

# An Evaluation of the Effectiveness and Validity of the Preparatory Year Programme in Preparing Students for Studying in Taibah University in Saudi Arabia

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of the requirements for PhD

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## **Declaration**

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Doctor of Education is entirely my own work, that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

Signed:

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Date:

## **Dedication**

To my father,

I dedicate this work to you. Without you, it wouldn't be possible.

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## Acronyms

NSSE	The National Survey of Student Engagement
BCSSE	The Beginning College Survey of Student Engagement
FSSE	The Faculty Survey of Student Engagement
CSEQ	The College Student Experiences Questionnaire
LTPF	The Learning and Teaching Performance Funds
ELC	English Language Centre
OPEC	Organization of the Petroleum Exporting Countries
UNESCO	The United Nations Educational, Scientific and Cultural Organization
NCUK	Northern Consortium United Kingdom
DIFC	Dublin International Foundation College
SUPER	Saudi University Preparatory English Requirements
CEFR	Common European Framework Reference
DAAD	The German Academic Exchange Service
ICDL	The International Computer Driving License
UCAS	The Universities and Colleges Admissions Service
BMAT	Bio Medical Admissions Test
TSA)	The Transportation Security Administration
PYP	The preparatory year programme
HSG	High school grade
ICT	Information and Communication Technology
AVCC	Australian Vice Chancellors Committee

## **Abstract**

### **An Evaluation of the Effectiveness and Validity of the Preparatory Year Programme in Preparing Students for Studying in Taibah University in Saudi Arabia**

Ahmad Alblowi

This study is entitled ‘Evaluation of the Effectiveness and Validity of the Preparatory Year Programme at preparing Students for Studying in Taibah University’. Within the Taibah University, students are distributed to the various specializations at the university according to their results at the end of this preparatory year. It is a relatively new programme that has not been subjected to sufficient evaluation. The study explored the strengths and weaknesses of the programme with a focus on identifying ways to contribute to its improvement and development. The study used a mixed approach where the use of multiple linear regression was used to examine the ability of the admission criteria to predict the academic performance of programme students through examining the results of 3878 students. The results show that stronger acceptance criteria were provided by the achievement test followed by a student’s high-school mark and finally a capability test.

To evaluate the effectiveness of the programme elements and the achievement of its objectives from the perspective of students and trainers, data was collected through 1972 student questionnaires, 98 trainer questionnaires and eight semi-structured interviews with students and four with trainers. Studying the effectiveness of the programme from the viewpoint of faculty members was done using 167 questionnaires and five semi-structured interviews. The results show the weaknesses of the university environment and the failure of the programme to meet its goals from the students’ and trainers’ viewpoints. The evaluation by faculty members of the effectiveness of the programme showed a positive view of the programme and expressed the view that students who have completed the programme have better skills and more knowledge than those who have not. The study recommended to allocate the largest proportion of a weighted percentage for acceptance to achievement test-results, followed by high school, and finally aptitude test-results. Furthermore, the study found that the teaching and assessment methods need to be reviewed, and the content and goals of the preparatory year programme would benefit from being re-aligned.

# **Chapter 1 Introduction and Background**

## **1.1 Introduction**

Preparatory programmes are usually administered at many Saudi universities and are generally intended to improve the students' ability to access and complete college education. They are also designed to satisfy the educational objectives of Saudi Arabia (Alshumaimeri 2011). According to the Eighth Development Plan, the transition from secondary to higher education should be conducive to a higher proportion and quality of students progressing to post-graduate studies (Ministry of Economy and Planning 2004).

The Preparatory Year Programme (PYP) at Taibah University is one that specifically prepares students for university study. The period of study is one academic year and the programme covers three tracks of study: health sciences, applied sciences and humanities. It is a prerequisite for admission into the undergraduate programmes of different departments, and the student has to study in all tracks English language, university skills. All students are distributed throughout the various faculties and are able to specialize at the end of the programme, according to their results, their interests and the number of students that can be accepted into each department (Dean of Academic Services 2013c).

This study provides value because it evaluates a Saudi educational component that accounts for a substantial proportion of university funding and determines the future of many students. The evaluation of the preparatory year programme facilitates scrutiny of its validity and effectiveness and sheds light on perceived strengths and weaknesses, identifying ways in which it can be improved. There is a need for conducting research in Saudi Arabia to help policymakers and institutions to modify the programmes to ensure that students who participate in them are fully prepared for their university education.

This study evaluates the effectiveness and validity of the programme intended to prepare students for study at Taibah University in Saudi Arabia. This chapter provides an overview of the higher education system in the country, which includes a discussion of the criteria for admission to Saudi universities in general, and Taibah University in particular, as well as the admission tests that are applied. It also provides a description of PYP's in other Saudi universities and related educational ventures in international

institutions. The programme offered by Taibah University and all its components are presented in detail.

In addition, an overview of the research context the research questions and goals is provided, as well as a description of the research methodology and its tools.

The chapter closes with an outline of the Structure of the Thesis, which provides the focus for the remaining chapters.

## **1.2 Preparatory Year Programme at Taibah University**

The Preparatory Year Programme at Taibah University is a programme to prepare students for university study. The period of study is one academic year. The study plan in the programme is divided into three tracks: health sciences, applied sciences and humanities. Some courses can be taken during the first or second semester. The preparatory year programme is a prerequisite to admission into the undergraduate programmes at different departments, such as science, health and the humanities. The student studies in all tracks. English language, university skills and other subjects vary depending on the track. Students can, towards the end of the programme, attend courses in the various faculties and departments at the university in accordance with their interests, their scores and the number of students that can be accepted into each department. (Dean of Academic Services 2013c).

## **1.3 Background of the Researcher**

The researcher worked in the public education sector for 16 years as a teacher, student advisor and educational supervisor. Then he served as the head of the Department of Exams and Acceptance in the Management of Education division in the province of Alula. During this period, the researcher also chaired the comprehensive committee evaluation of schools and served as coordinator for the National Centre for Assessment in Higher Education. In conjunction with fulfilling these career obligations, he earned a higher diploma in measurement and evaluation and a Master's degree with academic distinction and first class honours from Umm Al-Qura University in Mecca.

In 2009, the researcher moved to the Alula branch of Taibah University to work as a lecturer in the Educational Preparation Department of the Faculty of Science and Arts. Additional posts undertaken by the researcher were the supervisory position at the college agency and the supervisory role in the preparatory year programme of the

university's Alula division. The researcher's responsibilities resulted in travel to Ireland at the end of 2010 for English doctoral studies, which was funded by Taibah University.

During the work for the preparatory year programme, there was an urgent need to evaluate its components. The researcher's year in the supervisory post was the first year during which the programme was offered in Alula. The expansion plan for the programme focuses on new employees, accelerating the rental of buildings for students and students' fear of undertaking the programme. All these developments encouraged the researcher to augment his expertise in the field.

Additionally, minimal attention has been directed towards preparatory year programmes in Saudi Arabia, and the few studies that address this issue focus only on certain parts, rather than all the components of a given programme. Research on the specific circumstances of Taibah University is even more scarce. To fill these voids, the current research is aimed at exhaustively investigating the components of Taibah University's preparatory year programme. The investigation spans an analysis of the admission and pass criteria, the purposes and components of the programme and its effectiveness in reinforcing the competencies of students enrolled in different colleges.

#### **1.4 Research Location**

Al Madinah Province is one of thirteen provinces in Saudi Arabia, and ranks third in terms of area, and fifth in terms of population among other provinces.

The number of provinces of the Emirate Madinah is six provinces (Ministry of Interior 2016). The population in 2010 was more than 1,777,933 people (General Authority for statistics 2016).

The largest of its affiliated cities is Yanbo. Its distance from Medina is 220 km and from Alula about 320 km.

There are two universities in the city of Medina: Islamic University and Taibah University. Taibah University was founded in 2003. The university started with seven colleges and evolved until, in the academic year 2013–2014, it included 28 colleges and one institute. Of these, 16 colleges are located at the headquarters of Medina and the rest in Yanbu, Alula, Hinakiyah, Khyber, Almahd and Badr. The number of university students reached 69,110 students in the academic year 2015-2016 (Taibah University 2016).

## **1.5 Significance of the Study**

This study provides value because it evaluated a Saudi educational component that accounts for a substantial proportion of university funding and determines the future of many students. The specific contributions of this work were enumerated as follows:

- The evaluation of the preparatory year programme facilitates scrutiny of the validity and effectiveness of the programme.
- The evaluation sheds light on the strengths and weaknesses of the programme.
- The results are expected to drive improvements to the programme.
- The evaluation serves as an initial point of departure for a potentially considerable body of research on the preparatory programmes offered in Saudi Arabian universities.

## **1.6 Aim of the Research**

The study seeks to determine the effectiveness and validity of Taibah University's preparatory year programme by assessing the programme components. To this end, the following objectives are undertaken:

- 1) To examine the effectiveness with which the admission criteria of Taibah University predicts the academic performance of preparatory year students.
- 2) To investigate, from students' and trainers' perspectives, the relationship between the contents and goals of the preparatory year programme.
- 3) To assess the programme components from the perspectives of students and trainers.
- 4) To evaluate the extent to which the programme objectives are achieved, as viewed by students and trainers.
- 5) To determine the viewpoints of faculty members regarding the effectiveness of the programme.

Note that some colleges (e.g. community colleges) and university departments do not require enrolment in preparatory year programmes.

## **1.7 Research Questions (RQs)**

**RQ 1** - What is the predictive effectiveness of the criteria for admission into Taibah University's preparatory year programme for each track and gender?

**RQ 2** - From the perspectives of students, how effective is the preparatory year programme?

The sub-questions were as follows:

- What are the students' evaluations of the programme's main elements (academic content, trainers, methods of evaluation, academic advising and university environment)?
- To what extent does the programme achieve its goals?
- What is the relationship between the subjects offered in the programme and its goals?
- Does the branch significantly affect the students' evaluations of the programme's main elements?
- Do the students significantly differ in their assessments of the programme's main elements in relation to gender?

**RQ 3** - From the perspectives of trainers, how effective is the preparatory year programme?

The sub-questions were as follows:

- What are the trainers' evaluations of the programme's main elements (academic content, methods of evaluation, academic advising and university environment)?
- To what extent does the programme achieve its goals?
- What is the relationship between the subjects offered in the programme and its goals?
- Do the trainers significantly differ in their evaluations of the programme's main elements in relation to branch?
- Do the trainers significantly differ in their assessments of the programme's main elements in relation to gender?

**RQ 4** - How effective is the preparatory year programme in improving the performance of undergraduate students who completed it in comparison with those who did not enrol in it?

The sub-question is:

- Do the Faculty members significantly differ in the effectiveness of the preparatory year programme in relation to gender?

### **1.8 Methodology**

The data collection process adopted a mixed-methods approach, employing both qualitative and quantitative techniques. The Concurrent Triangulation Strategy was chosen because when one uses more than one tool or method of data collection and analysis it is important to verify or ascertain the validity of the results. The quantitative data consisted of students' admission scores and average grades at the end of the preparatory year, which were provided by the Deanship of Admission and Registration at Taibah University. In addition, further data was obtained from online questionnaires distributed by e-mail to the PYP students, trainers and faculty members. The qualitative data was compiled from semi-structured interviews that were carried out with the respondents. The questionnaires provided the researcher with an opportunity to draw large amounts of information from the respondents. This is one advantage that it holds over other methods, such as interviews that can be extremely time consuming. Interviews were therefore used to enhance reliability of the data.

The pilot study involved a total of 108 students, 22 trainers and 22 faculty members drawn from Alula Branch. This sample was obtained randomly. The pilot study that was carried out for the interview process was conducted with three interviewees; one representative from each of three groups indicated above.

To determine the predictive value of the admissions criteria, the final sample consisted of 3,876 students. Pearson's correlation coefficient and multiple regression analyses were conducted, and frequency tables and graphs used to display the data. The questionnaires were completed by 1,972 students, 165 trainers and 98 faculty members. Statistical analysis was carried out to calculate the percentages of frequencies, means and standard deviations for each item and for an entire axis; a t-test was conducted to compare averages on the basis of gender, and one-way ANOVA was performed to compare means on the basis of branch. Finally, posthoc tests based on the ANOVA results were conducted when required.

The qualitative data was collected through 17 semi-structured interviews. Eight of these were with students, four with trainers and five with faculty members. NVivo 10™ software was selected to assist in the analysis of the data.

### **1.9 The Key Contributions of this Study**

This study could help Taibah University and the programme managers review the programme and address weaknesses in the programme, leading to improved performance within the programme. It also sheds light on some of the items that need further study and research. Regarding the predictive ability of the admission criteria, the results of this study will help to review the proportion of each criterion in the weighted grades for accepting students in the light of the strength of each criterion. This study used a mixed approach. Therefore, this study may encourage more use of this method in research in Saudi Arabia. The study can also be applied to other programmes in Saudi universities to help compare them. The approach of this study and its tools, including the analysis techniques, can be used to evaluate the preparatory year programmes applicable in all Saudi universities due to the great similarity among

these programmes. It can also be used to evaluate similar academic programmes. In addition, this study reviewed experiences around the world with respect to acceptance criteria and the programmes that prepare students for university study. The methods of evaluating university programmes would be useful for researchers and those interested in Saudi Arabia.

### **1.10 Higher Education Policy in Saudi Arabia**

Saudi Arabia was founded in 1932, during a time when the country was suffering from poverty and limited educational services. Only 12 schools with 700 students existed. The discovery of oil in 1938 changed the economic and developmental conditions of the country. Likewise, the education sector rapidly evolved; in 1950, 365 schools that catered to 42,000 students were in operation. The year 1954 saw the formation of the Saudi Ministry of Education, which monitors all education sectors in the country. At that time, education programmes and institutional offerings were available exclusively to male students. The first university in the country, King Saud University, was established in Riyadh in 1957 to meet the demand for professional education for young Saudi men. The establishment of the university helped satisfy Saudi Arabia's educational needs without students having to acquire education abroad. By 1959, the need to educate the female population grew, thus prompting King Saud University to seek permission, support and approval from religious scholars and clerics to provide education for women. This development led to the establishment of the first school for girls in Riyadh and gave rise to the norm of having single-sex schools in the country. The practice of separation between males and females at the schools persists to this day (Alamri 2011).

Public primary and secondary education in Saudi Arabia is provided with no cost to Saudi and non-Saudi students, but higher and professional education is provided solely to Saudi students. The students are given stipends as encouragement to pursue higher education—an ineffective scheme given that the literacy level in the country has remained low, especially amongst female students. According to Prados and Alfred (2007), the approximate literacy rate in 2003 was 78.8%, of which males accounted for 84.7% and females accounted for 70.8%. This percentage increased in 2014 to

94.68%, of which males accounted for 96.79% and females accounted for 87.92% For those who above 15 years old. According to the Saudi Central Department of Statistics and information website.

After the establishment of King Saud University in 1957, six other universities were established in the next 20 years. In 1961, Islamic University was formed (Islamic University 2012), and in 1963, the King Fahd University of Petroleum and Minerals was established (King Fahd University 2014). King Abdul-Aziz University and Umm Al-Qura University were founded in 1967 (King Abdul-Aziz University 2014; Umm Al-Qura University 2014). The year 1974 witnessed the founding of Imam Muhammad bin Saud Islamic University (Imam Muhammad bin Saud University 2014), and the following year, King Faisal University was formed (King Faisal University 2014).

Higher education in Saudi Arabia is managed by the Ministry of Education, which espouses various objectives. First, it aims to guide the establishment of higher education institutes and focus on courses that are needed by the country's learners. Second, the Ministry is mandated to develop and manage higher education institutes in the country. Third, it is responsible for improving communication amongst higher education institutes and interaction with other relevant ministries. Finally, the Ministry represents Saudi Arabia in various cultural offices across the globe, such as the Saudi Arabian Cultural Mission to Washington, D. C. in 2011. The Ministry of Education is the central authority that directs higher education (university education) to ensure university operations conform to government policies. It also coordinates and promotes scientific research in accordance with the rules and regulations of universities (Alamri 2011; Ministry of Higher Education 2010).

Higher education in Saudi Arabia has exhibited strong growth and development, as reflected by the establishment of a number of private education institutions in the last decade. Today, institutions offering education in various fields continue to be established. The country currently has 25 government universities (Ministry of education 2016a), ten private universities (Ministry of education 2016b) and 39 private colleges. (Ministry of education 2016c)

Saudi Arabia is a member of the Organization of the Petroleum Exporting Countries (OPEC), and is the largest oil supplier in the world with substantial oil reservoirs. The increase in economic dependence on oil revenues protected Saudi Arabia from the 2008 financial crisis, during which time the government was able to sustain the education scheme/policy called the 'King Abdullah Scholarship Programme'. The programme provides government funding to students who wish to acquire education overseas, and the scholarship covers tuition fees and living expenses for the entire duration of the study. This programme was initiated in 2005 to satisfy labour demands, especially for university faculty members. From its inception, approximately 70,000 Saudi students travelled to foreign countries to enrol in undergraduate, graduate and postgraduate programmes in various disciplines. The majority of these students studied in the United Kingdom, the United States, Australia and Canada (Ministry of Higher Education 2014). According to a report by the Ministry of Higher Education (2014), UNESCO has ranked Saudi Arabia among the global top four in terms of the population of students studying abroad. The top three are China (421,000 students), India (153,300 students) and South Korea (105,300 students). UNESCO also indicates that more Saudi students study overseas than Japanese and American students. Furthermore, UNESCO has ranked Saudi Arabia at the top position in terms of the proportion of overseas-studying individuals out of the country's total population at 0.03%.

Saudi students have ample opportunity to study under different disciplines in various international universities, regardless of gender. However, Saudi female students are required to be accompanied by a close male relative (*Mehram* in Arabic) so they have the support they need should they encounter difficulties abroad. The government also shoulders the living costs of the Mehram. In 2010, the Ministry of Higher Education began providing scholarship programmes to Saudi students who want to study at private Saudi universities, thereby expanding the opportunities of those who cannot afford higher education at such institutions.

The measures implemented by the government attests to Saudi Arabia's commitment to continually develop its higher education sector. As previously stated, these measures are expected to enable the country to fill its labour gap. Accordingly, such

improvements will translate to greater career opportunities for thousands of higher education students (Alamri 2011).

On January 29, 2015, a Royal Decree was issued to merge higher education bodies and the Ministry of Education as one ministry.

### **1.10.1 Higher Education Policy as Articulated in the Policy Documents of Saudi Arabia**

The fifth item in Part III is associated with the goals of higher education and the educational policy goals of Saudi Arabia. Article (108) indicates that higher education encompasses all the stages, types and levels of practical specialisation and the care of skilled individuals and geniuses for the development of their talents. These measures are designed to satisfy the different needs of the community in the present and future; the manner by which these needs are met should keep pace with useful development that realises the noble goals of the nation. The most prominent goals of higher education in terms of searching for individuals who will competently ensure the sustained progress of the country are as follows (The Higher Committee for Education Policy 2005):

Article (110): This article revolves around the preparation of highly qualified citizens, who are eligible scientifically and intellectually to perform their duties in the service of their country and promote their nation in accordance with the sound beliefs and wise principles of Islam.

Article (111): This article mandates the provision of opportunities for genius students to pursue graduate studies in various scientific specialisations under the same disciplines. The fifth item in Part IV of the article is associated with the design of higher education stages. The contexts involve are indicated in the succeeding articles.

Article (130): Higher education begins after secondary schooling or its equivalent.

Article (131): Higher education in its various civilian and governmental branches is subject to the authority of the Supreme Education Institution.

Article (134): Higher education is coordinated amongst different colleges to achieve a balance in the country's needs with respect to various facilities.

Article (135): Departments of higher education studies in various specialisations under the same disciplines should provide education to students whenever their abilities and other potential factors warrant such provision.

Article (136): Universities grant university degrees to graduates of different specialisations.

### **1.10.2 Orientations and Goals of the Ninth Development Plan for Higher Education**

The Ninth Development Plan anticipates that higher education in the Kingdom will face two challenges: the rising social demand for higher education and the increasing demand for high-quality professional competencies in the labour market. These challenges involve two specific dimensions quantitative and qualitative which must be taken into account when designing future enrolment policies. The strategy is based on the development of higher education in the plan in accordance with a set of general goals, policies and detailed objectives that serve as vectors for any future designs in the higher education sector. The most significant goals in this regard are provided below. (Ministry of Economy and Planning 2009)

#### **1.10.2.1 General Goals**

This plan aims at increasing the internal and external efficiency. This efficiency is key in the achievement of development requirements. It is also meant to improve the quality of education by applying modern management systems and optimizing the use of information technology and communications. The plan will also incorporate local communities into the actions by creating active mutual partnerships. Scientific institutions across the globe have the potential of helping in the process of realization the goals under this plan. Therefore, the plan will develop coordination and cooperation with these institutions both within the country and globally in an effort to achieve these development goals. (Ministry of Economy and Planning 2009)

### **1.10.2.2 Policies**

As indicated in the Ninth Development Plan, policies are classified according to target objectives. Various policy statements have been put in place to optimise the operations towards the objectives. One of the policies provides for the inclusion of the courses and curricula that impart skills, knowledge and attitudes that meet the needs of the labour market. There will be procedures to determine the quality of various higher education indicators in regard to the faculty members, students, actual hours and the programmes that characterize the education process. Periodical reviews of the plans, curricula and the study programs will be carried out. These reviews will be geared towards linking the educational process of these aspects to their quality output. The plan will also seek to improve the quality of higher education in terms of technical output. Another policy seeks to increase the flexibility in educational programmes at higher learning institutions. The plan is also intended to work towards attracting outstanding faculty members in order to promote the viability of the workforce. It will also enhance the effectiveness of application of modern management concepts in running higher education institutions and ensure that they benefit from successful experiences. Another policy provides for the creation of digital boundaries through providence of data banks and other digital resources in all higher learning institutions. (Ministry of Economy and Planning 2009)

### **1.10.2.3 Specific Goals of the Ninth Development Plan**

The plan aims at the continual evaluation of the curricula of the university. It will also enhance internal efficiency of institutions of higher education and reduce the average number of years spent by students in those institutions until graduation is 4.5 years for colleges with four-year studies, 5.5 years for colleges with five-year studies and 6.5 years for colleges with six-year studies. The Ninth Development Plan will also widen the dissemination of cooperative education mechanisms in institutions that are compatible with this type of education. The dynamism in labour market needs necessitates that education be aligned to the changes in order to make the students able to compete for various opportunities. The plan will increase the programs and courses in an effort to respond to this dynamism. It will also develop services and student activities such as healthcare, housing, sports, cultural and social activities, social care

for students in need, libraries, meals, transportation services and books. (Ministry of Economy and Planning 2009)

## **1.11 Preparatory Year Programme in Some Countries**

### **1.11.1 Preparatory Year in the United Kingdom and Ireland**

An increasing number of students from non-English speaking countries travel to Ireland and the United Kingdom(UK) to seek additional assistance in developing their English language skills. This influx has motivated many universities and other educational institutions to provide foundational programmes. Education in the foundation year encompasses the provision of the basic knowledge required for admission and study at the universities of Ireland and the UK. Foundational courses are provided by the universities themselves or institutes who partner with universities (Education in Ireland 2014). Welcome Ireland (2014) indicates that after completing foundational courses, approximately 80% of students acquire admission to their university of choice and disciplinary preference. Foundational programmes are recognised by international bodies, including the Saudi Ministry of Education.

A foundational programme consists of several courses. Core courses may include English, mathematics and other classes intended to develop essential skills, such as communication, cultural awareness and information technology competency. Courses are taken in accordance with a student's target field of study for his/her undergraduate education. The training and education acquired from these courses facilitate performance in undergraduate programmes. Students can choose subjects amongst four disciplines: business, information technology, medical sciences or sciences. Accordingly, students are taught different courses in a given subject (Education in Ireland 2014; The Complete University Guide 2014).

Lectures are a primary medium for course delivery, and performance is determined by end-year examinations in May, class attendance and periodic assessments throughout the academic year (Welcome Ireland 2014). Most foundational programmes are administrated by universities with faculty dedicated specifically to such initiatives. Some of these institutions are University College Dublin (UCD), DCU, Waterford Institute of Technology and the University of Limerick. Faculty members who teach in foundational programmes hold specialisations in their respective subjects. Students

are required to obtain a minimum grade of D to pass the foundation year and acquire eligibility to carry on with their studies in a university undergraduate programme (UCD 2014; Waterford Institute of Technology 2014; DCU 2014).

Certain institutes have a standing joint venture with universities to provide the Northern Consortium United Kingdom (NCUK) foundational programme, which was developed in 1987 when 11 universities entered into a partnership to design the programme. In Ireland, only one institute offers the NCUK foundational programme. This institute is the Dublin International Foundation College (DIFC), which teaches various courses under the initiative. It offers the foundational programme to undergraduate students and graduate programmes to graduate students. The aims of the programme are to develop essential English language skills and deliver the courses that are necessary to future education (NCUK 2014). The English language course at DIFC is English for Academic Purposes (EAP); passing this class exempts students from taking international English examinations (DIFC 2014). The institute also assists students in the university application process. Ireland is home to 11 NCUK partner universities, namely, NUI Maynooth, University College Cork, the University of Limerick, Queen's University Belfast, NUI Galway, the University of Ulster, Dublin Institute of Technology, Galway Institute of Technology, Athlone Institute of Technology and Griffith College Dublin. In the UK, seven institutions provide the NCUK foundational programme. Some of the 16 partner universities that offer the programme are the University of Liverpool, the University of Manchester, the University of Bradford, the University of Huddersfield, the University of Sheffield and the University of Leeds (DIFC 2014; NCUK 2014).

Students are required to satisfy eligibility standards when applying for the NCUK foundational programme. They should have completed 12 years of schooling (i.e. completed secondary education), have a minimum IELTS score of 5.0 and completed the online application form on an institution's website (DIFC 2014). Numerous non-English speaking students, such as Saudi, Chinese and Polish students, are currently enrolled in the NCUK programme.

### **1.11.2 Preparatory Year Programme in Saudi Arabia**

The objective of the English language Preparatory Year Programme (PYP) is to enhance Saudi students' English proficiency skills for them to gain eligibility for study in undergraduate programmes in the country. The programme also aims to improve students' English comprehension and speaking abilities, which is achieved by employing native English-speaking teachers. These multinational English tutors join a university to develop the curriculum, provide mentorship and work towards improving the English language skills of Saudi students. In Saudi universities' preparatory year programmes, English has become the primary medium of instruction for all courses, given that the language is viewed as important in various fields. Preparatory programmes are also designed to satisfy the educational objectives of Saudi Arabia (Alshumaimeri 2011).

The English language programme spans two semesters in one academic year. Each week, students are taught for 20 hours, which accumulates to 600 hours over the two semesters. The programme objectives are to improve students' English language skills and develop language abilities that are essential to educational and professional endeavours. The first semester focuses on general English, which comprises lessons on expressing and communicating in the language. The second-semester centres on academic English language skills, with the curriculum emphasising academic reading and writing abilities. Academic English is taught in a manner that prepares students for completing international English language tests, such as IELTS, TOEFL and the Preliminary English Test (PET).

