines his or her behaviour, rather than the other way around. He or she doesn't vote for the candidate first and afterwards think that he or she voted for that candidate, so he or she must like him or her and what he or she stands for (Goldstein, 1994).

3.5 Attitude Scaling Techniques

The great effort that has been invested over the years in the development of attitude measurement procedures attests to the centrality of the attitude construct in the social and behavioural sciences (Ajzen, 2002). The development of some social science disciplines, like psychology and education, depends critically on their ability to devise satisfactory measurement scales for the concepts with which they are dealing. Unlike such things as length, time and electric charge that concern natural scientists, attitudes, beliefs and abilities do not lend themselves to direct unambiguous measurement. Yet this does not prevent social scientists from theorizing about such constructs just as if they were physical quantities. From an operational point of view, it is not profitable to argue about whether such quantities really exist, but it is perfectly clear that we need to treat them as existing constructs. The key question is then how to construct a scale of measurement that adequately expresses, in numerical terms, the essence of the linguistic formulation of the idea (Bartholomew, 1993).

Summers (1977) defined measurement as “the assignment of numbers to observations according to some set of rules” (p. 1). He also indicated that this definition is true whatever the phenomenon

being observed. When that phenomenon is attitude, the process of measurement becomes even more complicated, since attitude cannot be observed directly but must always be inferred from behaviour. Some other qualities like intelligence, personality traits, values, and motives are only a few that have the same quality as attitudes (Summers, 1977). Attempts to measure personality traits are nearly as old as techniques for the measurement of intellectual capacity, yet it can scarcely be claimed that they have achieved a similar success. Part of the difficulty, at least, has lain in the statistical complexity that is encountered when everyday aspects of social behaviour, ordinarily handled as qualitative affairs, are treated from the mathematical point of view (Likert, 1932).

Perhaps the best-developed area is in psychometrics, where the scaling of human abilities has spawned an enormous and sometimes controversial literature. The parallel between measuring abilities and measuring the strengths of attitudes is obvious, and so it is natural to apply psychometric methods to attitude data. In some respects, attitude scaling is a better field for developing new methodology because it is less driven by the ideological warfare that rages over such contentious things as intelligence (Bartholomew, 1993).

Attitude is a very popular intervening variable among social psychologists. Consequently, much attention has been given to the problems of attitude measurement. Indeed, the peculiar features of attitude measurement have been so strongly stressed that it is well to remember that many of the problems of measuring attitudes are common to the measurement of other psychological variables. All measurement must be accurate and meaningful to be useful; this can be achieved by establishing reliability and validity, which are the most important qualities of an instrument (Summers, 1977).

Measurement is the assignment of numbers to observations according to some set of rules (Bohrnstedt, 1993; Summers, 1977). This is true whatever the phenomenon being observed, and it is the most common and acceptable definition of measurement. Attitudes are not open to direct observation. Their existence and their strength must be inferred from what is observable. One must therefore choose behaviours that are acceptable as bases of inference. Traditionally, self-reported beliefs, feelings and/or intentions to act

with respect to an object have been used as the primary basis of inference.

There are five major groupings of measuring instruments that have been cited in the literature to measure attitudes. For one, a measure in which the material from which inferences are drawn consists of self-reports of beliefs, feelings, behaviour, etc., toward an object or class of objects. Second, measures in which inferences are drawn from observed overt behaviour toward the object. Third, measures in which inferences are drawn from the individual's reactions to, or interpretations of, partially structured material relevant to the object. Fourth, measures in which inferences are drawn from performance on objective tasks where functioning may be influenced by disposition toward the object. Finally, we have measures in which inferences are drawn from physiological reactions to the object (Summers, 1977).

Not all of these measures have been used as attitude instruments in the formal sense. Nevertheless, for each of them there is reason to believe that attitude may be an important determinant of response and thus that the technique could serve as a basis for inference about attitude (Cook & Selltiz, 1977). Ajzen (2002) has classified the major techniques that have been developed to assess attitudes, or evaluative reactions, into methods based on explicit evaluative responses – direct and inferred – and methods based on disguised and implicit assessment techniques. In contrast to implicit responses, which cannot be easily controlled, explicit evaluative responses are under the conscious control of the respondent. Most explicit attitude measures either rely on direct attitudinal inquiries or infer the respondents' evaluations from their expressions of beliefs about the attitude object (Ajzen, 2002).

Attitude scaling has been developed largely in conjunction with self-report questionnaires. The measurement procedures typically employed with specimens other than self-reports are much less sophisticated and less powerful. There are, no doubt, many reasons for this development trend in attitude measurement, and the popularity of operationalism is a major influence. Related to that is the historical fact that attitude scaling was initiated by researchers with training in the tradition of psychological measurement, which depends heavily on self-reports (Summers, 1977).

Although attitude scales bear a superficial resemblance to questionnaires, they are actually closer to standardized tests, and as such will have undergone more rigorous development and evaluation of reliability and validity. There are several types of attitude scales, but the two most common are Thurstone and Likert scales, named after their authors. Louis Thurstone and Rensis Likert introduced two of the most important and enduring methods of attitude scale construction. Regardless of the more recent innovations, such as Guttman scaling, their methods remain in heavy use, and the discourse over the advantages of one vis-à-vis the other still continues (Seiler & Hough, 1977).

3.5.1 Thurstone's equal – appearing intervals method

Thurstone (1928) is the social psychologist who first created attitude-measurement methodology, when he published his well-known article “Attitudes can be measured” in the *American Journal of Sociology*. Therefore, he is considered to be the father of attitude scaling. Thurstone scales are practically unknown today, but were rare in their own day. The general procedure of the Thurstone technique is to have a group of judges rank opinion statements into a set of ordered piles. It involves defining and identifying the object, then making a pool of opinion statements, some positive, some negative, and some neutral. The judging group is not asked to respond to the statements in terms of their own agreement or disagreement with them, but rather to judge the degree of favourableness or unfavourableness expressed by each statement. These judgements are then used as a basis for determining scale values of the statements upon a psychological continuum. Once the scale values of the statements are known, subjects can then be asked to express their agreement or disagreement with the individual statements. Attitude scores for these subjects can then be obtained based upon the prior knowledge of the scale values of the statements (Edwards, 1957).

The judgment methods for constructing attitude scales differ only in the manner in which the judgments and scale values of the statements are obtained. They include the method of paired comparisons, the method of equal-appearing intervals, and the method

of successive intervals. These methods are briefly described in the following points:

1. Paired Comparisons. This method requires that attitude comparisons be paired in every possible combination. Since 20 statements will result in the judging of 190 pairs, this method is a lot of work and laborious.
2. Equal-Appearing Intervals. Judges sort statements one at a time on a range of extremely favourable to extremely unfavourable. It is much like Likert scaling, but neutral items are required to incorporate the entire spectrum of attitudes about an object.
3. Successive Intervals. This is an extension of the equal-appearing intervals scaling. It tries to statistically place items on a continuum instead of relying on subjective answers given by judges. It uses the number of times different judges rate a statement to develop the rank order for the scales (Edwards, 1957; Mueller, 1986).

Thurstone method devolved from the efforts of psychophysicists of the late nineteenth and early twentieth centuries to relate psychological judgments to physical continua, using the method of paired comparisons. Thurston's (1928) law of comparative judgment proposed the rationale for the placement of psychological stimuli along a continuum independent of any underlying physical order. This represented an important advance in the development of psychological measurement, in that the basis for the psychological continuum was no longer directly bound to physical sensations (Seiler & Hough, 1977).

As a direct outgrowth of these earlier efforts, Thurstone and Chave (1929) produced their classic work on the measurement of attitudes, in which they suggested a shorter and easier alternative to the method of paired comparisons. This simpler method is most commonly known as the Thurstone method, or the method of equal-appearing intervals. Even at the time Thurstone and Chave proposed it, however, they did not consider this procedure to be the ultimate in the construction of an attitude scale. They suggested that ideally, the scale would perhaps be constructed by means of voting only.

Thurstone's technique is arguably the oldest of attitude scaling techniques, when he, with co-operation with Chave (1929), published their article entitled "Attitudes can be measured". According to Thurstone, construction of an attitude scale can be summarized briefly in the following steps:

Specification of the attitude variable to be measured. Collection of a wide variety of opinions relating to the specified attitude variable. Editing this material for a list of about one hundred brief statements of opinion. Sorting the statements into an imaginary scale representing the attitude variable, about three hundred readers should do this. Calculation of the scale value of each statement. Elimination of some statements by the criteria of ambiguity and irrelevance. Selection of a shorter list of about 20 statements evenly distributed along the scale (Seiler & Hough, 1977, p. 139).

The practical application of Thurstone's measurement technique consists of presenting the final list of about 25 statements of opinion to the subjects to be studied together with instructions that they check with plus signs all the statements with which they agree and with minus signs all the statements with which they disagree. The score for each person is the average scale value of all the statements that he or she has endorsed. In order for the scale to be effective toward the extremes, it is advisable that the statements in the scale be extended in both directions considerably beyond the attitudes that will ever be encountered as mean values for individuals. When the score has been determined for each person by the simple summation just indicated, a frequency distribution can be plotted for the attitudes of any specified group (Krosnick, 1991).

Thurstone and Chave (1929) have devised two objective criteria to bear on the selection and allocation of the statements of opinion. These are the criterion of ambiguity, the Q-value, which is based on the degree of uniformity in the sorting of the statements, and the criterion of irrelevance, which is based on the consistency of the actual voting or endorsing. Based on their work on the attitude scale reflecting peoples' attitudes toward the church, they have formulated a list of informal criteria, which will be used in the construction of attitude scales. The statements in the final scale should be so selected that they constitute as nearly as possible an

evenly graduated series of scale values. They should also be unambiguous, which means that it is possible to eliminate those statements that project too great a dispersion on the attitude continuum. According to the irrelevance criterion, it is possible to eliminate those statements that are accepted or rejected largely by factors other than the degree of the attitude variable, which they portray.

Thus, Thurstone scales typically present the reader with a number of statements to which they have to respond, usually by ticking a true or false box, or agree, disagree, i.e. a choice of two possible responses. For example: The health services provided at this hospital are of the highest standard: Agree () Disagree (). People should avoid smoking if they want to remain healthy: Agree () Disagree (). Although these statements look simple, they will have been arrived at following a quite involved development phase. In the first stage of the development a large number of positive and negative statements are produced about the attitude object - this could easily run into hundreds. Next a panel of experts are asked to rate each statement on an eleven point scale where 1 = highly negative attitude and 11 = highly positive. The mean value of all the judges' ratings for each statement is then calculated to produce the scale value. Those items on which the judges cannot agree are discarded (Edwards, 1983).

We may now have a number of statements with the same scale value and a randomizing procedure can be used to select the statement to be retained in the final attitude scale. Thus, the final scale will contain items that cover the whole range of attitudes towards the attitude object, ranging from highly negative to highly positive. The respondent's attitude is measured using the scale values associated with items to which they respond. A high overall score thus indicates a highly positive attitude and vice versa for low scores.

To understand how Thurstone sets out to measure attitudes, one must look to the distinction he makes between attitudes and opinions. Thurstone (1946) asserts that an attitude is "the sum total of a man's inclinations and feelings, prejudice or bias, preconceived notions, ideas, fears, threats, and convictions about any specified topic, while an opinion is a verbal expression of attitude" (p. 40). In addition, while there may be distortions or incongruities be-

tween one's attitudes and how one expresses them as opinions, Thurstone concluded that the best way to measure a person's attitudes was to evaluate their opinions (Thurstone, 1928). We can relate Thurstone's conclusion with what normally happens in political leaders' press conferences. They state their opinions to the mass media, and their political attitudes could be inferred from evaluating their opinions.

The basis for Thurston's methodology lies in the construction of an attitude scale. For a specific opinion topic, he asserts there is a continuum ranging between two extreme opinions. In order to place an individual subject on the continuum, its limits and inner points must first be defined and scaled. This attitude scale construction begins with a large group of participants. The group is then asked to rate a list of 300 statements as to their degree of extremism on the subject topic. From these 300 positions, the researcher narrows the statements into 25 conclusive markers that specify increasing ranges of opinions. The first marker is extreme: Marijuana should be uniformly legalized. The last, or opposite, marker is equally extreme: Marijuana use should be punishable by death. The remaining statements are organized between the two extremes to complete the continuum. The researcher now has a tool for measuring individual subjects and comparing them to a widespread consensus (Edwards, 1983).

Thurstone would then present individual subjects with the 25 statements that correspond to the plots on the attitude scale. He would ask them to agree or disagree with the statements, and mark them negatively or positively. To calculate a person's score, one would average the corresponding score values of the statements they endorsed. The individual can be compared with a larger group, based on the attitude scale, and their attitudes plotted and estimated.

3.5.2 Likert's method of summated ratings

A second and more practical method of developing attitude scales is based upon direct responses of agreement or disagreement with the attitude statements. Since the response method does not require prior knowledge of the scale values of the statements in any exact sense, a judging group is not necessary. It is sufficient for the re-

sponse method if one can assume that the response *agree* to a statement indicates a more favourable attitude than the response *disagree* or vice versa (Edwards, 1957).

Rensis Likert (1932) followed in Thurstone's footsteps in self-reported attitude measurement. Likert believed that attitudes could be measured. He found fault, however, with the process of creating the initial attitude scale. One main problem Likert found with the scale construction was that the statements selected by the researchers were dependent on the reader's judgment, and therefore biased. Likert further argued that "the entire process of creating an attitude scale was exceedingly laborious and sought a quicker method to attain equally valid data" (Likert, 1932, p. 149). To update and streamline attitude measurement, each statement administered to subjects had scales themselves, and responses to these statements had scores that could be combined and measured (Likert, 1932). In order to certify that the questions were appropriate to measure attitudes, Likert emphasized some criteria in item selection; first, the item is an expression of desired behaviour rather than fact. Second, it should be clear, simple and straightforward, avoiding any kind of ambiguity. Third, the item should be designed so that responses lean to one side of the continuum. Fourth, items should be scattered randomly, and finally one idea or opinion should be involved in the item, which means always avoiding double-barrelled items (Likert, 1977).

After scoring the statement responses, the researcher could assemble a sigma score, or the converted percentage of individuals responding to a particular position. An even simpler calculation, using the "1 to 5 method", assigned values of one to five to the responses and could easily be averaged. Likert's method proved to be just as reliable as and much simpler than Thurstone's method (Seiler & Hough, 1977).

Likert-scales use a slightly different approach, which makes their development somewhat easier. Again a number of statements, both positive and negative, are produced, but in this case rather than asking for simple agreement or disagreement with the item, the respondent is provided with a range of possible responses. Thus, using the previous examples: The health services provided at this hospital are of the highest standard: strongly Agree, Agree, Unde-

cided, Disagree, Strongly Disagree. People should avoid smoking if they want to remain healthy: strongly Agree, Agree, Undecided, Disagree, Strongly Disagree. An appropriate scoring scheme is associated with each of the five possible responses, e.g. Strongly Agree = five, Agree = four, Undecided = three, Disagree = two, strongly Disagree = one. This could of course be reversed with the negative statements or items. The written scale may be replaced by a combination of both written and numerical. Thus, for example, People should avoid smoking if they want to remain healthy has the range of scale values from Strongly Agree to Strongly Disagree with the numbers from one to five in between.

Sometimes, if the researcher wants to avoid an undecided category, then they may choose to use an even number of choices, i.e. 4 or 6. To calculate the overall score, the scores associated with the responses made are simply added, and in the above examples, a high score would indicate positive attitudes and a low score negative. To decide on the final items to be included in the scale, statistical procedures, e.g. item analysis, are used to determine which items discriminate most highly and therefore should be retained, and which items have poor discrimination and can be rejected from the final scale.

For both the Likert and Thurstone scales, the reliability of the scales tends to increase with the number of items. However, as the number of items in a test increases, so the time taken to complete the attitude items will also increase and this may discourage the respondents. There is no absolute rule to determine the final number of items in a test and this will reflect the nature and complexity of the attitude being assessed. Generally, fewer than 20 items may reduce reliability unacceptably, but more than 30 will begin to demotivate the respondent (Nunnally, 1978).

In 1932, Likert reported what he thought to be a simpler method of attitude scale construction, one that used voting only. Since that time, a discourse has continued; whether or not the Likert method is an adequate or superior alternative to the Thurstone method. In the Likert technique, statements for the attitude scales are collected from different sources. Simplicity, clarity, and brevity of the attitude items are emphasized. The kind of questionnaire to be reported here falls into four main classes. In the first, questions are to

be answered by a yes or no. Next, there is a series of multiple choice questions in which one of five possible answers is to be selected. Third, there is a series of propositions to be responded to by the conceptions strongly approve, approve undecided, disapprove, and strongly disapprove (Seiler & Hough, 1977). Likert stressed that when trying to measure a person's attitude about something, it is easier to measure for tangible objects than for abstract objects. If we want to measure abstract objects, we must define them clearly, so the researcher and the subject will have identical objects in mind.

Next come two kinds of sampling problems. One kind is the ordinary problem of random sampling of people, and the other is the sampling of items. Having defined the universe of content and the population of people, and having drawn a sample from each, the next step is to observe each person in the sample on each item or question in the sample. In an attitude or opinion survey where a questionnaire is used, this involves having the people respond to each question of the questionnaire (Krosnick et al., 2005).

3.5.3 Semantic differential technique

The Semantic Differential measures people's reactions to stimulus words and concepts in terms of ratings on bipolar scales defined with contrasting adjectives at each end. An example of a semantic differential scale is: Good 3 2 1 0 1 2 3 Bad. Usually, the position marked zero is labelled neutral, the one positions are labelled slightly, the two positions quite, and the three positions extremely. A scale like this one measures directionality of a reaction like good-bad, valuable-worthless, pleasant-unpleasant and intensity (from slight through extreme). Typically, a person is presented with some concept of interest, e.g., vocational education, and asked to rate it on a number of such scales. Ratings are combined in various ways to describe and analyse the person's feelings (Heise, 1977).

Perhaps the most important general contribution of this technique is the provision of a single attitude space for all stimuli. This permits analyses, comparisons, and insights that were virtually impossible with other traditional instruments. The semantic differential is the simplest, and easiest to administer, of the landmark attitude measurement techniques. The semantic differential is the

foundational technique used most often in research today, but it is typically administered by not following the Osgood procedure. Instead, the horizontal line is presented with no labels on any points except the end points, and these end points are not labelled extremely (Krosnick et al., 2005).

3.5.4 Scalogram Analysis - Guttman's method

Scalogram analysis, which is well known as the Guttman scale or a cumulative scale, differs considerably from the methods of constructing attitude scales that we have previously described. In one sense, Scalogram analysis is not a method for constructing or developing an attitude scale, although it has been referred to as such in the literature. In practice, Scalogram analysis can perhaps be most accurately described as a procedure for evaluating sets of statements or existing scales to determine whether or not they meet the requirements of a particular kind of scale, set forth in some detail by Guttman (1950).

The basic notion of the Guttman or cumulative scale is that an internal relationship exists among the items forming the scale such that a person who endorses or agrees with an item of a given scale position will endorse all items below it in the scale. If it is known that a person endorsed three items of a four-item scale, it is also known which three items he endorsed. Likewise, all individuals endorsing only three items will endorse the same three. Thus, it is possible to order individuals into relative categories or positions defined by the position of the items endorsed. Of course, these qualities of the Guttman scale deteriorate as the internal consistency decreases (Edwards, 1957). In this technique, the rank order of the items should be predicted before the data are examined. The most difficult (or least favourable) item should be assigned rank 1, the second most difficult, rank 2, and the least difficult, rank n . In this way, confidence in a scale is increased to the extent that the prediction of the rank order of items is supported by the data.

In Scalogram analysis, the initial steps are common to all techniques. First, the universe of content to be studied is defined. In an attitude or opinion study, this means deciding on the general content of the questions to be asked. Second, the population of people is defined. In an attitude or opinion survey, this means that the

class of people to be interviewed is delimited. In Scalogram analysis, we have two sampling problems. One is the ordinary problem of random sampling of people, and the other is the sampling of items. Many fewer people can be used in a pre-test than must be used in the final survey, but fewer items can be used in the final survey than must be used in the pre-test (Guttman, 1977). The chief reason for the wider applicability of Scalogram analysis is its unique feature that permits the scaling of subjects and stimuli simultaneously (Summers, 1977).

Louis Guttman developed a testing method to be more specific than either Thurstone's or Likert's tests. The Guttman scale stresses unidimensionality. The purpose of Guttman scaling is to establish a one-dimensional continuum for a concept you wish to measure. What does that mean? Essentially, we would like a set of items or statements so that a respondent who agrees with any specific question in the list will also agree with all previous questions. Putting it more formally, we would like to be able to predict item responses perfectly knowing only the total score for the respondent. For example, imagine a ten-item cumulative scale. If the respondent scores a four, it should mean that he/she agreed with the first four statements. If the respondent scores at eight, it should mean he or she agreed with the first eight. The object is to find a set of items that perfectly matches this pattern.

In practice, we would seldom expect to find this cumulative pattern perfectly. Therefore, we use Scalogram analysis to examine how closely a set of items corresponds with this idea of cumulativeness. Each response is considered less positive with a greater number. A respondent who selects 2 should agree with all scores lower than 2 (both 1 and 2) and disagree with all 3, 4 and 5. The test assumes that a subject on the attitude continuum must agree with all positions below his position and disagree with all positions above his position. Whereas Thurstone and Likert find averages of scores that provide a broad interpretation of a given attitude, scores on Guttman's scale are designed to be specific. Guttman sought to narrowly isolate positions on the attitude scale. If a set of statements with a common content is to constitute a Guttman scale, then an individual with a higher rank (or score) than another individual on the same set of statements must also rank just as high

or higher on every statement in the set as the other individual. In the case of attitude statements, we might say that this means that a person with a more favourable attitude score than another person must also be just as favourable as or more favourable in his response to every statement in the set than the other person. When responses to a set of attitude statements meet this requirement, the set of statements is said to constitute a one-dimensional or unidimensional scale (Edwards, 1957).

Previous presentations have reviewed the various methods that have been used in the construction of attitude scales: the method of equal appearing intervals developed by Thurstone, the method of summated ratings developed by Likert, and the method of Scalogram analysis developed by Guttman. The method of equal appearing intervals and the method of summated ratings are similar in that both provide techniques for selecting a set of items from an initial large number of items, which constitutes the measuring instrument. Scalogram analysis differs from these two methods in that it is concerned with the evaluation of a set of items, after the items have been selected in some fashion or another (Edwards & Kilpatrick, 1977).

3.6 Conclusion

It is quite difficult to give an ultimate idea or conclusion to the historical and theoretical development of a sophisticated interdisciplinary area like attitude theories and measurement, especially when you run a search for the term *attitude* in the American Psychological Association's comprehensive index to psychological and related literature. There is an impressive number of contributions and tremendous literature in the journals of psychological measurement, educational measurement, psychology, sociology, political science and others dealing with attitudes and attitude measurement.

Some of the articles in these journals have focused on the comparison of attitudes of members of different groups. Others have reported upon the way in which attitudes are developed in young children. The interest of some writers has been in the theory and nature of attitudes and in the way in which attitudes are defined. Others have investigated and reported upon the problem of attitude change, the manner in which new experiences modify existing

attitudes. Still others report upon the relationship between attitudes and other variables such as personality traits and level of intelligence. The influence of attitudes upon such psychological processes as learning and remembering, perception, reasoning and thinking has also been investigated in some detail. Another major area of interest in attitudes concerns the methods by which attitudes might be measured (Edwards, 1983).

The previous review of attitude theories, conceptualization, and structure has indicated the importance of the evaluative characteristic in the structure and formation of attitudes as a psychological construct or concept. The contemporary view of attitude, which is a general evaluative summary of the information derived from the bases of cognition, affect, and behaviour, is more convincing than the traditional three-component structure. Therefore, the conclusion from the previous literature is that while attitude is an evaluative summary of some object, an attitude is still based on the three psychological foundations that are cognitive, affective, and behavioural. Attitude formation and change is an ongoing process during our life span, and it is a mental activity to evaluate all types of attitude objects whatsoever in our daily life. The attitude-object evaluation process must be based on the aforementioned psychological foundations of attitudes.

In this chapter, we have also been concerned with the attitude measurement techniques, and to give a brief presentation of them. A variety of methods is available for the assessment of attitudes. Schibeci (1982), in a review of the research on attitudes to science, noted that the following methods had been used to assess attitudes: differential (Thurstone) scales, rating scales, summated rating scales, semantic differential scales, interest inventories, preference rankings, projective techniques, enrolment data, and anthropological observation. The most popular of these methods has been the summated rating method generally known as the Likert scale. Studies found that Thurstone scales were not significantly better than Likert scales in establishing intervalness, and it was also found that many statistical procedures were robust in the face of moderate departures from the assumption of intervalness. With these findings, the complicated and costly Thurstone procedure fell into disuse (Fabrigar et al., 2005).

In view of the fact that the Likert method of attitude scaling when compared with the Thurstone method gave evidence of yielding the same reliabilities with fewer items, or higher reliabilities with the same number of items. Generally, Likert found that the Likert method of scoring produced a higher reliability than the Thurstone method of scoring for the same scale. He explained this by noting that in the Likert scoring procedure, each statement becomes a scale in itself. He also found that the two methods of scoring the same scale were highly correlated. This high correlation indicates that one method of scoring is as valid as the other (Seiler & Hough, 1977).

Attitude scales, used in the measurement of attitudes, have proved to be useful in a variety of research problems. When a research worker is interested in measuring the attitudes of a large number of individuals, as in the case in this research, he may find that there is no available scale suitable for his purpose. It thus becomes necessary for him to construct his own scale. In such a situation, the difficult task before the researcher is to think thoroughly and intuitively about the selection of attitude scaling techniques and the number of scale points for his own purposes. He might take into consideration the advantages and limitations of the selected technique. Therefore, Likert scaling technique has proved to be a successful and useful technique not only for psychometrical and methodological reasons, but also for practical and economic reasons as well.

Likert's scaling technique is more reliable and valid than Thurstone's technique when using the same number of items or equally reliable and valid than Thurstone's technique when using fewer items. Likert scaling is a method of assigning numbers to a statement or assertion in order to measure a person's attitudes, which is more suitable and practical in this piece of research than the other scaling methods. The other critical issue here is the number of scale points used to elicit responses to the attitude items. Previous research in attitude measurement about the optimal number of Likert's scale points has indicated that Likert's five point scale has better psychometric properties in terms of item and scale reliabilities and validities than three, seven, or other numbers of scale points (Krosnick et al., 2005).

4 REVIEW OF RELATED LITERATURE

This chapter is a presentation of the findings of the previous empirical related research about students' attitudes towards vocational education. Computer search has been carried out for related literature within such famous databases as ERIC, PSYCHOINFO, and EBSCO. Therefore, in this chapter I have tried to present the main findings of the previous empirical research about attitudes towards vocational or technical education.

In the United States, Black (1976) investigated students' attitudes toward vocational education. The objectives of the study were to determine: (1) the basic dimension of educational and career-related attitudes of black inner-city junior high school age students, and to compare these attitudes to those of their white counterparts, (2) how attitudes were related to the preference of educational programs expressed by these students, and (3) whether the public image of vocational education as perceived by these students was different from that of other programs. The attitude survey was given to male ninth-grade inner-city students in the public school system of Baltimore, Maryland. The findings imply that vocational education does not suffer from a poor public image in the socio-economic levels studied, and that black students do not hold substantially different attitudes toward work and education than do white students.

In Germany, Sube (1981) investigated the influence of parents and friends in choosing a career in East Germany. Data indicated that the influence of parents and friends is of major importance for over 50 percent of young people in choosing a career, with parents' influence (about 34%) the decisive variable. Social institutions such

as agricultural enterprises and centres of vocational guidance influenced career choices of more than 40 percent of young people and other state institutions. Children of cooperative farmers are more inclined to choose a career and see social prospects in agriculture than children with a different background. It is important to concentrate advertising in favour of agricultural occupations for children and youth in rural areas.

Also, Gilliland (1967) investigated attitudes of slum dwellers and suburbanites toward blue-collar occupations and vocational education. The study sought to (1) ascertain the attitudes of educators, students, and parents in slum, suburban, and cross-sectional areas, toward blue-collar occupations and vocational education, (2) identify significant differences between attitudes of groups with union and non-union backgrounds and (3) identify any existing relationship between general intelligence and attitudes toward vocational education. It was found that educators had the most favourable attitudes, parents slightly less, and students the least favourable attitudes. The cross-sectional parents and students had the most favourable attitudes, while academic teachers and administrators had slightly less favourable attitudes than did practical arts teachers. Union respondents had more favourable attitudes than non-union respondents did, and it appeared that people with higher general intelligence tended to have more favourable attitudes than those with lower intelligence.

Saavedra (1970) indicated that the increased rise of technology is rapidly building the image of vocational education as a legitimate endeavour of public education. The poor esteem in which vocational education had been held results from the combined attitudes of students, parents, and educators, and is especially evident among minority groups because of its second-class status. Data drawn from a vocational technical institution in New Mexico indicated that the number of high school youths choosing vocational education does not differ significantly with regard to ethnic characteristics.

Rossetti (1990) conducted a study, to identify reasons why high school students choose not to enrol in a vocational curriculum. Data were collected via questionnaires sent to all 11th graders in 5 schools selected randomly in south-western Ohio. Some of the

findings indicated that 60 percent of the sample was enrolled in an academic curriculum, whereas 40 percent were in a general curriculum. White male students from a higher socio-economic status and in an academic curriculum had the most negative images of vocational education. Major reasons for not enrolling in vocational education included did not have what I'm interested in, want to go to college, and scheduling problems. Reasons for not enrolling in vocational schools included the need to prepare for college, not thinking about it, lack of ability to participate in extracurricular activities in their home school, and a negative image of the vocational school in their community. Half the sample had a neutral attitude toward vocational education and the other half had a more negative attitude toward it. Mothers were most influential in decisions not to enrol in vocational education, followed by friends, siblings, and teachers.

In view of the steady decline in vocational enrolments since 1979, Rossetti (1989) conducted a study to identify factors that influence students not to enter into a high school vocational curriculum. The top five reasons why students choose not to participate in vocational education were: (1) the belief that academic programmes would better prepare them for college, (2) they never even thought about vocational education, (3) they did not wish to take the vocational programmes offered, (4) they felt vocational education would keep them from participating in extra curricular activities in their home schools, and (5) joint vocational schools had poor images in their community.

For a cross-cultural comparison of curriculum and career decisions made by high school students in vocational programmes in Taiwan and the United States, a random sample of high school students enrolled in vocational education in Taiwan, and 19 schools in selected states in the United States, were mailed a self-administered questionnaire. Responses were obtained from 745 U.S. students and 1477 Taiwanese students. Comparisons were made regarding curriculum choice, career choice, and prospect of employment upon graduation, attitude toward continued education and training, and work experience. Some of the significant differences found between the two sample groups included the following. First, Taiwanese students said that interest and desire to work

with technical subjects were two major reasons for their curriculum choice, whereas U.S. students listed ability to succeed and seeing a good future as their main reasons for curriculum choice. Second, Taiwanese students perceived more influence from parents and relatives than did U.S. students in making career choices. Third, teachers and parents had the most important influence on career choice for the Taiwanese students, whereas U.S. students relied on information and advice from counsellors and others more than from parents in making career choices. Fourth, U.S. students also looked for employment opportunity information when they were making their career choices. Finally, U.S. students desired high initial wages, and Taiwanese students desired creative and challenging jobs. The study confirmed that environment and culture are the main factors that influence students' perceptions, expectations, and career choices. This study also indicated that the influence of background variables on students' perceptions is different among different cultures (Wolansky & Kang, 1991).

Fife-Schaw, Breakwell, Lee, and Spencer (1987) suggest that it seems likely that attitudes towards technology and work will play an important role in peoples' motivations for training, and yet these have received little empirical study. They found from a survey of university students' attitudes towards technology that the content of school Diploma courses may influence later attitudes to a greater degree than might have been expected, particularly in relation to evaluations of the environmental consequences of technological advances.

The effects of a two-year technology course on students' attitudes towards technology and industry were studied (Allosop, 1986). The experiment group consisted of all those opting to take the two year course leading to an external examination, and the control group consisting of those not choosing technology was matched as closely as possible by sex, ability and pattern of other subjects being studied. The age range for both groups was 14-16 years. The main results are first, there were significant differences between the attitudes of boys and girls on all four subscales, with boys having consistently more favourable attitudes. Second, there appears to be a connection between opting for technology courses and favourable attitudes to all the other aspects. Third, the major-

ity of students felt uninfluenced in their option or decision regarding the technology course, but the most common influences cited were parents and career interests.

Parents' profession has little effect on the attitude towards technology. Walters (1989) investigated attitudes of Dutch pupils' aged 10 to 18 with a random sample of 2050 pupils. The main conclusions indicated that boys have significantly more positive attitudes towards technology than girls do. Pupils with technical ambition have a significantly more positive attitude towards technology than pupils without technical ambition. Pupils with a positive technical self-concept have a significantly more positive attitude towards technology than pupils who do not have a positive technical self-concept. Pupils with a technical home environment have significantly more positive scores on the scale interest, school and career, and a better score on the scale society, than pupils with a non-technical home environment. There is no significant difference between pupils of higher and lower types of education; pupils of technical types of training have a significantly more positive attitude towards technology than pupils from non-technical types of training. There is a positive, but not significant, relation between teachers' attitude towards technology and the class attitude towards technology. The attitude towards technology is rather stable among age groups. Attitudinal differences between boys and girls at the age of 10 -12 are as large as at the age of 16 -18.

Bergh (1987) carried out a small-scale study among 234 French pupils (122 girls and 112 boys) between 13 and 15 years of age from the second form of secondary general education. The purpose of the study was to gain information about the validity and reliability of the attitude scales, and to describe the attitudes towards technology and investigate the possible influence of some background variables on the attitude towards technology. The independent variables were gender, parents' level of education, parents' professions, family situation, the use of toys in childhood, influence of parents on motivation for school, pupils' self-assessment and self-concept, and place of residence (rural or urban). Gender is the only independent variable in this study that correlates significantly with the scores on the attitude scales. Boys were more positive than girls on the AB scales (interest, curriculum, and career) and better

on C scale (society and science). Girls scored more positively than boys did on the scale role pattern (Bergh, 1987).

Survey studies in Poland were conducted among 13 to 14 year olds (elementary school) and among 16 to 17 year olds (high school) by Dudziak and Szydlowski (1987). No significant differences were found on the attitude scales for the two age groups. The scale scores point at neutral attitudes towards technology. The school profile appears to have an effect on the scores, with students from the physics / mathematics profile having a more positive attitude. Gender appears to be even more important than school profile. Parents' profession appears to have no effect on the scores.

Rajput (1988) carried out a survey study in India; the study concerned attitude research among 1167 pupils 16 years old in the state of Madyha pradesh. The main goal of the study is a projection of gender and social setting over attitudinal differences to technology. With the independent variable social setting is meant the rural and urban environment in Madyha pradesh. Gender and social setting have a minor effect on the attitude towards technology. In Rajput's opinion, the technological movement virtually revolutionised the entire Indian social spectrum.

Walters (1989) indicated that gender is an important variable that western countries have in common for the explanation of differences in attitude. Both in an affective and in cognitive sense boys have a more positive attitude than girls towards technology.

Ghanini (1994) has investigated the attitudes of a stratified random sample of 320 tenth-grade students towards vocational education in public schools in Madaba district in Jordan. The variables gender, location, parents' level of education, and parents' jobs were tested in relation to attitudes toward vocational training, using a Likert-type scale. Results showed that there was a considerable positive attitude among students toward vocational education. No significant relationships were found between the independent variables. In addition, parents' level of education and their jobs had no significant influence on the attitudes of their children toward vocational education.

Rojewski and Sheng (1993) compared perceptions of 204 African-American and White students (grade 9-12) toward secondary vocational education and revealed that students formed percep-

tions toward these programs from a multidimensional perspective. Generally, African-American female students held positive perceptions whereas African-American male students held negative perceptions toward vocational education programmes. Vocational education has the potential to help students develop entry-level, career-sustaining employment skills and obtain prerequisites needed to pursue postsecondary education. Vocational education, however, has often been stigmatized as an institutional dumping ground, a second-class educational alternative, and a dead-end curriculum for non-White minority students with no other educational or career options. Historically, some have interpreted the vocational education movement as a scheme by empowered elite (i.e., wealthy business leaders) to ensure permanence of the existing social order. It is important to investigate the perceptions of African-American students toward secondary vocational programmes for several reasons. For example, the changing demographic composition of the work force is creating new challenges for the society. Vocational preparation and training for a growing non-White minority population are critical, especially when one considers current employment-related situations.

Mckenna and Ferrero (1991) explored how 9th-grade students, in the United States choose careers, their attitudes toward vocational education, and whether or not they would consider enrolling in a non-traditional vocational education programme. Results from 5937 student surveys indicate the same-sex parent as the primary source of career information. The non-traditional occupations listed in the survey did not appeal to most students. It is concluded that non-traditional vocational education is still not widely accepted.

The Ministry of Education in Jordan (1993) investigated the factors that influence tenth-grade students' choice of secondary school type. This investigation had showed that the main factors behind student's choice are ranked according to availability of job opportunity, then students' desire, expectation of high income, and students' achievement. The other factors are parents, brothers and sisters, teachers, classmates, friends, prevocational education subject, mass media, and vocational school reputation. The first suggestion made by students from vocational schools is that students must

have free access to study at academic school without restriction by their achievement at the basic school.

Conclusions

Review of empirical research has indicated various and different results. Previous empirical investigations in different cultures and countries have used different methodologies to investigate attitudes towards vocational or technical education. Therefore, some conclusions emerge from the previous empirical research, which can be summarised in the following points.

1. Most of the literature indicated less favourable attitudes towards vocational or technical education (Gilliland 1967; McKenna & Ferrero, 1991; Saavedra, 1970).
2. The influence of some background variables on students' negative attitudes are; mothers (who were most influential), then friends, siblings, teachers, fathers' occupation, and centres of vocational guidance. Parents' profession has little effect on the attitude toward technology (Rossetti, 1990).
3. Boys have more favourable attitudes towards vocational / technical education than girls (Bergh, 1987; Walters, 1989), but girls hold positive perceptions toward vocational education, whereas boys hold negative perceptions (Rojewski & Sheng, 1993).
4. Male students from a high socio-economic status have most negative images of vocational education (Rossetti, 1990).
5. Students' desire to prepare for college or university study has resulted in the negative image and poor esteem of vocational education, while academic education is more valued.
6. Different countries or cultures revealed different relative importance of parents, relatives, teachers, counsellors, and employment opportunity for curriculum choice.
7. School profile has an effect on attitudes, but students with an academic profile having a more positive attitude. Gender is more important than school profile. Parents' profession has no effect on attitudes (Szyellowski, 1987).
8. Gender and social setting have a major effect on the attitude towards technology (Rajput, 1988).

9. Parents' level of education and their jobs had no significant influence on the attitudes of their children (Ghanini, 1994).
10. Vocational education is not widely accepted, and vocational school has a negative image in the society (Mcenna & Ferrero, 1991; Rossetti, 1990).
11. People with higher general intelligence tend to have more favourable attitudes towards blue collar occupations and vocational education than those with lower intelligence (Gilliland, 1967).
12. The poor esteem and poor image of vocational schools results from the combined attitudes of students, parents, educators, and the society (Rossetti, 1989; Saavedra, 1970).

Some of the results contradict one another. This contradiction is due to many reasons; among them are the differences in the instruments used to measure attitudes and the data collection procedures and sampling. It may also be due to the differences in the cultural and societal values in the different environments. There are many variables or factors, in the whole picture, behind the formation of students' attitudes. Some of them have a direct relationship with students' attitudes, like parental influence, while others have an indirect relationship like societal attitudes. Nevertheless, the picture is still vague about the relative influence of each variable. Therefore, the present study tried to investigate many background variables in order to find out which of them best explain the differences in students' attitudes towards vocational education.

Home, school, and the wider society all have their part to play in the inculcation of students' attitudes. Fortunately, attitudes are not innate but are learned; what form they will take is not determined at birth or earlier but depends on the environment in which the child grows up and the treatment she or he receives (Evans, 1965; Macmillan, 1980).

5 METHODOLOGY

This chapter is a presentation of the methods used to collect data and material for the explorative and empirical studies. First, selection of participants, data collection and analysis of the explorative study is presented. Second, population and sampling, instrument development, fieldwork and data collection, study variables, research design and data analysis of the empirical study are presented.

5.1 The explorative study

5.1.1 Selection of participants

Participants in the explorative study were fifteen policy makers, each of whom has work experience either as a teacher, supervisor, school principal, or school counsellor, and most of them are parents of students. They have various educational, social, economic and professional backgrounds, and thus constitute a heterogeneous group suitable for a descriptive study. Hence they are considered capable of giving insightful and informative answers to the interview questions in terms of the societal attitudes towards vocational education in Jordan. They have been interviewed in their offices. Each interview took approximately 30 minutes. The interview questions are presented in Appendix 2, and the answers to these questions are presented in Appendix 3.

This study has served two purposes. First, it is an explorative study of the way decision makers see or perceive vocational education and students engaged in such education. Second, it becomes an important source of item construction in the process of questionnaire development for the empirical study.

5.1.2 Data collection

Open-ended interview questions have been developed and used to investigate the societal and environmental context behind students'

attitudes and their selection of secondary education. The interview questions were developed after a critical review of policy documents and many discussions with many people including parents, students, school principals, and policy makers. The interviews were carried out in the interviewees' offices, and the researcher wrote their answers on separate papers for each interview. Before the interview session was over, the written answers were given to the interviewee to read and confirm that everything said was transcribed and the answers were complete. The interview questions are:

1. What are the factors that determine tenth-grade students' attitudes towards vocational education?
2. In the long run, do you believe that vocational education is more profitable or feasible than academic education? Please explain.
3. Do you believe that the majority of tenth-grade students have negative attitudes towards vocational education? If so, why?
4. At the government level, what decisions have been taken, and what are the government decisions you believe have to be taken in order to encourage tenth-grade students to enter vocational education?
5. What are the historical roots you believe have contributed to the perceived image of inferiority of vocational education?
6. What are the prevailing values in the Jordanian society you believe have contributed to the formation of students' negative attitudes towards vocational education?
7. Do you have any further suggestions or comments?

5.1.3 Data analysis

Analyses of the answers of the interview questions were conducted after all the interviews have been finished. The process of analysis was based on the following sequence. First, the researcher read all the responses several times in order to acquire insightful knowledge and comprehend the deep meanings of the information given. Second, the researcher categorized the answers to each question in different groups. Third, each group of answers for each question was analysed and interpreted qualitatively in order to discover the main themes and the implied meanings behind the responses given to the issues raised in the questions. The analysis process was focused on

the main ideas in the responses. There was some recurrence among the responses to the interview questions, and therefore these responses were written only once. Then, the researcher translated the responses into English. The underlying themes or factors behind the responses were extracted. The interview responses were also used as one of the sources to create a large pool of attitudinal items, which is considered as the first step in the developmental process of the attitude instrument of the empirical study. Results extracted from the explorative study are presented in the results chapter.

5.2 The empirical study

5.2.1 Population and Sampling

In Jordan, three main authorities take part in general education. These are the Ministry of Education, the United Nations Relief and Work Agency (UNRWA), and private education. The relevant students' percentages of these authorities are: 72.1 percent, 9.6 percent, and 18.3 percent respectively. Vocational education is only available at government schools. Therefore, tenth-grade students at the government schools, which are mainly owned by the Ministry of Education, comprise the population from which a stratified cluster random sample has been selected. The main demographic characteristics of this population are gender (male and female) and area of residence (urban and rural). The population consists of tenth-grade students from 28 departments of education distributed all over the country. For practical and economic reasons, these departments have been divided into three groups: north (10 departments), middle (11 departments), and south (7 departments). Table 5.1 shows the number of tenth-grade students in each region for the school year 2002-2003.