The student-specific objectives that should be realised at the end of the English language programme are as follows. Firstly, students should possess advanced skills and linguistic competence in the English language. Secondly, they should exhibit effective English communication in written and spoken forms. Thirdly, they should exhibit basic academic English language skills. Lastly, they should be able to perform in international English tests and pass with minimum requirements.

English language programmes are provided by American and UK educational organisations, such as Kaplan and Bell International. The programmes are also delivered in collaboration with the University of Cambridge Press and Pearson

Longman. Such partnerships have improved the curriculum, English teaching materials and preparatory year programmes offered in Saudi Arabia.

Students applying for a preparatory year programme are required to take a placement test, which can vary between a computer- and paper-based test. The test enables an institution to determine the proficiency levels of students. The results are classified into six levels according to English language abilities. The English language programme develops and improves students' language competence in listening, speaking, reading and writing. At the same time, the focus is devoted to grammar, vocabulary and pronunciation. The comprehensive methodology adopted in the programmes is aimed at enhancing fluency and accuracy in using the English language.

Teaching staff are qualified native English teachers, of which 80% use English as their first language. Teachers possess substantial credentials, having graduate and postgraduate qualifications in English, as well as training from Cambridge-based English language teaching institutions (CELTA and DELTA).

Teachers are integral to encouraging English as a Foreign Language (EFL) students. This motivation can stem from the methods used to teach the language, teachers' charismatic personalities, course materials or the holistic system adopted by an institution. Teachers are in a position to share their experiences with students, thereby enabling them to provide support during a student's course of study. Authentic and interesting learning materials foster enthusiasm in students. The different measures teachers have incorporated into their teaching have also facilitated improvement in the learning abilities of students. A necessary requirement is to develop teaching methods that motivate students, reinforce learning abilities, foster interaction with students and create an engaging learning atmosphere. Providing a dynamic and diverse educational system that considers the individual characteristics of learners is equally important (Alshumaimeri 2011).

The preparatory programmes in Saudi Arabia are newly developed in response to the demand for improved English language skills that will afford students the eligibility and competence required to pursue higher education and professional careers. Such programmes are designed specifically for newly graduated high school students who

want to further enhance their English language skills prior to enrolling in an undergraduate programme. Students are taught various courses, including English, mathematics, science and courses that strengthen other university skills, such as test taking. The preparatory year is characterised by a busy and stringent schedule that students are required to follow; they have no leeway in terms of decision making and choice in schedule. The schedule is designed in a manner that creates a rigorous education year, during which students are trained not only for educational and language purposes but also to enable them to work under pressure and stress.

The Learning Management System is an Internet-based information technology system that provides students and their family members on-demand access to all relevant course materials and updates regarding performance. Other Internet and information system features have enhanced the educational system in Saudi Arabia by easing academic study and access to resources. In the United Kingdom, students who avail of Internet education services are still governed by the principles of educational integrity. An essential requirement, then, is for students to understand educational integrity issues, such as plagiarism and appropriate citing or referencing (Alamri 2011).

#### **1.11.2.1 Preparatory Year Programme at Taibah University**

Taibah University is one of the recently established modern universities in Saudi Arabia. The university is still evolving and developing to incorporate various courses and programmes into the current offerings of the institution. Likewise, it continually exerts efforts to effectively administrate the preparatory year programme.

Taibah University is a distinguished institute that competes with other universities in the country. The university's values are based on Islamic teachings and Arab cultural norms. Simultaneously, the university works to address issues in a contemporary manner, providing a venue of equal opportunity for all students from different backgrounds. It has developed a partnership with the community to promote scholastic education in an organised, financed and administered manner. This partnership also reinforces the research expertise of scholars and faculty members, as well as the skills of various university department and information technology employees.

The university is intent on implementing a continuous improvement strategy that enhances educational quality and elevates standards of teaching processes, scholastic research and community services while integrating different scientific disciplines to create pathways for creativity, scientific experimentation and invention. The university also augments the education and training abilities of its current human resource department, as well as providing distance education programmes that encourage a positive attitude towards lifelong learning. These services guarantee that the university produces human resources that can compete in the global and information age.

The preparatory year programme is a prerequisite to admission into the undergraduate programmes of various departments, such as science, health and the humanities. In 2013, Taibah University's preparatory year programme expanded from catering to 1400 students studying at four university divisions in two cities to 4319 students attending ten venues in five cities. Course content has also been improved to provide a more comprehensive programme of language learning. Job descriptions in the university have been refined, with the definitions classifying different positions in an organisational hierarchy. Work policies have been redesigned to clarify further the types of employment at the institute. A range of training programmes has been launched to provide teachers training that augments their teaching abilities. Some of these programmes are the day-long orientation programme and on- and -off-the-job training schemes. Staff participation in international conferences has increased, thereby advancing the introduction of new ideas and developments in the institution (Deanery of Academic Services 2013a).

Another area that has been upgraded is the course design of the preparatory year programme. The introduction of placement tests affords students of the same level an opportunity to study under the programme. A new seven-week modular cycle has been instituted in the semester system. The course materials and the testing system are based on the Common European Framework Reference (CEFR), which is intended to create specific standards for implementation in the university. Despite the progress made, however, evaluating the programme changes and their success in improving the programme has been difficult owing to the initial confusion about and lack of understanding of the new programme system. The programme policies have been

adapted to the needs of other university stakeholders, thus further obscuring the manner by which the English Language Centre (ELC) should be operated. Another problem is the lack of resources, such as the inadequate number of teachers, which hampers the progression of studies in accordance with the university's plans. These issues indicate this was not the best time to introduce a new class system.

The books used in the preparatory year programme have also been subjected to modifications. The Middle Eastern version of the books, for instance, are easier to understand, are more colourful and contain more relevant examples when compared with books from other parts of the world. Many teachers were trained to use multiple teaching methods and effectively employ the teaching materials.

Many challenges have confronted the ELC with respect to its operational expansion. The first is the lack of resources, including teaching materials, information technology facilities and physical facilities, such as rooms. Another challenge is the timely communication between the ELC and the central office to ensure the smooth flow of operations. A positive outcome is that these challenges are easily recognised given the thorough and critical self-analysis system in the institution; it has accurately identified the areas where the university is wanting and where it excels.

The ELC intends to overcome these drawbacks by improving management systems, satisfying infrastructural requirements, increasing training that explains programme components and evaluating educational services against international standards that guarantee the provision of quality education. Despite the challenges faced by the ELC and Taibah University, the University believes it continues to progress in the improvement of its services (Deanery of Academic Services 2013a; Deanery of Academic Services 2013b).

On the basis of the institution's experiences in the first year, management formulated recommendations for the continuous advancement of the preparatory year programme. Firstly, the University should introduce and enforce a placement testing system that ensures the satisfaction of admission criteria and the acceptance of students with the same appropriate academic level. It should also institute a modular system, instead of the semester system, for the pre-year English course. Another recommendation is the establishment of a research department that will eventually adapt the CEFR to Saudi

university requirements, hence creating the proposed Saudi University Preparatory English Requirements (SUPER). Furthermore, the university faculty should work with international publishers to develop and distribute teaching materials that are relevant to Saudi culture, needs and education system. These should correlate with SUPER. An external verification system for different levels of achievement in the programme should be created. Teachers should be provided with country-wide training programmes to satisfy the requirements of SUPER. They should be offered opportunities to attend conferences, seminars and workshops. Finally, strong communication between the faculty members of undergraduate programmes and the faculty members of the preparatory programme should be ensured. They should discuss whether the preparatory programme can develop the language skills necessary for admission and performance in the undergraduate programmes (Deanery of Academic Services 2010).

#### **1.11.2.2 Deanship of Educational Services at Taibah University**

The Deanship of Educational Services supervises all of the programs and services that support the Preparatory Year Programme. The advancement of this program is to be achieved towards a number of performance benchmarks. Students of the English language course will be evaluated on the basis of unified exams prepared by the ELC in the Deanship of Educational Services. Students who take computer courses will be required to attain an ICDL certificate as a standard achievement. Those taking the mathematics course will be assessed by standardised exams prepared by specialists who operate independently of the teaching commission. The portfolios that comprise projects, hallmark performance and outstanding creative products in the field of cognition and communication will form performance benchmark for skills courses. The relevant departments will come up with more performance benchmarks in addition to these to ensure that international standards are achieved. (Deanery of Academic Services 2013c).

#### **1.11.2.3 Establishment of the Preparatory Year Programme**

One of the most important factors for success in universities is their ability to re-orient high school graduates for systematic integration into an academic environment. Such

re-orientation helps students avoid considerable problems in transitioning between two educational stages.

Taibah University views with seriousness its responsibility to reinforce student skills and scientific qualifications. In this regard, the preparatory year programme was launched by the university in 2007–2008 to achieve the goals articulated in the institution’s strategic plan. The programme was initially offered in only two colleges, the Faculty of Medicine and the Faculty of Medical Sciences, and was available to both male and female students. The number of students during that period was about 690. In 2009–2010, programme offerings were expanded to include the College of Engineering and the College of Science. By 2011–2012, the number of preparatory year students increased to more than 5,200.

#### **1.11.2.4 Goals of the Preparatory Year Programme**

The goals of the preparatory year programme at Taibah University are summarised thus:

1. The preparatory year programme contributes to deepening Islamic and national identity through the curriculum and student activities.
2. The programme provides well-developed courses of high standards.
3. It directs students’ to the disciplines appropriate to their interests, as well as their abilities and skills.
4. The programme promotes outstanding academic performance amongst students.
5. It provides an excellent learning environment to improve the outcomes of university education. (Deanery of Academic Services 2013c)

#### **1.11.2.5 Introduction to the Preparatory Year Programme**

The preparatory year programme is also characterised by procedures for introducing students to the programme (Deanery of Academic Services 2013c). These procedures are to familiarise students with the vision, mission and goals of the Dean, departments and courses; the services and technologies available in the deanship and the strategies for communication through the tools available at the University; the initial English diagnostic tests that they are required to take as a means of determining their classification under several scholastic levels; and the rules that govern study in the

deanship. Furthermore the programme distributes a student guide containing all the information students need and informs students about the outcomes of the diagnostic tests and their English proficiency levels, which will be used as bases for scholastic classification. Finally the programme helps register students in their courses.

#### **1.11.2.6 General System for Studying in the Preparatory Year**

The sequence of the preparatory year programme is publicised to ensure that students are aware of the progression of their studies at the University. The core university sequence includes the acceptance of students admitted to the preparatory year in their respective tracks under their respective specialisations. The study system in the preparatory year requires students to attend all the sessions. The preparatory year is a full academic year made up of two semesters. However, students can apply to attend the summer semester which will be treated as a remedial period. A student is required to meet all the requirements of the year, including the summer semester, before they are considered as having passed the programme. The system prohibits taking any examination outside the university under the preparatory year programme. In order to ensure uniformity, students are not allowed to exclude, change or add any courses once admitted in a track. Interruption of a preparatory semester's study will lead to nullification of their registration. No apologies or explanations will be accepted for this action and the student's file will be withdrawn from the program and they will be awarded a failing grade. (Deanery of Academic Services 2013c).

#### **1.11.2.7 Study Plan for the Preparatory Year Programme**

The study plan in the Programme is divided into three tracks: health sciences, applied sciences and humanities. Some courses can be taken during the first or second semester.

The preparatory year programme is divided into three tracks:

##### **First: Health Sciences**

Passing the programme affords students admission to the following colleges:

- College of Medicine

- College of Dentistry
- College of Pharmacy
- College of Nursing
- College of Applied Medical Sciences
- College of Medical Rehabilitation Sciences

### **Second: Applied Sciences**

Passing the programme qualifies students for admission to any of the following colleges:

#### **1 - Medina**

- Faculty of Engineering
- Faculty of Science and Computer Engineering
- College of Sciences

#### **2 - Yanbu**

- Faculty of Engineering
- Faculty of Science and Computer Engineering
- College of Sciences

#### **3 - Alula**

- College of Arts and Sciences
- Maths
- Physics
- Chemistry
- Biology
- Computer and Information Sciences

### **Third: Humanities**

After passing the programme, a student can enrol in the following colleges:

#### **1 - Medina**

- College of Business Administration
- Faculty of Law
- College of Arts and Humanities

- Languages and Translation
- Information and Learning Resources
- Communication and Media

## 2 - Yanbu

- College of Arts and Humanities
- English
- College of Business Administration

## 3 - Alula

- College of Arts and Sciences Aula: English

Tables 1–3 show the distribution of courses under the three tracks.

*Table 1 Study Plan for the Health Sciences Track*

Semester	Course	Course Title	Credit	Actual	Pre.
1	PYEL	Preparatory English (1)	4	20	None
	PYCS	Computer Skills (1)	2	4	
	PYHE	Health Education & Leisure (1)	2	2	
	PYSS	University Life Skills	2	2	
	PYHS	Principles of Human Physiology	2	2	
	PYCH	Chemistry for Health Sciences	3	3	
	PYMT	Medical Terminology*	1	1	
	Total		16	34	
2	PYEL	Preparatory English (2)	4	20	PYEL
	PYCS	Computer Skills (2)	2	4	PYCS
	PYHE	Health Education & Leisure (2)	2	2	PYHE
	PYAN	Principles of Human Anatomy*	2	2	None
	PYPS	Physics for Health Sciences	3	3	
	ETHC	Ethics for Human Professions	1	1	
	Total		14	32	

\*This course can be studied in either the first or the second semester (Deanery of Academic Services 2013c).

*Table 2 Study Plan for the Applied Sciences Track*

Semester	Course	Course Title	Credit	Actual	Pre.
1	PYEL	Preparatory English (1)	4	20	None
	PYCS	Computer Skills (1)	2	4	
	PYHE	Health Education & Leisure (1)	2	2	
	PYMA	Preparatory Mathematics (1)	4	4	
	PHSC	Preparatory Basic Science	3	3	
	Total		15	33	
2	PYEL	Preparatory English (2)	4	20	PYEL 001
	PYCS	Computer Skills (2)	2	4	PYCS 001
	PYHE	Health Education & Leisure (2)	2	2	PYHE
	PYMA	Preparatory Mathematics (2)	4	4	PYMA
	PYSS 001	University Life Skills*	2	2	None
	PYGE	Engineering Technology	3	3	
	Total		17	35	

\*This course can be studied in either the first or the second semester (Deanery of Academic Services 2013c).

*Table 3 Study Plan for the Humanities Track*

Semester	Cours	Course Title	Credit	Actual	Pre.
1	PYEL	Preparatory English (1)	4	20	None
	PYCS	Computer Skills (1)	2	4	
	PYHE	Health Education & Leisure (1)	2	2	
	PYSS	University Life Skills*	2	2	
	Total		10	28	
2	PYEL	Preparatory English (2)	4	20	PYEL
	PYCS	Computer Skills (2)	2	4	PYCS
	PYHE	Health Education & Leisure (2)	2	2	PYHE
	Total		17	35	

\*This course can be studied in either the first or the second semester (Deanery of Academic Services 2013c).

#### **1.11.2.8 Technical Preparation at the Deanship of the Preparatory Year**

The new buildings dedicated to preparatory year students are equipped with several technical facilities that are designed to facilitate and activate the educational process.

Training halls contains a smart display device (e-podium) linked to the Internet, a blackboard and a smartboard or paperboard. The halls come with a customised layout, with circular tables that are suitable for the workshops presented by instructors. The buildings are equipped with a wireless network that goes through a special server so that students can benefit from Internet services. A Website portal enables access to all electronic services, in addition to a guide to the programme, the departments and communication with teaching staff. An Electronic educational process enables students to benefit from technical facilities devoted to the educational process. Its purpose is to achieve excellent quality in the provision of education and offer a range of services to end-users, whether these are students or faculty members. An example of the electronic education site is the Math Zone website for teaching mathematics. JUSUR is provided, which is a Saudi web application that includes functionalities for launching courses, registering users, tracking student progress and assessing student learning (Deanery of Academic Services 2013a). Online Academic Services Information System (OASIS) is accessible by both trainers and faculty members and can determine and electronically document each student's absences and test results, display details regarding the academic calendar, issue and follow new instructions and communicate with students and faculty via e-mail and other correspondence channels. (Taibah University 2013)

McGraw-Hill Course Management System includes information on mathematics, medicine, chemistry, physiology and engineering technology. A student and a lecturer can access e-content, take advantage of presentations and annotations and prepare tests and problem-solving exercises (Deanery of Academic Services 2013c).

## **1.12 Admission to Undergraduate Study**

### **1.12.1 Admission in Some European Countries**

The admission regulations of EU universities are not grounded on a common policy regarding test issuance, measurement and evaluation before enrolment to university, as is the case in Saudi Arabia. In some countries, universities use only a high school degree as a basis for student placement or rejection, whereas in other nations, higher education institutions require passing tests and other measurements and refer to academic calendars in deciding on admission. A consensus amongst these universities is that high school test results must be impressive.

## **1. Belgium**

Admission to a Belgian university necessitates a secondary school certificate from a Belgian school or a foreign certificate equivalent. Universities in Belgium do not require high school graduates from any European country to take additional tests, but they are obligated to complete a language test, whether in French or another language. No admission tests are administered, but the tests taken by students in their freshman year are extremely difficult as they are designed to distinguish a competent student from one who cannot perform academically (Hnaidt 2011).

## **2. Germany**

In Germany, admission to most universities was centrally managed, but as of 2001, acceptance has been directly decided by higher education institutions, which refer to their own terms of acceptance in decision making (Hnaidt 2011). Having a school leaving certificate from certain countries does not necessarily qualify a student for admission to a university in Germany. Applicants undergo an assessment test after studying for two semesters in preparatory college. For international students, passing the German language test is compulsory, and certain universities conduct personal interviews. 'Some universities also require a certain grade point average for some subjects' (The German Academic Exchange Service (DAAD) 2013).

## **3. Finland**

Requirements for admission to undergraduate study in Finland are a secondary school certificate, a passing entrance exam score and satisfactory English proficiency. The entrance exams are often written tests requiring thorough preparation to ensure satisfactory performance. A student may be rejected if his/her entrance exam score is less than adequate. 'The final student selections can be quite competitive' (Centre for International Mobility 2013) .

## **4. United Kingdom and Ireland**

The UK has always been reputed for providing high-quality education. It is home to distinguished universities, whose founding date back to hundreds of years in the past. Some of the most prestigious universities in the UK are Oxford University, Cambridge

University and King's College. Ireland has recently become a similarly sought-after location for the education it provides to international students (Education in Ireland 2014). The country's cultural history boasts of highly regarded poets and writers, such as Oscar Wilde and Samuel Beckett. Reputable universities, such as Trinity College and UCD, are found in Ireland. Perhaps the most significant motivation for study in Ireland and the UK is the fact that English is the official language in these countries (Welcome Ireland 2014). English is the preferred medium for instruction of numerous international students.

## **5. Undergraduate Programmes**

Different undergraduate courses are offered to students in various universities across Ireland and the United Kingdom. Undergraduate programmes, which are either bachelor or bachelor honours degree programmes, span three to four years in most of the universities in these nations. Large institutions employ a sufficient number of teachers who can competently deliver instruction for a variety of undergraduate courses.

As in other higher education institutions, enrolment in the undergraduate programmes of most Irish or UK universities is determined by specific admission criteria, including completion of secondary education which may be a local high school achievement, such as a leaving certificate in Ireland, or A levels in the United Kingdom. The minimum requirement for a leaving certificate is a grade of at least D3 in four Ordinary- or High-level subjects, including English and mathematics, or a grade of C3 in two high-level subjects (DCU 2014). United Kingdom universities require at least a C in four A-level subjects. Many institutions also accept international secondary school qualifications, such as International Baccalaureate (IB) awards or certification from the Saudi secondary school system, Thanawiyah (UCD 2014).

English requirements are mandatory for foreign students, and specific international English examinations are recognised around the world. The two that are the most highly accepted in Ireland and the United Kingdom are IELTS, issued by University of Cambridge, and TOEFL, administered by Princeton University. Most Irish and UK universities require a score of at least 6.5 in TOEFL (237 in the computer-based test or 580 in the paper-based exam) or 92 in TOEFL iBT, which is the Internet-based

variant of the exam. Students who completed their secondary schooling in Ireland and the United Kingdom are required to obtain at least a C in either the English course for the leaving certificate or A-level programmes.

Most universities have an online application system that eases application for students and enables application review by universities. The majority of distinguished universities are registered on a range of national websites to enable students to apply through a single website portal. In Ireland, the website dedicated to undergraduate programme applications from Irish and European Union students is the Central Application Office (cao.ie) website. International students, however, are required to contact their target universities. In the United Kingdom, all students are required to apply through the Universities and Colleges Admissions Service (ucas.com) website. Students enrolling for the upcoming academic year should enlist for courses before a given deadline, which is set at various periods on each website. Students are also encouraged to apply for admission to different courses so that they have sufficient options to choose from upon enrolment in an undergraduate programme. (UCAS 2014)

Another common application requirement is a college essay on various topics. The majority of universities ask for a personal statement or an essay that relates one's goals and achievements. The writing style should satisfy the criteria for college essay writing. Other types of tests are administered during the admission period in the United Kingdom, and many universities conduct interviews with applicants. Students who are likely to competently cope with university life are shortlisted for interviews. Other kinds of aptitude tests that are specific to a course may be administered; examples are the Thinking Skills Assessment (TSA), BioMedical Admissions Test (BMAT) and Cambridge Law Test (University of Cambridge 2014).

International students who receive their acceptance letters should then apply for student visas, processing takes approximately 6–8 weeks. Students are also required to make a partial or full payment of tuition for the academic year. Costs vary by university, but fees for non-EU international students are generally much higher than those for Irish, British or EU students.

## **1.12.2 Admission to Undergraduate Study in Saudi Arabia**

### **1.12.2.1 Reality of Admission to Universities in the Kingdom of Saudi Arabia**

In the last decade, university education in Saudi Arabia has significantly expanded, as reflected by the establishment of numerous universities and scientific and applied colleges in the country. Some of these are state universities, whereas the rest are privately owned. The Kingdom has 20 government universities, which offer education in scientific and applied disciplines in various fields. Seven new universities were established in areas that previously did not have higher education institutions, and in these universities, approximately 190 colleges were established. The student population in these colleges total roughly 170,000. Total enrolment by the end of 2013 was expected to increase to 237,000 students, an annual increase of 8% (Ministry of Higher Education 2013).

The total enrolment in public and private universities in Saudi Arabia for 2008–2009 is shown in Table 4. The figures were obtained from the statistical data released by the Ministry of Higher Education (2013).

*Table 4 Enrolees in Public and Private Universities for the Scholastic Year  
2013–2014*

University	No. of Males	No. of Females	Total
Umm Al-Qura University	42,087	49,766	91,853
Islamic University	18,967	0	18,967
Imam Muhammad bin Saud Islamic University	69,797	49,741	119,538
King Saud University	35,142	26,562	61,704
King Abdulaziz University	100,514	76,735	177,249
King Fahd of Petroleum and Minerals	11,429	0	11,429
King Faisal University	115,636	74,308	189,944
King Khalid University	26,229	46,080	72,309
Qassim University	27,023	38,771	65,794
Taibah University	30,079	38,467	68,546
Taif University	22,911	30,695	53,606
King Saud bin Abdulaziz University for Health Sciences	2,608	2,925	5,533
Jazan University	26,799	30,105	56,904
University of Hail	12,169	19,482	31,651
Jouf University	12,161	13,562	25,723
University of Tabuk	12,369	19,200	31,569
Baha University	10,511	11,548	22,059
Najran University	6,051	8,967	15,018
University of Princess Nora Bint Abdul-Rahman	0	46,776	46,776
Northen Borders University	5,991	8,406	14,397
shaqra university	12,583	16,884	29,467
Prince Sattam bin Abdulaziz University	12,033	15,810	27,843
University of Dammam	7,490	39,475	46,965
Majmaah University	8,705	8,367	17,072
Saudi Electronic University (SEU)	2,958	2,607	5,565
<b>The total of public universities</b>	<b>632,242</b>	<b>675,239</b>	<b>1,307,481</b>
<b>Total of other institutions of higher education</b>	<b>100,675</b>	<b>14,005</b>	<b>114,680</b>
<b>Total of private universities and colleges</b>	<b>36,871</b>	<b>37,698</b>	<b>74,569</b>
<b>Total of higher education institutions</b>	<b>769,788</b>	<b>726,942</b>	<b>1,496,730</b>

As shown in the table four, 1,496,730 male and female students enrolled in universities in 2013-2014. Out of this population, males represented 51.4%, whereas females accounted for 48.6% (Department of Information, Ministry of Education 2013). The graduates for the academic year 2012/ 2013 of secondary schools were estimated at 383.582 students. During this year, the proportion of secondary school graduates accepted by public universities was more than 76% of the students. (Ministry of Higher Education 2013).

#### **1.12.2.2 Criteria for Admission to Universities in the Kingdom of Saudi Arabia**

The Higher Education Council in Saudi Arabia is the highest authority responsible for educational affairs beyond the secondary level, as well as supervision and coordination amongst institutions, except military education institutions (Ministry of Higher Education 2007). The Council issues regulations common to universities, such as those related to systems of study and testing. The criteria for acceptance to are that a student must have a high school certificate or its equivalent from Saudi Arabia or outside Saudi Arabia and should not have studied high school or its equivalent for more than five years, but is entitled to University Council exemption from this requirement should compelling reasons warrant it. Furthermore, a student should have a record of good behaviour, successfully pass any test or interview conducted by the University Council and be medically fit. A working student should obtain approval from his/her employer to study. Moreover, a student is required to meet any other requirements prescribed by the University Council and at the time of admission. Applicants who satisfy all the requirements are selected on the basis of their high school marks, personal interview and acceptance tests, if any are administered (Ministry of Higher Education 2007).

Higher education institutions implement numerous and varied admission criteria during the initial provision of preparatory education, and these differ depending on years of implementation and the ability of institutions to accommodate high school graduate. Most of the universities used a standard rate for high school graduates as an indicator of competition amongst applicants. However, with the rising demand for higher education at the beginning of the last century, issues regarding acceptance and assimilation were raised, thus prompting the redefinition of terms such as 'eligibility and maturity', 'equal opportunity', 'type' and 'quality'. This redefinition required

handling new data that were necessary to achieve the goals and aspirations of educational institutes.

According to the Ministry of Education (2008), notable challenges are faced by Saudi Arabia's higher education institutions. One challenge is Global competition in type or quality of graduates: Training is no longer merely a national requirement imposed by the local government but is now intended to enable competition in the global arena. As such, every university involved in re-orientating high school graduates is required to develop skills and requirements that adhere to global standards. Another is an emerging Knowledge-based economy: The natural wealth effect is no longer the most important factor in education, especially when evaluated against the size of the knowledge economy. The contemporary economy depends primarily on the production and marketing of knowledge, which are now essential requirements for companies that partner with universities and the production and service sectors. The contributions of countries such as India, Malaysia, South Korea and Singapore represent models of the knowledge economy.