Table 5.1

Population of tenth-grade students

Gender	Male	%	Female	%	Total	%
Region						
North	13459	34.31	13146	33.01	26605	33.65
Middle	21327	54.37	22222	55.79	43549	55.09
South	4442	11.32	4461	11.20	8903	11.26
Total	39228	100	39829	100	79057	100

Seven out of twenty-eight departments have been selected randomly from the three regions: the names of all the departments were written on a small piece of papers and divided into three groups. Then, I have asked my eldest son (five years old at that time) to select randomly two departments from the north, three from the middle, and two from the south. Then 2000 questionnaires (1000 for males and 1000 for females) were given to students in the three regions according to their relative percents as represented by Table 5.2

Table 5.2

Sample of the empirical study

Gender	Male	Female	Total
Region			
North	343	330	673
Middle	544	558	1102
South	113	112	225
Total	1000	1000	2000

Schools were randomly selected from each department according to their percentage in the population. Also, classes were selected in each school randomly. Therefore, class was the unit of selection, and the sampling procedure is a multi-stage stratified cluster random sample. Some questionnaires have been omitted because stu-

dents either did not answer the questionnaire or were simply careless. The missing data defined this way is 39 questionnaires, which is less than 2 percent of the sample. The valid number of correctly completed questionnaires is 1961. There are nearly equal numbers of males (962) and females (998) in the sample. Also, there are 573 students living in rural areas, 1352 students living in urban areas and 39 missing data. The percents of urban and rural students (in the sample) are approximately the same as in the population (Statistics Department, 2002). Sample size was considered sufficiently large enough, due to the many background variables included in the analysis and for the purpose of factorial analysis as well.

Students' participation in the study was voluntary. They were kindly asked to cooperate and answer the questionnaire in their normal classroom situation. They took nearly one hour to complete the questionnaire. Teachers and school principals were cooperative.

The sampling procedure, in this way, reduces the random sampling error, since the characteristics of the population on which stratification is based are known. In addition, stratification can ensure that each sub-division of the population is adequately represented in the sample (Stopher & Meyburg, 1979). All the variables under investigation have also been represented.

5.2.2 Development of the attitude scale

Guttman (1977) indicated that a basic concept of the theory of scales is that of the universe of attributes. In social research, a universe is usually a large class of behaviour. The universe is the concept, whose scalability is being investigated, like marital adjustment, opinion about migration, knowledge of arithmetic, attitudes towards vocational education and so on. The universe consists of all the attributes that define the concept. Another way of describing the universe is to say that it consists of all the attributes of interest to the investigation with a common content, so that they are classified under a single heading that indicates that content (Crocker & Algina, 1986).

Construction of attitude scale items is a lengthy and tedious process, especially when it comes to writing good attitude items that validly sample the various manifestations (dimensions) of the atti-

tude frame of reference, in this research, students' attitudes towards vocational education. Obviously it is very clumsy to record the large number of observations ordinarily involved in a universe of attributes for a population of individuals, even if it is possible to do so. Therefore, a group of tenth-grade students were asked some open-ended questions in order to capture a universe of attributes for the sake of investigation of their attitudes towards vocational education. These questions are: What is your opinion about vocational education? What beliefs do you have about vocational education? How do you feel about vocational education? Would you like to enter a vocational school? Why or why not?

Students' responses to the previous questions were analysed and have been used as the main source in the construction of a large pool of items. Then, the items have been scrutinized, edited according to the rules of good attitudinal items established by Edwards (1957), who suggested that statements be written in a clear, simple, and direct manner. This criterion was followed most easily by avoiding the use of compound, double-barrelled, or complex items. This process produced 44 items. Each item has been phrased carefully to avoid ambiguity.

The next step involved is that a group of tenth-grade students were asked to give their opinions for each item in terms of its relevance and clarity. In addition, some experts in education and psychology were asked to review these 44 items in terms of their relevance and clarity as well. According to the students' judgments and experts' comments, some items were omitted, others were modified and some others were replaced. After this screening process 38 items were left, about half of them positive (21 items) and the other half negative (17 items). This is a recommendation usually cited by psychometricians to offset the acquiescence response set or expressive style (Cook & Selltiz, 1977).

Acquiescent behaviour can be defined as endorsement of an assertion made in a question, regardless of the content of the assertion (Leech, 1983). In theory, there are many explanations for this behaviour. Among other things, it could result from a desire to be polite rather than confrontational in interpersonal interactions, or from an inclination to satisfy rather than optimize when answering questionnaires (Krosnick, 1991; Krosnick et al., 2005). It is also a

requirement cited by Likert (1932) that curbs responses on the part of the subjects. The whole process has established the content validity of the instrument as long as the items have been extracted from students' responses to the open-ended questions. Students' responses reflect their evaluative beliefs, feelings, and behavioural intentions towards the attitude object. This is consistent with the contemporary view of attitudes as a general evaluative summary based on cognition, affect, and/or behaviour (Fabrigar et al., 2005). The 38-item instrument thus constructed represents proportionately the various manifestations of the attitude construct.

Empirical evidence of the other aspects of validity was established through statistical analysis of the data. Item total correlations provided evidence of criterion-related validity, and they also indicated high item discrimination indices as well. Item total correlations indicate whether the item assesses the construct that the other items shared or not. When the item total correlations are high, at least more than .30, the reliability and validity indices will also be high, indicating better attitude items. Results of factor analysis provided evidence of factorial validity. Other item and scale characteristics, like items means, standard deviations, corrected item total correlations and Cronbach's Alpha if item deleted, have been calculated and presented.

5.2.3 Fieldwork and data collection

The interview questions, which were developed and used to investigate the societal and environmental context behind students' selection of secondary education, have been considered the first step in the field work and data collection procedure. These questions were developed after a critical review of policy documents and discussions with people from the Ministry of Education and other policy makers. The questions are presented in the data collection part of the explorative study.

The researcher wrote responses to the interview questions. There was no time limit for the interviews, and the participants were serious and cooperative. Responses were analysed, reclassified and discussed to identify some recurrent basic themes. Responses were also one of the sources for writing a large pool of attitudinal items. The results from the explorative study are supposed to integrate

and support the results from the statistical or empirical study as well.

A self-report questionnaire was also prepared for data collection of the empirical study. The questionnaire consists of two parts; in the first part you find questions about students' and their families' background variables, and in the second part the attitude scale items. Regarding the scale items, the scoring procedure of positive attitude items is 5 for strongly agree, 4 for agree, 3 for undecided, 2 for disagree, and 1 for strongly disagree, while the opposite scoring procedure applies for the negative items. Data for the empirical study were collected from a representative multi-stage stratified cluster random sample of tenth-grade students. A timetable for data collection was set during May 2003 in the second half of the spring semester. Data were entered into the computer as an SPSS data file.

5.2.4 Study variables

Review of related research has indicated that previous empirical research has investigated some of the background variables within different cultures and school systems. In this empirical study, the idea has been to investigate most of the background variables to find out how they best explain students' attitudes. These variables are: Gender, Area of residence, Mothers' level of education, Fathers' level of education, Mothers' occupation, Fathers' occupation, Family size, Family income, Students' achievement at eighth, ninth, and tenth grades (GPA), Students' achievement in Math, Science, Arabic and English languages in tenth grade, Parents' preferences (as measured by what type of secondary education they want their children to join), Students' ambitions as measured by their intention to continue their study at the university or not, Parents' aspirations as measured by their encouragement to their children to continue their study at the university, to study medicine, engineering, and law.

5.2.5 Research design and data analysis

The research design of the empirical study is based on the model in which the background variables are independent variables or predictors, and the 26-item attitude instrument as well as its three

subscales is the dependent variables. Stepwise multiple linear regressions have been used to investigate and estimate the prediction of students' attitudes from background variables. In other words, how much variance is explained in the dependent variables, that is attitude variables, by the independent or background variables? Item and reliability analyses have produced an attitude instrument of 26 items, whereas factor analyses have explored and unveiled the dimensionality of the attitudinal space, which produced three clean factors or dimensions comprising the 26-item attitude instrument.

Means and standard deviations of students' attitudes on the attitude instrument, as well its three subscales, were used to acquire knowledge about students' attitudes towards vocational education. With respect to the third aspect of the research problem, that is the attitude behaviour relationship, t-test was used first to show whether the vocational and academic groups of students differ significantly in their attitudes. Second, Pearson correlation coefficients, Eta and Eta-squared correlation ratios were calculated and used to show and explain the attitude behaviour relation. Eta squared is the percent of variation between groups, which is the valid variation in the dependent variable (students' behaviour), associated with the independent attitude variables. Eta squared is the sum of between-groups squared deviations divided by the total squared deviations.

Third, a series of logistic regression models were also run to predict students' behaviour from their attitudes. Logistic regression, which is considered a powerful statistical tool, is a different type of regression that can be used when the dependent variable (student's behaviour in this study) is a dichotomy and the independents are of any type. It is used to determine the percent of variance in the dependent variable explained by the independents (Moore & McCabe, 2005).

The success of the logistic regression can be assessed by looking at the classification table, showing correct and incorrect classifications of the dichotomous, ordinal, or polytomous dependent. Moore and McCabe (2005) stated clearly that

In applications of logistic regression, it is standard to use 95 percent for the confidence coefficient. The confidence interval

gives us the result of testing the null hypothesis that odds ratio is 1 for a significance level of .05. If the confidence interval does not include 1, we reject the null hypothesis and conclude that the odds for the two groups are different (pp. 9-10).

A series of hierarchical multiple logistic regression analyses have been carried out. But first, correlations between all the independent variables, including the attitude variables and students' behaviour variable, were calculated to find out which variables are significantly correlated with students' behaviour (the dependent variable). Then a series of logistic regressions were carried out to investigate the relationship between attitudes and behaviour. In the first logistic regression model, the independent variables were entered in three blocks: students' attitudes (26-item instrument) were entered first in the model as a block (step 1), eight-factor model personality variables or dimensions were entered in the second block (step 2), and fourteen-factor model socioeconomic (SES) variables were finally entered in the third block (step 3). The students' attitudes (26-item instrument) variable was entered first to determine how well attitude total score alone was associated with students' behaviour.

In a second hierarchical multiple logistic regression, only significant discriminatory variables of the previous model (eight variables) were entered in the second model. The attitude variable was entered first in the model, followed by parents' wish for their children variable (step 2), and finally the personal and SES variables (step 3). In the third logistic regression model, the attitude variable (26 items) was entered in the regression model alone to investigate the predictability of students' behaviour from their attitudes. Finally, in the fourth logistic regression model, the three attitude subscales were entered in a model to investigate their contribution in the prediction process of students' behaviour.

Data analyses were based on the SPSS data file of the empirical study. The scale items were in Likert's format with five categories used to elicit students' attitudes towards vocational education. Following the definition of the Likert's summated ratings method, the maximum respondent score is five times the number of items and the minimum score is simply the number of attitude items, whereas the neutral score is three times the number of items. This means

that with 26 items, the total score of 78 indicates a neutral attitude, whereas any score above it indicates a positive attitude and any score below it indicates a negative attitude, taking into consideration the standard deviation of the scale mean. The negative items were reversely scored.

5.2.6 Psychometric properties of the attitude instrument

Item means and standard deviations of the 38-item scale have been calculated (See Appendix 5.) The 38-item scale mean is 116.9, which is slightly above the neutral score (114), and the standard deviation is 20. Item-total statistics like corrected item total correlations and alpha if item deleted have been calculated for the 38-item scale (see Appendix 4.)

Alpha reliability coefficient of the 38-item scale is .86. Two main criteria were used to discard some items from the 38-item scale; these are corrected item total correlation (which is a discrimination index for item selection) being greater than .30, and increased alpha if item deleted. Twelve items (items 3, 5, 6, 12, 14, 16, 18, 20, 21, 24, 34, and 37) have been discarded from the analysis due to their low corrected item total correlation (.2049, .1480, .2904, .1404, .2680, .1095, .0448, .2866, .2752, .2282, .2873, and .0896). These discarded twelve items contributed nearly nothing to the dimensional space, which is quite evident in the reliability coefficients.

Low corrected item total correlation means that the item does not work with the majority of the other items in the instrument to define a coherent variable of increasing attitude towards vocational education. Some items, which have high corrected item total correlations (like item 26 *I feel happy when I discuss any topic about vocational education*) are too discriminating, with more students than expected in the higher attitude group agreeing and more students than expected in the lowest attitude group disagreeing (Masters & Hyde, 1984).

The histograms of the lowest six misfit items (items 3, 5, 12, 16, 18, and 37) provide a clear picture about their distributions and how far they are from the normal curve, while the histogram for a good item (item 26) is very similar to the normal curve. Item No. 3, *I feel shame when I think about entering a vocational school* is

not a good item because it has too much emotional density. It might be better to rephrase the item into *I feel shame to enter a vocational school*. Item no.5, *Vocational education is useful to the individual and the society*, is also not a good item because it is a double-barrelled item. Those who agree that vocational education is useful to the society may not agree that it is useful to the individual.

Item No.12, *I like academic education more than vocational education* has a skewed distribution. This item might be a factual statement due to the high number of strongly-agree responses reflecting the general practice of academic preference in the society, not the subjects' attitudes. Item No.16, *Vocational education is only suitable for economically poor students* attracted too many strongly-disagree responses, not because they believe that vocational education is not suitable for economically poor students, but because of the connection between vocational education and poor-ness. It may be better to omit the word *only* from item No.16 or replace it with the word *more*.

Item No.18, *Vocational education is suitable for low-achievement students*, has the lowest item total correlation. Respondents might also understand this item as a factual statement, not as a belief or opinion statement, because of the general impression in the society that mainly low-achievement students go to vocational schools. This explanation for item 18 is based on the policy practice that screens students into either academic or vocational education according to their achievement at the basic school instead of their interest. In addition, there is an implied connection in this item between vocational education and low achievement at school or laziness. Item 37, *I hate to have a friend studying at a vocational school* is too negative and has too much emotional density. Respondents with even a negative attitude may disagree with this item because of the too great negativity implied in this item. He or she might hate to study at a vocational school, but still not hate to have a friend studying at a vocational school.

Item analysis of the 38 items was done first, then the item analysis of the 32 items. Items were discarded from the subsequent analyses according to their item total correlation coefficients and their relevant contribution to the reliability of the attitude instru-

ment. These analyses have produced the best selection of the items retained in the attitude instrument. The scale mean of the 26-item scale is 79.75, which is slightly above the neutral score (78), and the standard deviation is 16.99. See Appendix 9 for item means and standard deviations. Item-total statistics like corrected item total correlations and alpha if item deleted of the 26-item scale are presented in Appendix 10.

5.2.7 Reliability of the attitude scale

Coefficient alpha was developed by Cronbach (1951) as a general measure of the internal consistency of a multi-item scale. It has effectively become the measure of choice for estimating the reliability of a multi-item scale (Peterson, 1994). Indeed, coefficient Alpha has become one of the foundations of measurement theory. Not only is it the most widely used estimator of reliability; it has also been the subject of considerable methodological and analytical attention (see, e.g., Cortina 1993).

Alpha reliability coefficient of the 26-item scale is .88, which is slightly higher than Alpha (.86) of the 38-item scale, indicating that the 26-item scale is more homogeneous and consistent to measure attitudes towards vocational education than the 38-item scale. Alpha coefficients of the three factors (or subscales) are .91 for Factor 1, .88 for Factor 2, and .76 for Factor 3. Nunnally (1978) has recommended that the minimally acceptable reliability for preliminary research is 0.7, but lower thresholds are sometimes used in the literature (Peterson, 1994).

Cronbach's Alpha formula depends on two things: the number of items and the average inter-correlation among the items. Therefore, if you increase the number of items, you increase Cronbach's alpha. In addition, if the average inter-item correlation is low, Alpha will be low. As the average inter-item correlation increases, Cronbach's alpha increases as well. This makes sense intuitively — if the inter-item correlations are high, then there is evidence that the items are measuring the same underlying construct. This is really what is meant when someone says they have high or good reliability.

Cronbach's Alpha is also a measure of homogeneity, that is, the closer the item measures the same thing the better is the reliability

coefficient (Cronbach, 1951). This is indicative of how well the items measure a single unidimensional latent construct. Thus, since I have multi-dimensional data, according to factor analyses, Cronbach's alpha will generally be low for all items. In this case, an exploratory factor analysis has been used to see which items load highest on which dimensions, and then computing the Alpha of each subset of items separately. Cronbach's Alpha measures how well a set of items (or variables) measures a single unidimensional latent construct. When data have a multidimensional structure, Cronbach's Alpha will usually be low. Technically speaking, Cronbach's Alpha is not a statistical test, it is a coefficient of reliability (or consistency), and since this coefficient is a measure of the internal consistency of the test items, it can be used as a crude measure of unidimensionality (Stage, 1997). However, factor analysis is more appropriate for assessing the unidimensionality of tests and measurements (Hambleton & Rovinelli, 1986).

Reliability analyses have been carried out for each factor. Alpha coefficient of the first factor is .91, which is higher than the reliability of the 26-item scale (.88), and consequently indicates high inter-item correlations among the first factor items. Alpha reliability increases when the number of test items increases, but with this attitude scale the reliability of ten items (first subscale) is higher than the reliability of the whole scale (26 items) and higher than the reliabilities of the second (ten items) and third (six items) subscales, which confirms the importance of the inter-item correlations to either increase or decrease alpha coefficient. A summary of the obtained reliability estimates of the attitude scales (38, 33, 32, and 26 items) as well as for the three relevant subscales of the 26-item scale is presented in Table 5.3.

Table 5.3

Reliability estimates of attitude scales and subscales

Attitude scale or subscale	Reliability coefficients (Cronbach Alpha)
Attitude scale - 38 items	.863
Attitude scale - 33 items	.876
Attitude scale - 32 items	.876
Attitude scale - 26 items	.880
Attitude scale - 22 items	.836
First attitude subscale - 10 items	.910
Second attitude subscale - 10 items	.875
Third attitude subscale - 6 items	.755

5.2.8 Validation of the attitude scale

Validity of tests and instruments is the core concept in psychometric theory. Four types of validity have been traditionally mentioned in the literature, content, concurrent, predictive, and construct validity. Psychometricians combine concurrent and predictive validity aspects into criterion-related validity (Nunnally, 1978).

Content validity is not easy to achieve for most scales since one ordinarily cannot enumerate all of the elements in the population of interest (the domain) and then sample from them. Usually it is impossible to define the population with optimum rigor unless one happens to be constructing something like a spelling test, where a dictionary can be used to enumerate the population. Therefore, it is incumbent on the researcher to spell out how to determine the boundaries of the domain under study. There is no single statistical criterion that can be used to determine whether or not one has properly sampled from the domain of content. No single content validity can be computed. However, the researcher can take several precautions to help insure the representation of the various shades of meaning from within the domain (Bohrnstedt, 1977).

According to the previous perspective, content validity of the attitude scale was established through careful development of the attitude items. Samples of students were asked to express their opinions and feelings towards vocational education. Their answers have been used to write a pool of attitude statements that cover almost

all the manifestations, or aspects, of the dimensional space of attitudes towards vocational education. This process has established the content validity of the instrument.

Corrected item total correlation provided evidence of criterion-related validity. This statistical procedure is the hyperlink between reliability and validity in which the screening process of the items, based on this index, improves both validity and reliability of the instrument. This index is also a discrimination index of the items among low and high attitude groups.

Factor analyses have provided evidence of factorial or construct validity of the instrument. Messick (1989) has presented a unified and comprehensive view of validity. He said,

Because both score meaning and the value implications of scores as a basis for action are central issues in test validation, a unified view of validity is required that comprehends both the scientific and the ethical underpinnings of test interpretation and use. This unified concept of validity integrates considerations of content, criteria, and consequences into a construct framework for testing rational hypotheses about theoretically relevant relationships, including those of an applied as well as of a theoretical nature. The essence of unified validity is that the appropriateness, meaningfulness, and usefulness of score-based inferences are inseparable and that the unifying force behind this integration is the trustworthiness of empirically grounded score interpretation that is construct validity (Messick, 1989, p. 5).

Thus, construct validity is the integrating force that unifies all aspects of validity into a unitary concept, which is the validity of the instrument to measure what is intended to be measured.

5.2.9 Factor Analysis

An exploratory factor analysis has been carried out to examine the factor structure of the 38-attitude-items scale. Maximum Likelihood with Direct Oblimin was used because Varimax assumes uncorrelated factors, which is normally not realistic. Principal component with Varimax is often least informative for detecting factor structure, and it is a variance reduction, not a factor model. Results of factor analysis of the 38-item scale indicated that seven factors

have initial Eigen values more than one, but only three factors have high Eigen values and four factors have Eigen values very close to one, which become below one after rotation (see Appendix 6 for an explanation of Eigen values and variance; see also Appendix 7 for illustration of Scree test; and see Appendix 8 for factor loadings of the 38 items).

Exploratory factor analysis has been run on the 26-item attitude scale. The factor correlation matrix in Table 5.4 indicates that the three factors are correlated, and therefore maximum likelihood analysis with Oblimin must be selected instead of principal components analysis with Varimax. This selection is recommended in the literature about factor analysis when the factors are correlated (Pedhazur & Schmelkin, 1991). Results of factor analysis of the 26 items indicated that only three factors have Eigen values greater than one, which is the best factorial solution of the attitude items, (see Appendix 11 for Eigen values and variance of the 26 items).

Table 5.4
Factor Correlation Matrix

Factor	1	2	3
1	1.000	.25	.09
2	.25	1.000	.15
3	.09	.15	1.000

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

According to Pedhazur and Schmelkin (1991), when the factors are correlated the pattern and structured matrices are different in this situation. Pattern matrix is presented in Table 5.5, which indicates the factor loadings of the 26-item instrument. Factor pattern matrix consists of the coefficients (weights) for the regression of each indicator (or item) on the factors, while a factor structure matrix consists of correlations between indicators (or items) and factors. “When the factors are uncorrelated, the factor pattern and the factor structure matrices are identical. In other words, the factor matrix is the factor pattern matrix and is also the factor structure ma-

trix” (Pedhazur & Schmelkin, 1991, p. 602). Correlated factors are the most common situation in reality.