Numerous internal challenges exist as well. There is a Growing demand for higher education; a need for alignment amongst higher education institutes; changing social and economic development; meeting the needs of the labour market; addressing the changing educational and rehabilitative skills of students; and establishing performance indicators and quality control measures.

One can say that these challenges arise from the output of higher education institutions. Thus, examining the type or quality of input absorbed by universities is essential. Students, in particular, are an important element of the educational process because they are 'inputs'. The Ministry of Higher Education has attached considerable importance to this issue, which motivated the creation of the National Centre for Measurement and Evaluation. The Centre aims to provide a number of tests, notably, aptitude tests for high school students and graduates. The test is an important tributary of the outcomes of general secondary education in terms of carving a scientific and literacy path for Saudi students. It serves as one of the criteria for admission to all higher education institutions in Saudi Arabia and is employed by the Ministry as a suitable deciding factor for the nomination of students for scholarship eligibility (Ministry of Education 2008).

### **1.12.2.3 National Centre for Assessment in Higher Education (Qiyas)**

On August 19, 2000, the Ministry of Education created the National Centre for Assessment in Higher Education (Qiyas in Arabic). The Centre is tasked with using exams, along with standard high school certifications, as bases for admission to universities. These exams measure students' abilities, skills and attitudes as well as their educational achievements. The Centre must administer admission tests more than once a year and charges a fee for test taking to cover the operating expenses of the Centre, as well as research and development.

The Centre began operating in 2001 to carry out various educational measurements in higher education at the national level. These measurements are intended to ensure fairness and equal opportunity for admission to universities and other educational institutions and contribute to superior efficiency in the education process. These objectives are realised by administering tests built on scientific foundations that can serve as good components of forecasting a student's readiness for college. As previously stated, the specific tests administered are exams that measure students' abilities, skills and attitudes, as well as scholastic achievements (Qiyas 2013).

#### **1- Capabilities Test**

The capabilities test is aimed at measuring a student's ability to analyse and deduce information. It focuses on determining a student's ability to learn, regardless of proficiency, in a particular subject. This is achieved by measuring reading comprehension, the ability to perceive logical relationships, the ability to resolve problems on the basis of fundamental mathematical concepts, the ability to conclude and the ability to measure. The Capabilities Test is divided into the verbal and quantitative sections. The verbal section includes questions on reading and understanding the texts analysed by answering questions about the content of the texts, understanding texts with missing components and deriving the required units to complete the sentences and recognising the relationship between word pairs at the beginning of a question to match them with the words given in choices.

The quantitative section includes a range of questions that are appropriate for determining mathematical aptitude. The tasks in the section revolve around scientific

measurement, inference and problem solving. Completion necessitates basic information. The questions are distributed as 40% arithmetic questions, 24% geometry questions, 23% algebra questions and 13% statistical and analytical questions. Humanities-related questions include arithmetic, geometry and analytical questions. A student can take the test more than once (Qiyas 2013).

### **1- Achievement Test**

The Achievement Test is for high school graduates who plan to study in undergraduate programmes in universities, including health colleges. The questions are derived from the high school curriculum and centre on general concepts based on neighbourhoods, chemistry, physics and mathematics. Questions vary in their focus on cognitive levels. A number of questions require answers that exhibit understanding, others require application and yet another set necessitates a conclusion. These questions are distributed across three levels with 20% being first-year questions, 30% second-year questions and 50% third-year questions. All test questions are of multiple choice type, and students are prohibited from using calculators and the like. Testing is expected to take approximately three hours, including approximately one hour for procedures, instructions and filling in student information on the answer sheet (Qiyas 2013).

#### **1.12.2.4 Examinations System in Secondary School in Saudi Arabia**

The educational system in Saudi Arabia encompasses schooling for twelve years, six of which are devoted to primary school, three years to middle school and three years to secondary school (Ministry of Education 2012). Before 2007–2008, the exams for the second semester of third-year secondary schooling were centrally administered. The questions were uniformly designed for all secondary schools in Saudi Arabia. As of 2007–2008, all the exams were prepared by the schools themselves (AlEqtisadiah 2008). The Ministry of Education applied the GPA system for secondary school students in 2007–2008. According to Article VI of the testing system, the evaluation of secondary schooling in the Kingdom of Saudi Arabia is designed to assess the academic achievement of students in high school on the basis of: (a) subject-related activities including those implemented in the first or second semester, and (b) tests administered at the end of the first and second semesters. The evaluation also assesses the degree of participation in activities by using diverse evaluation tools. This

participation is determined through regular assessment and performance in a number of quizzes during a given semester. The end-semester tests include testing on a full curriculum subject for a given semester. Performance on each subject is graded out of 100% in an academic year (The Higher Committee for education Policy 2005).

Article VII identifies the following success factors for the second and third years. A student should complete a minor subject and tests that are administered in two semesters. Furthermore, a student is considered to have successfully satisfied requirements if he/she obtains the minimum grades for all subjects and if the student acquired minimum grades in all subjects, except one wherein a minimum of 60% was obtained (excluding Islamic subjects) (The Higher Committee for Education Policy 2005).

Those who fail to obtain the minimum grades are given additional tests, which are administered before the start of the new academic year. If unsuccessful, students retake the failed class.

Article XII explains the method of calculating the secondary school GPA thus. A student's grade in a subject is multiplied by the number of classes conducted for the subject. Therefore, a student's GPA is the total output divided by the total number of weekly classes. A student's average student in secondary school is calculated cumulatively starting from the second year to the third year. That is, the second- and third-year GPAs are summed and averaged (The Higher Committee for Education Policy 2005).

The National Centre for Assessment in Higher Education also offers scholastic achievement tests to students of the university's colleges. The tests cover general definitions of terms in biology, chemistry, physics, mathematics and English in subjects offered under the three secondary school levels. The questions vary in their emphasis on levels of knowledge, understanding, application and conclusion and are evenly distributed across the tests (i.e. 20% for each material). (Qeyas 2013)

Performance in the tests is considered an acceptance criterion for many health colleges and scientific higher education institutes, as well as some military and industrial colleges; it likewise serves as a deciding factor in nominations of students for study

overseas in health disciplines under the Saudi Arabia Custodian Programs (Qeyas 2013)

### **1.13 Admission Criteria for the Preparatory Year Programme at Taibah University**

The statute of the Council of Higher Education and Universities states that the selection of students applying to Taibah University is carried out on the basis of the weighted ratio of secondary school grades and of grades in any other tests required by the university. Students must also pass a preparatory programme for colleges that require it, and must have a high school diploma or its equivalent from an institution in our outside the Kingdom. (Deanship of Admission and Registration 2012)

Nomination for admission to the Health Sciences Track (preparatory year) requires the student to hold a high school (natural science) diploma for the current year, with a secondary school certificate grade of not less than 90 percent. The student should also pass the Achievement Test and the Capabilities Test.

The weighted ratio for acceptance is calculated as follows: Secondary school certificate – 50 per cent; Capabilities Test – 25 per cent; Achievement Test – 25 percent.

The distribution of students admitted to the programme is decided by the colleges, and takes place after one year. Passing the preparatory programme requires a GPA of at least 2.75 out of 5 and the achievement of grades specifically required by each college. (Deanship of admission and registration 2012)

Nomination for admission to the Applied Sciences Track (preparatory year) requires the student to hold a high school (natural science) diploma, with a secondary school certificate grade of not less than 70 percent. The student should also pass the Achievement Test and Capabilities Test. The period of validity of the results is two years.

The weighted ratio for acceptance is calculated as follows: Secondary school certificate – 50 per cent; Capabilities Test – 25 per cent; Achievement Test – 25 percent.

The distribution of students admitted to the programme is decided by the colleges, and takes place after one year. Passing the preparatory programme and admission to the preferred discipline depend on the GPA and the grades specifically required by each college.

All required documents should be submitted by post within the specified period.

Admission to the Faculty of Science and Computer Engineering requires a GPA of at least 3.75 out of 5 in the preparatory year. Admission to the Faculty of Engineering requires a score of 450 in the TOEFL test or its equivalent after the preparatory year. (Deanship of Admission and Registration 2012)

Nomination for admission to the Humanities Track (preparatory year) requires the student to hold a high school diploma, with a secondary school certificate grade of not less than 70 percent. The student should also pass the Achievement Test and Capabilities Test. The period of validity of the results is two years.

The weighted ratio for acceptance is calculated as follows: Secondary school certificate – 50 per cent; Capabilities Test – 25 per cent; Achievement Test – 25 per cent.

The distribution of students admitted to the programme is decided by the colleges, and takes place after one year. Passing the preparatory programme and admission to the preferred discipline depend on the GPA and the grades specifically required by each college. (Deanship of admission and registration 2012)

#### **1.14 Structure of the Thesis**

This thesis is organised into six chapters. Chapter I provides a background on the higher education system in Saudi Arabia, with a focus on university preparatory year programmes, including the admission tests and components of the programme offered at Taibah University. Similar programmes provided by international universities and acceptance to these institutions are briefly discussed. Finally, the chapter delineates the purpose, goals and questions pursued in the research. Chapter II is a review of the literature on evaluations of university study programmes, with the analysis taking into account the fact that a preparatory year programme is designed to advance the

transition of general education students to university study. Chapter III presents the research methodology, beginning with the methodological selection, methodological design and procedures implemented in developing and verifying the research tools. Additionally, the data collection via interviews and questionnaire administration is explained, along with the manner by which data analysis was carried out and ethical issues were considered. Chapter IV discusses the questionnaire data collected from students and instructors in the preparatory year programme and the faculty members of Taibah University. It likewise describes the processes involved in the data analysis. Chapter V contains the data collected from the interviews and the procedures used to analyse them. Chapter VI concludes the thesis with a discussion of the results and recommendations for future research.

### **1.15 Summary**

This chapter presented the objectives and questions pursued in the research, as well as the background of the researcher and an overview of the higher education system in Saudi Arabia. The overview included the criteria for accepting students in Saudi universities in general and at Taibah University in particular. The chapter also discussed applicable admission tests. The preparatory year programmes offered by Saudi universities, especially that provided by Taibah University, were described, along with similar international programmes. All the components of Taibah University's preparatory year programme were comprehensively explained.

## **Chapter 2 Literature Review**

### **2.1 Introduction**

The primary objective of the study was the evaluation of the preparatory year programme in Taibah as outlined in the preceding chapter, in terms of efficiency and effectiveness. The evaluation aimed to reveal any strengths and weakness of the programme, culminating in conclusions regarding outputs and recommendations regarding efficiency and effectiveness of the programme as a whole and as subdivided by track and gender, as well as the predictive value of admissions criteria. Moreover, the literature review serves as a basis for adopting best practices based on the literature, not only in terms of securing an accurate and appropriate evaluation tool for assessing the course itself, but also for greater clarity in analysing Saudi preparatory year programmes in comparison to others, both domestically and internationally.

Accordingly, the literature review sought to clarify the concepts of efficiency and effectiveness in education, both generally and in terms of admissions criteria, curriculum, teacher performance, in-programme evaluation instruments, student satisfaction, and teacher appraisals. In addition, the present chapter reviewed findings of previous studies concerning the effectiveness of other preparatory year courses, including their methodological approaches, findings and recommendations. The broad purposes of the review were to establish the validity of the research questions as a means of achieving the study objectives, to clarify the applicability of the data collected and to frame and support the discussion of findings, conclusions and recommendations. The RQs concerned the inputs and outputs (RQ1), processes (RQs 2 & 3), and outcomes (RQ 4) of the programme. In addition, RQ 1 considered gender and track (Health sciences, Natural sciences, and Social Studies) variables. RQs 2 & 3 considered gender and branch variables and RQ 4 considered gender variables.

This chapter discussed different means of determining efficiency and effectiveness in education with a focus on secondary and higher education. It also explored different indicators and the importance of effectiveness in education at a national economic level, especially in the Saudi context. In section 2.3, existing data collection tools, particularly concerning process indicators, were reviewed. There are numerous

projects and research efforts underway to standardize assessment of higher education institutions, departments, faculties, and courses both for purposes of comparison, as well as tools for identifying areas of improvement in different contexts. These elements of literature review were important influences on the methodology used in the present study.

In section 2.4, the review drew on existing literature concerning the link between secondary and higher education in an attempt to discern potential problems and opportunities. Then, the importance, measurement, and methodological approaches concerning the predictive value of admissions criteria were reviewed. In the section that follows, issues facing preliminary and preparatory year students, both in terms of their educational experience and the desired outcomes of the transition to higher education were reviewed. This was followed a discussion of curricular and pedagogical elements of the preparatory year programme and their significance in measuring effectiveness in the context of the RQs. Finally, the review and its conclusions were summarized in relation to the research questions of the present study.

## **2.2 Efficiency and Effectiveness in Education**

This section explored literature for the purpose of conceptualizing efficiency and effectiveness in education with respect to the aim of this study. The identified research questions helped provide a clear perspective on how to model the aspects of efficiency and effectiveness while focusing on the preparatory year course at the University of Taibah. Furthermore, the data collection instruments, conclusions, and recommendations were based on how the elements of efficiency and effectiveness are quantified and qualified.

The variables and concepts analysed demonstrated how efficiency and effectiveness vary from model to model as used at different institutions within various countries (Afonso and Aubyn 2006). In general, efficiency is considered to be quantitative while effectiveness is seen as qualitative. Therefore, the quantitative indicators for efficiency were inputs and outputs while qualitative indicators for effectiveness included outcomes and processes. The quantitative and qualitative indicators mentioned make up the model widely used in the literature and by most scholars and researchers studying the outlook of higher education in Australia and other OECD countries

(Chalmers 2008a). The four indicators of efficiency and effectiveness identified were discussed with respective literature in order to give a clear view of the data collection approach for the present study and to frame the ensuing discussion.

## **2.2.1 Indicators of Efficiency and Effectiveness in Higher Education.**

### **2.2.1.1 Quantitative Indicators**

Quantitative indicators are statistically, mathematically, or numerically expressed indicators (Given 2008). In the context of education, these include a broad range of variables and indicators, such as financial or physical resources, enrolment figures and graduation figures. However, the boundary between quantitative and qualitative data can be blurred. Moreover, quantitative indicators can be further characterized by a lack of subjective judgement in ascribing value. For example, the ratio of governmental expenditure to the number of university graduates is a properly quantitative indicator of efficiency because it is numerical and, more importantly, objective in nature. That is, a lower ratio in itself indicates higher efficiency. On the other hand, data from a Likert-type survey is numerical but the data reflect the subjective perceptions and judgements of the participants and the questions used in the data collection instrument reflect the author's subjective interpretation and judgement of the variables being measured (Skowronski and Carlston, 1989).

According to a Thomson Reuters (2008) report, there is an increasingly pressing need to quantify and measure performance and activities at institutions of higher education. Institutions of higher education need to comply with government mandates, which are typically quantified. Reuters survey of higher education executives indicated that institutions face pressure to compete globally for students and researchers by means of compelling course statistics, such as graduation rates or faculty research contributions); to review programmes and substantiate accreditation and to make strategic decisions about whether to improve existing strengths or create new areas. Given the comparative nature of these goals, both between institutions and between actual and target outputs, quantitative data are necessary for both practical and theoretical reasons.

Quantitative indicators, both generally and in education, include input and output indicators, both individually and in combination. The input indicators reflect the financial, physical and human resources involved in supporting a particular institution, a particular element of a specific institution, a set of institutions or a particular element of a set of institutions. For example, financial inputs can be considered at the university level (Al Bannai et al. 2003), department level (Shaw et al. 2012) or course level (Alankry 2012). According to Chalmers (2008b), limitations concerning input indicators surround their disability to determine the learning and teaching quality without extensive interpretation. For example, resource allocation should be interpreted with enrolment data to determine resource to student ratio, resource quality and conceptual range, such as software and research database availability, to determine teaching and learning of the resource quality (Chalmers 2008b).

Output data reflect the quantity of outcomes produced, including immediate, measurable results and direct consequences of activities implemented to produce this results. These results include data such as graduation rates, research funding and patents. Input and output measures are inherently constrained by their data-driven quantitative nature, which prohibits the investigation of interactive, instructional and learning processes crucial to the institution quality, its educational programmes and its graduates. As such, quantitative performance indicators do not demonstrate education quality, but rather quantities of its outcomes (Chalmers 2008c).

The use of qualitative indicators, as opposed to quantitative indicators, gives information with a deeper understanding of the variables. Thus, as discussed in the next subsection, qualitative indicators are generally considered a more reliable means of grasping the complexities of higher education. Nevertheless, there are clear roles for quantitative measurement, and RQ1 offers a good example of this. The matter was discussed in greater depth in the section concerning the predictive value of admissions criteria; however, in the present context of discussing quantitative indicators, it is worth noting that correlations between the objective, quantitative admissions criteria data and student performance and course assessment provide valuable opportunities to adjust the weighting of the criteria to increase aggregate outcome and process quality.

### **2.2.1.2 Qualitative Indicators**

Qualitative indicators are associated with observation-based descriptions, whether of educational processes (curricular and pedagogical) and outcomes, directly from the stakeholder or as elements of a data collection instrument designed to capture the aggregate subjective judgement among all stakeholders or a group of stakeholders. As an example of the latter, the present study used qualitative indicators to capture the aggregate subjective judgement with regards to teacher and student perceptions of the link between content and goals, assessment components of the programme, the extent to which objectives for the programme are achieved (RQ2&3), and outcome differentials between programme participants and non-programme participants at undergraduate level from the perspective of faculty members (RQ4). These related to or involved qualities or subjective data. Just as input and output indicators lie within the quantitative indicators classification, outcome and process indicators lie within the qualitative measures classification. These performance indicators do not involve generating the outcomes quantitatively in the form of numerical data but measure processes and results regarding their quality and impact (Chalmers 2008c).

In the Saudi context, qualitative indicators in higher education are considered critical on the basis of the Eighth Development Plan (2004). As is reflected in Saudi educational policy, education is an important source of human capital formation and, consequently, of economic growth.

Consequently, the questions that comprise the survey data collection instruments were largely composed of outcome and process indicators, as discussed (Ministry of Economy and Planning 2004)

### **2.2.1.3 Outcome Indicators.**

Outcome measures focus on the quality of the educational programme and service benefits for all stakeholders. These key stakeholders include students, teachers, institutions, government bodies, employers and industry, among others (Wagner, Hassanein, and Head 2008). Outcome performance indicators, similarly to output indicators, typically take raw numerical data as indicative of an objective, statistical relationship, but also measure complex processes and results in terms of their quality

and impact, whether using quantitative data elements or not. This is the difference between output and outcome measures (Chalmers 2008b). While they both measure the effects of higher education, output performance indicators measure this quantitatively and outcome measures do this qualitatively.

Outcome indicators focus on the value added to the student by a given educational process, which, in the study context, is the preparatory year course and in terms of satisfaction with the quality of their experience and the quality of the skills they have developed. Value added to the student does not mean that the focus is solely on the students' perspectives, but rather that the approach has been aligned with the view of students as customers and of education as a service they purchase (Halbesleben, Becker and Buckley, 2003). However, the authors determined that the student-as-customer metaphor is problematic and proposed a more appropriate metaphor based on literature concerning customer labour contributions in human resources management. Also, one might propose students as an instrument of the Saudi education policy, with an increase in academic refinement and mastery of the English language to encourage a greater volume of doctoral and post-doctoral academic activity.

Nevertheless, the student as customer model has enjoyed prevalence in the investigation of outcome indicators. A representative example is a study by Browne, Kaldenberg, Browne and Brown (1998) that examined relationships between college students' satisfaction and their subjective judgements about their educational services. The participants, numbering 736, completed a questionnaire (SERVQUAL) to investigate perceived service performance of a university college. Three dependent measures of satisfaction were used: global satisfaction, willingness to recommend the college and satisfaction with value received from the educational experience. Interestingly, the inclusion of the measure 'willingness to recommend the college' is indicative of the marketization of fee-charging higher education institutions; assuming the goal of marketable employable skills development on the part of the student, this may be in accordance with the economic benefits sought by the government, as students naturally try to meet the requirements of industry, for example, the emergence and growth of computer sciences. However, one of the issues the present study uncovered was a shortcoming in academic achievement and conditioning of the

preparatory year programme participants, perhaps eschewing the more theoretical aspects of academic development in favour of practical professional development and pursuit of grades, which is necessary to progress to higher levels as required by the Ministry of Education (Ministry of Economy and Planning 2004). Browne, Kaldenberg, Browne, and Brown's (1998) results indicated the perceived quality of the educational offering and the service quality explained the variances in satisfaction.

The nature of outcome indicators, encompassed by values of 'quality', 'satisfaction', as in the preceding example, and 'learning outcomes' means that outcomes are more difficult to measure than objective, quantitative indicators, and had thus been less frequently used in the literature (Romainville 1999) until the last decade or so, when the focus of Australia, Ireland, and other OECD countries on qualitative aspects of outcomes and processes grew in prominence (Chalmers 2008a). Outcome indicators are considered to be more insightful, meaningful, and accurate in measuring the methods and quality of teaching and learning, as they relate to the objectives of higher education. They are also more useful in deriving specific recommendations for curriculum, admissions practices, and pedagogy. As discussed, from a state education policy perspective, the enrolment -to -graduation ratio may be informative and offer a sound basis for inter-institution comparison; however, it is scarcely informative in terms of practical pedagogical or curricular concerns. Conversely, a carefully detailed quantitative dataset from a number of stakeholders with regards to a specific qualitative outcome indicator, such as confidence in a laboratory setting, reveals specific strengths and weaknesses of a course or course element. For this reason, qualitative indicators are considered to better account for the complexity associated with higher education.

#### **2.2.1.4 Process Indicators**

Process indicators are those that represent the means used to deliver educational programmes, activities, and services within the institutional environment (Burke, 1998, cited in Chalmers, 2008a). These measurements are particularly significant at the individual institution, faculty, or course level, as they relate to aspects of a given programme or institution that can be controlled to some extent by the administrators of these programmes. Thus, these indicators are commonly reviewed through an institutional audit. Process indicators provide an understanding of current practice and

the quality of that practice, and their use is increasing among leading academic settings.

According to Rowe (2004), while reasons for using performance indicators differ through time and between countries, there are four primary reasons higher education institutions use performance indicators. Firstly, they are used by the institutions to monitor their own performance, including trends through time and by comparison with other institutions. Secondly, they are used for purposes of evaluation and assessment of operations, such as processes. These two reasons were the main motives underlying the present study, as it sought a detailed appraisal of the case study programme, resulting in specific recommendations on programme teaching processes and course administration. Performance indicators for higher education are also used to provide information for external quality assurance audits, as well as information for general government accountability and reporting processes. In the context of the ambitious Saudi plans to expand higher education provision, as expressed in the Eighth Plan, the value of robust data on process indicators is clear. Among the more specific uses for performance integrators are their use to facilitate improvements in the quality of higher education provision; stimulate competition within and between institutions; verify the quality of new institutions and assign institutional status (Chalmers 2008a).

Most notably, the use of process indicators as a means of identifying areas of weakness and strength in education generally includes higher education. This is evidenced by the relatively strong performance of countries where such practices have been adopted. The use of process indicators has been shown to be effective in driving novel initiatives and influencing policy decisions (Chalmers 2008c). For example, Chalmers and Thomson (2008) offered a summary of process of teaching and learning indicators in Australia along with a comparison to those the teaching and learning indicators identified in an earlier review of performance indicators in 2004. While the review in 2004 found the existence and use of performance indicators in universities of Australian was variable, the 2008 review found that there was confirmation of widespread use of process indicators. This trend is increasingly formalized in the Australian education context, with successful pilot studies of a 'Teaching Quality Framework' based on a carefully refined set of performance indicators for the Australian context and drawing on examples of models and indicators in use around

the world. This framework provides standardized performance indicators, with a focus on process indicators, as a means of comparison of institutions and identification of requirements for efficiency and effective interventions (Chalmers 2010).

The primacy of process indicators in much of the recent modelling has been partly due to their ability to frame an understanding of output and outcome indicators. The combination of input, output and outcome and process indicators provides a comprehensive perspective under which course, programme, and institution strengths and weaknesses can be identified so improvements can be undertaken.

Although process measures are considered to provide better measures of the teaching and learning quality than input and output measures because they are in context of the institution, despite their qualitative character, they remain subject to the methodological challenges of qualitative measures (Chalmers 2008c). Notably, while statistical analysis techniques provide a framework for collecting and interpreting data on the different types of indicators, the question remains as to what is considered good and bad performance and how the elements identified as such interrelate.

### **2.3 Existing Data Collection Approaches and Methodologies**

There are numerous projects and research efforts underway to standardize assessment of higher education institutions, departments, faculties and courses, both for purposes of comparison, as well as for tools to identify areas of improvement in different contexts. In this section, some of the prominent work and data collection tools in this field was reviewed. It should be noted that these elements of literature review were important influences on the methodology used in the present study.

The *College Student Experiences Questionnaire* (CSEQ) is concerned with educational, cultural, and recreational college facilities, as well as the students' experiences at college. R. C. Pace developed the CSEQ at the University of California Los Angeles during the 1970s and introduced it as a multi-institutional survey tool in 1979. It had been in continuous operation, with four editions published, but was halted after the spring 2014 administration due to declining numbers of participating institutions (CSEQ 2014). However, rather than its being conceptually obsolete, CSEQ's decline was mainly due to its influence of the National Survey of Student

Engagement (NSSE), as further discussed. About two-thirds of the original NSSE's questions were drawn or adapted from the CSEQ, retaining a focus on student behaviours and investment in educationally purposeful practice, such as process indicators. The widely used NSSE instrument, which has a complementary data collection instrument to gauge first-year experience – the Beginning College Survey of Student Engagement (BCSSE) – is a good fit for the broader assessment needs of most higher education institutions. (CSEQ 2014)

In the latest (4<sup>th</sup>) edition of the CSEQ, more than 150 items are used to produce a measure of the institution's performance with respect to these topics. This is a broad-ranging data collection tool and involves many parts beyond the scope of the present study, such as student background characteristics, including grades, personal aspirations and financial arrangements. However, the survey sections and items that are of interest in the context of the present study ask students to rate the college's emphasis on the development of scholarly, creative, and analytical qualities, occupational competence, and the practical value of courses. Also covered are student views of relationships with tutors and student satisfaction per se. In the full questionnaire, students indicate the extent of progress concerning typical objectives (Gonyea et al. 2003). The CSEQ was considered in the context of the present study due to its focus on process indicators.

Chalmers and Thomson (2008) composed a meta-review of process indicators in use in Australia and provided institutional tables of the 37 participating institutions. This summary extended the teaching and learning indicators identified in an earlier review of performance indicators (AVCC 2004). While a review of the same that took place in 2004 (Rowe 2004) found the existence and use of performance indicators were variable in Australian universities, Chalmers and Thomson's (2008) review found process indicators were widely used by Australian Universities. However, their intent was not only to identify and discuss the quality of those indicators but also to derive a system for benchmarking and normalizing the collection of the data to develop a more robust understanding of the individual, collective and comparative performance of higher education institutions.

The thirteen categories of process indicators identified in the national survey of Australian practice (Chalmers and Thomson 2008) include mission, vision and

objectives; these were covered in the present study in terms of pedagogical outcomes, as well as outcomes in line with the principles of the Saudi higher education directives discussed in the introduction and literature review of the present thesis. They also include “Teaching and Learning Indicators”, which were covered in the survey sections on academic contents and students’ opinions of trainers. They also include an Organisational Unit Review, encompassing disciplines, divisions, faculties, schools and centres, which was germane to the present study, because it concerns the different tracks and branches of course under review in the PYP. Another category, “Curriculum Review” consists of units, unit sets and programmes and is covered in the academic contents parts of the surveys. The “Assessment and Feedback Policies” Student Experience explores the provision of resources, particularly those for target groups such as international and first year students. It is contentious for institutional appraisal, but is unarguably important, and is inherent in the student survey.

Chalmers and Thompson (2008) also identified the following categories of criteria: “Internal and External Performance Funds for Teaching and Learning”, such as the opportunities for faculties to be allocated grants; “Professional Development”, which outlines support provided for staff, such as workshops and peer review and more formal programmes such as the “Graduate Certificate in Higher Education”; “Appointment and Promotion Criteria”, which details teaching, research and service requirements at each level; “Review of Academic Staff”, which provides a summary of measures, frequency, and implications of performance reviews; and “Recognition of Excellence in Teaching and Enhancing the Student Learning Experience”, which details eligibility, remuneration and requirements of awards, grants, citations and fellowships recipients. While these are of undoubted importance as process indicators, the present study remained focussed on the student experience because, with the exception of “Professional Development”, these would only be meaningful for broader academic contexts than that of the one year preparatory year programme.

## **2.4 The Link between Secondary and Higher Education**

Entering higher education requires great adjustment, and hence the experience of the first year is of critical importance to higher education students. Some make the adjustment well; others do not. Evidence from studies of non-completion for full-time students shows that, for some of them, deficient attention was given to preparation for

the transition. (Yorke 2000). Not only are their options of programme and institution incorrectly grounded, but not enough attention is given to considerations such as accommodation. Furthermore, institutions do not always see the value in properly inducting students, and place little emphasis on the first years' experience (Yorke 2000). According to Laing, Robinson and Johnson (2005), to help students manage the transition to higher education, there must be an understanding of the needs and expectations of the students, and a process that inducts the students into the needs and expectations of higher education. The present study concerned both of these elements; however, a third was added, which was the needs and expectations of the Saudi National Education Administration. Thus, given the requirement under the Eighth Saudi Development Plan of 2004, the transition from secondary to higher education should be conducive to a higher proportion and quality of students progressing to post-graduate studies. (Ministry of Economy and Planning 2004)

Concern over the preparedness of first-year students in higher education can be coupled with a general concern over foundational science subjects; as Mazur (1998) observed, the competitive global market realities require that all educated citizens become science and mathematics literate. In parallel with broader questions about the overall adequacy of precollege mathematics and science education, under-representation in the sciences has been identified as a troubling trend in many developed countries. For example, Seymour (2000) identified a pattern of inequalities by race/ethnicity, gender, location, school funding, staffing, facilities and classroom resources, which, notably, was badly exacerbated by a chronic and growing shortage of discipline-qualified mathematics and science teachers in the K–12 system in the US. Also, particular concern has been expressed about students entering higher education without the necessary skills and knowledge to engage effectively with learning in the disciplines of science, technology, engineering and mathematics (STEM), according to the Irish Higher Education Strategy Group (2011).

Pedagogy and practice at the secondary and further education level were of only indirect concern in the present study. However, what was of interest in the present context were the assessment systems in place that feed the admissions criteria. As discussed in more detail in the introductory chapter of this study, educational achievement is measured in Saudi Arabia using a GPA system, as well as the

preparedness of those entering higher education institutions for the demands or study at that level. Due to achievement shortcomings, the need for transitional modules for first-year undergraduate students is becoming increasingly recognized in the literature and in practice in Saudi Arabia.

The UK-based Quality Assurance Agency (QAA) identified a number of intellect and transferable skills in their guidelines, which they regard as essential to develop at all higher education levels. They defined intellect skills as synthesis, analysis, evaluation and problem-solving. Transferable skills include both oral and written communication, research skills and teamwork (Durkin and Main 2002). In the Irish context, the National Strategy for Higher Education to 2030 – Report of the Higher Education Strategy Group (2011) suggested that higher education institutions should prepare first-year students more effectively for their learning experience, so they can engage with it more successfully. The group suggested specifically that “Higher education institutions should expand the provision of induction and preparation programmes for first-year students” (p. 18). In addition, they suggested that more interdisciplinary learning opportunities should be offered for students in the first year of their undergraduate studies. According to the same report, “students entering higher education directly from school often lack the critical thinking, problem-solving and independent learning skills required for successful engagement in higher education” (p. 55).

## **2.5 Broader Indicators of Higher Education Efficiency and Effectiveness**

There are various aspects of higher education efficiency and effectiveness analysis that were not directly applicable in the context of a preparatory year programme. These involve higher education institution outputs, such as research and patents, and related process indicators such as internationalization. Although these are only tangentially related to the present study, they were reviewed briefly here as their relationship to some of the constructs and items used in the present study reinforces their importance, especially in the context of the Saudi educational policy. As previously mentioned, according to Laing, Robinson and Johnson (2005), in helping students manage the transition to higher education, there must be a process that inducts the students into the needs and expectations of higher education. This is relevant to the needs and expectations of the Saudi national education administration. Thus, given the

requirement under the Ninth Saudi Development Plan, the transition from secondary to higher education is conducive to a higher proportion and quality of students progressing to post-graduate studies and engaging in and contributing to the international academic community. (Ministry of Economy and Planning 2009)

Lukman, Krajnc and Glavic (2010) analysed the university ranking process in relation to research, educational, and environmental indicators to improve the indicators employed for compiling ranking tables. Their research led to the establishment of a three-dimensional index, called the Three-Dimensional University Ranking (TUR), which gives basic information about the quality of further education institutions. This index facilitates a convenient overview of the positive and negative aspects of universities and areas requiring improvement.

Indicators considered to influence the standing of a university positively included an increasing amount of highly cited researchers, (research-related indicator), a high graduation rate (educational indicator), and the availability of sustainability-oriented courses (environmental indicator). On the other hand, a disproportionate student–staff ratio and weak presence on the Internet were found to have an adverse impact on the educational process.

According to Lukman, Krajnc and Glavic (2010), the most significant research-related indicators were patents, research expenses, library and ICT resources, and the number of highly cited researchers and their publications in science citation index (SCI) and social sciences citation index (SSCI) journals.

Based on their cumulative scores for each of the three categories, a university might be characterized as a research, educational, or research-oriented university, and their distinctions in relation to other universities and normative educational practices can be elucidated. For example, the University of Harvard was found to be an educationally focused university that was above average for the other two factors; King’s College, London, performed most strongly in terms of environmental concerns and was also above average for the other two keystones; and The University of California, San Francisco, garnered the highest research score despite performing best in its research component and having a below-average environmental score.

The researchers concluded that annual university reports should publicize information on environmental indicators, such as CO<sub>2</sub> and air emissions, source reduction, waste management, land use and consumption, as European universities in particular seldom publish this data. To implement this practice, environmental indicators should be standardized by the international community, such as the European Commission and the European University Association.

Using their index, the researchers classified US universities as having the highest positions in the table, and the top 13 in the list was composed entirely of US universities, with Harvard, Stanford, the Massachusetts Institute of Technology, Yale, and the University of California San Francisco placing in the top five. This was attributed to the fact that the US assigns 5.52% of its GDP to funding higher education, research, and development; in contrast, Europe invests just over half of this amount (2.89%) to the same areas. In addition, US universities are publicly and privately funded, contain a higher proportion of international students, and are among the first to have implemented environment management schemes.

Conversely, Paige (2005) examined performance indicators and assessment in relation to the internationalization of higher education, as universities are increasingly expected to fulfil a role that transcends national and cultural boundaries as a result of the process of globalization. As globalization, which refers to the world order, is a multi-faceted phenomenon, internationalization, which is more relevant to organizations and institutions, including universities, must, by extension, be broad in scope, dynamic, and diverse in nature.

By drawing together relevant global research, Paige proposed ten key performance categories about internationalization. He stated that first, university leadership should be present at various levels of the institution, as well as at the uppermost tier, and this collective effort should involve staff, departments, and units. The second, strategic planning, is vital for realizing objectives, managing activities, and meeting targets in specific time frames. The third category, institutionalization, is pivotal in ensuring the sustainability and success of internationalization endeavours through the implementation of a governance structure. The fourth category, infrastructure, necessitates faculty members with specialized training and extensive experience of international education practices; these individuals should be equipped to spearhead

the different facets of internationalization in the institution, such as international students and grants. The fifth dimension, the curriculum, should be representative of the university's central globalized character and convey its embedded internationalized philosophy and values. This might involve second-language learning opportunities; study abroad experiences or grants being offered to students. The sixth dimension, international students and academics, refers to the provision of support for international students in adapting to life in their host country, both academically and outside the classroom. In turn, this might be expected to boost their contribution to the university. Regarding the seventh category, study abroad programmes, the author stressed the importance of integrating them into the curriculum, as opposed to including them tangentially. The eighth category, staff participation in international activities, is based on the concept that the faculty is a fundamental part of the curriculum; the more internationally engaged faculty are, the greater the international character of their lessons is likely to be, and the most effective their relationships with international students will be in turn. Staff might become involved in such mutually developmental activities by attending international conferences and participating in research overseas. The ninth category, campus life and co-curricular programmes, is connected to the international environment of the university outside of classes. A well-integrated environment should provide opportunities for international and host country students to interact, societies that cater towards students concerned with international issues, and international on-campus events, such as performances, talks, or cultural celebrations. Finally, the tenth category is monitoring. Unless the aforementioned efforts are scrutinized and developed through data collection and interpretation, internationalization attempts will be impeded.

Five of these categories (staff participation in international activities, curriculum, study abroad programmes, international students and academics, and leadership) were taken from Ellingboe's (1998) six dimensions of internationalization, which feature almost consistently in research and documents on internationalization and further education; they are therefore considered chief aspects of the process internationally.

As with Lukman, Krajnc, and Glavic's (2010) study, Paige (2005) affirmed that internationalization had become one of the central objectives of several North American universities, including 52 private liberal arts colleges that have prioritized

internationalization and the generation of synergy between cultures. The author concluded that internationalization is a widespread and multifaceted phenomenon. While realizing performance indicators necessitates time, effort, and costs, it is nevertheless a valuable endeavor, fostering academic dialogues for further research and improving social and economic prospects.

However, Scheerens, van Ravens and Luyten (2011) emphasized that, for the purposes of educational quality assessment, viewing the educational process as a production process is necessary in order to ascertain that the educational outcome, or input, is transformed into a satisfactory “output, which is the input–process–output–context model.

This was reflected in the choice of items and constructs in the surveys in the present study. Although internationalization is not explicitly related to the preparatory year courses, its use as a source of important effectiveness and efficiency indicators and its importance in the eyes of the Saudi administration, as discussed in the introduction, made some of Paige’s (2005) ten factors significant in the present context. For example, the fifth dimension, the curriculum, which according to Paige (2005) should be representative of the university’s central globalized character and convey its embedded internationalized philosophy and values, is closely related to the English language elements of the preparatory course.

## **2.6 Admissions Criteria Predictive Values**

RQ 1 sought to determine the predictive value of the course admissions criteria. In determining the relationship between different elements of admission criteria and study outcomes, the optimal weightings of the elements were suggested. The elements considered in the present study included the capabilities test, the achievement test, and the HSG. Determining the predictive value of the latter is of particular interest because the Ministry of Education only introduced it in the 2007/2008 academic year. (Qeyas 2013) In accordance with the theoretical framework, these criteria are quantitative input indicators. While quantitative performance indicators in themselves do not demonstrate education quality, but rather quantities of its outcomes (Burke, Minassians and Yang 2002), the correlations between different criteria and between different tracks and gender can inform admissions policy, with the aim of positively

affecting the make-up of the student body that is duly admitted. In this section, a review of studies on the predictive value of admissions criteria and related issues in various contexts was undertaken. The aim here was to determine general standards for predictive values, as well as to review findings regarding gender and track differences to properly frame the findings of the present study.

### **2.6.1 The impact of Admissions Criteria**

Findings as to the predictive value of admissions criteria vary significantly in the literature regarding both the length and variables considered, as well as the values determined. For example, Kelly et al. (2013) studied students enrolled in the two schools of medicine in Ireland. The students were monitored over a two-year period. The following data were collected: gender; the total and sub-test scores for the Health Professions Admission Test - Ireland (HPAT-Ireland); the total scores of the Leaving Certificate Examination and HPAT-Ireland; the total scores, communication and clinical sub-test scores for First year Objective Structured Clinical Examination (OSCE); the First Year Multiple Choice Questions and the Second Year OSCE and subset scores. Descriptive statistics, the Pearson correlation coefficient and multiple linear regression models were used in this study. The results showed no significant correlation in the first year between the selection criteria and objective of Structured Clinical Examination performance, but there was a correlation between the total scores of the Leaving Certificate Examination with HPAT-Ireland and Multiple Choice Question marks on the other. In the second year, a series of significant correlations appeared between the Health Professions Admission Test-Ireland and subsections thereof and the Objective Structured Clinical Examination Communication Z-scores, Objective Structured Clinical Examination Z-scores, and Objective Structured Clinical Examination Z-scores. However, multiple regression analysis only revealed a modestly predictive relationship between the Total Objective Structured Clinical Examination Score and the Total Health Professions Admission Test-Ireland score.

While Kelly et al. (2013) found relatively modest predictability of the admission criteria they reviewed, their study only covered a two-year period, which is notably short in the context of medical education. To underline this potential shortcoming, a study by Albishri et al. (2012) aimed to evaluate the relationship between the current admission criteria for the Faculty of Medicine and student GPA in the Faculty of

Medicine at the end of the sixth year in three medical colleges in the Kingdom of Saudi Arabia. This longer, observational, analytical study of 727 students at three government medical schools in Saudi Arabia between January 2011 and February 2012 found firmer results than those of Kelly et al. (2013). In Albashiri et al. (2012), secondary school grades, achievement tests, aptitude tests, mathematics grades, and English grades in the secondary school were used to predict medical students' GPAs at the end of sixth year of school. The criterion variable was the student's cumulative GPA at the end of the sixth year. Correlation between pre-admission variables and GPA were calculated using Pearson's correlation and multiple regression analyses. They found a significant positive correlation between admission criteria and GPA. The inclusion of all five sets in multiple regression analyses revealed that the achievement test, English grade in secondary school, secondary school grade and aptitude test were statistically predictive of GPA. The 20.8% variance in the GPA was accounted for by the admission criteria. Multiple admission criteria predicted medical students' GPA. The achievement test was the most significant predictor. Secondary school grades in English were an independent predictor. This study added support to the importance of correct configuration of admissions criteria to optimize recruitment volume and quality.

A study by Geiser and Santelices (2007) "Validity of High-School Grades in Predicting Student Success beyond the first Year: High-School Record vs. Standardized Tests as Indicators of Four-Year College Outcomes" analysed the contribution of high school grades and standardized admissions tests in predicting long-term performance of the students in college, including cumulative GPA and college graduation. The study sample consisted of 79,785 new students who joined the University of California in the period from the fall of 1996 until the fall of 1999. The researchers used regression analysis to examine the extent to which high school GPA and standardized admissions tests scores predicted students' long-term results in college, such as four-year graduation statistics and cumulative GPA. The study found that the high school GPA was the best predictor of the results of the college over a four-year period and for all disciplines, as well as the contribution of the GPA variation of the fourth year was greater than the variation in the first year. This is an important finding for contextualizing other findings that cover the predictive value of admissions criteria over shorter periods, such as that of Kelly et al. (2013).

A study by Meagher et al. (2006), “A Predictive Validity Study of the Pharmacy College Admission Test”, aimed to examine the ability of the admissions test to colleges of pharmacy to predict student GPAs in the first year and up to the fourth year. The study was conducted in the autumn of 2000 at 11 schools and the College of Pharmacy in the US. The data collected were the Pharmacy College Admission Test (PCAT), the cumulative average GPAs on entrance, the science/math GPAs on entrance, GPAs in the Pharmacy Programme for 1st Year, 2nd year, 3rd year, and 4th year and status of students after four years. The data were analysed to examine the validity of the PCAT in predicting GPAs using correlation coefficient, multiple regression analysis, diagnostic accuracy analyses and discriminant analyses. The results of this study suggested that the PCAT continues to have moderate to strong value in predicting GPAs for the first year of study in four-year professional pharmacy programmes.

These studies collectively demonstrate the predictive value of undergraduate admissions criteria. However, the significance of findings varies between countries, institutions, times and assessment instruments. Thus, analyses should be performed for individual institutions, as well as in different national contexts. As the present study concerned the Saudi Arabian higher education context, studies concerning the predictive power of admissions criteria at Saudi higher education institutions was of particular interest in this literature review.

### **2.6.2 The Saudi Context**

A study by Alshehri (2011) entitled “The predictive value of acceptance criteria used in Taif University” aimed to predict the students' cumulative averages through a variety of independent variables: secondary school test, capacity test, and achievement test, in order to determine the interpretation proportion of each variable of the set in the cumulative average GPA. The researcher used the method of stepwise linear regression analysis. Where possible, the variables were ordered according to their importance. The analysis showed that the variable secondary school test was ranked first, as it alone explains the square correlation coefficient 231.0, followed by the achievement test variable. The two variables together explain the square correlation coefficient of 284.0, and the capacity test explains its predecessors with a square correlation coefficient of 297.0.

A study by AlGhamdi (2007) is entitled “The Predictive Value of the General Aptitude Test and the General Secondary School Standard as Admission Criteria for the Students to Join Umm Al-Qura University.” The aim of the research was to investigate the predictive value of the Capabilities Test, as described in the introduction chapter, for the students' results in university study. Testing was done prior to university level, and the results of achievement tests at the high school level was a criterion, making use of the following academic variables: specialization in high school, and college type. The sample size of the study was 1672 university students. The students were regular and newly enrolled for academic year 2004 / 2005. The method of the study depended on designing a questionnaire to gather the needed data for the research, and the tools included Capabilities Test scores, GPA, and college type. The descriptive, predictive method was applied. The main results of the research were the following that there was a significant correlation between criteria of admission and criteria of achievement and the most significant predictive criterion for students' academic results and continuation of university study in all specializations was general secondary school results. Furthermore, the Capabilities Test was found to be a fair criterion for predicting the student's academic achievement in university, especially in Humanities Studies. The study also showed the weakness of correlation between the Capabilities Test and students' Grade Point Average in the scientific departments. The research recommendations of the study were to develop and improve the Capabilities Test, direct education towards mental abilities, discover tendencies and desires of students and direct them towards these desires. Interestingly, this latter recommendation implies a value to a preparatory year programme that affords students the flexibility to explore a broader field of academic subjects before deciding on a major. While the recommendations to improve the Capabilities Test was made seven years ago, the findings of the present study compared the GPA and admissions criteria for the '12-'13 academic year. This would strengthen the case for a heavier weighting of one or another of the criteria, depending on the track.

A study by AlMohamadi (2011) was aimed at determining the predictive variables of the admission criteria used at Taibah University. Conducted in the academic year 2007–2008, it also aimed to verify the reliability of the admission criteria for the selection of students. The admission criteria used were high school grades, scores on the General Ability Test and the Achievement Tests, and the average of secondary

school scores in mathematics and biology. The preparatory year GPA was treated as the standard by which success is determined. The study was applied on a purposive sample consisting of 610 students from Taibah University for academic year 2007–2008. The researcher used predictive research to identify the relationship between the variables of the study. The researcher used mean scores, standard deviations, simple and multiple linear regression analysis and binary logistic regression analysis.

The study showed that high school grades and scores on the General Ability Test and Achievement Test were good factors in predicting the average rate of the preparatory year in Taibah University. The high school grades criterion was considered the most important factor in the prediction of the preparatory year GPA, followed by the Achievement Test criterion. The mean scores of high school courses have good predictive value for the preparatory year GPA. The mean criterion of biology was a good predictor for students of the Health Sciences programme, while the mean criterion of mathematics was a good predictor for students of the Applied Science programme. The variables of sex, programme and college are moderate influences in the process of predicting the preparatory year GPA for both male and female students at Taibah University.

This study was similar in many points to the current study concerning the predictive ability of the admission criteria. One of the fundamental differences between them was that AlMhamadi's study was conducted in the academic year 2007–2008 when the Ministry of Education developed the exams in secondary schools in Saudi Arabia and distributed them to schools so that they were standardized in all schools. These tests made up 30% of the student's grade in the final year of high school. The tests were corrected at centres run by the ministry. This system was cancelled in the academic year 2008–2009 and replaced with a system in which schools set and corrected all their students' tests. Another difference was that the admission criteria at Taibah University were changed after 2008-2009 academic year. The student rate in some secondary school subjects, such as mathematics and biology, was no longer used as a criterion for admission. Furthermore, the admissions policy of Taibah University was to accept students from the beginning into a college and major on the condition they pass the preparatory year. Student average in the preparatory year did not enter into identifying the discipline or college the student was accepted in. This later changed, and students

are now accepted in a specific track in the preparatory year. Student specialization and college is determined later in light of the average in the preparatory year and the track.

### **2.6.2.1 Predictive Value for the Different Tracks**

Beyond the general importance of admissions criteria in terms of student outcomes, there are various subsets of the student population for whom the predictive values of GPA differ. Al Bannai et al. (2003) sought to discover the relationship between the GPA of students in Qatar University and their predictive value used as an admission acceptance criterion. The study variables were student gender, nationality, type of school, college type, and total study hours. The sample size for the research was 3968 students from both genders, and a systematic random method was applied to choose the sample. The main results of the study were that there were statistically significant differences in the preferences of Qatari students enrolled in arts colleges. And that there was a strong correlation between GPA and high school percentage in favour of private high schools. Furthermore, there were strong correlations between GPA and the study variables. The first of these results was of particular interest in the present context. There is further evidence supporting the hypothesis that there are significantly different predictive values of admissions criteria between tracks.

In the US, Shaw et al. (2012) examined the differential validity of the SAT® for predicting cumulative GPA (cGPA) through the second year of college in terms of college major, as well as the variance prediction of the cumulative GPA by college major through student subgroups. This study was conducted on 39,440 students from 66 colleges. The results showed that the relationship between SAT and the HSG varied by specialization of study. The results showed that the SAT was most able to predict the cGPA in the STEM field. It increased the validity of HSG in the prediction of cGPA in all majors. The implication of their findings that admissions criteria predictability of outcomes varied by discipline was an important consideration in the present study, and collected data were divided by track in the current study to ascertain whether the variance in criteria by track might improve the profile of the student populations in different tracks.

A study by AlGhamedi (2010) entitled “Predictive Validity of General Capabilities Test and General Secondary School Grade Point Average in University: A Study on

A Sample of Umm Al-Qura University Students” substantiated the findings of Bannai et al. (2003) in terms of differences in specialization. AlGhamedi (2010) explored the validity of prediction of the general capabilities scale, in addition to grade point average of the secondary school. The former measure was used as an assessment criteria for the University of Umm Al-Qura applicants. However, of more significance is that the research studied the importance and effect of specialization by students in general secondary school on the students’ achievement while studying in the four academic years. The sample size was 1940 students randomly selected. Pearson correlation was used between the variables and Multiple Linear Regression and Simple Linear Regression were used to calculate the best prediction criteria. Variance analysis was used to examine mean scores and the statistically significant difference in accordance with specialization. The study found that there was a statistically significant difference between the specializations. The study recommended giving more weight to the GPA of general secondary schools in the university admission criteria and giving talented students special attention. While the first finding was specific to the comparison with the University of Umm Al-Qura, the second was more widely applicable.

The analysis of the predictive value of admissions criteria separated by track was of crucial importance because blanket data not segregated by track could result in misleading findings and thus misguided recommendations. Hypothetically, for example, it is possible that a given criterion would prove to have a low overall predictive value as a result of a positive predictive value for one track of students and a neutral or negative predictive value for another. If another criterion shows a strong predictive value, and it is recommended that the criteria weights are adjusted to reflect this, it would have either no effect or a negative effect on the different tracks of students concerned.

#### **2.6.2.2 Predictive Value by Gender**

A study by Alzamil (2010) investigated the ability of the admission system at King Saud University to predict the academic performance of 5965 males and 2978 female preparatory year students. Pearson correlation coefficient and Multiple Regression analyses were applied to obtain the results. The results of the research indicated the correlation coefficient was statistically significant at  $P < 0.01$  between the achievement

test result's high school test results, and ability scores. These tests were applied to preparatory year students only. The main results of the research indicated that the prediction ability of the achievement test was 34.4% for male students and 25.8% for female students; achievement and high school tests combined prediction ability was 39.8% for the males and 34.8% for females. The ability of all of the achievement, high school and ability scores prediction was 41.5% for male students and 38.2% for female students. The Multiple Regression analysis did not rule out the ability of any criterion to predict the cumulative rate for students in the preparatory year, which generally indicates the ability of admission criteria to predict the students' academic performance in the preparatory year.

Nevertheless, the finding that the prediction ability of the achievement test was 34.4% for male students and 25.8% for female students was significant. This was a difference in predictive ability in favour of the male students. If these findings were further confirmed, it would indicate that a lesser weighting of the achievement test in admissions criteria for females would improve the predictive value of the criteria. As relatively few studies have addressed this issue in the Saudi context, the findings of the present study were of interest in corroborating Alzamil's (2010) findings with regards to the gender discrepancy in the predictive power of the achievement test.

## **2.7 Issues for Preliminary Year Students (Including in KSA)**

As mentioned, entering higher education requires considerable adjustment, and hence the first year experience is of critical significance to students. Evidence from studies of non-completion of full-time students indicated that, for some of them, insufficient attention had been given to preparation for the transition (Yorke 2000). Not only were their options of programme and institution incorrectly grounded, "but institutions do not always place enough emphasis on inducting students, and on the first years' experience in general". (Yorke 2000; p. 1). Similar circumstances were notable in the Saudi context.

A study by Alankry (2012) entitled "Administrative and Academic Problems Facing Preliminary Year Students at King Saud University from Their Point of View" sought to recognize the most significant administrative and academic problems facing students at the preliminary year stage in King Saud University, from their perspectives.

The study also aimed to provide suggestions for controlling and limiting these issues. The study adopted descriptive, analytical methods. The sample of the study was 450 students who studied in the preliminary year at King Saud University. The tool that the researcher used in the study was a questionnaire, which gathered the data to be analysed in order to answer the research questions. The tool used to analyse the data was the Statistical Package for the Social Sciences (SPSS). The main results of the study were that the problems facing first-year students were the high price of books, a large number of assignments, the high requirement of necessary searches and reports, and the complex syllabus. Furthermore, there were also some problems with services, such as expensive meals, overcrowded bus stations, and limited counselling services. There were some suggestions from the students concerning overcoming administrative and academic problems. These included introducing academic advising, rearranging the exam schedule to include no more than one test a day, and enhancing social relations between students and staff.