Table 5-5
Factor loadings of the 26 items

Items	Factors		
	I	II	III
Item 11 p	.875		
Item 1 p	.868		
Item 15 p	.809		
Item 17 p	.767		
Item 33 p	.667		
Item 19 p	.639		
Item 36 p	.620		
Item 26 p	.609		
Item 2 p	.584		
Item 31 p	.526		
Item 23 p		.782	
Item 28 p		.755	
Item 9 p		.747	
Item 13 p		.702	
Item 22 p		.644	
Item 25 p		.626	
Item 7 p		.578	
Item 38 p		.524	
Item 29 p		.512	
Item 35 p		.468	
Item 30 n			.635
Item 27 n			.629
Item 10 n			.621
Item 32 n			.561
Item 4 n			.552
Item 8 n			.523

Extraction and rotation methods: Maximum likelihood with Oblimin.

Table 5.5 presents the factor loadings of the 26 items on the three factors. The factorial solution indicates that ten positive items loaded on factor one, another ten positive items loaded on factor two, and six negative items loaded on factor three. The most interesting result is that positive items have loaded on two factors and the negative items loaded on one factor. The most striking aspect of this pattern is the too-often seen division of the negative from the positive items.

There is also another test to verify that only three factors can be extracted from the 26-item attitude instrument. This test is called Scree test and it is used to support the results of the factorial solution. Scree test indicates that the number of factors that can be extracted before the line becomes straight is only three, as shown in Figure 5.1.

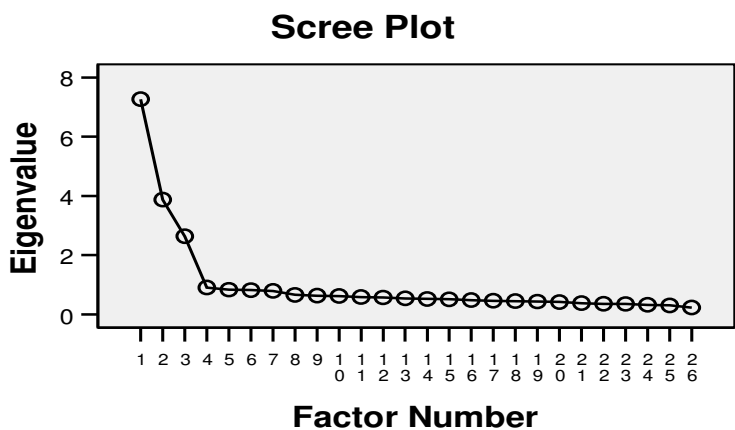


Figure 5.1. Scree test illustration – 26-item scale showing one dominant factor and two secondary factors.

The Scree plot graphs the Eigen value against the factor number. From the fourth factor on, you can see that the line is almost flat, meaning that each successive factor is accounting for smaller and smaller amounts of the total variance. It is clear from Figure 5.1 that only three factors can be extracted before the curve becomes straight, which is a better solution than the seven-factor solution of the 38-item scale. It is also a recommendation by Hambleton and

Rovinelli (1986) that “the number of significant factors is determined by looking for the elbow in the plot. The number of Eigen values to the left of the elbow is normally taken to be the number of significant factors underlying test performance” (p. 289).

Figure 5.1 indicates that the 26-item attitude scale is a multidimensional scale with three underlying factors. Therefore: all the 26 items should not be combined to create one single scale. Instead, items should be distributed on the three factors to create three subscales. However, it is also possible to treat the three factors as first order dimensions (or constructs) on the first level, upon which a second order dimension, namely attitude towards vocational education, is situated on the second level. The names of the three factors extracted from the content of the items are: Factor one, Preference to enter a vocational school and encourage others to do so (positive about vocational schools); Factor two, Importance and usefulness of vocational school (vocational schools develop positively); Factor three, Low status, hatred, and negative image of vocational school (negative about vocational schools). See section 6.2.1 for the items text. Moreover, corrected item total correlations of the three factors are presented in Table 5-6, which indicates high item total correlations among the items of the three factors.

Table 5-6
Item-total correlations of the three factors

Factor I		Factor II		Factor III	
Item-11	0.77	Item-23	0.71	Item-30	0.53
Item-1	0.78	Item-28	0.66	Item-27	.051
Item-15	0.67	Item-9	0.62	Item-10	0.52
Item-17	0.70	Item-13	0.63	Item-32	0.49
Item-33	0.67	Item-22	.063	Item-4	0.48
Item-19	0.64	Item-25	0.64	Item-8	0.47
Item-36	0.64	Item-7	0.55		
Item-26	0.66	Item-38	0.56		
Item-2	0.63	Item-29	0.53		
Item-31	0.58	Item-35	0.45		
Alpha = 0.91		Alpha = 0.88		Alpha = 0.76	

It is clear that the item-total correlations range from .58 up to .78 on factor one and the item-total correlations on factor two range from .45 up to .71, while the item-total correlations on factor three range from .47 up to .53. The above item-total correlation coefficients indicate that all the items selected have item-total correlations higher than .40, which means that all the items have a high discrimination index. But the first factor items are the highest discriminating items. This is also an indication of the criterion related validity of the attitude instrument.

The item-total correlation is a very important index in the item selection process. For each item, each person's score is correlated with his or her total score, and items with low item-total correlations are dropped. The procedure, with Likert's technique, shares some of the spirit of Thurstone but involves a unique feature, i.e. the assessment of the validity of each item via the item-to-total correlation, which is also an item discrimination index of the items (Krosnick et al., 2005). This procedure makes Likert's technique superior to Thurstone's technique not only for practical reasons, but also for the better psychometric qualities of Likert's scaling over Thurston's scaling.

With respect to the variance explained by the factor solution of the 26 items, the total variance explained by the three factors is 52.98 percent, which is very close to the total variance (54.98%) explained by the seven factors derived from the 38-item scale (see Appendix 11). It is also clear from Appendix 11 that only three factors have Eigen values greater than one, which is the main criterion for defining and selecting the number of factors in the factorial solution.

6 RESULTS

This chapter presents the findings of both the explorative study and the empirical study. The results of the empirical study are presented and classified into four parts, which are consistent with its objectives: first, the dimensionality of the attitudinal space, second, knowledge acquired about students' attitudes, third, explanation and prediction of students' attitudes from background variables, and finally the attitude-behaviour relationship are examined and presented.

6.1 The explorative study results

Results of the explorative study are based on the analysis of the interview questions. Therefore, the presentation of the results is organised around each question separately.

The first question: What are the factors that determine tenth-grade students' attitudes towards vocational education?

Analysis of the answers to this question has unveiled six underlying factors that might determine students' attitudes towards vocational education. The extracted factors are as follows.

1. The socioeconomic status of the student

This factor is important in the formation of perceptions and attitudes of the parents, students, and even the society at large about vocational education. The economic and social situations of the parents, which are often unified as socioeconomic status, are major determinants for how people evaluate and perceive different type of vocations and professions. Related responses to this factor are:

- Inferiority status of vocational education graduates from society's point of view.
- Vocational education is not profitable.
- The influence of friends and colleagues affects students' beliefs and attitudes.

- Students' place of residence and the environment affect students' attitudes.
- Availability of job opportunity.
- Labour market demands on some vocations like nursing, hotel trade and some industrial specialisations explain students' desire to join such specialisations.
- Availability of work opportunities with good income for vocational education graduates.
- Family socioeconomic status. The majority of vocational education students come from low- and middle-class income families.
- Supply and demand for different vocations in the labour market.
- Environmental and social factors like friends' influence, mass media influence, vocations' social status, and income from various vocations.

The main point in the socioeconomic factor, on the surface level, is that the people and especially the parents are very much interested to know about the possibilities to find jobs for their children in the labour market, especially when their children finish their study at some vocational school. They also have a lot of concern about the income their children can earn from vocational work as a result of studying in a vocational school. But on the deep level, the parents have a lot of concern about how much respect and appreciation their children can realise from various jobs in comparison with other white collar or government professions. It is quite difficult to differentiate between the economic and social effects as long as they are interwoven in one factor.

2. Aspiration for university study and academic achievement

This factor is also important, and it reflects the ambition of students (and their parents) to enter a well-respected and profitable type of study. Responses related to this factor are:

- University education is not open to vocational education graduates.
- Possibility to continue university education.
- Students' ambitions.
- Low student GPAs forces them to enter vocational education.

- Students' achievement level. It rarely happens that high-achievement students enter vocational education.
- Students' personal factors like mental abilities (general intelligence), vocational interests, personal characteristics and traits. Students' physical, psychological, social growth and scholastic achievement.

The main issue here is that the parents are highly worried about their children's chances and their possibilities to study at the university. Parents' aspirations are to see their children have easy access to the university when they finish their secondary school. Students from vocational tracks have very poor chances to study at the university. Moreover, these low chances for students from vocational schools to study at the university are very much restricted with rules and conditions, which make the situation for them even more complicated. In fact, there are very few students at Jordanian universities from vocational schools. The academic and aspiration factors are more connected with social prestige than the socioeconomic factor.

3. Family influence

This factor reflects what might be called culture at home or simply home culture. The interaction between the parents and their children can be influential in later decisions about the type of secondary school that children can join after basic school. Responses belonging to this factor are:

- Students' fathers' profession, because fathers encourage their children to join their profession.
- Manual work practices at home.
- Students' parents' desire have an effect on students' attitudes in light of labour market requirements.
- Family socialisation of their children decides their attitudes towards vocational education.
- Family factors like parents' aspirations and their influence on students' attitudes, socioeconomic and cultural status of the family, fathers' profession and his social status.

The main point here is that it is quite possible that students might choose their fathers' or mothers' profession. What is going on in the family may also have some influence on students' attitudes towards vocational education.

4. School situation and reputation

This factor represents the whole situation in the school, which means the quality of teachers, facilities, and other school services like counselling. Responses belonging to this factor are:

- Teachers of the pre-vocational education subject play a major role in shaping students' attitudes towards vocational education.
- The bad reputation of vocational schools as schools for low-achievement students does not encourage high-achievement students to study in vocational schools, and consequently creates negative attitudes.
- Ineffectiveness of some vocational education teachers resulted in unqualified vocational education graduates, which consequently created negative attitudes towards vocational education among tenth-grade students.
- The importance of pre-vocational school subject at the basic school from students' perspective.
- Factors related to the school environment like teachers' and counsellors' influences, and lack of information about labour market.
- Vocational guidance, prevocational education at basic school.
- Effectiveness of vocational guidance and counselling services for students at the basic school. More effective and efficient services help students and their parents to take rational decisions with respect to their selection of the most suitable secondary education track.

The main point in the school factor is that the reputation of vocational schools is not good, guidance and counselling services at school are not effective, and pre-vocational education school subjects are not effective.

5. Cultural norms and values

This factor reflects the dominant culture and value system in the society, which is reflected in the following two responses.

- The dominant culture in the society about skilled and semi-skilled workers. As long as this culture is negative, students refrain from studying in a vocational school.
- Prevailing social values in the society play some role in shaping students' attitudes towards vocational education.

The main point here is that the social norms and values overestimate the white-collar professions and underestimate the blue-collar vocations.

6. Policy practice

This factor reflects the policies that have been influential in the attitude formation process about vocational education, which is quite clear from the following responses.

- The connection between academic education and higher education in general and university education in particular. When university education is open to vocational education students, then their attitudes become positive towards vocational education.
- If tenth-grade students are free to choose between vocational and academic education, the following factors determine their attitudes: society's view of vocational education, parents' level of education, parents' profession, students' desire and mental ability, availability of job opportunity, salaries and wages of various vocations in the labour market, mass media, and students' achievement.
- Government decisions play some role in the formation of students' attitudes towards vocational education.

The main issue here is that policies established by the government with respect to the situation of vocational education are highly critical and influential in shaping students' attitudes towards vocational education.

The second question: In the long run, do you believe that vocational education is more profitable or feasible than academic education? Please explain.

Analysis of the answers to the second question has produced some explanations for the profitability of either vocational or academic education from the perspective of the policy makers. Nearly all the responses supported the idea that vocational education is more profitable than academic education under specific conditions or circumstances. The reasons mentioned can be classified under the following basic themes. High quality teaching and training at vocational schools is necessary for competition in the labour market; unemployment is higher among academic education graduates,

while technicians are badly needed in the labour market; good characteristics of the technicians are also necessary for competitiveness in the labour market, like general information and computer skills in addition to high quality of teaching and training. The main point here is that even though vocational education is more profitable than academic education, from the perspective of the decision makers, still they believe that students' attitudes are negative and other factors might have more influence on students' attitudes.

The third question: Do you believe that the majority of tenth-grade students have negative attitudes towards vocational education? If so, why?

Analysis of the answers has showed that most of the students have negative attitudes towards vocational education. The reasons that have been given by way of explanation could be classified into the following basic themes: societal attitudes, employment situation, school related reasons, selection process for higher education. These reasons are implied and consistent with the factors that determine students' attitudes towards vocational education in the first question.

The fourth question: at the government level, what are the decisions that the government has taken, and what are the decisions that you believe the government has to take in order to encourage tenth-grade students to join vocational education voluntarily?

Analysis of the answers has unveiled how the government has handled the screening of students into academic and vocational schooling. Responses related to the decisions taken focused on the following critical issues: free access to university education for students from vocational schools, financial support for graduates from vocational schools, educational structure and curriculum. Responses related to the decisions to be taken have focused on the following issues: students' selection of academic and vocational education must be based on students' free choice, not their achievement, and better connection of vocational education with the labour market.

The fifth question: what are the historical roots that you believe have contributed to the inferior reputation of vocational education?

Analysis of the answers to this question reflected the historical roots and the social values that have shaped the negative image and formed negative attitudes towards vocational education in the society. Three main ideas have been emphasised by the respondents: Connection between high social prestige and academic or university education, Connection between shame culture and vocational education or manual labour, Connection between inferiority and manual work. This connection has created and supported the psychology of inferiority (inferiority complex) among technicians or vocational workers like the property owner or the landlord and the servants in the middle ages. This situation has motivated the formation of negative attitudes towards vocational education, which is a product of interaction between unfair wealth distribution among the people and the deep-rooted negative value system in the society about poor people.

The sixth question: What are the prevailing values in Jordanian society that you believe have formed students' negative attitudes towards vocational education?

Analysis of the answers of this question highlighted the following issues. A high social prestige is normally connected with government jobs and white-collar occupations in the private sector. This is more obvious in some traditions like marriage and social celebrations. Power, authority, and academic ability are often connected with white-collar occupations. The culture of shame, which means that people working in vocations like carpentry, mechanics, blacksmithing and others belong to a low-level socioeconomic class. Consequently, it is considered shameful for a person to work in such vocations. Vocational education is also often connected with laziness and students' low achievement at school.

The seventh question is: Do you have any further suggestions or comments not mentioned in your answers to the previous questions?

All responses to this question were simply no.

Summary and conclusions

The explorative study has produced some important results about how societal and environmental circumstances and conditions might shape students' attitudes and the society at large. A summary of the most important findings in this section is presented in the following points:

1. There are six factors extracted from the analysis of the decision makers' responses to the first question that contribute to the determination of students' attitudes. These are socioeconomic, aspiration and academic, family, school, culture, and policy factors.
2. Vocational education is more profitable than academic education under specific conditions and criteria, like high quality teaching and training at vocational schools and also good characteristics of the technicians.
3. Societal attitudes, employment situation, school related factors, and the selection process for higher education are the main reasons behind the perceived negative attitudes of students.
4. Students from vocational schools must have free access to university education. Also, a better connection with the labour market must be established. These are necessary conditions to encourage students to join vocational schooling and consequently change their attitudes.
5. A long history of inferiority complex in the society regarding manual work and vocational education, has contributed to the negative image of vocational education.
6. There are many prevailing negative social values in the society upon which negative attitudes have been formed over a long period of time.

6.2 The empirical study results

6.2.1 Dimensionality of the attitudinal space

A series of factor analyses has been carried out to unveil the dimensionality of the attitude instrument. The first factor analysis uncovered seven vague factors of the 38-item instrument, while the second factor analysis unveiled three clean factors of the 26-item instrument, which is considered the best factorial solution. Therefore, all the statistical analyses have been based on the 26-item factorial solution. This factorial solution has revealed one main factor (or dimension) and two secondary factors. The Eigen value of the main factor is 7.26, while the Eigen values of the secondary factors are 3.87 and 2.64 respectively. The variance explained by the first factor is 27.94 percent and the variance explained by the secondary factors is 14.90 percent and 10.15 percent respectively.

The total variance explained by the factorial solution of the 26 items is 52.98 percent, which is higher than the variance of other research cited in the literature. In addition, Scree test clearly showed that only three factors could be extracted from the items before the line becomes straight. According to the factor loadings of the items, ten items (items 11, 1, 15, 17, 33, 19, 36, 26, 2, and 31) have high loadings on factor one. Also ten items (items 23, 28, 9, 13, 22, 25, 7, 38, 29, and 35) have high loadings on factor two. But only six items (items 30, 27, 10, 32, 4, and 8) have high loadings on factor three. Factor analysis has uncovered the psychological dimensions and the underlying attitudinal aspects of the instrument. The names of the three factors (or dimensions) were extracted from the content of the items. The factors and their corresponding items are presented below:

The first factor (10 positive items): preference to join a vocational school and encourage others to do so. (Positive about vocational schools). This factor represents all the positive aspects about vocational school. The meaning implied in this factor is that not only do students want to enter a vocational school and encourage others to do so, but they also believe that vocational education is good and interesting for them now and in the future. The following items have loaded high on this factor.

- 11- I would like to join a vocational school or centre.
- 1- It is good for me to study in a vocational school.
- 15- Vocational education is better than academic education.
- 17- I encourage my brothers and sisters to go to vocational schools.
- 33- I like to spend my spare time reading books about vocational education.
- 19- I encourage my friends to choose vocational education.
- 36- I like to read vocational education books.
- 26- I feel happy when I discuss any topic about vocational education.
- 2- Vocational education has a bright future.
- 31- Vocational education will help to achieve my objectives in life.

The items in the first factor refer to the preference of students to enter a vocational school and be satisfied to take part in any activity related to it. Some items reflect the feelings of students towards the attitude object (affective component), like items 33, 36, and 26. Some other items reflect the beliefs of students towards the attitude object (cognitive component), like items 1, 15, 2, and 31. But there are items that reflect the intentions of the students to behave in a favourable way towards the attitude object (behavioural component), like items 11, 17 and 19.

The second factor (10 positive items): Importance and usefulness of vocational school. (Vocational schools develop positively). This factor indicates the value judgment about vocational education, the extent to which vocational education is useful and important. The meaning of this factor is that students believe that vocational education will develop their knowledge and skills not only at the academic and practical level, but also at the psychological level as well, like increasing self-confidence and developing creativity and logical thinking. The following items have loaded high on this factor.

- 23- I believe that vocational education topics are useful.
- 28- Vocational education develops creativity and logical thinking.
- 9- Vocational education provides me with useful knowledge and skills.
- 13- Vocational education is important.

- 22- Vocational education gives me the opportunity to do the things I like to do.
- 25- Vocational education subjects are interesting and attractive.
- 7- More vocational centres and schools should be established.
- 38- Vocational education increases self-confidence.
- 29- I like to spend my spare time doing manual work.
- 35- Vocational education is the key for developing any country.

The second factor items refer to the usefulness and meaningfulness of vocational education in the society. Items 25 and 29 reflect the affective component of attitudes. Items 23, 28, 9, 13, 22, 38 and 35 reflect the cognitive component, whereas items 7 and 29 reflect the behavioural component.

The third factor (6 negative items): low status, hatred, and negative image of vocational school. (Negative about vocational schools.). This factor refers to the negative image of vocational education, and indicates some low level of value judgement, perception, and hatred of vocational education. It is a description of negative beliefs, feelings, and intentions about vocational education. The following items loaded high on this factor.

- 30-The future of vocational education students is dark.
- 27-Vocational education is useless.
- 10- Vocational education is a total waste of time and money.
- 32-I will destroy my future by entering a vocational school.
- 4- Vocational education must be eliminated from our schools.
- 8- I hate vocational education.

The items in the third factor reflect the negative image of vocational education. Items 30 and 8 reflect the affective component. Items 10 and 27 reflect the cognitive component, and items 32 and 4 reflect the behavioural component of attitudes.

Results of factor analyses as well as reliability analyses have showed good psychometric properties of the 26-item instrument, which contributed significantly to the dimensional space of the attitude construct under consideration. Ultimately, the results of any factor analysis are dependent on the extent to which the measures adequately sample the domain of interest and possess sound psychometric properties that have been established and verified during the construction process of the attitude scale. Therefore, the 26-item attitude scale along with its three subscales is the foundation

upon which the results of statistical analyses have been based in the next sections.

6.2.2 Knowledge acquired about students' attitudes

Descriptive statistics like means and standard deviations for the total attitude scale as well as for the three subscales are presented in Table 6.1. A Likert-type scale with five categories has been used in this study. Therefore, the attitude scale values are 5 for strongly agree, 4 for agree, 3 for undecided, 2 for disagree, and 1 for strongly disagree when the scale item is positive, and vice versa when the scale item is negative. From a theoretical point of view, the maximum total attitudes score of the 26-item scale is 130 scale values, when the respondent strongly agrees with all positive items and strongly disagrees with all negative items, whereas the minimum total attitudes score is simply the number of items, i.e. 26 scale values. But the neutral attitudes score is the number of undecided responses on the items multiplied by 3, which equals 78 scale values and is theoretically considered as a neutral attitude score. The same logic of computation applies to the three factors as well.

Table 6.1
Means and standard deviations of the attitude scale and its three subscales.