The study also found that there were no statistical differences between the means of participants for decreasing the academic and administrative problems by studying variables in favour of students in the Health Colleges. Moreover, the study found that there were statistical differences between means of participants responding to suggestions for reducing these problems, in accordance with a difference of standard of studying variables in favour of the first year students. There were also statistical differences between means of participants responding to the administrative and academic problems, in accordance with a variable of residence place in favour of the students from outside Al Riyadh city. Finally, the study recommended activating academic guidance, helping students to understand the systems and regulations, respecting students' opinions, having well-operated stations, providing the students with free books or reasonably priced books and developing social relations between the students and the members of the teaching staff.

Regarding the first finding, which was a large number of assignments, the high requirement of necessary searches and reports, and the complex syllabus issues for preliminary year students were of particular interest in the present context. The nature and syllabus of the preparatory year course were considered to contribute significantly

to mitigating or overcoming these issues. Thus, these were given careful consideration in the analysis of the findings with regards to RQs 3 and 4.

## **2.8 Issues for Preparatory Year Students in Saudi Arabia**

There have been a number of studies investigating the issues faced by preparatory year students, and their analysis and comparison to those faced by preliminary year students helped frame the development of the data collection instruments, as well as the discussion of the findings. These studies included several that were undertaken in the Saudi context. A study by Mahmoud (2011) entitled “The problems of students in the preparatory year in some Saudi universities” sought to identify the most important problems of preparatory year students at selected universities in Saudi Arabia. The study investigated the main problems of the students in their studies in the preparatory year programme. The researcher chose a descriptive approach and a set of tools, such as open questionnaires and interviews. The study was carried out in the Academic Year 2009 – 2010. The sample of 560 individuals was randomly chosen. Accordingly, 529 students answered the questions on the questionnaire online through a forum, and 29 students were interviewed, with their answers summarized by the researcher. The results showed the presence of problems related to subjects; to the system of preparatory year, such as dates and study table; to the relationships of faculty members with students, to tests; to academic advice and to educational buildings, financial problems, and management problems.

A study by Hussein (2010) entitled “Evaluation study for the preparatory year programme at the University of Tabuk in the light of its objectives” aimed to evaluate the preparatory year programme at the University of Tabuk in Saudi Arabia and to find out its pros and cons in the light of its objectives. It also aimed to improve and increase its effectiveness in light of the findings of the study results. The study used a descriptive approach and reviewed many of the previous studies about the preparatory year at the University of Tabuk. The researcher applied four questionnaires to students and faculty members. The study sample was 342 students and 61 faculty members in the program during academic year 2008-2009. The researcher also used an interview tool with a number of students and faculty members. The results of the study showed the opinions of students and teachers are different regarding the order of the goals achieved. In particular, the study showed a difference of opinion about the courses.

Students' understanding of subjects varied, as they had different opinions about understanding each course. The results also showed the percentage of satisfaction about the programme, indicating that 62% of respondents supported the continuation of the programme.

A study by Abdulaal (2010) sought to determine the factors affecting the internal efficiency of the students of the preparatory year at the University of Hail, Saudi Arabia. The study aimed to identify the causes and factors that led to the low internal efficiency, such as poor performance in process indicators relating to the performance of students, in the preparatory year at the University of Hail, in order to derive firm recommendations in terms of pedagogy, curriculum, and learning environment to raise the students' internal efficiency. To achieve the objectives of this study, a descriptive approach was used in a scientific form compatible with the nature of this study.

The analysis of the data showed that students in the preparatory year programme at the University of Hail were able to identify many of the factors behind their low internal efficiency. Two of the major causes of the decline were economic factors and the availability of jobs for scientifically unskilled workers. The analysis of the data showed that social and academic factors were also reducing productivity. Finally, some of the students had only a low level of proficiency in terms of speaking English before enrolling at the university. The researcher recommended that the university provides psychological guidance and direction to the students because it is of great importance to attend to the students' psychological problems. It was also recommended that the university guide students on how their leisure time should be used. The researcher further suggested that a fund should be established to support needy students.

A descriptive study by AlQahtani (2004) entitled "Students' attitudes towards the curriculum and instruction of the English Language Programme at King Faisal University" aimed to investigate and analyse the attitudes of students of the Intensive English Language Programme at King Faisal University concerning the curriculum and instruction of the said programme for development purposes. The sample of the study consisted of 308 students representing all the male and female students enrolled in the preparatory year at the Colleges of Medicine and Architecture of Dammam University during 1996. A questionnaire consisting of fifty-eight items was

distributed. Forty-two of the questions covered the curriculum, seven covered instructions, and nine were about the students' evaluation of the programme. The data was analysed and then discussed. The findings differed little from that of previous research, although some did indicate a divergence from the theories that have been accepted for quite some time. Some of the key results were that students preferred Native English teachers; speaking Arabic in class to explain new vocabulary; using language laboratories; adding speaking skills to the programme; using computers in learning the language; adding a workshop to the programme and using English to Arabic and Arabic to English dictionaries.

Participants did not show interest in learning more than they had to. The study showed how university language programmes differed in some aspects from general language programmes. Consequently, the study ended with some recommendations that ought to be taken into account in developing the curriculum and instruction of college or university English language programmes. The overall evaluation of the programme by students came out as 'good'.

## **2.9 Curricular and Pedagogical Elements (as Process Indicators)**

As previously discussed, process indicators are generally crucial as a means of effectively identifying areas of weakness and strength in education, including higher education, which is evidenced by the relatively strong performance of countries where such practices have been adopted and the prevalence of recommendations to that effect in countries such as Ireland, Australia, and other OECD countries. Fenstermacher and Richardson (2005) examined the concept of quality teaching, exploring its empirical, conceptual and normative properties. They analysed the concept of good teaching by separating it into its task sense of what teachers try to do" and its achievement sense in that the student learning is what teachers foster. The analysis suggested any determination of quality in teaching must account for both the worthiness of the activity and the realization of intended outcomes, which are successful teaching and good teaching. Good teaching is not the same as effective teaching. The remainder of the present subsection examined how curricular, pedagogical and process indicators, as well as student-experience outcome indicators, have been addressed in various studies.

Kuh, Pace and Vesper (1997) undertook the development of psychometrically right process indicators of performance of students. The results were reported in a test of the utility of these indicators with six samples of male and female students, with 911 in each group from 19 baccalaureates, 27 masters', and 29 doctoral institutions. Selected items from the "College Student Experiences Questionnaire" were used to create measures of three educational practices: faculty–student contact, cooperation of students and active learning. Active learning and cooperation of students, in that order, were the best predictors of gains for both men and women at all three types of institutions. The findings of the study underlined the importance of learning environments and teaching practices, especially since student background characteristics had only slight influences on gains of education. Implications were discussed for institutional policy and further research.

The study by Damietta (2011) conducted in 2008 aimed to examine the reality and causes of academic problems faced by female students at the University of Taibah. The study targeted academic problems in order of importance and their relationship with study level or college and examined the nature of the relationship between academic problems for female students at Taibah University and their level of performance. The proposal aimed to address these issues and improve the academic performance of female students. The study was a descriptive method survey used to identify the most important academic problems faced by female students and their order of importance from their viewpoint, as well as the relationship of these problems to academic performance. The study applied a questionnaire developed by the researcher on a random sample of female students at Taibah University, for a total of 384 female students.

The study showed that the academic problems related to courses ranked first for the students, followed by problems related to faculty members, and then problems related to the university library; problems related to schedules ranked last. The results of the study also found that the most important variables influencing academic performance were in-circuit television, which was used when a man taught female students, faculty, and curriculum. Although this study was different from the current study conducted on preparatory year students, it contained elements of the university environment common among all students.

A study by Mahibalrahman (2012) offered an attempt to evaluate the English writing textbook used in a preparatory year textbook. The aim was to identify the strengths and weaknesses of different aspects of the existing textbook such as content, presentation, organisation and exercises. It also focused on finding out whether or not the textbook was able to fulfil the aims and objectives of teaching English writing skills, as well as meeting the learners' needs. A questionnaire consisting of 22 multiple choice questions was administered to 22 male teachers who were teaching the content of the textbook to the Level 1 students of the Preparatory Year. The study revealed that the textbook *Interactions 1* by Cheryl Pavlik and Margaret Keenan Segal had strengths because it was organised in a meaningful way. The print, format, and size were considered to be in harmony with the aims and objectives of the syllabus, and the chapters were arranged logically. However, the textbook did have weaknesses. Firstly, none of the chapters in the textbook offered clear and comprehensive summaries. Secondly, it failed to facilitate the acquisition of specific skills. Finally, exercises were not such as to develop the students' communicative abilities, and no periodical revisions were provided for diagnostic purposes. While the present study undertook a programme-level analysis, this review of a specific curricular element, employing a process and outcome analysis framework to a specific curricular element, offered insight into the applicability of process indicators in grasping the complexities of higher education.

Finally, curricular and pedagogical elements were reflected in many items in the existing higher education effectiveness measures, including the NSSE, BCSSE, CSEQ, and in the works of Chalmers and the OECD.

## **2.10 Campus Facilities**

The quality and impact of campus facilities, as well as physical and virtual learning environments are recognized throughout the literature, as reflected in the inclusion of items and sections dedicated to such issues in most of the large efficiency and effectiveness data collection instruments. For example, the CSEQ (4th ed.) includes "Campus facilities" and "Clubs and Organizations" sections in the survey, using items such as "Used a campus lounge to relax or study by yourself" and "Used campus recreation facilities (pool, fitness equipment, courts, etc.). (Gonyea et al. 2003) However, it should be noted that this instrument concerned student experiences with a

view to establishing a standardized data collection method across many institutions, so items that were more specific would have been impractical. According to Deno and Emeritus (2007) numerous studies confirmed a developed campus leads to increased student retention, increase in students applying for study and even donations from its alumni.

Campus facilities are used for university-related functions as well as supporting the core functions of the institution, including teaching, research and learning (Kärnä, Julin and Nenonen 2013). Therefore, effective campus facilities, including the learning environment, private and public study environments, and equipment quality and availability are significant factors in learning outcomes and processes, as well as student experience and broader institutional goals. There is also a social aspect to campus facilities regarding learning environments. For example, McLaughlin and Faulkner (2012) found informal learning spaces in the university environment are often venues of student active learning. Furthermore, lecture halls, laboratories, and classrooms, offer central meeting spaces for structured faculty and student interactions. Moreover, educational experiences given outside the regular classroom setting allow individuals to investigate their opinions and stances on a range of matters, academic and otherwise. These out-of-class experiences give students the chance to hear other students' opinions, which may be different from their own. This consideration was explicitly reflected in the CSEQ, with items such as “Had serious discussions with students whose philosophy of life or personal values were very different from yours.”

Most studies on efficiency and effectiveness indicators in higher education focus on teaching and learning processes in the classroom, lecture hall, and in student–teacher or student–advisor relationships. However, there is a growing body of evidence that quality of facilities and learning environments per se, as well as how they are perceived by students, are important factors in education.

Glover and Murrell (1998) predicted how community college students perceive their gains in general education and personal and social development using independent variables including campus environment and quality of student effort. Their study found that quality and quantity of student effort, as well as a positive perception of the campus environment, were significant predictors regardless of age. This supports the

inclusion of campus environment items in data collection concerning efficiency and effectiveness in higher education, as reflected in the surveys used in the present study.

Laird and Niskodé-Dossett (2010) used data from 37,122 first-year students and 42,285 seniors who participated in the 2006 administration of the NSSE. Their findings highlighted how student interactions across differences positively impacted student perceptions of the university environment. The magnitude of the effect of these interactions varied meaningfully by racial/ethnic group, but not by gender. This is a particularly interesting finding in the present study because there was a clear gender division in the institution being analysed.

## **2.11 Summary and Conclusions**

The present literature review was intended for greater clarity in analysing Saudi preparatory year programmes in comparison with others, both domestically and internationally. Therefore, the review sought studies centred in Saudi Arabia as well as more widely cited works to effect this.

In the review, first, different means of determining efficiency and effectiveness in education, with a focus on secondary and higher education, were investigated, including a discussion of different indicators and the importance of effectiveness in education at a national/economic level, and especially in the Saudi context. The review identified different ways of either conceptualizing or modelling efficiency and effectiveness. These two aspects of the literature were the core concern of the present study. That is, each research question contributed to a broader modelling of these two aspects of the preparatory year course at the University of Taibah; moreover, the data collection instruments, conclusions, and recommendations were grounded in how elements of efficiency and effectiveness were qualified and quantified. As further discussed, the boundary between quantitative and qualitative data can be blurred. However, quantitative indicators are further characterized by a lack of subjective judgment in ascribing value. In the Saudi context, qualitative indicators in higher education were considered critical on the basis of the Ninth Development Plan (Ministry of Economy and Planning 2009). In addition, it was concluded to be appropriate that the questions comprising the survey data collection instruments be largely composed of outcome and process indicators, because the preparatory year

course is not an end in itself but rather serves to prime students for participation in and contribution to the broader academic community. Most notably, the use of process indicators was a means of identifying areas of weakness and strength in education generally, including higher education. This was evidenced by the relatively strong performance of countries where such practices have been adopted. This was shown to be effective in informing further initiatives and policy decisions (Kuh, Pace and Vesper 1997).

There were numerous projects and research efforts underway to standardize assessment of higher education institutions, departments, faculties, and courses, both for purposes of comparison as well as for tools used to identify areas of improvement in different contexts. Thus, the review included some of the prominent work and data collection tools in use in the field. These included the CSEQ, NNSE, and the work of Chalmers and the OECD among others.

In the next section, the review drew on existing literature concerning the link between secondary and higher education generally in an attempt to discern potential problems and opportunities presented by the data in this study. Entering higher education requires considerable adjustment, and hence the first year experience is of critical significance to students. Some make the adjustment well; others do not. Evidence from studies of non-completion of full-time students indicated that, for some of them, insufficient attention has been given to preparation for the transition (Yorke 2000). Not only were their options of programme and institution incorrectly grounded, “but the evidence also shows that institutions do not always place enough emphasis on inducting students, and on the first years’ experience in general”. (Yorke 2000; p. 1). This was all significant in the context of the present study as these considerations will inform the interpretation of the data into effective recommendations for the programme.

There were various aspects of higher education efficiency and effectiveness analysis that were not directly applicable in the context of a preparatory year programme. These involved higher education institution outputs, such as research and patents, and related process indicators such as internationalization. As discussed in detail in the review, although these are only tangentially related to the present study, they were reviewed briefly here as their relationship to some of the constructs and items used in the present

study reinforces their importance, especially in the context of the Saudi educational policy. It is widely acknowledged that helping students manage the transition into higher education requires a process that inducts the students into the needs and expectations of higher education. This can be added to the needs and expectations of the Saudi National Education Administration. Thus, again given the requirement under the Ninth Saudi Development Plan (2009), the transition from secondary to higher education should be conducive to a higher proportion and quality of students progressing to post-graduate studies and engaging in and contributing to the international academic community. (Ministry of Economy and Planning 2009) Again, this was reflected in the formation of the data collection tool in the present study, as well as contributing to prioritizing survey items and constructs in the discussion section.

One important part of the present study was the assessment of the admissions criteria used for the programme; the importance, measurement, and methodological approaches concerning the predicative value of admissions criteria were reviewed for that reason. In accordance with the theoretical framework developed, these criteria were quantitative input indicators. While quantitative performance indicators in themselves do not demonstrate quality of education, but rather quantities of its outcomes (Burke, Minassians and Yang 2002), the correlations between different criteria and different tracks and gender can inform admissions policy, with the aim of positively affecting the make-up of the student body that is duly admitted. Findings as to the predictive value of admissions criteria varied significantly in the literature in terms of both the length and variables considered, as well as the values determined. Therefore, particular attention was paid to the Saudi context and differences in gender in existing findings.

In the section that followed, issues facing preliminary and preparatory year students, both in terms of their educational experience and the desired outcomes of the transition to higher education, were reviewed. As previously mentioned, entering higher education requires considerable adjustment; hence the first year experience is of critical significance to students. Evidence from studies of non-completion of full-time students indicates that, for some of them, insufficient attention is given to preparation for the transition. Not only are programmes and institutions unsoundly grounded, but

also little attention has been given to extra-institutional considerations such as accommodation. Furthermore, there have been a number of studies investigating the issues faced by preparatory year students, and their analysis and comparison to those faced by preliminary year students helped frame the development of the data collection instruments as well as the discussion of the findings. These studies included several that were undertaken in the Saudi context. The evidence also showed that institutions do not always place enough emphasis on inducting students, and on the first years' experience in general. Again, similar circumstances were noted in the Saudi context.

While the present study undertook a programme-level analysis, the review of specific curricular elements and employing a process and outcome analysis framework to a specific curricular element offered insight into the applicability of process indicators in grasping the complexities of higher education.

In line with the research questions stated in the Introduction chapter, the present literature review sought to clarify the concepts of efficiency and effectiveness in education, both generally and in terms of admissions criteria, curriculum, teacher performance, in-programme evaluation instruments, passing percentages, student satisfaction, and teacher appraisals. The research questions concerned the inputs and outputs (RQ1), processes (RQs 2 & 3), and outcomes (RQs 4) of the programme. Also, RQs 1–3 considered gender and track variables for health sciences, natural sciences, and social studies variables. RQ 4 considered gender variable. The broad purposes of the review were to establish the validity of the research questions as means of achieving the study objectives; to clarify the applicability of the data to be collected; and to frame and support the discussion of findings, conclusions and recommendations.

## **Chapter 3 Methodology**

### **3.1 Introduction**

The present chapter outlined the methodological approach to data collection and analysis used to address the RQs. Following this introduction, the chapter was split into four other parts. Each addressed one of the four RQs, as the methodological treatment of each RQ, as well as the data collection instruments used, differ significantly. These four sections each included subsections describing the data collection instrument and study populations, including any exclusion criteria; the methodological strategy taken; and descriptions of items in the case of the surveys along with their underlying constructs. Finally, the chapter concluded with a summary of the approaches and expected outcomes. The ethical considerations were discussed in a subsection of the introduction, as the ethical considerations applied across the different parts of the study and the data collection instruments, which include both surveys and semi-structured interviews, differed in content rather than in form.

### **3.2 Quantitative and Qualitative Approaches**

The study used the descriptive survey method, because it is the most suitable approach for the nature of the current study and its objectives. This method doesn't stop at descriptions, but continues to the stages of interpretation and analysis of information and extraction of meaningful connotations. The study also used interviews to further deepen and confirm the results.

#### **3.2.1 Quantitative Approach**

In education, one seeks to identify cause and effect relationships between psychological outcomes and discrete sets of indicators or variables. Most psychologists consider quantitative research to be an effective method, particularly for a deductive study (Fassinger and Morrow 2013). With a quantitative method, the researcher has the opportunity to use quantifiable data in justifying the relationships between a theory or hypothesis and an indicator. In other words, the method is widely applied by researchers who want to determine the degree to which the hypothesis justifies the variables and problem statement or the extent to which a theory justifies the direction of a narrowly defined study question. Although most researchers consider

quantitative methods to be most appropriate for examining cause-and-effect relationships, it is important to understand that the hypothesis will be tested and that the types of research questions dictate how data will be collected.

### **3.2.1.1 Advantages of the Quantitative Approach**

Under the quantitative study approach, the researcher will have the opportunity to project results onto the larger population following the objective process. This means that the data or information to be collected from the target population will allow the researcher to make appropriate inferences or generalize the study findings (Fassinger and Morrow 2013). With the quantitative approach, the researcher will find it possible to engage in a probabilistic study since the conclusions exhibited among the samples can be used to describe the entire population.

As already stated, the quantitative approach makes it possible to employ descriptive statistics and examine the relationships between and among different variables. Just like in any other scientific investigation, the use of quantifiable results as they relate to opinions, people's attitudes, and trends is one of the goals of education psychology research. In examining opinions, attitudes and trends, psychologists find it necessary to report frequencies or other descriptive statistics. For example, descriptive statistics are mostly used to examine the growth rate of students' cognitive abilities and job retention over time, particularly for under-represented groups (Cokley and Awad 2013). The quantitative approach is commonly used to find information on topics that have very little information. Through the calculation of percentages, proportions or frequencies, the information about a variable can be translated into something prominent and easy to understand.

Another advantage is that the quantitative approach makes it possible for the researcher to investigate the difference between variables or treatments. When studying the kind of relationships or differences that exist in a particular group, indicator or variable, the researcher combines the information from a quantitative research design with the concepts attached to pre-existing theory as guiding principles towards the formulation of a study hypothesis (Cokley and Awad 2013). This means that without the concepts of a quantitative study approach, it may be hard to develop a hypothesis that meets the criteria laid for the research.

### **3.2.1.2 Disadvantages of the Quantitative Approach**

Even though most researchers advocate for the use of a quantitative approach, certain factors make the method inappropriate in educational psychology studies. For instance, the approach makes it difficult to obtain certain important information that cannot be collected through structured instruments. For example, with a quantitative approach, the researcher may find it hard to retrieve sensitive information. Similarly, the method relies heavily on tools of data collection like questionnaires and interviews, which may have inaccurate or incomplete self-reported information or data. When the information is inaccurate, the analysis, results and the predictions are then flawed.

Another disadvantage is that it may be hard for the researcher to obtain information on contextual issues that could be used in the interpretation of the results. With limited access to contextual information, the researcher may lack data to back up his or her claims of behavioural variations between and among treatments. Also noted is the fact that the quantitative approach exposes the researcher to minor errors that may affect the study outcome. For instance, the researcher may make an error during analysis and hypothesis testing, and this often leads to misimpressions of a research programme or other influential factors. Correspondingly, any error in the selection of a research procedure for determining statistical significance will lead to an erroneous finding for the entire project.

### **3.2.2 Qualitative Approach**

While the quantitative approach is associated with the collection and analysis of figures, the qualitative research approach is mainly associated with the collection and analysis of textual data or information (Hesse 2010). The qualitative approach focuses on the context within which the study is conducted, and the analysis is dictated by other factors apart from hypothesis or objectives. With this method, psychologists have found it possible to respond to questions such as: How does one factor affect the other? How are the two variables or treatments related? What caused something to occur? Even though the researcher may find it easier using data to explain a specific phenomenon, the response given to some of these questions often require 'thick' description. The use of texts and examples, in this case, will help the researcher to

explain the nature or direction of a relationship and give an account of 'how,' 'why,' 'what,' 'when' and 'where' questions (Hall and Ryan 2011).

### **3.2.2.1 Advantages of the Qualitative Approach**

Specific advantages of the approach are that it gives evaluators freedom to express themselves and describe their reactions (Roberts 1996). Also, the strength of the quantitative approach lies in its ability to accurately detect beliefs, underlying values and assumptions. In addition, the data collected through this method has depth and detail. Furthermore, the small sample size leads to a relatively low cost (Yauch, Charlene A 2003).

The qualitative approach is also useful in describing complex phenomena. It provides rich detail on individuals' personal experiences. Often, data are collected in setting that allows one to explore why and how phenomena occur. (Johnson and Onwuegbuzie 2004).

### **3.2.2.2 Disadvantages of Qualitative Research**

Due to small sample size, it becomes difficult to generalize the results of a qualitative study. It is also more difficult to test hypotheses and theories. Additional time is needed to collect and analyse data compared to the quantitative approach. The results are also affected by bias, including by the researcher's personal opinions (Johnson and Onwuegbuzie 2004). Moreover, it is difficult to objectively verify the results. In addition, when collecting qualitative data through interviews, the researcher needs to have the skills required for conducting and managing the interviews (Choy 2014).

### **3.2.3 Mixed Approach**

The mixed study approach advances the systematic integration of both the quantitative and qualitative study methods in a single study or a sustained programme of inquiry. The mixed study approach takes into account the characteristics of quantitative and qualitative study approaches (Curry, Nembhard and Bradley 2009). Psychologists currently advocate for the use of this research approach because it permits a complete and more synergistic utilization of information or data. In other words, the evaluation of psychological factors provides an ideal condition for the use of mixed methods.

Furthermore, in a well-structured mixed methods study the researcher will not only use the approach to collect both qualitative and quantitative data in a single study, but will also collect and analyse data based on each method's principles. This will include ensuring that the researcher has an appropriate sample size for both qualitative and quantitative analysis (Krumholz, Bradley and Curry 2013).

Unlike the separate quantitative and qualitative methods, the mixed method gives the researcher the opportunity to validate findings and to use qualitative data in exploring quantitative findings. This way, the researcher will be able to give a detailed analysis of the findings.

Triangulation is more common in mixed research designs. It seeks data from different sources on the same topic. The purpose of this is to take advantage of the strengths of quantitative methods, such as sample size and generalization, and the strengths of qualitative methods size, such detail and depth (Creswell and Clark 2011)

### **3.2.3.1 Emergence of Mixed Methods**

Paradigm wars characterized the emergence of the mixed research design. Despite the fact that the research paradigms are mere mental models aimed at guiding practice, some individuals regarded them as stable world views that had supportive propositions, constructs, and supportive assumptions (Ponce and Maldonado 2015). The world views came about as a result of student advisers, discipline orientations, and past research experiences and the beliefs held by researchers of these factors determine whether they prefer the qualitative, quantitative or mixed methods technique in their research. These paradigmatic considerations shaped the debate of educational research methodologies. In their arguments, researchers' world views were either postpositivism, transformative, constructivism, or pragmatism. The postpositivism was connected with the quantitative techniques and constructivism was connected to the qualitative research (Johnson, Onwuegbuzie and Turner 2007).

The proponents of the mixed methods supported the pragmatism philosophy in their support for this approach. They viewed pragmatism as an attractive and well-developed philosophy for combining the perspectives of these methods. Through pragmatism, an epistemological justification was offered through pragmatic epistemic

standards or values. In addition, it supports logic, since the integration of qualitative and quantitative approaches and ideas assist the researcher to best frame, address and offer tentative answers to research problems or questions. Pragmatism included a wide gamut of theorists, who took part involved in mixing methods for researchers to use. The theorists offered pragmatism of the right, which means holding realism that is of the moderately strong form and pluralism that is weak. Other theorists offered pragmatism of the left, which means anti-realism and strong pluralism. They also used the philosophy of pragmatism of the middle, which was regarded as an especially useful for mixed methods. Johnson, Onwuegbuzie and Turner (2007) argued that one or more of these pragmatisms can offer a philosophy that supports the paradigm combination. That is how the paradigmatic factors dominated the research methodologies debate and at times the paradigm wars led to real division, both physical and philosophical.

The mixed methods researchers positioned themselves within a diversified paradigmatic landscape, resulting in the development of five distinct philosophical positions supportive of the mixed method. These stances were alternative, a-paradigmatic, substantive, complementary strengths, and dialectic approaches (De Lisle 2011). The complementary strengths position is strongly accustomed to the philosophical assumptions of every research method. In practice, the mixed methods, researchers can choose to use a single or several mental models.

### **3.2.3.2 Why Mixed Methods**

These research approaches to the educational problems involve the combination of qualitative and quantitative research and data in a research study. Such a combination is presumed to offering a better understanding of the educational research problems that neither the qualitative nor quantitative approach can provide on its own. The historical arguments for the mixed methods have been centred on the strengths it offers to offset the weaknesses of other approaches. The weakness of the quantitative research is its inability to help in understanding the context in which people talk and the voices of the respondents are often not heard. Furthermore, the quantitative researchers remain in the background, leaving their biases and interpretations unaddressed. The qualitative approach's weaknesses are also based on the researchers' biases and interpretations and the difficulties in the generalization of findings to a large

group because only a few participants are studied. Through the mixed research approach, the educational researchers are allowed to use all the data collection tools available in studying a problem.

According to Caruth (2013) the integration of the qualitative and quantitative research approaches offers an in-depth analysis of the research questions and problems. The adoption of the mixed methods in an educational research serves several purposes among them, including complementarity in order to get mutual viewpoints concerning similar associations or experiences; developmental for construction of questions from the approach that materializes from the prior method's implications or where a hypothesis from one approach needs to be tested in the subsequent approach; completeness to ensure that there is a total representation of associations and experiences; expansion to elaborate or explain the gained knowledge from preceding methods; compensation aimed at countering the weaknesses of the quantitative or qualitative approach by employing the other; diversity for the obtaining opposing viewpoints on similar associations or experiences and corroboration aimed at evaluating the trustworthiness of the gained inferences.

### **3.2.3.3 Types of Mixed Research Methods**

There has been advancement in the development of several mixed methods used in educational research. According to Terrell (2012), the type of the mixed method used depends on several factors. First is the theoretical perspective which is implicit, based indirectly on a theory, or explicit, based firmly on a theory. The second factor is the priority of the strategy and falls in qualitative, quantitative or equal perspectives. The third factor is the point at which the data are integrated, which can be in the 'data collection, analysis, interpretation or with some combination. The final factor is the sequence of the data collection and implementation, and can be quantitative first, qualitative first, or without following any sequence.

#### **1. Sequential Mixed Research Design**

In the sequential phases design, the educational researcher starts a study with one research method called phase I after which they use the findings from it to design the approach, which is phase II, as shown in figure 1.

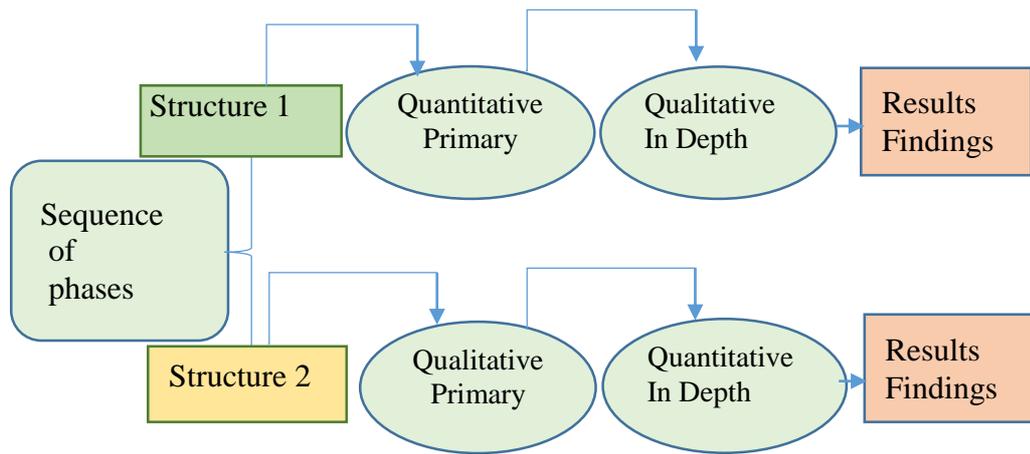


Figure 1 Sequential Phases Mixed Studies Structure

Adapted from Ponce and Maldonado (2015)

Terrell (2012) further divided the sequential mixed methods into sequential explanatory and sequential transformative strategies.

## 2. Sequential Exploratory Approach

Under the sequential exploratory approach, the qualitative data collection and analysis are done first and later followed by the quantitative data collection and analysis, or vice versa as shown in figure 2 (Terrell 2012). An equal chance is given to both phases, with either approach getting the priority. Then, the data are combined during interpretation. The sequential exploratory strategy is primarily used to explore a scenario by testing the theory elements, generalizing the qualitative findings to various samples and through instrumentation development by using a small group and later on collecting quantitative data based on such instrumentation. The pros of this approach are its relative straightforwardness emanating from its clear and distinct stages. Its limitations include that time consuming, especially where the two approaches are given equal priority and consideration.

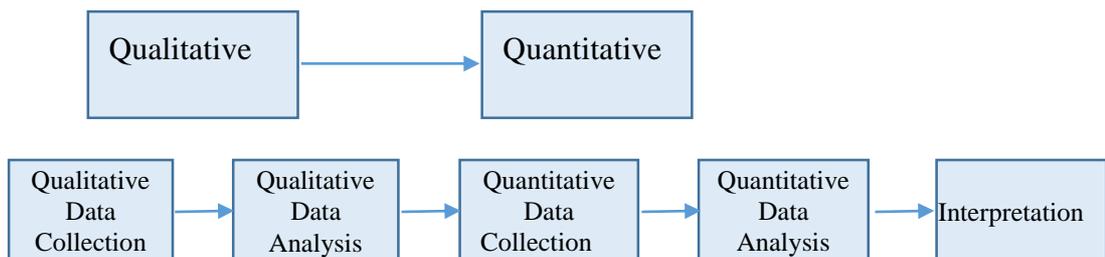
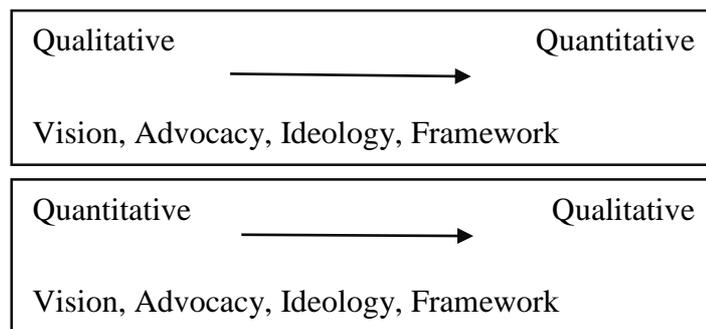


Figure 2 Sequential Exploratory Approach

### 3. Sequential Transformative Approach

On the other hand, the sequential transformative approach has two different data collection phases and the researcher can prioritize either. Furthermore, the researcher can give priority to both data types of either (Terrell 2012). A specific ideology, advocacy, and conceptual framework may be adopted to guide the study as shown in figure 3. Such a perspective is crucial in guiding the study, as opposed to the two data collection types. The motive of the sequential transformative strategy is that it employs approaches best serving the researcher's theoretical underpinnings. It can advocate for participants, give voice to diverse perspectives and clearly understand a process or a phenomenon that varies as it is studied. Its strength lies in being very straightforward in implementation and reporting. Its weaknesses are that it is time consuming, as there is little guidance on its use.



*Figure 3 Sequential Transformative Approach*

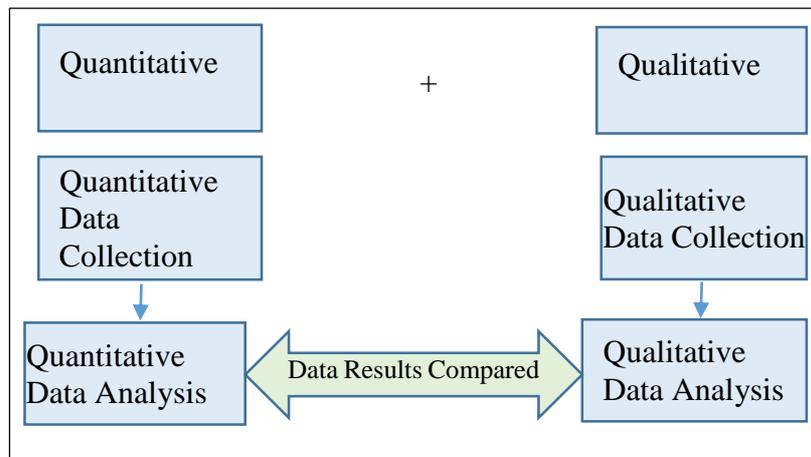
### 4. Concurrent Mixed Methods

Concurrent mixed methods take the parallel form as a model design in which two data types are collected for analysis (Cameron 2009). It can either be a concurrent triangulation or a concurrent nested strategy.

#### **Concurrent Triangulation Strategy**

Under this strategy, there are two concurrent data collection stages. Terrell noted that the priority is equally given, but the researcher can opt to take one approach (Terrell 2012). The data is integrated during the interpretation phase, a point in which the presence of convergence makes the knowledge claims strong or notes the lack of convergence. Through this type of mixed methods in educational research, integration of data can also take place during the analysis. The principal goal of the concurrent

triangulation strategy is cross-validation, corroboration or confirmation of the phenomenon within a single study as shown in figure 4. The approach is preferred because it takes less time compared to the sequential method, is familiar to many researchers, and solves the weaknesses of one technique as both are used concurrently. It, however, suffers some setbacks because a great deal of effort and expertise is required to study the phenomenon by applying two methods. In addition, there are instances when difficulties are faced in comparing the two data types or resolving discrepancies that arise.

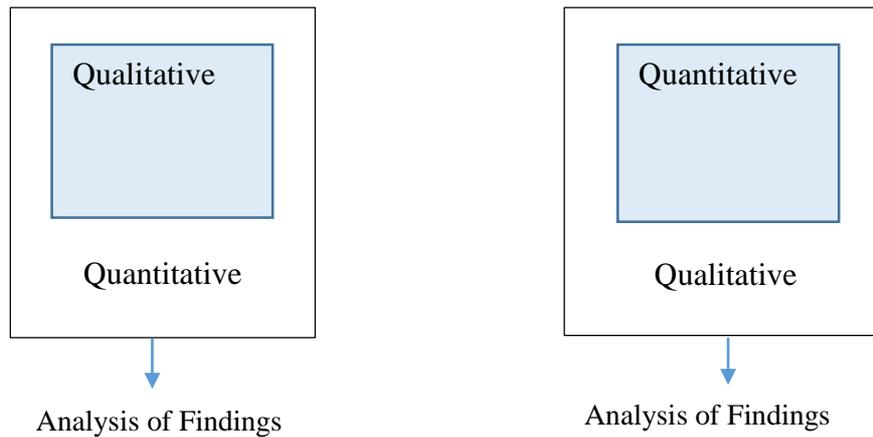


*Figure 4 Concurrent Triangulation Strategy*

### 5. Concurrent Nested Strategy

The second concurrent mixed method is the concurrent nested strategy, where two data collection approaches are involved; one is embedded within the other as shown in figure 5. In this technique, the researcher gives priority to the primary data collection method, with less emphasis given to the embedded approach (Terrell 2012). The data analysis gets mixed during the analysis stage, and a theoretical perspective may be adopted to guide the researcher. The core purpose of using a concurrent nested strategy is to gain a wider view than one would have gained by using only one predominant data collection approach. It also has a second motive, which is addressing different research problems and questions or gathering information from different levels or groups within an organization. Its strength is that it can simultaneously collect two types of data. In other words, it collects both the qualitative and quantitative data,

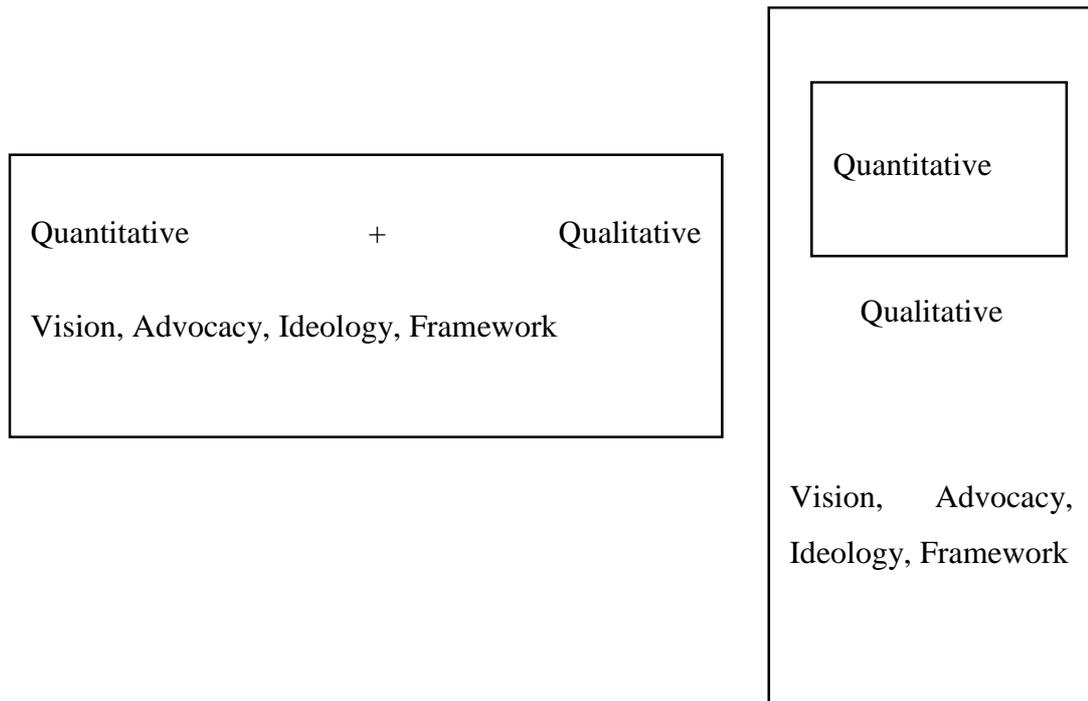
which allows for perspectives from each. Its disadvantage is that it requires the transformation of data to allow combination during analysis, an issue that may present difficulties if discrepancies arise between the two data types. In addition, there exists little literature in the concurrent nested strategy, and the results may be biased when differing priorities are assigned to the research results.



*Figure 5 Concurrent Nested Strategy*

## **6. Concurrent Transformative Strategy**

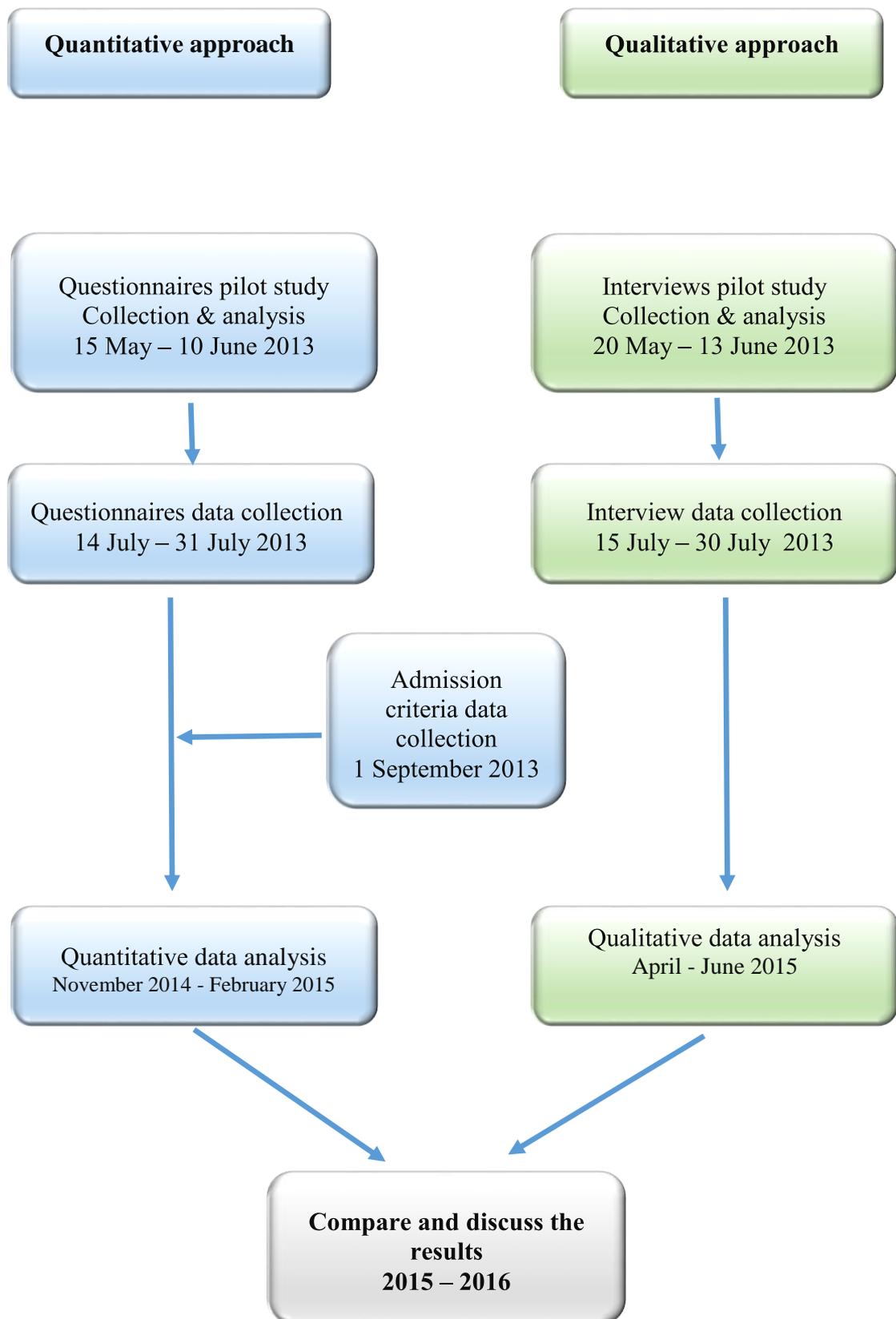
The concurrent transformative strategy is the third type of concurrent mixed method approach to the educational research and it involves two concurrent data collection phases as indicated in figure 6. This form of educational research may give equal priority to either phase. According to Terrell (2012), data are combined during the analysis of interpretation phase. The approach is guided by a specified theoretical perspective, which can be a theoretical framework, advocacy, participatory research or critical theory. Its primary purpose is to allow educational researchers to use approaches that best meet their theoretical perspectives. One benefit of a concurrent transformative strategy is its ability to collect the qualitative and quantitative data simultaneously, which allows the researchers to get perspectives of each. It is also familiar to many researchers and the time used in the data collection is short. One weakness is that it requires the transformation of data for integration during analysis, which may give rise to discrepancy issues. It also requires the researcher to be well experienced to be able to study the phenomenon using the two different techniques.



*Figure 6 Concurrent Transformative Strategy*

### **3.3 The Mixed Methods Model of Study**

The concurrent triangulation strategy was chosen for this study because when one uses more than one tool or method of data collection and analysis in order to verify or ascertain the validity of the results, bias is reduced. This leads to higher confidence in the results. Furthermore, the researcher can compare the results collected more than one way and consider whether these methods lead to the same results and support each other. Also, the concurrent triangulation strategy is a more common model in mixed-method research and less time is needed to collect data (Terrell 2012). Time was an important factor in this study because the programme duration is only one academic year. Also, it was necessary that the data collection be in the final year after the students and trainers had gone through all the stages of the programme. Figure 7 shows the concurrent triangulation model and the time-phrase for data.



*Figure 7 Concurrent Triangulation Model and the Time-phrase*

### **3.4 Ethical Issues in Mixed Methods Design**

According to Caruth (2013) the ethical issues applicable to both the qualitative and quantitative research techniques are also applicable to the mixed methods research because it is a combination of the two techniques. Therefore, an educational researcher carrying out a study using the mixed methods research design must obtain the permission from the relevant authorities, avoid disruptions of the study sites, protect the anonymity and privacy of the respondents or units of study, accurately communicate the purpose of the study, respect the study population, avoid deceptive practices, and respond to potential power concerns. Ponce and Maldonado (2015) underscored the need to address the relevant authorities before carrying out the study. The authors stated it was paramount for the educational researchers to follow the right procedures and channels and to comply with all provisions of the institutions where they intend to conduct studies.

### **3.5 Research Tools**

The use of online questionnaires is highly preferred by psychologists because it allows individuals to design, conduct and analyse surveys at relatively low costs and within appropriate time frames (Nulty 2008). The choice of an online questionnaire as the primary method of data collection is based on factors such as the study topic, the purpose and goals of the study and the availability of the Internet. In this study, an online questionnaire was preferred because it allowed the researcher to collect information at lower costs, allows for automation and real-time access to data and was convenient for the respondents (Harris and Brown 2010).

Even though online questionnaires were considered vital for this type of investigation, there were instances where the researcher was interested in behavioural changes among the respondents (Salmons 2009).

After completion of the study design using questionnaires and interviews, the study pilot was conducted in May 2013. Data were analyzed to ensure the reliability and the validity of the study tools and modified in the light of those criteria. The researcher received the admission criteria data and the results of students in the programme in September 2013. In the last three months of 2013 analysis of quantitative data using

SPSS was carried out. Then qualitative data from the results of the interviews were translated from Arabic into English in the first three months of 2014.

Quantitative data were divided into the data received from Admission and at Registration Taibah University, which is the admission criteria data, the results of the students at the end of the programme and the data collected using questionnaires for students, trainers and faculty members. (see samples of these questionnaires in Appendixes B, C and D).

The qualitative data was collected through 17 semi-structured interviews, eight interviews with students, four with trainers and five with the faculty members. Figure 8 shows the timeline for collection of quantitative and qualitative data.

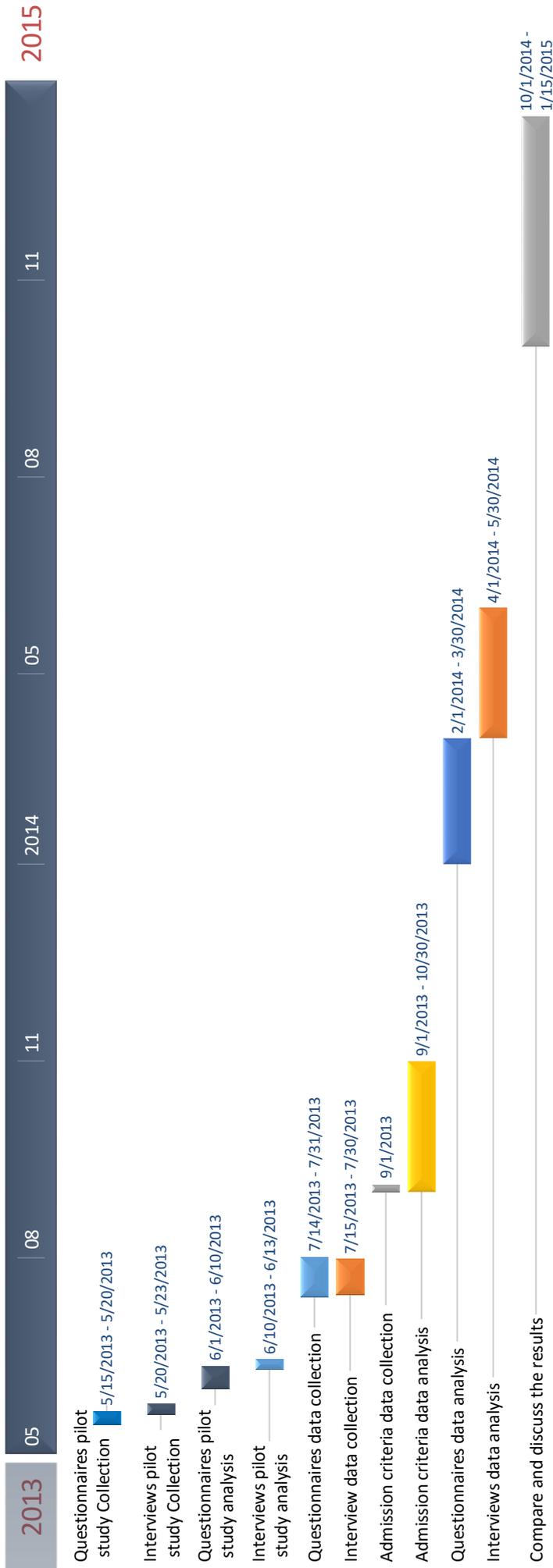


Figure 8 The TimeLine for Collection of Quantitative and Qualitative Data.

### 3.5.1 Interviews

An interview is an interactive conversation between the interviewer and the respondent to obtain certain information (Kajornboon 2005). It is a tool used by the researcher to obtain information to help answer the research questions or test hypotheses (Hamidhh 2012). Different types of interviews are available to the researcher. One type is a structured interview, in which the same questions are asked in the same order for each interviewee. A second type is an unstructured interview, in which questions are non-specific and may be different for each interviewee. Finally there is the semi-structured interviews. This type is a compromise between the first two types. There are main questions or specific topics, but new questions may be asked during the interview that are derived from the interviewee answers (Kajornboon, 2005).

Semi-structured interviews are preferable where some level of accuracy is required. The data collection approach allows the respondent and the interviewer to engage in formal discussions and interviews. The list of questions used by the researcher act as a guide and ensure only those areas relevant to the research goals are included in the study (Harris and Brown 2010). Most researchers prefer this method of data collection because it is often followed by observations; thus, the researcher can have a good understanding of the study topic and its relevance to an area of investigation.

In this study the qualitative data was collected through 17 semi-structured interviews: eight interviews with students, four with trainers and five with the faculty members. The researcher held all the interviews. Each type of interview included questions prepared in advance and additional questions during the interviews. Samples of these interviews were included in appendices E, F and G. Each interview took between 45 minutes and 75 minutes. All the interviews were recorded. They were transcribed in Arabic and the audio records of the interviews were reviewed in order to ensure congruence between the recording and the written interview.

NVivo 10™ software was used to analyse the data. The data from students' interviews was coded and six main sections and nodes were developed. These nodes were the content of the programme, trainers, evaluation methods, university environment, academic guidance and programme goals. Each main section contained subsections (child nodes). See Appendix H.

Regarding the trainers' interviews, the coding was divided into five main sections and nodes. These nodes were the content of the programme, evaluation methods, university environment, academic guidance and programme goals. Each main section contained subsections (child nodes). See Appendix I.

Interviews of faculty members were divided into two main sections. The first was comparison between the two types of students. This section included eleven subsections in order to compare the knowledge and skill of students who participated in the PYP and students who enrolled in the university directly from secondary school without studying the PYP. See Appendix J. The second main section covered the reasons for the differences between the two types of student.