Scale	N	M	SD	Neutral score
Subscale-I 10 items	1961	28.40	10.08	30
Subscale-II 10 items	1961	30.06	8.72	30
Subscale-III 6 items	1961	21.28	5.16	18
Total scale 26 items	1961	79.75	16.99	78

It is clear from Table 6.1 that even though the mean score of the total 26-item scale is above the neutral score, and the mean score

of the first subscale is below the neutral score, we cannot say that student' attitudes are positive or negative taking into consideration the standard deviation figures. Students' have nearly neutral attitudes on the total 26-item scale. They also have neutral attitudes on the three subscales as well. The means of the total scale as well as the three subscales are very close to the neutral scale scores, taking into consideration their respective standard deviations.

There are some questions in the first part of the questionnaire that provide information about variables related to students' attitudes. These variables are parents' preference of either academic or vocational school for their children, students' intentions to continue their study at the university, parents' encouraging their children to attend university to study medicine, engineering, or law.

Students' responses to the questions about the attitude-related variables are presented in Table 6.2, which indicates the frequencies and percents of agreements and disagreements on the aforementioned variables.

Table 6.2

Frequencies and percentages of some students' background variables

No.	Variable	Agree	%	Disagree	%
1	Students' intention to study at the university.	1839	93.8	122	6.2
2	Parents' encouragement to study at the university	1883	96.0	78	4.0
3	Parents' encouragement to study medicine	957	48.8	1001	51.0
4	Parents' encouragement to study engineering	902	46.0	1058	54.0
5	Parents' encouragement to study law.	584	29.8	1373	70.2

It is clear from Table 6.2 that 93.8 percent of the students have the intention to study at the university, and 96 percent have encour-

agement from their parents to study at the university. Furthermore, nearly half of the students (48.8%) have agreed that they have got encouragement from their parents to study medicine, and 46 percent of the students got encouragement to study engineering, while only 29.8 percent of the students were encouraged by their parents to study law. These figures confirm the results from the explorative study too, that academic and university education is well liked and it is an ambition of both parents and children.

But a clear picture can be gained about students' attitudes through presentation of cross tabulations about the relation between students' intention to study at the university and their parents' wish for secondary education type. Table 6.3 presents the figures of these variables, which indicates that the majority of students (1641) have the intention to study at the university, and their parents' wish is that they study at academic school as well.

Table 6.3
Students' intention to study at the university and their parents' wish for secondary education type

Variable	Agreement	Parents' wish for secondary education type		Total
		Academic	Vocational	
Students' intention to study at the university	No	67	47	114
	Yes	1641	162	1803
Total		1708	209	1917

Also consider the cross table of students' intentions to study at the university and their parents' encouragement to study at the university. Table 6.4 indicates that 1818 students (98.9%) agree that they have the intention to study at the university and their parents encourage them to do so.

Table 6.4
 Students' intention to study at the university and their parents' encouragement to study at the university

Variable	Agreement	Parents' encouragement to study at the university		Total
		No	Yes	
Students' intention to study at the university	No	57	65	122
	Yes	21	1818	1839
Total		78	1883	1961

Finally, the cross table of students' actual first choice (or students' behaviour) and their parents' wish for secondary education type presented in Table 6.5 indicates that 1639 students selected academic education and their parents' wish is academic education as well.

Table 6.5
 Students' behaviour and their parents' wish for secondary education

Variable	Type of secondary education	Students' actual choice (students' behaviour)		Total
		Academic	Vocational	
Parents' wish for secondary education	Academic	1639	67	1706
	Vocational	21	109	208
Total		1738	176	1914

6.2.3 Prediction of students' attitudes from background variables

In this section, the findings of multiple regression analyses with respect to the prediction of attitudes from background variables are presented. To find out which background variables best explain and predict the differences in students' attitudes on the total attitude scale as well as its three subscales, stepwise multiple regression analyses were used, and the results are presented in Tables 6.6, 6.7, 6.8, and 6.9. The tables present the models of multiple regression analyses and the relative importance of the independent variables to explain the variance on the total attitude instrument and its respective three subscales as well. The background variables, which were significantly correlated with the attitude instrument and its three subscales, have been used in the regression models.

Results of multiple regression analysis have indicated that four background variables have statistically significant differences on the total attitude instrument. These variables are students' actual first choice or student's behaviour, Arabic language score, students' intention to study at the university, and area of residence (see Table 6.6). The total variance explained by this regression model is only 4.5 percent. According to Beta values, in the model, the variables students' behaviour and their achievement in Arabic language are positively regressed on students' attitudes, while students' intention to study at the university and their area of residence variables are negatively regressed on their attitudes. The rank order of the significant variables indicates that students' behaviour to study in academic or vocational school, and their intention to study at the university or not, are the most important independent background variables in the prediction of students' attitudes.

Table 6.6

Multiple regression analysis model – attitude instrument (26 items)

Independent variables	Beta	Rank	Sig.
Students' behaviour (to select acad. or voc. school)	10.394	1	.000
Arabic language score	.125	4	.000
Students' intention to study at the uni- versity	-6.054	2	.001
Area of residence	-1.916	3	.023

Multiple R=.213; R square= .045

Results of multiple regression of the first factor also indicated that the same four significant variables on the total attitude instrument are also significant on the first factor as well (see Table 6.7).

Table 6.7

Multiple regression analysis model- first subscale (10 items)

Independent variables	Beta	Rank	Sig.
Students' behaviour (to select acad. or voc. school)	4.723	1	.000
Arabic language score	.077	4	.000
Students' intention to study at the uni- versity	- 2.249	2	.033
Area of residence	- 1.830	3	.000

Multiple R=.175; R square= .031

Results of multiple regressions of the second factor showed that only two variables are significant. Table 6.8 shows that students' behaviour and students' intention to study at the university are significant variables or predictors of students' attitudes towards vocational education. The total variance explained by this regression model is 1.2 percent.

Table 6.8

Multiple regression analysis model – second subscale (10 items)

Independent variables	Beta	Rank	Sig.
Students' behaviour (to select acad. or voc. school)	2.562	1	.000
Students' intention to study at the university	- 1.752	2	.049

Multiple R=.110; R square= .012

Results of multiple regression of the third factor showed that five variables are significant, these are; students' behaviour, Arabic language score, students' intention to study at the university, area of residence, and parents' wish for secondary education type (see Table 6.9). The total variance explained by this regression model is 5 percent.

Table 6.9

Multiple regression analysis model – third subscale (6 items)

Independent variables	Beta	Rank	Sig.
Students' behaviour (to select acad. or voc. school)	2.424	1	.000
Arabic language score	.042	5	.000
Students' intention to study at the university	- 1.827	2	.001
Area of residence	.665	4	.010
Parents' wish for secondary education type	1.047	3	.018

Multiple R=.224; R square= .050

A summary of the results of multiple regression analyses of the total attitude instrument and its three factors (or subscales) is presented in Table 6.10

Table 6.10

Summary of the results of multiple regression analyses-Significance levels

Independent variables	Factors			Attitude scale-26 items
	I	II	III	
	10 items	10 items	6 items	
Students' actual first choice (students' behaviour)	.000	.000	.000	.000
Students' intention to study at the university (students' ambition)	.033	.049	.001	.001
Area of residence	.000	Non sig.	.010	.023
Arabic language score	.000	Non sig.	.000	.000
Parents' wish for secondary education type (parents' aspiration)	Non sig.	Non sig.	.018	Non sig.

These results clearly indicate the importance of students' behaviour in the prediction of students' attitudes either at the total instrument level or at the three subscales level. This variable has statistically significant differences on all the three factors and the total scale as well, while the other four variables were less significant, and consequently less important in the prediction of attitudes. These empirical results are consistent with the explorative study results.

6.2.4 The attitude behaviour relationship

Table 6.11 indicates that 1770 students (848 boys and 922 girls) have selected to join academic school (academic group), while only 185 students (109 boys and 76 girls) have selected to join voca-

tional school (vocational group). In addition, those who selected academic school have an attitude mean score (Mean=78.81 scale value) lower than the attitude mean score of those who selected vocational school (Mean=88.85 scale value) on the total attitude instrument (26 items). Also, there are differences in the mean scores of the two groups on the three factors in favour of the vocational group (see Table 6.11). These results mean that when students have higher scores on the attitude continuum, it is more likely that they would have selected vocational school and vice versa. Students' choice variable, in Table 6.11, refers to students' behaviour to select either vocational or academic school.

Table 6.11

Means, standard deviations, and standard errors of students' attitudes on the total scale as well as the three subscales according to their choice of academic or vocational school

Attitude scale	Students' Choice	N	M	SD	Std. error Mean	Neutral Mean score
Attitude scale - 26 items	Vocational	185	88.85	21.9	1.6	78
	Academic	1770	78.81	16.1	.38	
First sub-scale	Vocational	185	32.09	10.24	.75	30
	Academic	1770	28.02	9.99	.24	
Second subscale	Vocational	185	32.60	12.24	.90	30
	Academic	1770	29.80	8.21	.20	
Third subscale	Vocational	185	24.16	4.68	.34	21
	Academic	1770	21.00	5.12	.12	

In addition T-tests, in Table 6.12, showed that there is a statistically significant difference ($p<.001$) between the means of students' attitudes for those who selected vocational school in comparison with those who selected academic school, not only on the total 26-items attitude scale, but also on the three subscales as well.

Table 6.12

T-tests: Comparison of students' attitudes on the total scale as well as the three subscales according to their choice of academic or vocational school

Attitude scale	T	Df	Sig. 2-tailed	Mean Difference
Attitude scale - 26 items	7.76	1953	.000	10.04
First subscale	5.26	1953	.000	4.07
Second subscale	4.18	1953	.000	2.80
Third subscale	8.08	1953	.000	3.17

T-test results lend support to the hypothesis that there is a statistically significant difference between students' attitudes and their actual behaviour, not only with respect to the total scale but also to the three subscales. This means that with attitudes that are more positive or less negative, there is a possibility to behave in a favourable way towards the attitude object and vice versa. The frequencies of the responses to question no.17 in the questionnaire, which was about the source of influence on students' decisions to choose either academic or vocational school, were calculated. Table 6.13 indicates that 1510 students (or 77.5 %) decided themselves the type of secondary school they have chosen. This result also confirms the positive relationship between students' attitudes and their behaviour. But we should keep in mind that even though most of the students decide themselves to join academic or vocational school, still their decisions might have been affected by their parents' attitudes or by the attitudes of others like siblings, friends, and teachers.

Table 6.13

Influence on students' decision to choose academic or vocational school

Source of influence	Frequency	%	Rank
Parents	346	17.7	2
Brothers and sisters	39	2	4
Teachers	9	.5	5
Friends	44	2.3	3
Themselves	1510	77.5	1
Total	1948	100	

Pearson correlations between students' attitudes and their actual behaviour were calculated and are presented in Table 6.14. Pearson correlations have been calculated here, in spite of the fact that student's behaviour is a variable measured by a nominal scale level, in order to show that inappropriate statistical procedures might lead to false results about the relationship between attitudes and behaviour. Inappropriate statistical analyses, like using Pearson correlations when the variables are measured by a nominal scale level, might be the reason behind the dilemma and debate, in the literature, about the true relationship between attitudes and behaviour.

Table 6.14

Pearson correlation coefficients between students' attitudes and their behaviour

Attitude scale or subscale	Pearson correlation coefficients
Attitude scale – 26 items	.173**
First subscale	.118**
Second subscale	.094**
Third subscale	.180**

** Correlation is significant at the .01 level (2-tailed). N =1955

In spite of the fact that all Pearson correlations in Table 6.14 are statistically significant at the .01 level, they are relatively low in view of the correlations mentioned in the literature as an indication

of a weak relationship between attitudes and behaviour (Ajzen, 2002). Therefore, Eta-Squared correlation must be used to find out the correlation between students' attitudes and their behaviour. Eta-squared is a measure of effect size, and is also known as the correlation ratio. The 26-item attitude scale is considered an interval scale variable, while students' actual choice (or students' behaviour) is a nominal scale variable. Table 6.15 presents the results of Eta and Eta-squared correlations of the total attitude 26-item instrument and its respective three subscales.

Table 6.15
Eta and Eta-squared coefficients between students' attitudes and their behaviour

Attitude scale or subscale	Eta coefficient	Eta-squared	Rank order	ANOVA
Attitude scale - 26 items	.410	.168	High	.000
First subscale	.179	.032	Low	.015
Second subscale	.341	.116	Medium	.000
Third subscale	.248	.062	Medium	.000

The correlation ratio Eta, also called the coefficient of nonlinear correlation or Eta-squared (E^2), measures association. Eta-squared is the percent of total variance in the dependent variable (students' behaviour) accounted for, or explained by the variance of the independent variable (students' attitudes). "Eta-squared correlations are small for the range (.01-.04), medium for the range (.06-.11), and high for the range (.14-.50)" (Norusis, 1999, p. 234). It is clear from the results that Eta-squared correlation is high (above .14) for the total attitude scale, medium for the second and third subscales (.116 and .062 respectively) and low for the first subscale

(.032), but still significant. The results in Table 6.15 indicate high correlation between attitudes and behaviour.

But the story does not end at this point as long as the relationship between attitudes and behaviour is meant to be a prediction of behaviour from attitudes and not only a correlational relationship. Moreover, logistic regression is a more powerful statistical tool in prediction. Students' behaviour (in this study) is measured by a categorical variable with nominal scale level, which can be predicted from students' attitudes that are measured by a continuous variable with an interval scale level. Hence, logistic regression is more appropriate, in this situation, to predict students' attitudes from their behaviour.

Therefore, a series of multiple logistic regression analyses were carried out to determine the relative importance of students' attitudes in the prediction of students' behaviour, i.e. students' behaviour to choose vocational or academic school for study. First, logistic regression was carried out on all the independent variables including the attitude variable. The results from the first logistic regression analysis are presented in Appendix 12. The model was significant, and provided correct predictions of 44.1 percent for the vocational and 98.2 percent of the academic (overall correct classification percent = 93.5). Table 6.16 presents the classification table of the full model.

Table 6.16
Classification table –First logistic regression

Observed		Predicted		
		Students' behaviour		Percentage correct
		Academic	Vocational	
Students' behaviour	Academic	1571	28	98.2
	Vocational	85	73	44.1
Overall percentage				93.5

In a second hierarchical multiple logistic regression, only significant discriminatory variables of the previous model (eight variables) were entered. The total attitude variable was entered first

into the model, followed by the parents’ wish for their children variable (step 2), and finally the personal and SES variables (step 3). The classification table of the second hierarchical multiple logistic regression is presented in Table 6.17.

Table 6.17
Classification table – second logistic regression

Observed		Predicted		
		Students' behaviour		Percentage correct
		Academic	Vocational	
Students' behaviour	Academic	1624	36	97.8
	Vocational	95	70	42.4
Overall percentage				92.8

The second logistic regression model was also significant, and provided correct predictions of 42.4 percent for the vocational and 97.8 percent of the academic (overall correct classification percent = 92.8 percent); see the classification Table 6.17 of this model. Results of the second logistic regression indicated that only eight variables were significant, and the R square indicates that 48.3 percent of the variance in students’ behaviour is due to the independent variables in this model (see table 6.18).

Table 6.18

Results of the second hierarchical multiple logistic regression

Variables	Rank order	B	Wald	Sig.	Exp.(B) (OR)	95% CI for OR	
						Lower	Upper
Attitude Scale-26 items	3	.027	21.752	.000	1.027	1.016	1.039
Parents' wish for children Vocational or academic school	1	2.811	164.414	.000	16.623	10.817	25.544
Gender	5	.648	8.607	.003	1.912	1.240	2.947
GPA- 10 grade	2	-.060	39.294	.000	.942	.924	.960
Area of residence (village)	8	-.527	5.145	.023	.590	.374	.931
Family size-medium	4	-.828	11.308	.001	.437	.270	.708
Family income-low	9	.764	4.211	.040	2.146	1.035	4.451
Family income-middle	7	.874	5.938	.015	2.396	1.186	4.837
Students' intension to study at the university	6	-.897	8.448	.004	.408	.223	.747

CI=confidence interval, OR=Odds ratio, $R^2 = .220$ (Cox & Snell), $R^2 = .483$ (Nagelkerke)

Table 6.18 indicates that Wald value of the attitude variable is significant in predicting students' behaviour and the odds ratio of the attitude variable is 1.027. The other significant variables are rank ordered according to their Wald values. The most important predictors are; parents' wish for their children to study in academic or vocational school, students' achievement at tenth grade, and their attitude score on the 26 items instrument. Odds ratio means the predicted change in odds for a unit increases in the corresponding independent variable. Odds ratios less than 1 correspond to decreases and odds ratios more than 1 correspond to increases in odds. Odds ratios close to 1 indicate that unit changes in that independent variable do not affect the dependent. A 95 percent confidence interval for the slope supported the significant levels of the Wald statistics (Moore & McCabe, 2005).

In the third logistic regression model, the attitude variable of 26 items instrument has been entered in the logistic regression model to find out how much the attitude variable alone predicts students' behaviour. The attitude variable model was also significant. It is clear from the classification table that the attitude variable -26 items provided correct predictions of zero percent for the vocational and 100 percent of the academic (overall correct classification percent = 90.5); see the classification Table 6.19 of this model.

Table 6.19
Classification table –third logistic regression

Observed		Predicted		
		Students' behaviour		Percentage correct
		Academic	Vocational	
Students' behaviour	Academic	1770	0	100.0
	Vocational	185	0	.0
Overall percentage				90.5

Results of this model, presented in Table 6.20, showed that the attitude scale -26 items variable was significant, and the R square indicates that 6.5 percent of the variance in students' behaviour is due to the attitude scale variable.

Table 6.20

Results of the third logistic regression – prediction of students' behaviour from their attitudes (26-item scale)

Variables or predic- tors	B	Wald	Sig.	Exp.(B) (OR)	95% CI for OR	
					Lower	Upper
Attitude Scale-26 items	.036	56.359	.000	1.037	1.027	1.047

CI=confidence interval, OR=Odds ratio, $R^2 = .030$ (Cox & Snell), $R^2 = .065$ (Nagelkerke)

Finally, the three attitude subscales were entered into the model to investigate their contribution in the prediction of behaviour. The attitude variables model was also significant. The classification table of this model is the same as in Table 6.19, which indicates that the attitude variables provided correct predictions of zero percent for the vocational and 100 percent of the academic (overall correct classification percent = 90.5 percent); see the classification Table 6.19.

Results of this model, presented in Table 6.21, clearly showed that the first and third attitude subscales were significant, but the second attitude subscale was not significant. The R square indicates that 10.2 percent of the variance in students' behaviour is due to the attitude first and third subscales.

Table 6.21

Results of the fourth logistic regression – prediction of students' behaviour from their attitudes (subscales)

Variables or predictors	Rank order	B	Wald	Sig.	Exp.(B) (OR)	95% CI for OR	
						Lower	Upper
Subscale 1	2	.036	16.069	.000	1.037	1.019	1.055
Subscale 2	3	.012	1.830	.176	1.012	.995	1.030
Subscale 3	1	.135	52.344	.000	1.145	1.104	1.187

CI=confidence interval, OR=Odds ratio, $R^2 = .047$ (Cox & Snell), $R^2 = .102$ (Nagelkerke)

The third attitude subscale was the most significant variable, in this model, to predict students' behaviour from their attitudes, which is quite evident from the Wald values and Beta coefficients in Table 6.21.

7 DISCUSSION

The main goal of this study has been to investigate what attitudes students have towards vocational education, and the dimensionality of their attitudes. Another goal has been to investigate whether or not students' background variables are significant predictors of their attitudes. A third goal has been to investigate the relationship between students' attitudes and their behaviour.

The explorative study has provided valuable results and insights about how decision makers perceive and think about students' attitudes towards vocational education. In this chapter, the reader will follow the discussion of the main findings of the two studies. This discussion will be divided into five sections; the explorative study results are discussed first, and then the results of the empirical study are discussed in three sections. Finally, some reflections on the methodological aspects of the research are presented and discussed.

7.1 The explorative study

The main goal of the explorative study has been to investigate the perceptions of decision makers about vocational education and students' attitudes towards vocational education. Therefore, the results of this study have been based on the analysis of the interviews with the decision makers.

Results of the explorative study have revealed that six factors determine tenth-grade students' attitudes towards vocational education. These are the socioeconomic status of the student, students' aspiration for university study and academic achievement, family influence, school situation and reputation, cultural norms and val-

ues, and policy practice. It is clear from the nature of these factors that they are interrelated. For example, socioeconomic status of the students and the influence from parents on their decisions to pursue their university education are connected with aspiration and academic factor. The family factor shows how the parents can play a major role in shaping their children's attitudes and influence their career decisions. School situation and reputation has been connected with the effectiveness of the teaching and learning process at vocational schools as well as the effectiveness of the counselling services at basic schools. The cultural factor has implied a general tendency towards a negative image in the society about vocational education. Policy practice has reflected a deep negative image among the students and their parents as well. The consequences of the government decisions supported the formation of a negative image about vocational education. Students and their parents have negative ideas about discrimination decisions related to vocational and academic education. Students' attitudes are influenced by these factors to some degree, but their relative influence can be dependent on the specific situation.

With respect to the profitability of vocational or academic education, the results have been indicative that while vocational education is perceived to be more profitable than academic education, this profitability can only be achieved under specific conditions, like the quality of vocational training and good characteristics of technicians. Moreover, the labour market demand for such vocations is also important in deciding the profitability of various vocations and professions. Students' attitudes might be influenced by the profitability of vocational schooling over academic schooling, but even this situation is dependent on many conditions and criteria, such as the quality of vocational education and the demand for vocations in the labour market.

The results determined that most tenth-grade students have negative attitudes towards vocational education. The four reasons given here, as an explanation for such negative attitudes, are consistent with the six factors given as determinant of students' attitudes towards vocational education in the first question. Moreover, reasons like the unemployment situation are another aspect of the insecure situation for students and their families, which drives

them away from vocational education. With respect to decisions taken and decisions to be taken, in the fourth question, the results suggested that government decisions are insufficient to encourage students to choose vocational education. But the government decisions to be taken were mainly focused on having free access to university education without restrictions. In addition, the connection between vocational schools and the labour market should be established.

From a historical point of view, the results showed that academic education is associated with high social prestige and university education, while vocational education is associated with low social prestige and blue-collar vocations or occupations. This common finding of the interviews has been indicative of the inferiority complex among the parents who have transferred this inferiority complex into their children through the socialisation process. These results pinpoint the dilemma of democracy in education and how it should be achieved. Policy practice has been not only undemocratic and unfair for low-achievement and poor students, but also ineffective.

Psacharopoulos (1991) has argued that the main reason vocational education fails is that students are forced into vocational education they would never choose. Students are living in a society where they can hear that social prestige is based on being accepted in academic school and, later on, to study at the university. They also hear and notice that medical doctors and engineers are well respected and paid. If it is not possible to be a medical doctor or an engineer, then at least it is desirable to study some other discipline at the university that will secure some white-collar and “clean hands” job in the government or the private sector.

Vocational education, however, has often been stigmatised as an institutional dumping ground, a second class educational alternative, and a dead-end curriculum for low-achievement and poor students with no other educational option (Cohen & Besharov, 2002). The social values, which have been inherited from past generations, have influenced the value judgments of the people about various vocations and professions in society. The prevailing values in the society, like power, authority, social prestige, shame and others might have formed the negative societal perceptions and at-

titudes about vocational education and manual work (Smith, 2006).

7.2 Knowledge acquired about students' attitudes

Factor analyses have uncovered three main factors, or dimensions, which constitute a valid and reliable instrument to measure students' attitudes towards vocational education. Attitude mean scores on the total instrument as well as the three subscales are indicative of nearly neutral attitudes towards vocational education. These findings of the empirical study were surprising and not in line with the results of the explorative study, simply because the results of the interviews have showed negative perceptions and images of policy makers with regard to vocational education. These results are not contradictory to each other, since the results of the explorative study reflect the perceptions of decision makers and consequently their attitudes or their expectations about students' attitudes, while the results of the empirical study are indicative of a valid and reliable instrument, which has been thenceforth used to measure students' attitudes.

Students' responses have pinpointed that the majority of the parents wanted their children to choose academic or theoretical education. Most students (88.4%) agreed that their parents wanted them to enter academic education, while few of them (9%) agreed that their parents wanted them to enter vocational education, and only very few of them (1.7%) answered no preference from their parents. This result signifies the intentions of the parents (expressed by their children) to behave in a favourable way towards academic education, and in an unfavourable or negative way towards vocational education. The results regarding the behavioural intentions of the parents have cross-validated results from the explorative study, in which the respondents (decision makers) have agreed that the majority of students have negative attitudes towards vocational education. It is also a cross validation with the results of the variable concerning parents' encouragement to study at the university, in which 96 percent of the parents have encouraged their children to study at the university.

Also, most of students (93.8 %) have the intention to study at the university, and also most of them (96 %) received encourage-

ment from their parents to study at the university. These results are consistent with the explorative study results, which mean that both studies have led to the same conclusion: academic or theoretical study, which leads to university education, is well accepted and respected among students, their parents, and the society at large. These results also shed light on the attitude behaviour relation, which will be discussed in Section 7.4. Moreover, nearly half of the students (48.8 %) received encouragement from their parents to study medicine, 46 percent of them to study engineering, and only 29.8 percent to study law. These figures indicate clearly how much prestige and high social values are placed by students and their parents on white-collar, high-status professions, even though their achievement is not encouraging them for such type of study.

The results from the cross tables showed that most of the students have the intention to study at the university, and their parents' wishes are for them to study at academic school as well (85.5 %). Also, most of the students have the intention to study at the university and their parents encourage them to study at the university as well (92.7 %). These results are informative and provide insights about the status of vocational and academic education in the society.

The findings of the main empirical study are consistent with some previous empirical research (Gilliland, 1967; McKenna & Ferrero 1991; Saavedra, 1970), but not consistent with others like the Ghanini's (1994) and Black's (1976) studies. The findings showed that the majority of students decided to study in academic schools (90.5 %). This result is consistent with Rossetti's (1990) study results that indicated that 60 percent enrolled in academic school. But I would like to remind the reader that the comparison with previous empirical research is not clear-cut for many reasons. First, the attitude scales used were different, and the way by which the attitude scales were developed is also different. In short, the methodology used in previous empirical research and the sampling procedures were different as well. Second, vocational education is different from one country to another and attitudes towards it are different among countries due to cultural, environmental and societal differences. Vocational education, as an attitude object, is not like mathematics or science that refers to the same thing among

different countries. Therefore, these differences should be taken into consideration in comparing the results of this study with previous empirical research.

Results indicated that even though students' attitudes are nearly neutral, most of them (96 %) agree that their parents want them to study at an academic or college preparatory school. Also most of them (96.5 %) agree that their parents encourage them to study at the university. Most of the parents want their children to study in an academic school and later on at the university. There is a general attitude in the society to prefer academic education to vocational education. The results of the empirical study cross validate and support the results of the explorative study.

7.3 Prediction of students' attitudes from background variables

Findings of the multiple regressions have revealed that only four background variables out of twenty-three showed statistically significant differences on the total attitude instrument as well as the first subscale. Two variables were significant on the second subscale, and five variables were significant on the third subscale. It is quite clear from the analyses, at the total level as well as at the dimensional (factorial) level, that both variables, i.e. students' behaviour and their intention to study at the university, are important predictors of students' attitudes. Students' behaviour to select academic education instead of vocational education is indicative of a lower score on the attitude scales and vice versa. The same logic applies for the variable students' intention to study at the university. Students who intend to study at the university have lower attitude scores than those who do not have such intention. These results are consistent with the results of the explorative study as well as other empirical study results. But we should keep in mind that the significant independent background variables explained the low percent of the variance in students' attitudes.

Four significant variables explained only 4.5 percent of the total variance on the attitude instrument (26 items). Also, four variables explained 3.1percent on the first subscale, but two variables explained 1.2 percent on the second subscale, and five variables explained 5 percent on the third subscale. There might be other ob-

servable and latent variables, like parents' attitudes and societal attitudes, which might explain much more variance in a multiple regression analysis. Therefore, future research should include latent variables in the prediction of students' attitudes.

With respect to the influence on students' decisions to study in academic or vocational school, the findings showed that the sources of influence are rank ordered as follows: students' own decisions come first, then parents, friends, brothers and sisters, and finally teachers. We should remember that even though students' own decisions came first, their decisions might be affected by other sources like parents and others. Saavedra (1970) has pointed out that the poor esteem in which vocational education had been held results from the combined attitudes of students, parents, and educators, especially evident among minority groups, because of its second-class status. This result is not consistent with Wolansky's and Kang's (1991) study in which they found that teachers and parents had the most important influence on career choices for Taiwanese students, while students from the United States relied on counsellors and others more than parents in making their career choices. The findings of this study are also consistent with the findings from a study in Germany in which Sube (1981) found that the influence of parents and friends is of major importance for over 50 percent of young people in choosing a career, with parents' influence (about 34 %) being the decisive variable.

Gender was not a statistically significant variable in predicting attitude differences, which means that both females and males have roughly neutral attitudes towards vocational education. The findings are not consistent with Allosop's (1986) study, in which there were significant differences between boys' and girls' attitudes with boys having consistently more favourable attitudes. It is in addition not consistent with Walters' (1989) and Bergh's (1987) studies, in which they found that boys have significantly more positive attitudes towards technology than girls do. The results of the present study also determined that more boys than girls decided to study in vocational schools, which implies that girls are more theoretically or academically oriented than boys.

Cultural and environment differences are important to explain how students from different cultures are influenced in their career

and study choices by different factors and in different ways. The results of this study showed that parents' level of education and their jobs were not significant predictors of students' attitudes, and this is consistent with the results of Ghanini's (1990) study that was carried out within the same culture and country of the current research but with different methodologies.

These results are consistent with the results of the explorative study, where we found a general tendency in the society that academic and university education are well liked by most of the students and their families as well. Other independent variables like gender, mothers' and father education, etc. were not significant in the prediction of students' attitudes. Results of multiple linear regressions, with respect to the relation between attitudes and behaviour, are consistent with the results of logistic regression. It is difficult to explain why students' achievement in Arabic language was a significant predictor of students' attitudes. But with respect to the place of residence variable, students from rural areas are more academically oriented than those who live in the cities due to the scarcity of, and difficulty in finding, vocational or technical work in the villages, especially for females. The high number of students who want to study at the university signifies the attractiveness of university education. Results of the influence of background variables on students' attitudes towards vocational education is supported by the conclusions from previous empirical research (Rossetti, 1989, 1990), which suggested that students' desire to study at the university has resulted in the negative image and poor esteem of vocational education.

7.4 The attitude behaviour relationship

One of the most common criticisms of attitude scales of all types is that they do not allow us to predict actual behaviour in real life situations. Like many such arguments, this one is overdrawn. Most proponents of attitude measurements have agreed that attitude scores indicate only a disposition toward certain classes of behaviours, broadly defined, and that what overt response actually occurs in a real life situation depends also upon the context provided by that situation (Osgood, Suci & Tannenbaum, 1977).

Ajzen and Fishbein (2000) reviewed past research on the attitude – behaviour relation and concluded that

For anyone inclined to rely on attitudes to predict and explain human behaviour, the results of these studies were extremely discouraging: attitudes were usually found to be very poor predictors of actual behaviour, and many social psychologists began to worry about the utility of the attitude construct (p.175).

It is an article of faith in psychology that human behaviour is complex and therefore very difficult to explain and predict. Investigators proposed that general attitudes can have a strong impact on behaviour, but that is to be expected only under certain conditions or for certain types of individuals (Ajzen & Fishbein, 2000).

The findings of this study have clearly demonstrated a significant relation between students' attitudes and their actual behaviour, which means that students' behaviour to choose vocational school instead of academic school reflects higher attitude scores on the attitude continuum. This result is consistent with the overall conclusion, in the literature, that attitudes are assumed to be predictive of human behaviour (Summers, 1977). Social psychologists (Ajzen, 2002) have been enthusiastically motivated to provide empirical findings to support their presumptions of a strong theoretical relationship between attitudes and behaviour. Their motivation is simply based on the principle that an individual's attitude towards some object may be inferred from his or her behaviour towards the attitude object. Unfortunately, however, individuals' behaviour is influenced by many variables other than their attitudes, and the attitude-behaviour relationship is typically weak (Schwarz, 2001).

Results of logistic regression have clearly showed that only some of the background variables (8 out of 26) are significant predictors of students' behaviour. The eight variables are rank ordered according to their importance as follows: parents' wish for secondary school type comes first, then students' achievement at tenth grade, attitude scale -26 items, family size, gender, students' intention to study at the university, family income, and finally area of residence. These results are important and meaningful in the sense that only some of the background factors are significant predictors of students' behaviour to choose vocational school, in addition to their attitudes. Still, the full logistic regression model of all the

background variables explained only 50.4 percent of the variance in students' behaviour (see Appendix 12). This result indicates the importance of latent variables for explaining a large portion of students' behaviour, which might make the prediction of human behaviour even more complex in actual situations, and this explains the weak relationship between attitudes and behaviour cited in the literature (Schwarz, 2001).

The total attitude scale (26 items) explained only 6.5 percent of the variance in students' behaviour, while the first and the third attitude subscales explained 10.2 percent of the variance in students' behaviour, which supports the overall conclusion that attitudes predict behaviour. But the reader must keep in mind the students' age in this study (about 16 years). Students around this age are more inclined to be influenced by reference groups in their community like family, friends, and the school. This influence has been confirmed by the results in this study when the majority of students (1770 out of 1955 students) decided to select academic or theoretical school, and the minority (185 students) decided to select vocational school, while their attitudes were relatively neutral on the attitude scale. This superficial contradiction or inconsistency has been explained by the results of logistic regressions, which indicate that attitudes explain only 10.2 percent of students' behaviour and most of their behaviour is explained by other variables.

While gender was not significant in predicting students' attitudes, it is significant in predicting students' behaviour to study in vocational or academic school. More boys than girls chose to study in vocational school, but more girls than boys chose to study in academic school. Academic education is more attractive to the girl than to the boy, which is an indicator of gender differences in this context.

Ajzen and Fishbein (2000), in their review of the influence of attitudes on behaviour, indicated that initial reactions focused on the validity of the attitude measure, suggesting either that responses to standard attitude scales were contaminated by social desirability bias and hence failed to capture true attitudes, or that these measures provided an incomplete assessment of the attitude construct. They concluded that "variables in addition to attitude must be taken into consideration, suggesting that attitudes play a very lim-

ited role because they are important predictors of behaviour only for certain individuals and in certain situations” (p.182). Student’s behaviour is also explained by other variables depending on the context of the situation. The results of logistic regression have confirmed and supported the conclusion in the literature that attitudes are not the only predictors of human behaviour.

The results clearly indicated the complexity of human behaviour. While students’ attitudes were nearly neutral towards vocational education, their behaviours were not consistent with their attitudes. The conclusion from this discussion indicates that attitudes are only one part of the pool of variables that may influence behaviour, and even this influence is situation-specific. The complexity of predicting actual behaviour from attitudes is well established in the literature. While social psychologists have been theorizing that attitudes should predict actual behaviour, which is quite logical and consistent at the theoretical level, but at the measurement level the situation is different and the prediction is not straightforward. This indicates the interdependence between attitude theory and measurement in which valid and reliable measurement of attitudes provides insights into the theoretical model of the attitude-behaviour relationship.

7.5 Reflections on the methodological aspects of the research

There are some questions and ideas to be raised in this part of the research process, some reflections and meditations to shed light on the research process, and hopefully to motivate the reader to make some reflections as well. This study has dealt with two types of methodologies. In the explorative study; the participants were decision makers, who have answered the interview questions according to their knowledge and perceptions about students’ attitudes and the status of vocational education. Then, somebody might ask the question, what would have been the answers to the interview questions if the sample of participants was a group of students or parents or teachers or school principals? Decisions must always be taken by researchers about the group to be interviewed and how many participants to include, which were definitely taken in this research for economical and practical purposes. But still, the ques-

tion with respect to the missing knowledge due to my selection of policy makers instead of others is not answered yet. The argument behind the selection of policy makers is that some of them have worked as teachers and school principals, and some of them were also parents of tenth-grade students. But still the question about what results could have been arrived at if the selection of the participants would have taken some other different direction is not answered yet. In some way, this may be the unforeseen tax we should pay for our selection.

Certainly we do not know the results that could have been achieved with a different group of interviewees, instead of the particular group chosen in the explorative study. But the informants interviewed are decision makers, whose beliefs and attitudes have a direct impact on the educational system. Their knowledge and experience about the core problem investigated justified my selection and consequently reduces the burden of the unforeseen tax I should pay for my selection anyway.

The final attitude scale has 26 items, after the pool of items was subjected to strict and rigorous psychometric analyses. This number of items is very consistent with the recommendation of many psychometricians like Nunnally (1978) and others, who recommend having a number of items in the final scale of between 20 and 30. The argument is that an attitude scale with less than 20 items may reduce reliability unacceptably, but a scale with more than 30 items will turn off the respondent. Someone can notice that even though the first subscale consists of ten items, its reliability is higher than the attitude scale of 26 items. This result indicates the importance of homogeneity between the items in the reliability index. It is certainly an indication of high homogeneity between the ten items, and it is an indication of the validity of the instrument as well.

The integration of the explorative study results with the empirical study results has created a clear understanding and better explanation of students' attitudes towards vocational education and the status of vocational education in the society as well. This methodological integration was not only informative in the discussion of the research findings and insightful for the conclusions ex-

tracted, but also it is considered one of the merits of having both qualitative and quantitative methods in the research process.

8 CONCLUSIONS AND RECOMMENDATIONS

In this final chapter, the discussions eventually lead to some conclusions and recommendations.

8.1 Conclusions

Results and discussion of the explorative and empirical studies have led to some informative conclusions. The main conclusion from the explorative study results is that the general attitude towards vocational education is negative and it has been suffering from poor image and low reputation in the society. Although the findings of the explorative study indicated a negative image among policy makers about vocational education, the empirical study unveiled nearly neutral attitudes among students towards vocational education. In spite of the fact that the vast majority of tenth-grade students decided to study at academic school, this does not mean that their decisions are mainly influenced by their attitudes. In fact, the influences of the people around them like parents, friends, siblings and others are important. Most of them have indicated that they themselves decided on the type of secondary school they wished to enter, but still there might be unseen or latent variables behind their personal choices.

Only four background variables have been found to be significant predictors of students' attitudes towards vocational education. These are students' behaviour, students' achievement in Arabic language, students' intention to study at the university, and place of residence. The total variance explained by these variables is very low (4.5%), which indicates that some other latent variables, like parents' attitudes, might be more significant in the prediction of students' attitudes.

One important conclusion is that attitudes are only one part of the pool of variables that may influence behaviour, and even this

influence is situation specific. Attitudes predict human behaviour to some extent, but are only one variable, or let us say “player”, in the arena of variables to predict students’ behaviour. Some other background variables can influence and predict human behaviour even more strongly than attitudes, as indicated by the results of logistic regression analyses.

Another important conclusion is that the attitude-behaviour relationship has been supported by the findings. Students’ behaviour can be predicted from their attitudes. The results of logistic regression have clearly confirmed other conclusions that attitudes can influence and predict human behaviour to some extent, but other situational and contextual factors can also influence human behaviour in various circumstances and to different degrees. Investigators and researchers in the literature have failed to obtain support for the attitude-behaviour correspondence. Those researchers did not take into consideration the influence of other factors on behaviour, like reference groups. The influence of reference groups, by being part of the individual normative system, is vital and reflects the attitudes and norms of the society.

And last but far from least, obtaining a prosperous future, money-earning power, and the prestige that comes with having a career position somebody has dreamed of are behind the general attitude in society about the status of academic and vocational education. Attitudes as a psychological trait or construct guide and control our behaviour through approach and avoidance. But, while our actual behaviour is influenced by attitudes, our attitudes are also influenced by many factors, which make the prediction of our behaviour from our attitudes not only difficult but also complex as well.

8.2 Recommendations

8.2.1 Recommendations for policy makers

Policy makers must be aware of the consequences of their decisions for students’ attitudes. Students must decide on their future career through their free choice to study at academic or vocational school without restrictions. Instead of having regulations and limitations (in terms of students’ achievement) on students’ free choice, their

attitudes and the attitudes of the reference groups in the society must be addressed and changed through logical and democratic procedures. Admission into higher education, especially university education, must be open for all students without limitations on students from vocational programs. Policy makers must give more attention to the quality of education and training at vocational and technical schools, which might be an effective policy to change and correct the negative image in the society shared by vocational education and manual work. Measurement of students' attitudes towards many attitude objects like school, study programmes, segregation and others are important and helpful for better policy planning. It is also helpful for the school staff and the parents.

8.2.2 Recommendations for researchers

The first recommendation for researchers is that they are encouraged to include some other observable and latent variables in the prediction of students' attitudes towards vocational education. Some variables like parents' attitudes, siblings' and friends' attitudes might be more influential not only on the formation and change of students' attitudes towards vocational education, but also on their personal decisions regarding the type of secondary school in which they would like to study. Researchers are also encouraged to analyse the cause-effect relationship between attitudes and behaviour. Advanced statistical techniques like LISREL and Structural Equation Modelling (SEM) may provide deep insight into the attitude-behaviour relationship. Researchers are also urged to establish the factorial or construct validity of the three-factor attitude instrument through using confirmatory factor analysis approach.

Also, it would be rewarding for researchers to use IRT applications in attitude measurement, especially MULTILOG, which can be used for Likert-type multiple categories. Researchers should continue to investigate the attitude-behaviour relationship by using valid and reliable attitude scales in order to provide more evidence about the true relationship between attitudes and actual behaviour. Researchers are recommended to investigate whether the relationship between attitudes and behaviour is causal or correlational. Finally, researchers are advised to use various types of research

methodologies to address their research problems, especially in attitudes research.

REFERENCES

- Ahlawat, K. & Zaghal, A. (1989). Nuclear and extended family attitudes of Jordanian Arabs. In K. Bon, G. Sgritta, & M.B. Sussman (Eds.), *Cross-cultural perspectives on families, work, and change*. New York: Haworth Press.
- Ajzen, I. (1987). Attitudes, traits, and actions: dispositional prediction of behaviour in personality and social psychology. In L. Berkowitz (Ed.), *Advances in experimental social psychology*. San Diego: Academic Press.
- Ajzen, I. (1988). *Attitudes, personality, and behaviour*. Milton Keynes, UK: Open University Press.
- Ajzen, I. (1989). Attitude structure and behaviour. In A. R. Pratkanis, S.J. Breckler, & A.G. Greenwald (Eds.), *Attitude structure and function*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Ajzen, I. (1993). Attitude theory and the attitude-behaviour relation. In D. Krebs & P. Schmidt (Eds.), *New directions in attitude measurement*. pp. 41-57. Berlin: Walter de Gruyter & Co.
- Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52, 27-58.
- Ajzen, I. (2002). Attitudes. In R.F. Ballesteros (Ed.), *Encyclopedia of psychological assessment*. pp. 110-115. London: Sage Publications.
- Ajzen I., & Fishbein M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood-Cliffs, NJ: Prentice-Hall.
- Ajzen, I., & Fishbein, M. (2000). Attitudes and the attitude behaviour relation: reasoned and automatic processes. In W. Stroebe & M. Hewstone (Eds.), *European Review of Social Psychology*. Chichester, UK: Wiley.
- Albarracin, D., Zanna M., Johnson, B. & Kumkale G. (2005). Attitudes: Introduction and scope. In D. Albarracin, B. Johnson, & M. Zanna (Eds.), *The handbook of attitudes*, pp. 3-19. Mahwah, NJ: Lawrence Erlbaum.