The researcher then extracted and classified each sentence and phrase from the interview script to the most appropriate node and section

### **3.6 Methodological Overview**

There were two distinct methodologies at play in the present study. The first was a relatively straightforward analysis of the predictive power of the admissions criteria, analysed trackwise and genderwise. Standard statistical analysis techniques were used for this part, including Pearson's correlation coefficient and ANOVA. The aim was to ascertain differences in the instruments' predictive powers of GPA across track and gender in order to guide more efficient admission selection practices. Although many studies have taken place analysing the predictive power of different admissions criteria and student assessment tools, as described in section 2.6 of the literature review, the particular configuration of students within the institution was of interest in the present study in Saudi Arabia because it involved gender-segregated teaching. Thus, while existing studies provided some guidance as to methodological approach, a novel regression modelling was used to clarify the differences between tracks and gender for the different criteria.

The other, larger, part of the study used the triangulation technique to explore effectiveness of the Preparatory Year Programme by studying it from different standpoints, making use of both quantitative and qualitative data in doing so. Thus, this study adopted methodological triangulation, which refers to using multiple data-

gathering procedures for examining evidence from different data sources of information and using it to build a coherent explanation of the findings (Creswell and Clark 2011) and to draw effective recommendations. The mixed methods approach taken involved a large volume of survey data, including three separate surveys for the students, trainers and faculty members, as well as semi-structured interview data. The surveys followed a Likert-type design, with statements and items responded to on different scales of 1–5. The semi-structured interview data collection instruments were designed based on the preliminary findings from the surveys in order to target areas of interest in terms of the effectiveness of different aspects of the PYP. Based on the literature review and study questions, the items used in each survey concerned outcome and process indicators, as opposed to input and output indicators. This approach was taken based on the assertions in the literature that these indicators are neglected in higher education but have importance for effectiveness at the course, faculty, institution and national levels (Chalmers 2008a, 2010).

Nevertheless, the majority of instruments used for measuring process and outcome indicators in the literature and in practice were based on higher education per se, rather than the transition from high school-level to higher education, such as the PYP, which is the specific concern of the preparatory year subjects. Thus, many output indicators, such as the impact on the economy, are irrelevant. The cohort and purpose of analysis were so far removed from making that contribution and too many confounding variables determining the relationship between the course and such factors existed. The item constructs used in the questionnaire were largely modifications of those used in the CSEQ (Gonyea et al. 2003) and the review of performance indicators undertaken by Chalmers and Thomson (2008), which Chalmers (2010) followed up as an OECD-publication on teaching and learning quality indicators (Chalmers 2008a). Thus, these two sources should be reviewed each as a whole to avoid repetitiousness in justifying the item constructs in the three surveys in the sections that follow.

The CSEQ is concerned with educational, cultural, and recreational college facilities, as well as the students' experiences at college. R. C. Pace developed the CSEQ at the University of California Los Angeles during the 1970s and introduced it as a multi-institutional survey tool in 1979. More than 150 items were used to produce a measure of the institution's performance on these topics. This is a broad-ranging data collection

tool and involves many parts that are beyond the scope of the present study, such as student background characteristics, including grades, personal aspirations, and financial arrangements. However, the scales of interest allow students to rate the college's emphasis on the development of scholarly, creative, and analytical qualities, occupational competence, and the practical value of courses. Also covered are student views of relationships with tutors and student satisfaction per se. In the full questionnaire, students indicate the extent of progress concerning typical objectives (Gonyea et al. 2003).

Another relevant set of complementary data collection instruments is the NSSE, the BCSSE, and the FSSE. The CSEQ was halted after the spring 2014 administration due to declining numbers of participating institutions. The widely used NSSE, which has a complementary data collection instrument to gauge first-year experience, which is the BCSSE, is considered a good fit for the broader assessment needs of most higher education institutions. More than 1,500 colleges and universities in the US and Canada have participated in NSSE since it was first administered in 2000. According to the NSSE Institution website, institutions use the data to determine aspects of the undergraduate experiences so changes in policies and practices more consistent with good practices can be implemented. Prospective college students, their parents, college counselors, academic advisers, institutional research officers, and researchers use the information to learn more about how students spend their time at different colleges and universities and what they gain from their experiences (NSSE 2014).

As mentioned, there are four distinct sections of the data collection and analysis, with different approaches taken for each. These will be discussed in detail in the respective sections below.

### **3.7 Ethical Considerations**

The ethical considerations involved in the present study were relatively straightforward. That is, there were no minor children or vulnerable groups involved, so all participants were able to understand the description of the survey and give informed consent. Also, only very limited and anonymous personal data were gathered. Furthermore, the interviewer, who is the present author, was in no position of authority over the respondents/interviewees; this reduces the possibility of socially-

desirable responses (Paulhus and Reid 1991). Furthermore, there was no incentive used to encourage participation and no coercion whatsoever. Nevertheless, ethical considerations have been woven into the research design at all stages. Moreover, this study was approved by Dublin City University's Research Ethics Committee prior to the start of the study. (Appendix A)

Informed consent was requested from all participants in advance of completing the survey, in advance of the interview times and again at the beginning of each interview. The 1964 Helsinki Declaration stipulated that valid consent is properly informed and freely given; that is, without pressures such as coercion, threats or persuasion (Israel and Hay 2006). This principle was carefully observed throughout.

During the distribution of the surveys, there was a brief summary of the aims and data collection approach of the study, and prospective participants were informed of their right not to participate in the survey or to withdraw their data from the survey at any time. The surveys were designed to be anonymous, and this was stressed heavily to the participants. In addition to protecting their identities and information, this stipulation was crucial in order to secure frank responses because negative responses could be anticipated by the respondents to be viewed as offensive or aggressive towards the faculties and administration of the university, who, would likely have been considered to have significant power over each respondent (Fink 2012). To this end, an additional sentence was added to the description of the study stressing there was no possible benefit to the researcher or university to identify individual respondents and the university administration and faculties stood to benefit from frank, whether negative or positive, comments.

Each survey began with the sentence, "The information gathered from the questionnaire will be treated strictly confidentially and used for academic research purposes only". All data were stored in an encrypted file on the author's lap top and a backup copy of data on a flash drive was kept in a secure location. Moreover, the data in this form were completely anonymous. For the interviews, interviewees were again informed of their anonymity and right to withdraw from the study at any time. In addition, any parts of the interview transcripts that could be used to deduce the identity of the interviewee (e.g., in the case of trainers, mention of specific courses they taught or their position within the faculty) were redacted (Israel and Hay 2006), and the

interviewees were also made aware of this to assure them of their complete anonymity and to thereby encourage frank exchanges.

The remainder of this chapter was organized as follows. Section 3.2 concerned RQ1 (What is the predictive value of the admission criteria for the preparatory year programme at the University of Taibah, for each track and each gender within each track?). Data were collected from the University of Taibah admission and registration deanship for individual students randomly selected to achieve a representative sample regarding track and gender, showing high school grade, Achievement Test and Capabilities Test, along with GPA for the PYP. Section 3.3 concerned the effectiveness of the preparatory year programme from the perspective of students in terms of academic contents' effectiveness, trainers' effectiveness, assessment methods, academic advising, university environment and achievement of objectives for the preparatory year programme. This answered RQ2 (How effective is the Preparatory Year Programme from the perspective of students for each track and each gender within each track?). Section 3.4 concerned the effectiveness of the preparatory year programme from the perspective of trainers in terms of academic contents' effectiveness, academic advising, university environment and achievement of objectives for the PYP. This answered RQ3 (How effective is the Preparatory Year Programme from the perspective of trainers in each academic subject?). Section 3.5 concerned examining the effectiveness of the preparatory year programme from the perspective of faculty members asked to compare the performance of students who have completed the preparatory year programme and those who have not. This answered RQ4 (How effective is the preparatory year programme in terms of improving undergraduate performance of students who went through the programme compared to students who did not?). Finally, the chapter concluded with a summary of the approaches and expected outcomes in Section 3.6.

### **3.8 Predictive Power of Admissions Criteria**

The purpose of this part of the study was to explore the predictive values of admissions criteria, with comparisons between track and gender groups of the study population. This directly addressed RQ1 (What is the predictive value of the admission criteria for the preparatory year programme at the University of Taibah, for each track and each gender within each track?). The ultimate objective was to suggest relative weight of

the various admission criteria analysed by track and by gender groups within each track. This dissection into subgroups was important; firstly, the skills required for success in different tracks, as well as the curricular contents, differ and co-mingling the data would ignore such differences and result in a predictive model that fits poorly for some subgroups. In addition, as discussed in the preceding chapter, gender is of particular importance in the case of Saudi Arabia because males and females are taught separately, so any inherent differences between genders may be magnified. This marked a difference from the popular approaches to such research.

### **3.8.1 Data Collection and Participants**

Data were collected from the University of Taibah admission and registration deanship for all individual students who had completed the programme at the Madinah, Alula and Yanbu branches of the university, showing HSG, Achievement Test, Capabilities Test and GPA for the PYP. Data of students who did not complete the programme for any reason were excluded, and statistical analyses was performed for all students who completed the programme in the 2012–13 academic year (n=3876; 1690 males and 2186 females; 548 Health Sciences students, 2133 Natural Sciences students, 1195 Social Studies students).

### **3.8.2 Data Analysis Methodology**

A correlation study using Pearson's correlation coefficient was performed to explore the correlations between GPA, HSG, Capabilities Test and Achievement Test for each track (Health sciences, Natural sciences, and Social Studies) and each gender within each track. The Pearson correlation coefficient is a measure of the linear correlation, or dependence, between two variables, giving a value between +1 and -1, where 1 is a total positive correlation, 0 is no correlation, and -1 is a total negative correlation. It is widely used in the sciences as a measure of the degree of linear dependence between two variables. This test confirmed whether and to what extent the three variables were associated with GPA in the case of each subgroup. Guidelines used in the interpretation of a correlation coefficient have been offered by different authors in different fields (Buda and Jarnowski 2010). However, according to Cohen (1988), all such criteria are context-based and should not be adhered to arbitrarily. That is, the appropriate interpretation of a correlation coefficient depends on the context and

purposes. For example, a correlation of 0.75 may be very low in a highly controlled research setting, such as clinical drug trials. However, a correlation of .075 may be considered very high in social sciences research where there may be a broad range of known and unknown complicating factors.

Where significant correlations were found, the next step was to proceed with regression modelling to get the predictor equation in each case. This involved linear transformations of the predictor/independent variables into the predicted/dependent variable. The parameters of the linear transformation were selected such that the least squares criterion was met, resulting in an optimal model. The model was then used to predict, in the case of the present study, intervals of scores, known as interval estimates. Regression modelling was performed between dependent (GPA) and independent variables (HSG, Capabilities Test and Achievement Test) for each track (health sciences, natural sciences, and social studies) and each gender within each track. The best fit model was obtained in terms of predicting the value of GPA for any given values of HSG, Capabilities Test and Achievement Test.

In addition, for the given GPA data, ANOVA was conducted to reveal whether significant differences in GPA scores across track and gender existed. Where significant differences were determined, regression modelling for specific subgroups was carried out. However, the data size was smaller for the subgroups. The accuracy of the regression model depends on the sample size, with the larger is the sample size, the better the fit obtained. Depending on goodness of fit, ANOVA was also used for trackwise genderwise comparisons.

The findings of greatest practical interest were the variations in the predictive powers of the different admissions criteria between the subgroups. For example, it was perfectly conceivable that HSG had a much higher correlation with GPA coefficient for the health sciences track than for the social studies track, as the former is concerned with system-based learning and the latter with abstract conceptualizations and the HSG may be biased toward one or the other modes of learning. In this case, a recommendation was made to differently weigh HSG as an admissions criterion for these two tracks. The same could be said of gender, where it was perfectly conceivable that HSG would have a different correlation with GPA coefficient for the females within the health sciences track than for males within the same track, due to cultural

and physiological gender differences. In this case, different weighting by gender would positively impact GPA. These findings were presented and discussed in terms of their implications for more effective weighting of admissions criteria for different subgroups. The importance of the trackwise genderwise comparisons was that treating each gender group as a whole data set masked significant differences between tracks within genders. For example, consider the hypothetical scenario that HSG is identified as having a strong predictive value for GPA among women in the health sciences and natural sciences tracks, but a weak predictive value for women in the social studies track. In this case, the weighting of HSG as an admissions criteria on the basis of gender alone would have a mixed effect on the outputs in terms of GPA for each track; an analysis that recognizes such differences and modifies the weighting accordingly improved the effectiveness of the admissions process in terms of GPA in each track.

### **3.9 The Effectiveness of the Preparatory Year from the Student Perspective**

This part of the analysis concerned the effectiveness of the preparatory year programme from the perspective of students. This answered RQ2 (How effective is the Preparatory Year Programme from the perspective of students for each track and each gender within each track?). First, the data collection tools were explained, along with the study population and participant selection. This was followed by an overview of the methodology, including statistical analysis and semi-structured interview data analysis. Finally, the items concerning the underlying constructs of academic content effectiveness, trainer effectiveness, assessment methods, academic advising, university environment and achievement of objectives for the PYP were described and justified for inclusion. Finally, ethical considerations were discussed.

#### **3.9.1 Data Collection**

Survey data were collected from students participating in the PYP. The instrumentation used in this part of the study included a 5-point, Likert-type survey using two different scales and structured interviews. The interviews took place after the survey. The purpose of the interviews was to add depth to the data. This was invaluable for the discussion, as it allowed the issues identified to be understood in greater detail to inform sounder recommendations.

### 3.9.1.1 Questionnaire Survey

The survey was split into two themes. In the first, the five response categories were “Strongly agree” (1), “Agree” (2), “Neutral” (3), “Disagree” (4), and “Strongly disagree” (5). In the second theme, the five response categories were “Very Strongly Related” (1), “Strongly Related” (2), “Moderately Related” (3), “Slightly Related” (4), and “Very Slightly Related” (5).

In the literature, there was ongoing disagreement as to the extent to which response categories on a Likert scale can be interpreted as being ordinal data. The key point of interest in the present study was whether the distance between each successive point on the five-point scale was equivalent. This was an extremely important underlying issue for the validity of the data in each of all three questionnaires used in this study. For example, in each of the two five-point Likert scales, the inference was that the distance between category 1 and 2 was the same as between category 3 and 4. In terms of good research practice, an equidistant presentation by the researcher is critical; otherwise, a bias in the analysis may result. For example, a scale with categories “Very Poor” “Poor,” “Average,” and “Good” is unlikely to meet the requirement for equidistance of categories, since there is only one category that represents an above-average rating. This would arguably bias any result in favour of a negative outcome. However, even if the categories are *prima facie* – at first sight, equidistant, they may not be interpreted in this way by the respondents (Norman 2010). In each of the scales used in this part of the study, the categories are *prima facie* equidistant. Although it was not assumed that every single respondent conceived of the different categories as equidistant in the present cases, it was hard to imagine verbalizing the numerical scale in a better way for the present purposes. It was assumed that, for example, the difference in the level of agreement between “Neutral” and “Agree” and between “Agree” and “Strongly Agree” were interpreted as roughly equivalent by the respondents. Moreover, even in cases where this was not so for individual respondents, it was assumed that the respondents’ understandings of the differences between “Agree” and “Strongly Agree” and “Disagree” and “Strongly disagree” were equivalent. It was obviously beyond the scope of the present study to address this issue further, but it should be noted that this was taken into consideration in the design of the survey and in interpreting the responses to the structured interview.

The survey was divided into twelve items on student assessment of academic contents; fourteen items on student assessment of trainers; seven items on student assessment of assessment methods; five items on student opinion of academic advising; twelve items on student opinions of university environment; seven items on the students' opinions on the extent of achieving the objectives of the PPY and 14 items on student's opinion as to the strength of the relationship between academic subjects and goals of the preparatory year from the perspective of students. The latter part of the survey, on the strength of the relationship between academic subjects and goals, was the part that used the second response categories (Very Strongly Related to Very Slightly Related).

### 3.9.1.2 The Pilot Study of Students' Questionnaire

Although a pilot study does not guarantee the success of the main study, it increases the likelihood of success (Teijlingen and Hundley 2001). The pilot study was applied at the Alula branch. The sample included 108 students.

According to Pallant (2013), one aspect of reliability that can be evaluated is internal consistency, which means the items measure the same field. The most common measure of the internal consistency of statistical methods is Cronbach's coefficient alpha. Cronbach's coefficient alpha was calculated for each axis of the questionnaire axes separately using the SPSS statistical programme and gives Cronbach's coefficient alpha value if you delete each single item; thus it is possible to delete any item that changes it. (Appendixes K and L)

Table 5 shows Cronbach's coefficient alpha of the questionnaire axes before and after the deletion of some of the items that led to raising its value. The results were all over .7, which is the value recommended by some researchers (Pallant 2013).

*Table 5 Cronbach's Alpha of the Students Questionnaire Axes*

axis	Cronbach's Alpha before / after deleting some items		Number of
Academic content	.853	.889	2
Assessment of trainers	.894	.912	2
Assessment methods	.825	.845	1
Academic advice	.862	.922	1
University environment	.886	.930	2
Achieving goals	.890		

### 3.9.1.3 Each Axis' Correlation Coefficient with the Total Score of the Questionnaire

The calculation of the correlation coefficient between each axis with the total score of the questionnaire showed that correlation coefficients ranged between .860 and .699, as shown in table 6 and were all statistically significant at .01. This means that there was consistency between each part of the questionnaire and the questionnaire as a whole.

*Table 6 The Correlation Coefficient between each Axis of the Total Score of the Students Questionnaire*

Full questionnaire	Academic content	Assessment of trainers	Assessment methods	Academic advice	University environme	Achieving goals
Pearson Correlation	.860**	.846**	.764**	.699**	.786**	.773**
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000

Table 7 shows the correlation coefficients between an axes and other axes. The results ranged between .831 and .378, and all were statistically significant at .01. This means that there was consistency among parts of the questionnaire.

*Table 7 the Correlation Coefficients between the of Students Questionnaire Axes*

		Assessment of trainers	Assessment methods	Academic advice	University environme	Achievin g goals
Academic content	Pearson Correlation	.831**	.509**	.455**	.521**	.561**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
Assessment of trainers	Pearson Correlation		.465**	.388**	.457**	.426**
	Sig. (2-tailed)		.000	.000	.000	.000
Assessment methods	Pearson Correlation			.799**	.711**	.378**
	Sig. (2-tailed)			.000	.000	.000
Academic advice	Pearson Correlation				.528**	.403**
	Sig. (2-tailed)				.000	.000
University environment	Pearson Correlation					.534**
	Sig. (2-tailed)					.000

## **3.9.2 Interviews**

### **3.9.2.1 Pilot Study of Interviews**

The pilot study of interviews was conducted with three interviewees –one student, one trainer and one faculty member. The purpose was to gain clarity on appropriate interview questions to identify what questions were expect to lead to additional questions, to estimate the time needed for each interview and to test the interview recording quality and recording method. The interviews were conducted by phone for one interviewee and face-to-face for the others.

#### **I. Student Interview**

The goal of the interview was to gain depth for the issues addressed by the questionnaires. The interview questions were compatible with the axes of basic questions in the questionnaire. Other questions were asked during the interview in response to recipient answers to explore particular aspects or to clarify an answer or to confirm answers. The interview started by reminding the interviewee that personal identity would be kept secret and the student had a right to withdraw from the interview at any point. The subject, the aim and the location of the research were introduced along with the estimated time that the interview would take. This was followed by a confirmation of the right to answer or not and the right to stop and withdraw from the interview at any time. The first questions in the interview concerned the student's personal information such as age, specialization and the branch they attended. Next was a general question: *'What is your opinion of the content of the preparatory year in general?'* This was followed by the seven main axes of the interview:

#### **1. Academic Content Questions**

This axis consists of the following questions:

*'What is your opinion of the content of the study material? What is your opinion of the subjects in the programme? Do you find the subjects interesting and exciting, or boring? Do you find the content of the study subjects is connected, consistent, and sequential? Do you find the length of the subjects appropriate (at the level of the lessons or the whole subject)? Do you think that the content of the programme is*

connected to the specialization you will be studying? Do you think you will benefit from them in the future? Are there activities and exercises in the subjects that enhance the understanding of the lessons?’

As already clarified, follow-up questions were allowed when needed in light of the student’s answer. In the end, the student was asked if there was anything to add concerning the topics in this axis before moving on to the next axis. This was also asked at the end of each axis of the interview.

## **2. Assessment of Trainers’ Questions**

This axis consists of the following questions:

‘What do think of the course teachers in general? What is your opinion of their ethics? What do you think about the way the teachers deliver information in the course? If one student does not understand a particular point from the teacher, how does the teacher respond to this? If you go to one teacher outside of class, and you say that you do not understand some points, in what way will they react? Do teachers use teaching aids? Are there discussions between teachers and students? How much are teachers committed from the beginning to the end of the class? Do they take advantage of the whole time? Do you have any final comments about this axis (teachers and their teaching methods), negative or positive?’

## **3. Assessment Methods Questions**

This axis consists of the following questions:

‘What evaluation methods are used? What do you think of them? How are marks distributed for exams, activities, class participation, and homework? Do you find this distribution of marks fair? Are the results given soon after the exams, or are they late? What is your opinion about the type and quality of questions? Do you have any further comments on this part?’

## **4. Academic Advice Questions**

This axis consists of the following questions:

‘What is your opinion of the academic advice? Is there an educational guide? Do they come to classes? Does anyone come into classes to give advice and instructions? If a problem occurs between you and a colleague or a teacher, where do you go? Do you have any further comments on this part?’

### **5. University Environment Questions**

This axis consists of the following questions:

‘What is your opinion of the physical environment in the university? What about the lighting and air-conditioning? Are the halls equipped with projectors and whiteboards? Are the places for taking breaks between classes good enough? Is there a dining area? Is there a place for activities inside the building? What do you think of the laboratories? What do you think of the computer lab? Is there an Internet connection in the building? What is your opinion of the library? Are you allowed to use the library in the main university? Is the university website practical and easy to use? When there is a technical problem, is it solved? If so, how? Do you have any further comments on this part?’

### **6. Achieving Goals Questions**

This part was about achieving programme goals. The interviewer read the goal and then asked the student:

‘Does the programme achieve this goal (according to what the student is studying)?’

When the university set this programme, it meant to achieve certain objectives, like:

1. The preparatory year programme contributes to deepening the Islamic and national identity through the curriculum and student activities. 2. The programme provides a well-developed course with high quality standards. 3. The programme directs students to the appropriate college given their abilities and skills. 4. The programme promotes the outstanding academic performance of the students. 5. The programme provides a high-quality learning environment to improve the outcome of university education. According to what you are studying, does the programme achieve this goal?’

## **7. The Relationship between the Programme Subjects and its Goals Questions**

This part was about the relationship between the programme subjects and its goals. The student was given a subject name and then asked to determine the relationship between it and the programme goals. Some of the subjects that make up more than 90% of the programme content are university life skills, English language, math, basic sciences, and computer skills. In each case the student was asked:

*'Is there a relationship between this subject and the preparatory year goals from your point of view?'*

At the end of the interview was the following question:

*'Do you have any final comments on any positive or negative aspects of the programme?'*

Eight students were chosen to participate in the interviews. At the first approach as well as at the beginning of each interview, each prospective and actual participant was reminded that his or her identity would not be revealed and that he or she would remain anonymous in both the raw and published data. Also, the right of the student to withdraw from the interview at any point was stressed at both points. The subject, the aim, and the location of the research were expounded in the contact emails and telephone calls, and the subject and aim were once again briefly described at the beginning of the interviews.

### **3.9.3 Data Analysis Method**

The means score and factor score for each item/factor was calculated. Then, ANOVA analysis was applied to reveal statistically significant ( $p < .05$ ) difference in factor scores across the six track/gender combinations, which had females in each of the tracks, and males in each of the tracks. The differences in the factor scores in the subgroups that were found to be statistically significant were then analysed minutely by studying the average item scores that were divergent in the subgroups. These findings informed the semi-structured interviews that followed the survey data

collection, with the purpose being to focus analysis on the weaknesses in the programme as indicated by the survey responses.

### **3.9.4 Student Survey**

As discussed in the preceding chapter, efficiency, and effectiveness indicators can be considered as quantitative (input and output) and qualitative (outcome and process) in nature, respectively. This model was widely used in the literature and was in common use among academics exploring the higher education environment in Australia and other OECD countries (Chalmers 2008a; Rowe 2004). The present section, as well as 3.4 focussed on process indicators given the study goals of exploring the effectiveness of the programme. Process indicators are those that represent the means used to deliver educational programmes, activities, and services within the institutional environment (Burke 1998, cited in Chalmers 2008a). These measurements are particularly significant at the individual institution, faculty, or course level, as they relate to aspects of a given programme or institution that can be controlled to some extent by the administrators of these programmes. Thus, these indicators are commonly reviewed by institutional audit. Process indicators provide an understanding of current practice and the quality of that practice, and their use has increased among leading academic settings.

As discussed, many of the items used in the present study were adapted versions of items used in the CSEQ, which is concerned with educational, cultural, and recreational college facilities, as well as the students' experiences at college. In addition, the items used were informed by Chalmers's and Thomson's (2008) meta-review of process indicators in use in Australia, which extended the teaching and learning indicators identified in an earlier review of performance indicators. Both are widely used in data collection for proof of outcome indicators for higher education.

#### **3.9.4.1 Student Survey Items**

With regards to the student assessment of academic contents, twelve items were used: (1) Contents of preparatory year subjects are interesting, (2) It is easy to understand the content of academic subjects, (3) Contents will be useful to me as a reference in the future, (4) Contents are consistent and coherent, (5) Contents units are suitable in

terms of length, (6) There are activities in contents that promote understanding of material, (7) Contents encourage me to interact with the trainer in relation to educational material, (8) Contents contains a series of exercises and problems that develop a variety of thinking skills, (9) Contents are suitable for my specialist area, (10) The language of contents is sound, clear and error-free, (11) There is diversity in course content, and (12) The contents added to my knowledge and raised my academic skills.

The UK-based QAA identified a number of intellect and transferable skills in their guidelines, which they regard as essential to develop at all levels of higher education. Selected items from the CSEQ, *discussed in detail in the literature review*, were adapted to create some of the items. This is a widely used data collection instrument, though is designed for the entire range of undergraduate and post-graduate academic settings (Kuh, Pace and Vesper 1997). They define intellect skills as analysis, synthesis, evaluation and problem-solving. Transferable skills include oral and written communication, teamwork, research skills, and so on (Durkin and Main 2002). On this basis, items 1, 2, 9, 10, 11 and 12 were fundamental in cultivating such skills. Items 3 to 6 are indicative of the intellect skills, as it is implicit in Item 3 that contents will be useful in future because they are instilling problem-solving skills in the form of knowledge that can guide future intellectual efforts. Item 7 speaks explicitly to communication and teamwork skills; Item 8 concerns the skills of synthesis and analysis.

With regards to student assessment of trainers, 14 items were included in the survey: (1) Trainers teach scientific material efficiently, (2) Trainers begin and end lessons in a structured manner, (3) Trainers focus on the key points in each lesson, (4) Trainers explain the lesson in a coherent and seamless manner, (5) Trainers take into account the different levels of students, (6) Trainers deliver lectures at correct dates and times, (7) Trainers use diverse teaching methods, (8) Trainers are mostly available during office hours, (9) Trainers are fluent in communicating with students, (10) Trainers use appropriate technology to assist explanations, (11) Trainers appear presentable, (12) Trainers encourage outstanding work by students, (13) Trainers encourage a spirit of creativity and scientific thinking in their students, and (14) Trainers deal with students in an open, accessible manner.