- Allosop, T. (1986). Attitude studies in the OERG technology project. In J.H. Raat and M.D. Vries (Eds.) *What do girls and boys Think of technology?* Report PATT-workshop, Eindhoven, University of Technology.
- Allport, G. (1935). Attitudes. In C. Murchinson (Ed.), *A Handbook of social psychology*. pp. 798-844. Worcester, MA: Clark university press.
- Allport, G. (1967). Attitudes. In M. Fishbein (Ed.), *Readings in attitude theory and measurement*. New York: Wiley.
- Antunes, M. (1998). Adult education and the labour market. In H.S. Olesen (Ed.), *From behaviourism to constructivism and self-directed learning*. Reviewed version of a paper presented to a Research Network Seminar, Lisbon, 1996.
- Baron, R., Byrne, D., & Suls, J. (1988). *Exploring social psychology*. Boston: Allyn and Bacon.
- Bartholomew, D.J. (1993). The statistical approach to social measurement. In D. Krebs & P. Schmidt (Eds.), *New directions in attitude measurement*. pp. 241-254. Berlin: Walter de Gruyter & Co.
- Bem, D.J. (1965). An experimental analysis of self-persuasion. *Journal of Experimental Social Psychology*, 1, 199-218.
- Bem, D.J. (1970), *Beliefs, attitudes and human affairs*. Belmont, CA: Brooks/Cole.
- Bem, D.J. (1972). Self perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology*. pp.2-62. New York: Academic Press.
- Bergh, C. (1987). *Report PATT – 3 Conference Contributions*, Eindhoven, University of Technology, The Netherlands.
- Black, M.S. (1976). *Student attitudes toward vocational education*. Ohio State Univ., Columbus, Center for Vocational Education ERIC.
- Bohrnstedt, G. (1977). Reliability and validity assessment in attitude measurement. In G.F. Summers (Ed.), *Attitude measurement*. pp. 80-99. London: Kershaw Publishing Company.
- Bohrnstedt, G. (1993). Classical measurement theory: Its utility and limitations for attitude research. In D. Krebs and P. Schmidt (Eds.), *New directions in attitude measurement*. pp. 169-186. Berlin: Walter de Gruyter & Co.
- CIA–The World Fact Book–Jordan (December, 2006). Website:<https://www.cia.gov/cia/publications/factbook/geos/jo.html>. The web page was last updated on December19th, 2006.
- Cohen, A.R. (1964). *Attitude change and social behaviour*. New York: Basic Books.
- Cohen, M. & Besharov, D. (2002). *The role of career and technical education: implications for the federal government*. United States Department of Education.

- Cook, S.W. & Selltitz, C. (1977). A multiple-indicator approach to attitude measurement. In G.F. Summers (Ed.), *Attitude measurement*. pp. 23-41. London: Kershaw Publishing Company.
- Cortina, J.M. (1993). What is coefficient Alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78 (February), 98-104.
- Crocker, L. & Algina, J. (1986). *Introduction to classical and modern test theory*. University of Florida. New York: CBS college publishing.
- Cronbach, L. (1951). Coefficient Alpha and the internal structure of tests. *Psychometrika*, 16 (September), 297-334.
- Dawes, R.M. (1972). *Fundamentals of attitude measurement*. New York: John Wiley.
- Dudziak, G. & Szydowski H. (1987). *Study on Polish pupils' concept of technology*. Report PATT – 2 conference, Coenen, USA.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Orlando, FL: Harcourt Brace Jovanovich.
- Edwards, A.L. (1957). *Techniques of attitude scale construction*. New York: Appleton-Century-Crofts.
- Edwards, A.L. (1983). *Techniques of attitude scale construction*. New York: Irvington Publishers.
- Edwards, A. & Kilpatrick, F. (1977). A technique for the construction of attitude scales. In G.F. Summers (Ed.), *Attitude measurement*. pp. 214-221. London: Kershaw Publishing Company.
- Erickson, R.C., & Wentling, R.C. (1976). *Measuring student growth: Techniques and procedures for occupational education*. Boston: Allyn and Bacon.
- European Training Foundation (1999). *An overview of vocational education and training in the Hashemite Kingdom of Jordan*. Turin, Italy. www.etf.eu.int/etfweb.nsf/pages/downloadme
- Evans, K.M. (1965). *Attitudes and interests in education*. London: Routledge & Kegan Paul.
- Fabrigar L.R., MacDonald T.K., & Wegener D.T. (2005). The structure of attitudes. In D. Albarracin, B.T. Johnson, & M.P. Zanna (Eds.), *The handbook of attitudes*. pp. 79-103. Mahwah, NJ: Lawrence Erlbaum Associates.
- Fazio, R.H. (1987). Self-perception theory: A current perspective. In M. Zanna, J.M. Olson, & C.P. Herman (Eds.), *Social Influence: The Ontario Symposium*. pp. 129-150, Hillsdale, NJ: Erlbaum.
- Fazio, R.H. (1990). Multiple-processes by which attitudes guide behaviour: The mode model as an integrative framework. *Advances in Experimental Social Psychology*, 23, 75-109.

- Fazio, R.H., Chen, J., Mcdonel, E.C., & Sherman, S.J. (1982). Attitude accessibility, attitude-behaviour consistency and the strength of the object evaluation association. *Journal of Experimental Social Psychology*, 18, 339-357.
- Fazio, R.H., & Zanna, M.P. (1978). Attitudinal qualities relating to the strength of the attitude-behaviour relationship. *Journal of Experimental Social Psychology*, 14, 398-408.
- Festinger, L. (1957). *A Theory of cognitive dissonance*. Evanston, IL: Row, Peterson.
- Festinger, L. & Carlsmith, J.M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology*, 58, 203-210.
- Fife-Schaw, C., Breakwell G., Lee T., & Spencer, J. (1987). Attitudes towards new technology in relation to scientific orientation at school: preliminary study of undergraduates. *British Journal of Educational Psychology*, 57, 114-21.
- Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An Introduction to theory and research*. London: Addison-Wesley.
- Ghanini, N. (1994). Attitudes toward vocational education of tenth-grade students in public schools in the Madaba District. *Dirasat*, 21A, 3, 93-121.
- Gilliland, H.R. (1967). Attitudes of slum dwellers and suburbanites toward blue-collar occupations and vocational education. Doctoral Dissertation, Missouri University, ERIC.
- Goldstein, E. B. (1994). *Psychology*. Belmont, CA: Wadsworth.
- Grodzka, B. (1987). The investigation of the general high school students' attitude towards technology. *Report PATT-3 conference*. J.H. Raat (Ed.) Eindhoven University of Technology.
- Guttman, L. (1950). The basis for scalogram analysis. In S. A. Stouffer (Ed.), *Measurement and Prediction*. Princeton, N.J.: Princeton Univ. Press.
- Guttman, L. (1977). The Cornell technique for scale and intensity analysis. In G.F. Summers (Ed.), *Attitude measurement*. London: Kershaw Publishing Company.
- Hallorah, J.D., (1967). *Attitude formation and change*. Leicester, UK: University Press.
- Hambleton, R.K. (1994). Item response theory: A broad psychometric framework for measurement advances. *Psychometrika*, 6, 3, 535-556.
- Hambleton, R.K., Swaminathan, H., & Rogers, H.J. (1991). *Fundamentals of item response theory*. Newbury Park, CA: Sage Publications.
- Hambleton, R.K. & Rovinelli, R.J. (1986). Assessing the dimensionality of a set of test items. *Applied Psychological Measurement*, 10, 287-302.

- Hamby, J. V. (1992). *Vocational education for the 21st century*. United States Department of Education, Office of Vocational and Adult Education.
- Heise, D.R. (1977). The semantic differential and attitude research. In G.F. Summers (Ed.), *Attitude measurement*. pp. 235-253. London: Kershaw Publishing Company.
- Hill R.J. (1981). Attitudes and behaviour. In M. Rosenberg & R.H. Turner (Eds.), *Social psychology: sociological perspectives*. pp. 347-77. New York: Basic Books.
- Jarvis, P. (1983). *Professional education*. London, Croom Helm.
- Jones F.R., Garrison J.C., & Morgan R.F. (1985). *The psychology of human development*. Second edition. New York: Harper and Row Publishers.
- Krosnick, J.A. (1991). Response strategies for coping with the cognitive demands of attitude measures in surveys. *Applied Cognitive Psychology*, 5, 213-236.
- Krosnick, J.A., Judd, C.M., & Wittenbrink, B. (2005). The measurement of attitudes. In D. Albarracin, B. Johnson, & M. Zanna (Eds.), *Handbook of attitudes*. pp. 21-76. Mahwah, NJ: Lawrence Erlbaum Associates.
- Lapierre, R. (1934). Attitudes and actions. *Social Forces*, 13, 230-237.
- Lemon, N. (1973). *Attitudes and their measurement*. New York: John Wiley & Sons.
- Likert, R. (1932). The method of constructing an attitude scale. In G.M. Maranell, (Ed.), *Scaling: A source book for behavioural scientists*. Chicago: Aldine Publishing Company.
- Likert, R. (1977). A technique for the measurement of attitudes. In G.F. Summers (Ed.), *Attitude measurement*. pp. 149-158. London: Kershaw Publishing Company.
- Linn, L.S. (1977). Verbal attitudes and overt behaviour: a study of racial discrimination. In G.F. Summers (Ed.), *Attitude measurement*. pp.438-450. London: Kershaw Publishing Company.
- McMillan, J.H. (1980). Attitude development and measurement. In J.H. McMillan (Ed.), *The social psychology of school learning*. New York: Academic Press.
- McGuire W.J, & McGuire C.V. (1996). Enhancing self-esteem by directed-thinking tasks: cognitive and affective positive asymmetries, *Journal of Personality and Social Psychology*, 70, 1117-25
- McKenna, A. & Ferrero, G. (1991). Ninth-grade students' attitudes toward non-traditional occupations. *Career-Development-Quarterly*, 40, 2, 68-181.
- Messick, S. (1989). Meaning and values in test validation: the science and ethics of assessment. *Educational Researcher*, 18 (2), 5-11.

- Ministry of Education (1993). Field study report of vocational education students' free selection of the secondary education type, Vocational Education Department, Amman, Jordan.
- Ministry of Education (1996). The development of education in Jordan, National Report, International Conference on Education, 45th Session, Geneva.
- Ministry of Education (2002). Vocational Education Department report, Amman, Jordan.
- Ministry of Education (2004). The development of education-national report of the Hashemite Kingdom of Jordan: presented to the 47th Session of the International Conference on Education, Geneva 8-11 September.
- Ministry of Education (2005). Education Reform for Knowledge Economy (ERfKE) project document, Development Cooperation Unit, Amman, Jordan.
- Ministry of Finance (2001). *Government Financial Bulletin*, 3, 2, Amman, Jordan.
- Moore, D. & McCabe, G. (2005). *Introduction to the practice of statistics*. fifth edition. New York: W.H. Freeman.
- Mueller, D. (1977). Physiological techniques of attitude measurement. In G.F. Summers (Ed.), *Attitude measurement*. pp. 534-552. London: Kershaw Publishing Company.
- Mueller, D. (1986). *Measuring social attitudes: A handbook for researchers and practitioners*. New York: Teachers College Press.
- National Centre for Human Resources Development (2005). *Monitoring and evaluation: Revised framework*. Draft. March 2005, Amman, Jordan.
- Norusis, M.J. (1999). *SPSS Base 9.0 User's Guide*. Chicago: SPSS Inc.
- Nunnally, J.C. (1978). *Psychometric theory*. New York: McGraw-Hill.
- Osgood, C.E. Suci, G.J. & Tannenbaum, P.H. (1957). *The measurement of meaning*. Urbana, IL: University of Illinois Press.
- Oskamp, S. (1977). *Attitudes and opinions*. Englewood-Cliffs, NJ: Prentice-Hall.
- Oskamp S. (1991). *Attitudes and opinions*. Englewood Cliffs, NJ: Prentice-Hall.
- Oskamp, S., & Schultz, P.W. (2005). *Attitudes and opinions*. Third edition. Mahwah, NJ: Lawrence Erlbaum Associates.
- Ostrom, T.M (1989). Interdependence of attitude theory and measurement. In A.R. Pratkanis, S.J. Breckler, & A.G. Greenwald. (Eds.), *Attitude structure and function*. pp.11-36. Mahwah, NJ: Lawrence Erlbaum Associates.
- Payne, D.A. (1974). *The assessment of learning: Cognitive and affective*. Lexington, MA: D. C. Heath & Co.

- Pedhazur, E.J. & Schmelkin, L.P. (1991). *Measurement, design, and analysis – An integrated approach*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Peterson, R.A. (1994). A meta-analysis of Cronbach's Coefficient Alpha. *Journal of Consumer Research*, 21, September.
- Psacharopoulos, G. (1991). Vocational education theory, VOCED 101: Including hints for vocational planners. *International Journal of Educational Development*, 11, 3, 193-199.
- Rajput, R.S. (1988). Projection of different gender and social setting over attitudinal differences to technology, *Report PATT-3 conference*. J.H. Raat (Ed.), Eindhoven, University of Technology.
- Rojewski, J.W. & Sheng, P. (1993). Differences in student perceptions of secondary vocational education: Implications for multicultural career counselling, *Journal of Multicultural Counselling & Development*, 21, 4, 211-226.
- Rossetti, R. (1989). *Factors that influence a student not to enter into a high school vocational curriculum*. Ohio State University, Department of Education, Columbus, (ED301697).
- Rossetti, R. (1990). *An examination of factors influencing students not to enrol in secondary vocational education, Summary of Research 53*. Columbus, OH: The Ohio State University. Department of Agricultural Education.
- Saavedra, L.E. (1970). *Vocational - technical education and the mexican – american*. New York: John Wiley & Sons.
- Schibeci, R.A. (1982). Measuring student attitudes: Semantic differential or Likert instruments? *Science Education*, 66, 4, 565-570.
- Schwarz, N. (2004). Attitude measurement. *International encyclopaedia of the social & behavioural sciences*. New York: Elsevier Science.
- Schwarz, N., & Bohner, G. (2001). The construction of attitudes. In A. Tesser & N. Schwarz (Eds.), *Handbook of social psychology: Intra-individual processes*. pp. 436-457. Maiden, MA: Blackwell.
- Seeman, M. (1993). A historical perception on attitude research. In D. Krebs & P. Schmidt (Eds.), *New directions in attitude measurement*, pp.3-20. Berlin: Walter de Gruyter & Co.
- Seiler, L.H. & Hough, R.L. (1977). Empirical comparisons of the Thurstone and Likert Techniques. In G.F. Summers (Ed.), *Attitude measurement*. pp.159-173. London: Kershaw Publishing Company.
- Shavitt, S. (1990). The role of attitude objects in attitude functions. *Journal of Experimental Social psychology*, 26, 124-148.
- Sherif, C. (1965). *Attitude and attitude change: The social judgment- involvement approach*. Philadelphia: W.B. Saunders Company.
- Smith, P. (2006). Building a world of learning for all. UNESCO Education website. <http://portal.unesco.org/education/en>

- Stage, C. (1997). *The applicability of item response models to the SweSAT: A study of the ERC subtest*. Department of Educational Measurement, No. 24. Umeå University, Sweden.
- Stage, C. (1999). *A comparison between item analysis based on item response theory and on classical test theory: A study of the SweSAT subtest READ*, Department of Educational Measurement, No.33. Umeå University, Sweden.
- Statistics Department (2002). *Jordan in Figures*, Amman, Jordan.
- Statistics Department (2005). *Statistical Report*, Amman, Jordan.
- Stopher, P.R. & Meyburg A.H. (1979). *Survey sampling and multivariate analysis for social scientists and engineers*. Lexington, MA: D.C. Heath and Company.
- Sube, H. (1981). *Choice of profession, vocational training, occupation and work*. Paper presented to the Youth Sociology Research Committee of the International Sociological Association, Fredeburg, Federal Republic of Germany, March 23-27.
- Summers, G. F. (1977). Introduction. In G. F. Summers (Ed.), *Attitude Measurement*. pp. 1-17. London: Kershaw Publishing Company.
- Swedish National Agency for Education (Skolverket) (2005). Website: www.skolverket.se.
- Tesser, A., & Shaffer, D.R. (1990). Attitudes and attitude change. *Annual Review of Psychology*, 41, 479-523.
- Thurstone, L.L. (1928). Attitudes can be measured. *American Journal of Sociology*, 33, 529- 544.
- Thurstone, L.L. (1946). Comment. *American Journal of Sociology*, 52, 39-50.
- Thurstone, L.L. & Chave, E.J. (1929). The scale values. In G. F. Summers (Ed.), *Attitude measurement*. pp. 142-148. London: Kershaw Publishing Company.
- Triandis, H. (1971). *Attitude and attitude change*. New York: John Wiley & Sons.
- U.S. Department of Education (2004). National assessment of vocational education: Final report to congress. Executive Summary, Office of the Under Secretary, Policy and Program Studies Service, Washington, D.C.
- Walters F. D. (1989). *The attitude of pupils towards technology*, Doctoral Dissertation, Eindhoven, University of Technology.
- Wicker, A.W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioural responses to attitude objects. *Journal of Social Issues*, 25, 41-78.

- Wilson, T. D., & Hodges, S. D. (1992). Attitudes as temporary constructions. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments*. pp. 37-65. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Wolansky, W.D. & Kang, C.T. (1991). *A comparison of curriculum and career choices of senior school students in Taiwan and the United States*. Paper presented at the annual meeting of the American Vocational Association, Los Angeles, CA, Dec.
- Wu, C., & Shaffer, D. (1987). Susceptibility to persuasive appeals as a function of source credibility and prior experience with the attitude object. *Journal of Personality and Social Psychology*, 52, 677-688.

APPENDICES

1. Questionnaire of the empirical study.
2. The interview questions of the explorative study.
3. Answers to the interview questions.
4. Item-total statistics of the 38 items.
5. Means and standard deviations of the 38 items
6. Eigen values and variance explained of the 38-item scale.
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12. Results of the first multiple logistic regression.

Appendix 1

Questionnaire of the empirical study

Dear student:

This questionnaire consists of two parts. In the first part we ask you kindly to provide some general information about yourself, your family, and some other related questions. In the second part there are attitude statements with five response categories.

Please read each statement and express your opinion by putting an “x” under the category that reflects your opinion. The five response categories are: Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree. There are no right or wrong answers; therefore, please express your opinion freely and honestly. I highly appreciate and respect your opinions, and all the information you provide will only be used for scientific research. Thanks for your co-operation.

Part one: Background information

1. Gender: () Male () Female
2. Your area of residence: () Urban () Rural
3. What is your mother's level of education?
() Illiterate () Basic education () Secondary education
() Community college () University education
4. What is your father's level of education?
() Illiterate () Basic education () Secondary education
() Community college () University education
5. What is your mother's occupation?
() work in vocation (like sewing or nursing or hairdressing...etc.)
() employee () other please specify...
6. What is your father's occupation? () work in vocation
(like smith or carpenter or mechanic ...etc.)
() employee () other please specify ...
7. Number of family members living in one house (parents, unmarried brothers and sisters) ...
8. What is the income of your family per month (in Jordan Dinars)?
() less than 157 () 157 to 350 () more than 350
9. What was your GPA at eighth grade? %
10. What was your GPA at ninth grade? %

11. What was your GPA at tenth grade (first semester)? %
12. What was your score in Math at tenth grade (first semester)? %
13. What was your score in science at tenth grade (first semester)? %
14. What was your score in Arabic language at tenth grade (first semester)? %
15. What was your score in English language at tenth grade (first semester)...%
16. What was your actual first choice you have written on the selection form for secondary education type?
17. Who influenced your decision in the selection of secondary education type you want to join?
☐ parents ☐ brothers and sisters ☐ teachers
☐ friends ☐ yourself
18. What type of secondary education do your parents want you to join?
19. Do you intend to continue your study at the university?
☐ Yes ☐ No.
20. Do your parents encourage you to continue your study at the university? ☐ Yes ☐ No.
21. Do your parents encourage you to study medicine?
☐ Yes ☐ No.
22. Do your parents encourage you to study engineering?
☐ Yes ☐ No.
23. Do your parents encourage you to study law?
☐ Yes ☐ No.

Part two: Vocational Education Attitude Scale (VEAS)

This part consists of Vocational Education Attitude Scale (VEAS) items. Please read each item and mark your response by putting an "x" under one of the following five response categories (the scale categories):

Strongly Agree (SA) Agree (A) Neither agree nor disagree (or Undecided) Disagree (D) Strongly Disagree (SD).

The Attitude Items

- 1- It is good for me to study in a vocational school.
- 2- Vocational education has a bright future.
- 3- *I feel ashamed when I think of entering a vocational school.*

- 4- *Vocational education must be eliminated from our schools.*
- 5- Vocational education is useful to the individual and the society.
- 6- *I have negative feelings toward vocational education.*
- 7- More vocational centres and schools should be established.
- 8- *I hate vocational education.*
- 9- Vocational education provides me with useful knowledge and skills.
- 10- *Vocational education is a total waste of time and money.*
- 11- I would like to join a vocational school or centre.
- 12- *I like academic education more than vocational education.*
- 13- Vocational education is important.
- 14- *I do not like to study in a vocational school.*
- 15- Vocational education is better than academic education.
- 16- *Vocational education is suitable only for economically poor students.*
- 17- I encourage my brothers and sisters to join vocational schools.
- 18- *Vocational education is suitable only for low achievement students.*
- 19- I encourage my friends to join vocational education.
- 20- *I find manual work boring.*
- 21- *I feel annoyed when the members of my family discuss topics concerning vocational education.*
- 22- Vocational education gives me the opportunity to do the things I like to do.
- 23- I feel that vocational education topics are useful.
- 24- *I feel shame while reading a book about vocational education.*
- 25- Vocational education subjects are interesting and attractive.
- 26- I feel happy when I discuss any topic about vocational education.
- 27- *Vocational education is useless.*
- 28- Vocational education develops creativity and logical thinking.
- 29- I like to spend my spare time doing manual work.
- 30- *The future of vocational education students is dark.*
- 31- Vocational education will help to achieve my objectives in life.
- 32- *I will destroy my future by attending a vocational school.*
- 33- I like to spend my spare time reading books about vocational education.
- 34- *Vocational education degrades the individual social status.*

35- Vocational education is the key for developing any country.

36- I like to read vocational education books.

37- *I hate to have a friend studying at a vocational school.*

38- Vocational education increases self confidence.

Kind regards,

Ahmed Al-Sa'd

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Malmö University

Sweden

(Underlined and with Italic items are negative and should be reverse scored)

Appendix 2

The interview questions of the explorative study

Dear Madam or Sir,

The following is a group of questions that are intended to investigate your perceptions about vocational education and students' attitudes towards vocational education as well. Therefore, please answer the following questions according to your experience and knowledge. Your answers are highly appreciated and I am very grateful for your cooperation.

First question: What are the factors that determine tenth-grade students' attitudes towards vocational education?

Second question: In the long run, do you believe that vocational education is more profitable or feasible than academic education? Please explain.

Third question: Do you believe that the majority of tenth-grade students' have negative attitudes towards vocational education? If so, why?

Fourth question: At the government level, what are the government decisions that have been taken, and what are the government decisions that you believe have to be taken in order to encourage tenth-grade students to attend a vocational school voluntarily?

Fifth question: What are the historical roots that you believe have contributed to the negative attitude towards vocational education?

Sixth question: What are the prevailing values in the Jordanian society that you believe they have formed students' negative attitudes towards vocational education?

Seventh question: Do you have any further suggestions or comments not mentioned in your answers to the previous questions?

Kind regards,

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Appendix 3

Answers to the interview questions

(The researcher's translation of the answers from Arabic language)

Answers to the first question

What are the factors that determine tenth-grade students' attitudes towards vocational education?

The following are the factors that determine tenth-grade students' attitudes towards vocational education according to the persons interviewed.

Inferior status of vocational education graduates from society's point of view. Vocational education is not profitable (economic factor). University education is not open to vocational education graduates. Students' fathers' profession, because the father encourages his son to join his profession. The influence from friends and colleagues affects students' beliefs and attitudes. Prevocational education teachers play a major role in the development of students' positive or negative attitudes towards vocational education. Students' place of residence and the environment affect students' attitudes. The bad reputation of vocational schools, as schools for low-achievement students, spoils the willing enrolment of high-achievement students and creates negative attitudes.

Ineffectiveness of some vocational education teachers resulted in unqualified vocational education graduates that consequently created negative attitudes towards vocational education among tenth-grade students. Availability of job opportunity. Manual work practices at home. Possibility to continue university education. Students' ambitions. Importance of prevocational course during basic education from students' perspective. Labour market demands on some vocations like nursing, hotel trades and some industrial specializations are behind students' desire to join such specializations. Low students' GPAs force them to enter vocational education.

Students' parents' preferences and wishes have an effect on students' attitudes in light of labour market requirements. Vocational guidance, prevocational education, family role, society, supply and demand on vocations in the labour market. The dominant culture

in the society for skilled and semiskilled workers is a major factor. Since this culture is negative, students refrain from joining vocational education.

The connection between vocational education and higher education in general and university education in particular. When university education is open to vocational education students their attitudes become positive towards vocational education.

Effectiveness of vocational guidance and counselling services for basic education students. More effective and efficient services enable students and their parents to take rational decisions with respect to their selection of the most suitable secondary education. Availability of work opportunities with good income for vocational education graduates. When such opportunities are available, numbers of students increase to join vocational education. Students' achievement level; it rarely happens that high-achievement students select vocational education.

Family socioeconomic status. The majority of vocational education students belong to low and middle income families.

If tenth-grade students are free to choose between vocational and academic education, the following factors determine their attitudes: society's view towards vocational education, parents' level of education, parents' profession, student's desire and ability, availability of job opportunity, salaries and wages of various vocations in the labour market, mass media, and student's GPA. Family socialization of the individual decides the attitude towards vocational education.

Prevailing social values in the society play some role in deciding the attitude towards vocational education. Government decisions play some role in deciding the attitude towards vocational education.

There is a group of factors that interact to decide students' attitudes towards vocational education:

Students' personal factors like mental abilities (general intelligence), vocational interests, personal characteristics and traits, students' physical, psychological and social growth and students' achievement. Family factors like parents' aspirations and their influence on students' attitudes, socioeconomic and cultural status of the family, fathers' profession and his social status, environmental

and social factors like friends' influence, mass media influence, vocations' social status, income from various vocations.

Factors related to the school environment like teachers and counsellors influence, lack of information about labour market.

Answers to the second question

In the long run, do you believe that vocational education is more profitable or feasible than academic education? Please explain.

The following explanations are given in reaction to this question:

It depends on the societal perspective on vocational education and skilfulness of vocational education graduates. Effective, skilful and well-trained technicians are badly needed in Jordan, but vocational school graduates do not reach high levels in their training, and therefore their competitiveness in the labour market is low, as well as their salaries and wages. Nevertheless, well-trained and skilful graduates have better chances for employment and good income in comparison with their counterparts in the academic school. Unemployment is higher among university graduates than among vocational school graduates.

Yes, I believe that vocational education is more profitable than academic education for the following reasons: it is easier for graduates from vocational education to find jobs than those graduated from academic education, and unemployment is very high among academic education graduates.

Yes, it is more profitable if vocational education curricula and training has been developed to fulfil labour market demands of high quality graduates.

Yes, vocational education is more profitable than academic education, in the long run, because people specialized in various vocations are badly needed in the labour market.

If we suppose that secondary education graduates stop their education by the end of secondary education, vocational education is more feasible and more profitable than academic education for them, especially if students selected to join vocational education to fulfil their interests and aptitudes and according to the labour market needs.

One of the decision makers at the Ministry Of Education believes that vocational education is more profitable because the future is for technology, but those who are skilful can find good jobs — not everybody. This skilful worker must have good qualities to compete in the labour market, such as general information, good contact with others, ability to persuade others, have computer skills, and be capable in his own vocation.

Vocational education is more profitable than academic education because parents and the government paid a lot of money for both academic secondary and university education. Moreover, university graduates are unemployed for some years.

In the long run, I do not believe that vocational education is more profitable than academic education because this is controlled and affected by many factors like labour market demand, vocations' income, vocations' social status and society's attitudes towards it, quality of vocational education and training at schools.

Answers to the third question

Do you believe that the majority of tenth-grade students' have negative attitudes towards vocational education? If so, why?

Vocational education selection ratios by tenth-grade students, according to their desire, are 38.6 percent for males and 30.8 percent for females respectively for the school year 2000-2001. This means that the majority of tenth-grade students have been forced to join vocational education and they have negative attitudes for the following reasons:

The society's negative attitudes towards vocational education.

Lack of suitable employment opportunities. Low salaries and wages for the vocational and technical jobs because of the ineffectiveness of vocational education graduates. Very few vocational education graduates have the opportunity to continue their university education (low chances for university education). Bad reputation of vocational schools. Lack of training and interest of vocational education teachers. Lack of training and interest of prevocational education teachers. Lack of citizens' awareness of the importance of vocational education in human resources development.

The society gives vocational education low status in comparison to academic education. Selection of low-achievement students to join vocational and technical education (Vocational Training Corporation-VTC). Long school day at vocational schools in comparison to academic schools. Inferiority view of the society towards vocational education.

I do not think that the majority of students have negative attitudes towards vocational education, because the current economic conditions force them to get a technical job. Parents and social pressures have driven students to choose academic education in order to continue their university education, especially in medicine and engineering which are prestigious and badly needed in the society.

Yes, students have negative attitudes towards vocational education because of the inferiority status placed by parents and the whole society; even so, that has been reduced relatively in comparison with the past.

The previous Minister of Education does not think that the majority of tenth-grade students have negative attitudes towards vocational education, but he believes that many of them (probably more than 50%) have negative attitudes for the following reasons: prevailing negative image of vocational work, less effective vocational guidance and counselling, prevailing employment system especially in the public sector that makes a connection between university certificate and employment level.

Yes, most tenth-grade students have negative attitudes towards vocational education for the following reasons: low status (inferiority) of vocational education in the society, lack of job opportunities for vocational education graduates, restriction of university education for students from vocational tracks, which creates a feeling of inferiority among them, and unequal opportunities for university admission between students from vocational and academic education.

Yes, I believe the majority of tenth-grade students have negative attitudes towards vocational education because students are forced to join vocational education according to their achievement and not their desire. Also, attitudes of parents and society towards vocational education are negative.

Answers to the fourth question

At the government level, what are the government decisions that have been taken, and what are the government decisions that you believe have to be taken in order to encourage tenth-grade students to join vocational education voluntarily?

Decisions taken are:

Vocational education graduates are allowed to apply for university education (with restrictions), new curriculum and textbooks have been developed for all vocational tracks.

Foreign work forces are replaced by Jordanian work forces at the vocational level. Funding for small projects has been established.

Admission to university education is more connected to students' achievement than their secondary education type. Students in vocational education tracks can compete with their academic counterparts if they study some additional academic subjects.

Availability of many vocational and technical tracks helped the students to select the best track according to their interests and abilities.

Extension of basic education into ten years and shortened secondary education into two years has helped students to become more mature in their selection of the type of secondary education.

The introduction of prevocational education as a school subject at the basic education level has provided students with useful knowledge about vocational education.

Free secondary education.

Some funds and organizations have been established to finance small vocational projects.

Decisions to be taken are:

Tenth-grade students' distribution into vocational and academic education must be based on students' free choice, not their GPA's

Reconsideration of vocational education curriculum in order to take into account more practical training and less theoretical training

Promoting the quality of vocational education teachers through teacher education and training programmes.

Allocate admission quota at Jordan universities for vocational education graduates.

Develop vocational guidance and counselling services.
Improve employment services for vocational graduates.
Improve the quality of services and equipment at vocational schools and good connection with the labour market.
High quality standards for vocational education graduates must be established.
Serious analysis of labour market needs. Cooperation with private sector to establish quality standards and needs assessments. Establish a university for vocational education graduates.

Answers to the fifth question

What are the historical roots that you believe have contributed to the negative attitude towards vocational education?

From a historical point of view, the Badwin life style of the society did not give a good social status for handicraftsmen. This situation is still affecting the society and forms the negative attitudes towards such vocations.

Inferiority of vocational education is very old in the society; this situation has been exacerbated by the Ministry through its policy that allows only high-achievement students to join academic education and leaves low-achievement students to join vocational education. A shame culture among the Jordanians has been connected with vocational or manual labour. Children from low socio-economic or poor families are normally expected to join vocational education or drop out of the school system. Unequal opportunities for vocational and academic education students' to join university education. Low quality of vocational education. Most upper-class people do not respect those who are working in vocations, but this view has changed relatively. In the past, illiteracy was connected with people in the working class; this impression has established a connection between inferiority and illiteracy on one hand and vocational or manual work on the other, in addition to the self-respect of people in the academic class.

The shameful culture, which prevails among Arab societies, considers vocational practitioner as servants for others. The class system, which prevailed in the society and discriminates between the

lord and the servant, has contributed to the inferiority of vocational education.

Answers to the sixth question

What are the prevailing values in the Jordanian society that you believe that have formed students' negative attitudes towards vocational education?

Government job (white-collar occupations) gives the employee more prestige than vocational job (blue-collar occupations).

Government job is more secure than vocational job (private sector), because a government job is well controlled by the government, while the private job is subject to the business person's mood and profit-driven value system. Administrative work or a white-collar job gives the employee authority, power, and overestimation of self-worth in comparison with a vocational or blue-collar job.

Blue-collar occupations are associated with unattractive clothing, and do not enhance the handsome appearance of the person. Vocations have been connected, for a very long time, with illiterate people and those who do not continue their university education. As the historical belief has indicated, vocational skills are acquired by practice and work in the workshops in the labour market, and not in the vocational school. Shame culture in the society. High demand for university education in Jordan has contributed to the formation of negative attitudes towards vocational education, because of the restriction placed upon vocational education students to join university education. Families place higher value on academic education than vocational education. Association between low achievement and vocational education. Workers' clothing is not respected in the society (inferiority). The society prefers white-collar occupations more than blue-collar occupations even though blue-collar occupations are more rewarding. Some values and habits contribute to the negative image of vocational education, like habits related to marriage or social status.

Income level is mostly connected, in the minds of the people, with certificate level. This has led tenth-grade students and their parents to look for academic schooling and refrain from vocational schooling.

Answers to the seventh question

Do you have any further suggestions or comments not mentioned in your answers to the previous questions?

All answers to the seventh question were simply no.

Appendix 4

Item-total statistics of the 38 items

Item no.	Corrected Item total correlation	Alpha if item deleted	Item no.	Corrected Item total correlation	Alpha If item deleted
1	.4479	.8579	20	.2866	.8617
2	.5593	.8559	21	.1752	.8619
3	.2049	.8636	22	.4684	.8576
4	.3116	.8611	23	.4755	.8578
5	.1480	.8649	24	.2282	.8625
6	.2904	.8615	25	.5731	.8557
7	.4108	.8590	26	.6016	.8551
8	.3656	.8599	27	.3449	.8605
9	.3203	.8609	28	.3575	.8601
10	.3480	.8604	29	.4543	.8579
11	.4436	.8580	30	.3158	.8610
12	.1404	.8641	31	.5269	.8564
13	.3910	.8595	32	.3406	.8605
14	.2680	.8622	33	.4721	.8576
15	.3083	.8616	34	.2873	.8616
16	.1095	.8650	35	.3148	.8610
17	.4131	.8588	36	.5271	.8565
18	.0448	.8669	37	.0896	.8668
19	.4647	.8580	38	.5213	.8566

Appendix 5

Means and standard deviations of the 38 items

Item no.	M	SD	Item no.	M	SD
1	2.85	1.51	20	2.92	1.38
2	2.93	1.24	21	3.24	1.34
3	3.15	1.39	22	3.00	1.32
4	3.90	1.19	23	3.05	1.20
5	3.20	1.38	24	3.96	.99
6	3.00	1.26	25	2.97	1.21
7	3.05	1.27	26	2.90	1.22
8	3.05	1.42	27	3.94	1.10
9	3.08	1.28	28	3.05	1.27
10	3.82	1.16	29	2.99	1.37
11	2.77	1.54	30	3.62	1.24
12	1.58	1.08	31	2.89	1.29
13	3.08	1.18	32	3.21	1.43
14	2.44	1.40	33	2.86	1.30
15	2.77	1.62	34	3.48	1.30
16	4.03	1.20	35	2.99	1.26
17	2.84	1.37	36	2.99	1.26
18	2.30	1.32	37	3.20	1.51
19	2.91	1.20	38	2.98	1.27

Appendix 6

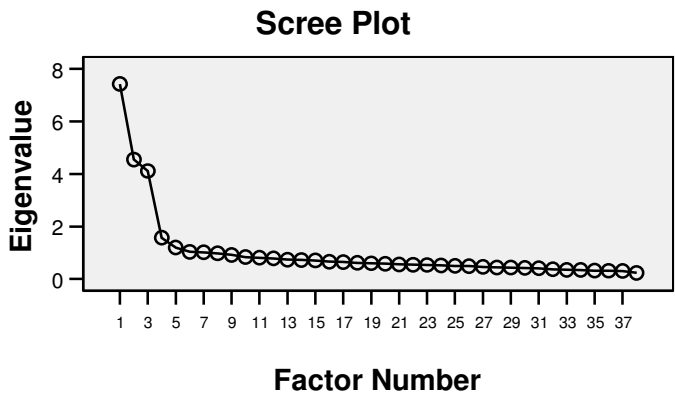
Eigen values and variance explained of the 38-item scale

Factor No.	Initial Eigenvalues			Extraction sums of squared loadings Total	Percent of variance	Cumulative percent
	Total	Percent of variance	Cumulative Percent			
1	7.419	19.524	19.524	6.714	17.669	17.669
2	4.549	11.971	31.495	4.372	11.505	29.173
3	4.111	10.819	42.314	3.514	9.247	38.420
4	1.571	4.135	46.449	.886	2.332	40.752
5	1.195	3.146	49.594	.505	1.328	42.081
6	1.034	2.720	52.315	.426	1.121	43.202
7	1.015	2.670	54.985	.344	.906	44.107

Extraction Method: Maximum Likelihood.

Seven factors with Eigen values greater than one and explain 54.99 % of the variance.

Appendix 7
Scree test illustration of the 38-item scale



Scree test of the 38-item scale. Seven factors only can be extracted

Appendix 8

Factor loadings of the 38-item scale

Factors							
Item No.	1	2	3	4	5	6	7
item-1p	.753	-.382					
item-26p	.749						
item-11p	.744	-.394					
item-36p	.724				.348		
item-33p	.699				.322		
item-2p	.696						
item-17p	.683	-.317					
item-19p	.656						.235
item-31p	.653						
item-15p	.610	-.494					
item-25p	.597	.425					
item-38p	.530	.358					
item-29p	.489	.329					
item-5p		.796					
item-9p		.724					
item-23p	.378	.672					
item-28p	.248	.668					
item-13p	.280	.654					
item-7p	.344	.505					
item-22p	.448	.494					
item-35p	.294	.377					
item-8n			.621	.331			
item-32n			.583			.239	
item-30n			.578	-.232			
item-27n			.543	-.286			
item-10n			.530	-.219			
item-34n			.508			.285	
item-4n			.490			-.304	
item-21n			.479				
item-6n			.476				.200
item-20n			.435				
item-24n			.410	-.253			
item-3n			.401				

item-37n							
item-14n			.410	.443			
item-12n				.342			
item-16n			.207	-.217			
item-18n							

Extraction Method: Maximum Likelihood.
7 factors extracted. 6 iterations required.

Appendix 9

Means and standard deviations of the 26 items

No.	Item	M	SD	No.	Item	M	SD
1	Item1	2.86	1.52	14	Item23	3.06	1.20
2	Item2	2.93	1.25	15	Item25	2.98	1.22
3	Item4	3.88	1.20	16	Item26	2.91	1.23
4	Item7	3.04	1.28	17	Item27	3.93	1.11
5	Item 8	3.04	1.42	18	Item28	3.06	1.28
6	Item9	3.10	1.29	19	Item29	3.00	1.38
7	Item10	3.81	1.17	20	Item30	3.63	1.24
8	Item11	2.78	1.55	21	Item31	2.91	1.31
9	Item13	3.08	1.19	22	Item32	3.22	1.43
10	Item15	2.77	1.62	23	Item33	2.88	1.31
11	Item17	2.84	1.37	24	Item35	3.00	1.27
12	Item19	2.92	1.21	25	Item36	2.91	1.28
13	Item22	3.02	1.33	26	Item38	2.98	1.28

Appendix 10

Reliability and item analysis of the 26 items

Item no.	Corrected Item total Correlation	Alpha If item Deleted	Item no.	Corrected Item total Correlation	Alpha If item de-leted
1	.54	.87	23	.50	.87
2	.63	.87	25	.63	.87
4	.22	.88	26	.67	.87
7	.44	.88	27	.24	.88
8	.22	.88	28	.37	.88
9	.33	.88	29	.51	.87
10	.24	.88	30	.20	.88
11	.53	.87	31	.61	.87
13	.41	.88	32	.21	.88
15	.38	.88	33	.55	.87
17	.48	.87	35	.36	.88
19	.53	.87	36	.60	.87
22	.52	.87	38	.57	.87

N=1627

N of Items = 26

Alpha = .88

Appendix 11
Eigen values and variance explained of the 26-item scale

Factor*	Initial Eigen values			Rotation
	Total	% of variance	Cumulative %	Total
1	7.263	27.935	27.935	5.806
2	3.87	14.90	42.833	5.158
3	2.639	10.151	52.984	2.293

* The first three factors are presented because their Eigen values are greater than one.

Appendix 12

Results of the first multiple logistic regression analysis

Variables or predic- tors	B	Wald	Sig.	Exp.(B) (OR)	95% CI for OR	
					Lower	Upper
Attitude scale-26 items	.028	20.817	.000	1.028	1.016	1.041
Gender	.784	10.049	.002	2.190	1.349	3.555
GPA.10 grade	-.044	4.633	.031	.957	.919	.996
Area of residence- village	-.618	5.285	.022	.539	.319	.913
Family size- medium	-.896	11.156	.001	.408	.241	.691
Family in- come- middle	.859	5.132	.023	2.361	1.123	4.967
Parents' wish for their chil- dren vocational or academic school	2.831	141.874	.000	16.964	10.647	27.030
Students' intension to study at the university	-1.02	5.757	.016	.361	.157	.830

CI=confidence interval, OR=Odds ratio, $R^2 = .225$ (Cox & Snell), $R^2 = .504$ (Nagelkerke)

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This doctoral dissertation consists of the empirical main study and the explorative study. The main goal of the empirical study has been to acquire knowledge about students' attitudes towards vocational education in Jordan, and to explore the dimensionality of their attitudes as well. Another goal has been to investigate which background variables best explain the differences in students' attitudes. A third goal has been to describe and explain the relationship between students' attitudes and their behaviour. The goal of the explorative study has been to investigate the perceptions of decision makers about students' attitudes and the status of vocational education. Data of the empirical study were collected from a multi-stage stratified cluster random sample of tenth-grade students. Data analysis of the empirical study has been based on a reliable and valid attitude scale rigorously constructed to achieve the aforementioned goals. Data collection and analysis of the explorative study have been based on the open-ended interview questions carried out with a group of decision makers.

Results of the empirical study showed that students have nearly neutral attitudes towards vocational education, and that three main dimensions comprise the dimensional space of their attitudes. These dimensions are first, a preference to enter a vocational school and encourage others to do so. Second, the importance and usefulness of a vocational school. Third, low status, hatred, and negative image of a vocational school. Only four background variables have been found to be significant predictors of students' attitudes towards vocational education. These are students' behaviour to enter vocational or academic school, students' intention to study at the university, students' achievement in Arabic language, and finally their place of residence. Results of the attitude behaviour relationship have ascertained the predictability of human behaviour from attitudes, taking into consideration other variables as well. Results of the explorative study have clearly indicated that attitudes towards vocational education are negative. Vocational education has suffered from poor image and low reputation. It is not well liked in the society, and has been considered a second alternative for low achievement students as well.

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