As discussed in the literature review, assessment of teachers is a complex area of education studies, and student opinion-based trainer assessments offer limited scope for determining the efficacy of trainers. Nevertheless, the students' perspective on logistical aspects, such as time-keeping, availability, and appearance (items 6, 8 and 11, respectively) are important concrete process indicators for performance factors that are otherwise difficult to monitor. The remainder of the items in this section were split between perceived efficacy of the pedagogy, as in items 7, 10 and 14, for example, and perceived outcomes, such as scientific knowledge, creativity, and outstanding student performance. This part made use of selected items from the CSEQ. In the version in Gonyea et al. 2003, p. 154), "Experiences with faculty" is given a single dedicated section; however, in the present study, this aspect of the review was split between the present section and that on the academic advisor programme of the present student questionnaire. Finally, it should be noted that item 7 is to be understood as separate from the issues concerning academic advisors that is addressed in the next part of the test. This was monitored in the pilot study, and the distinction was clear to the participants, as reported in the post-test discussions and comments. In addition, the NSSE has a section concerning student interactions with faculty members, and a section on the teaching effectiveness of course instructors, including items such as ("During the current School year, to what extent have your instructors done the following?") "Taught course in an organized way" and "used examples or illustrations to explain difficult points", which corresponded with items 1–4 and item 7, respectively, in this section of the student survey.

With regards to student assessment of assessment methods (exams, assignment, etc.), the following seven items were used: (1) Assessment methods are clear and appropriate, (2) I am reviewed in a fair and objective way, (3) Test questions are clear and cover content of the course, (4) I get my grades in a timely manner, (5) The atmosphere in tests is comfortable, (6) Dates of tests are appropriate, and (7) I know the dates of the tests and the location of halls at an appropriate time.

Again, this section drew upon the definition of the "Assessment of Student Learning" indicator given by Chalmers (2008b) as adopted by the ALTC. According to the author, outcomes of student learning being formally assessed act as a means of informing students of their achievements, driving the students' absorption of curricula,

and “fostering the skill of self-assessment within students” (Chalmers, 2008b, p. 73). Informing students of their achievements was covered by items 1 and 2; driving the students’ absorption of curricula was achieved by means of items 6, 3 and 4; the notion of “fostering the skill of self-assessment within students” was considered general and was covered by their overall experience of assessment, as reflected by each of the items. Finally, some practical considerations concerning comfort and organization (i.e., items 5 and 7) were covered.

Concerning student assessment of academic advising, the following five items were used: (1) Academic advice is effective and useful, (2) Academic advisors are continuously available to respond to my questions, (3) Academic advisors communicate with students individually and collectively, (4) Academic advisors visit students inside the classroom, (5) Students get great support from academic advisors.

This part made use of selected items from the CSEQ, *discussed in detail in the literature review*). In the version used by Gonyea et al. (2003, p. 154), “Experiences with faculty” is given a single dedicated section; however, in the present study, this aspect of the review was split between the academic advisor programme in this part and interactions with trainers/faculty as given in the “Student assessment of trainers” part of the present student questionnaire discussed previously. Given the specialized, programme-specific nature of this section, only five items were used. Similar to the CSEQ, the items focussed on the quality and breadth of interaction. In the NSSE, there was also an item asking participants to indicate the quality of their interactions with the academic advisors at their institutions.

Concerning student assessment of university environment, 12 items were used: (1) Classrooms are comfortable and clean and of an appropriate size, (2) Lighting, ventilation and classroom environment are conducive to learning, (3) Devices within classrooms operate efficiently in most case, (4) Laboratories are properly equipped, (5) Computer labs are sufficient and appropriate, (6) The library provides adequate resources and material, (7) The library provides appropriate places for viewing and reading, (8) The library provides adequate and sufficient computers for reading and research, (9) Stadiums and halls are available for practicing sports and recreational activities, (10) It is easy to use the electronic registration system of the university, (11) In case of any problem using the electronic registration system, it is easy to

communicate with technical support, (12) Food and beverages facilities provide appropriate and sufficient services.

As discussed in the literature review, the quality and impact of campus facilities and both physical and virtual learning environments was recognized throughout the literature, as reflected in the inclusion of items and sections dedicated to such issues in most of the large efficiency and effectiveness data collection instruments. However, it should be noted that many instruments concerned student experiences to, or intending to, establish a standardized data collection method across many institutions, so items that were more specific would have been impractical. Moreover, most such data collection instruments did not take Saudi Arabia's unique cultural and environmental issues into account, especially the division of males and females into separate learning environments. Nevertheless, in numerous studies concerning campus facilities exclusively and their effect on educational processes and outcomes, diverse elements were considered as contributing to efficiency and effectiveness.

Campus facilities are used for university-related functions as well as supporting the core functions of the institution, including teaching, research and learning (Kärnä, Julin and Nenonen 2013). Therefore, effective campus facilities, including learning environment, private and public study environments, and equipment quality and availability were significant factors in learning outcomes and processes as well as student experience and broader institutional goals. Accordingly, the university environment section of the student survey included many practical items, such as those concerning food and beverages (item 12) and the electronic registration system (item 11).

This section, again, drew on the CSEQ and Chalmer's widely adopted work on process indicators. This was a very straightforward section; although the CSEQ included items concerning the university environment in far more detail, this was beyond the scope of the present study by involving complex theoretical ambiguities in terms of the significance of, for example, "student acquaintances", such as "Became acquainted with students whose age was different from yours" or "Had serious discussions with students whose political opinions were different from your own". Such items were a little too broad for the scope of the present study concerning a one year PYP, rather than a full university programme. Moreover, the practical elements considered in the

12 items used in this section of the present student questionnaire had to cover the students' experiences with the library and lab environments and equipment, each of which received a dedicated section in the CSEQ (Gonyea et al. 2003). In addition, McLaughlin and Faulkner (2012) identified that informal learning spaces in the university environment are often venues of active student learning. Thus, there were several survey items concerning the library as a representative of such spaces, including "The library provides appropriate places for viewing and reading."

Concerning assessment of the extent of achieving the objectives of the PYP, five items were used: (1) The preparatory year programme contributes to deepening the Islamic and national identity through the curriculum and student activities, (2) The programme provides a well-developed course with high quality standards, (3) The programme directs students to the appropriate college given their abilities and skills, (4) The programme promotes the outstanding academic performance of the students, and (5) The programme provides a high-quality learning environment to improve the outcome of university education.

The objectives of the preparatory year programme considered in the present study were discussed in detail in the introduction and literature review sections and the items in this section of the questionnaire reflected these more or less explicitly. However, they also have close equivalents in the CSEQ and among the indicators proposed by Chalmers and colleagues. For example, the CSEQ in each of the first four editions, and entire extended section ("ESTIMATE OF GAINS" in the 4<sup>th</sup> edition; Gonyea et al. 2003, p. 158) was dedicated to the outcomes rather than outputs of full undergraduate programmes. However, in the case of the present study, the desired outcomes of the programme were determined by the stated objectives and the fact that the programme was designed for preparation for higher education studies. Thus, items in the CSEQ concerning relevance to future career, other vocational considerations, and explicitly firm grasps of some advanced academic principles, such as quantitative analysis, were not applicable to the present case. Nevertheless, the majority of items in the aforementioned section of the CSEQ were close to items 2, 4, 5, 6, and 7, while item 1 was specific to the present context in terms of stated programme objectives, and item 3 was of practical relevance given the phase in the students' academic careers that the programme encompasses.

The second part of the student questionnaire, Theme II, related to Investigating the relationship between academic subjects and goals of the preparatory year from the perspective of students. Respondents were asked to “express [their] opinion of the relationship between academic subjects and goals of the preparatory year from your point of view by selecting the appropriate class/classes in the following table.” In the table, concerning the relationship between academic subjects and goals of the preparatory year from the perspective of students, respondents selected from the following items depending on their tracks: (1) English language, (2) Computer skills, (3) Health education and leisure, (4) University study skills, (5) Principles of human anatomy, (6) Chemistry for health sciences, (7) Medical terminology, (8) Principles for Human Anatomy, (9) Physics for health sciences, (10) Ethics for health professions, (11) Mathematics, (12) Basic science, (13) Engineering Technology, (14) Statistics.

They responded on a Likert-type scale of 1–5, with 1 being “Very strongly related,” 2 being “Strongly related,” 3 being “Moderately related,” 4 being “Slightly related” and 5 being “Very slightly related.” It was decided that item five would be “Very slightly related” rather than “Not related” in order to give symmetry to the scale as much as possible, as recommended by Norman (2010); moreover, it was felt to be unlikely that students would consider any of these broad items completely unrelated to their academic subjects of choice since they were instructed to select the items that are or should be related. Finally, this consideration was broached with the pilot study participants, who confirmed the approach as appropriate.

### **3.10 The Effectiveness of the Preparatory Year from the Trainer Perspective**

This section concerned the effectiveness of the PYP from the perspective of trainers. This answered RQ3 (How effective is the Preparatory Year Programme from the perspective of trainers in each academic subject?). First, the data collection tools were explained, along with the study population and participant selection. This was followed by an overview of the methodology, including statistical analysis and semi-structured interview data analysis. Finally, the items concerning each of the underlying constructs [(1) academic contents’ effectiveness, (2) assessment methods (3) academic advising, (4) university environment, and (5) achievement of objectives for the preparatory year programme] were described and justified for inclusion.

The items used were largely informed by Chalmers's and Thomson's (2008) meta-review of process indicators in use in Australia, which extended the teaching and learning indicators identified in an earlier review of performance indicators. In addition, as with the student instrument, Chalmers' (2008b) review of effectiveness indicators on behalf of the ALTC was used extensively to justify the inclusion of items, as well as the overall structure of the survey. However, in the case of the trainer questionnaire, which is the concern of this section, items and constructs were, of course, fitted to the experiences and understanding of trainers.

### **3.10.1 Data Collection**

The instrumentation used in this part of the study included a 5-point, Likert-type survey and structured interviews. As with the student population discussed in the preceding section, the interviews took place after, and were informed by, the survey data analysis. Again, the purpose of the interviews was to add depth to the data and clarify the underlying causes of notably high or low mean scores for any of the survey items. This added an extra dimension for the discussion, as it allowed the issues identified in this survey and the students survey to be understood in greater detail to inform sounder recommendations.

### **3.10.2 The Trainers' Survey**

The survey was split into two themes. In the first, the five response categories were "Strongly agree" (1), "Agree" (2), "Neutral" (3), "Disagree" (4) and "Strongly disagree" (5). In the second theme, the five response categories are "Very Strongly Related" (1), "Strongly Related" (2), "Moderately Related" (3), "Slightly Related" (4), and "Very Slightly Related" (5). The same underlying considerations that guided the design of the student survey were also applied in this case. That is, the response categories were designed to ensure de facto equidistance between each.

### **3.10.3 Reliability and Validity**

After the initial design of the questionnaire based on the literature review, it was presented to a group of university professors in Saudi Arabia for arbitration. The questionnaire has been adjusted based on the opinions and observations of the arbitrators.

### 3.10.4 The Pilot Study of Trainers' Questionnaire

The pilot study was applied in Alula branch. The sample was 22 trainers. Cronbach's coefficient alpha was calculated for each axis of the questionnaire axes separately using the SPSS statistical program, which gives Cronbach's coefficient alpha value if you delete every single item; Thus, it is possible to delete any item that leads to lower it. Table 8 shows the Cronbach's alpha coefficient of the questionnaire axes before and after the deletion of some of the items. We find they were all over .7, which is recommended by some researchers (Pallant 2013).

*Table 8 Cronbach's Alpha of Trainers Questionnaire Axes*

axis	Cronbach's Alpha before / after deleting some items		Number of
Academic content	.911	.947	2
Assessment methods	.765	.815	1
Academic advice	.815	.918	1
University environment	.875	.900	2
Achieving goals	.890		

(Appendixes M and N)

#### 3.10.4.1 Each axis' Correlation Coefficient with the Total Score of the Questionnaire

The calculation of the correlation coefficient between each axis with the total score of the questionnaire, as shown in table 9, revealed that correlation coefficients ranged between .796 and .919 and were all statistically significant at .01. This means that there was consistency between each part of the questionnaire and the questionnaire as a whole.

*Table 9 The Correlation Coefficient between each Axis of the Total Score of the Trainers Questionnaire*

Full questionnaire	Academic content	Assessment methods	Academic advice	University environment	Achieving goals
Pearson Correlation	.919	.796	.817	.884	.879
Sig. (2-tailed)	.000	.000	.000	.000	.000

Table 10 shows the correlation coefficients between any axis and other axes. They ranged between .628 and .971, and all were statistically significant at .01. This means that there was consistency between parts of the questionnaire.

*Table 10 The correlation coefficients between the axes*

		Assessment methods	Academic advice	University environment	Achieving goals
Academic content	Pearson Correlation	.827	.829	.695	.678
	Sig. (2-tailed)	.000	.000	.000	.000
Assessment methods	Pearson Correlation		.971	.628	.647
	Sig. (2-tailed)		.000	.000	.000
Academic advice	Pearson Correlation			.671	.686
	Sig. (2-tailed)			.000	.000
University environment	Pearson Correlation				.949
	Sig. (2-tailed)				.000

### **3.10.5 Trainers Interviews**

Four trainers were chosen to participate in the interviews. As with the student interviews, at the first approach, as well as at the beginning of each interview, the prospective then actual participant was reminded that his or her identity would not be revealed and that he or she would remain anonymous in both the raw and published data. Also, the right of the trainers to withdraw from the interview at any point was stressed at both the initial contact and at the beginning of the interview. The subject, the aim and the location of the research were expounded in the contact emails and telephone calls, and the subject and aim were once again briefly described at the beginning of the interviews.

Trainers' interviews addressed the same axes as students' interviews except that the interviews of trainers did not contain the axis for assessment of trainers. Thus, the main questions were similar. Questions were modified to direct them toward the trainers rather than the students. In addition to that, in the axis concerning the relationship between the goals and subjects, the trainers were asked about the relationship between the subject which he or she taught and the goals of the programme.

### **3.10.6 Data Analysis Method**

As with the methodology for RQ2, the means score and factor score for each item or factor was calculated. Then, ANOVA analysis was applied to reveal statistically significant ( $p < .05$ ) differences in factor scores across the six track/gender combinations of females in each of the tracks, and males in each of the tracks. The differences in the factor scores in the subgroups that were found to be statistically significant were then analysed minutely by studying the average item scores in the subgroups. The interview data were transcribed and coded for relevance to different constructs used in the surveys as well as examined for issues not covered by the questionnaire.

### **3.10.7 Constructs and Items**

As discussed in the literature review, the items included in the survey and, thence, the interviews were loosely based on the work on quality systems and indicators of learning and teaching by Chalmers and others, which has gaining traction as an international standard for evaluating higher education at the national, institutional, departmental, and programme level (e.g., Chalmers 2010; Chalmers, Lee and Walker 2008).

The thirteen categories of process indicators identified in the national survey of Australian practice (Chalmers and Thomson 2008) included mission, vision, and objectives. As in the student questionnaire, these were covered in the trainer questionnaire regarding pedagogical outcomes, as well as outcomes in line with the principles of the Saudi higher education directives discussed in the Introduction and literature review of the present paper. They also included “Teaching and Learning Indicators”, which were covered in the survey sections on academic contents and in the “Theme II” section of the survey on the relationship between academic subjects and goals of the programme from the trainers’ perspective. The categories also included “Organisational Unit Review”, including Disciplines, Divisions, Faculties, Schools and Centres, which, as mentioned in the context of the student survey, remained central to the present study, as the data from respondents were separated according to the different tracks and branches of the PYP. Another category,

“Curriculum Review” including units, unit sets, programmes, was covered in the academic contents section of the surveys.

The literature review chapter contained a more detailed discussion of these trends in assessment. Generally, the use of process indicators was increasingly seen as essential to identify areas of weakness and strength in education, including higher education, which was evidenced by the relatively strong performance of countries where such practices have been adopted and the prevalence of recommendations to that effect in countries such as Ireland, Australia, and other OECD countries. This was the main motive behind the focus on such indicators in the present study and the non-inclusion of many commonly used, typically resource-based, input and output indicators.

The following items were used to assess trainers’ assessment of academic contents: (1) Contents of preparatory year courses suit the needs of students, (2) It is easy to identify the scientific objectives of the contents, (3) Contents are consistent and coherent, (4) Content Units are suitable in terms of length, (5) Activities in contents help to achieve learning goals, (6) Contents encourage students to interact with the trainer in light of educational material, (7) Contents contain a series of exercises and problems that develop students’ thinking skills, (8) Contents are relevant to intended purposes, (9) The organization and arrangement of the content suitable to students’ needs, (10) Contents take continuity into account, (11) Language of contents is clear and error-free, (12) Textbooks are appropriate and well organized.

As with the student questionnaire, numerous items used here were based on the QAA, which identified a number of intellect and transferable skills in their guidelines. As noted, they regarded them as essential to develop at all levels of higher education. They defined intellect skills as analysis, synthesis, evaluation and problem-solving, as reflected in items 2, 3, and 7. Items 1, 8 and 11 were also indicative of the development of students’ intellect skills. It is implicit that contents suit the needs of students so that such skills are fostered, being the general tools required for success at the undergraduate level and beyond. Item 7 spoke explicitly to communication and teamwork skills; Item 8 concerned the skills of synthesis and analysis. Items 4, 9, 10 and 12 concerned inherently important practical aspects of delivering course content, as stressed in numerous studies, including Chalmers and Thomson (2008).

The role of the trainer was very limited in most assessment methods that were used, including setting questions for the different tests, making corrections and the exam schedule. Therefore, it was important to know the views of the trainers about the evaluation process in the programme. Trainers were asked to evaluate the assessment methods, and the following seven items were used: (1) Exam question types are appropriate for students, (2) Test questions cover content of the subjects, (3) Different methods of evaluation were used, (4) Students get grades in a timely manner, (5) Testing atmosphere is comfortable, (6) Time of the tests is appropriate for students, and (7) Students know the dates of the tests and the location of halls at an appropriate time.

The following items were used to assess trainer's opinion of academic advising: (1) Academic advice is effective and useful, (2) Academic advisors are continuously available to respond to trainers' questions, (3) Academic advisors communicate with trainers individually and collectively, (4) Academic advisors visit the trainers inside the classroom, (5) Trainers find great support from the academic advisor.

This was a relatively novel section, concerning interaction between the trainers and the academic advisors. Such data had not been collected in similar studies on preparatory year programmes, and not explicitly included in the common higher education data collection instruments discussed in this chapter and the literature review. However, an orchestrated approach to individual students that capitalized on the mutually complimentary roles of trainer and academic advisor was of clear benefit, as reflected in various other constructs in the literature. For example, Chalmers, in her detailed meta-review of HE performance indicators, included a "Student Engagement" indicator, explicitly citing "student interactions with faculty members" and "supportive campus environment" as objectives to be measured as part of this indicator. As mentioned previously, in the version in Gonyea et al. (2003), "Experiences with faculty" is given a single dedicated section (p. 154). In addition, in the US and Canadian National Survey of Student Engagement (Chen et al. 2009), student discussions with faculty members and academic advisors were each given dedicated constructs or items. Given the specialized, that is, programme-specific nature of this section, only five items were used, as in the corollary section of the

student survey. Again, similar to the CSEQ, the items focussed on the quality and breadth of interaction.

The following items were used to assess trainers' opinions of the university environment: (1) Classrooms are comfortable and clean and of appropriate size, (2) The university environment has high health standards, such as lighting and ventilation, (3) Devices within classrooms operate efficiently in most cases, (4) Laboratories are properly equipped, (5) Computer labs are sufficient and appropriate, (6) The library provides adequate sources and references, (7) The library provides appropriate places for viewing and reading, (8) The library provides adequate and sufficient computers for reading and research, (9) Stadiums and halls are available for practicing sports and recreational activities, (10) It is easy to use the electronic registration system of the university, (11) In case of any problem using the electronic registration system, it is easy to communicate with technical support and (12) Food and beverages facilities provide appropriate services and meet the needs of users.

As with the student questionnaire, several items were included in this section based on responses in the pilot survey and interviews, such as items 9, 10 and 11. Similar items or constructs were used in other literature, including the CSEQ, NSSE (Chen et al., 2009) and the work of the OECD by Chalmers and others. They were selected for inclusion in this case based on the feedback and comments during the pilot study. Moreover, again, the practical elements considered in the 12 items used in this section of the present student questionnaire had to cover the students' experiences with the library (items, 6, 7 and 8) and lab environments and equipment (items 4, 5 and 6), each of which received a dedicated section in the CSEQ (Gonyea et al. 2003).

The following items were used to assess the extent of achieving the objectives of the PYP: (1) The preparatory year programme contributes to deepening the Islamic and national identity through the curriculum and student activities, (2) The programme provides a well-developed course with high quality standards, (3) The programme directs students to the appropriate college given their abilities and skills, (4) The programme promotes the outstanding academic performance of the students, and (5) The programme provides a high-quality learning environment to improve the outcome of university education.

The objectives of the PYP considered in the present study were discussed in detail in the introduction and literature review sections, and the items in this section of the questionnaire reflect these more or less explicitly. However, they also have close equivalents among a broad range of process and outcome indicators, including the CSEQ (Gonyea et al. 2003), NSSE (Chen et al., 2009), Chalmers (2008b) and Chalmers and Thomson (2008). However, as with the identical section in the student questionnaire, in the case of the present study, the target outcomes of the programme were determined by the stated objectives and the fact that the programme was designed for preparation for higher education studies. Thus, item 1 was included, despite its lack of universalizability in HE or preparatory year evaluations.

Finally, for investigating the relationship between academic subjects and goals of the preparatory year from the perspective of trainers, the respondents were asked to indicate the extent of the link between the courses they teach and the goals of the PYP from their points of view. The trainers were asked to indicate their classes taught from a table identical to that in Theme II of the student questionnaire. Note again that the five response categories used in this part were “Very Strongly Related” (1), “Strongly Related” (2), “Moderately Related” (3), “Slightly Related” (4), and “Very Slightly Related” (5). As discussed concerning the corollary section in the student questionnaire, it was also decided in this case that point five on the scale would be “Very slightly related” rather than “Not related” in order to give symmetry to the scale as much as possible, as recommended by Norman (2010); moreover, it was felt to be unlikely that any trainer would consider any of these broad items completely unrelated to the subjects they taught, since they, as with the students, were instructed to select only the items that were or should be related.

### **3.11 The Effectiveness of the Preparatory Year from the Perspective of Undergraduate Faculty Members**

This section concerned examining the effectiveness of the preparatory year programme from the perspective of faculty members asked to compare the performance of students who have completed the preparatory year programme and those who have not. This answered RQ4 (How effective is the preparatory year programme in terms of improving undergraduate performance of students who went through the programme compared to students who did not?). This part of the study

differed significantly from the student- and trainer-based data, as the distinction between process and outcome indicators was somewhat blurred. As discussed previously, outcome performance indicators typically take raw numerical data as indicative of an objective, statistical relationship and measure complex processes and results in terms of their quality and impact, whether using quantitative data elements or not. While they both measure the effects of higher education, output performance indicators measure this quantitatively, and outcome measures do this qualitatively (Chalmers, 2008a). In this part of the study, the items used were ostensibly process indicators, concerning the process and performance of students who completed the preparatory year programme with those who did not. Thus, in this sense, the HE process indicators were outcome indicators for the preparatory year course.

In the remainder of this section (3.10), the data collection tool was explained, along with an overview of the statistical analysis methodology. Finally, the items in the questionnaire were listed and the sources and rationale behind their use given.

### **3.11.1 Reliability and Validity**

Based on what was learned from the literature review, an initial questionnaire was designed. It contained a set of skills and knowledge that are required for a student in college. It was presented to ten faculty members at the University of Taibah who were asked to evaluate the appropriateness and to add any items they saw fit. Based on their analysis, the questionnaire was modified then applied to the pilot study.

### **3.11.2 The Pilot Study of Efficiency Questionnaire**

The pilot study was applied in Alula branch. The sample was 22 faculty members at colleges in Alula. Because this questionnaire did not consist of axes, Cronbach's alpha coefficient was calculated for the entire questionnaire, as was the impact of deleting each item on the value of Cronbach's alpha. Table 11 shows the Cronbach's alpha coefficient of the questionnaire axes before and after the deletion of some of the items. It was found they were over .7, which is recommended by some researchers (Pallant 2013).

*Table 11 Cronbach's Alpha of efficiency Questionnaire*

Cronbach's Alpha before deleting some items	Cronbach's Alpha after deleting some items	Number of deleted items
.893	.900	2

(Appendixes O and P)

### 3.11.2.1 Reliability coefficient (split-half method) result

*Table 12 Reliability Coefficient (Split-half Method) of efficiency Questionnaire*

		Even items
Odd items	Pearson Correlation	.835
	Sig. (2-tailed)	.000

According to Table 12, the reliability coefficient could be calculated by the equation

$$\frac{2(0.835)}{1 + 0.835} = 0.910$$

It was a high value that indicates an appropriate questionnaire.

### 3.11.3 Data Collection

This part of the study involved survey data only. As previously described, this part of the study differed significantly from the student- and trainer-based data because the focus was split between process and outcome indicators. The respondents were instructed as follows: “Comparing graduates of the preparatory year students who have not studied the preparatory year (before the preparatory year was introduced), do you find a noticeable difference between the two groups in the context of the following skills:” (1) English writing, reading and conversation, (2) The use of computers and various computer applications in learning, (3) Basic scientific skills in the studied course, (4) Cooperative learning (with colleagues or others), (5) Creative thinking, innovation, and positivity, (6) knowledge of scientific research, (7) Positive communication within groups (teamwork), (8) Constructive dialogue, (9) Decision-making, (10) Ability to overcome problems and obstacles, (11) Ability to respond to

constructive criticism, (12) Commitment and accountability, (13) Conscious interaction with the university environment and university study, (14) Conscious interaction with the environment and the needs and trends of the scientific and public community, (15) Effective interaction in volunteer work, (16) Effective leadership, (17) Linking information with realistic applications, (18) Work ethic, (19) Responsibility towards national development, (20) With respect to the chosen academic and career path, (21) Students identifying their own abilities and potential, (22) Students exhibits autonomy and take responsibility, (23) Commitment to attendance, (24) Student accustomed to precision and planning, (25) My overall view of the impact of the programme on the student.

#### **3.11.4 Data Analysis Method**

The scale used for this section consisted of 25 items. The reliability, which is the measure of dependability of the scale to measure what it is designed to measure, for of the scale was assessed using Cronbach's alpha test. The first 24 items were latent constructs that measured the effectiveness of the programme from the faculty perspective. The last item (25) directly measured the overall impact of the preparatory course. The following methods were adopted for statistical analysis for the calculation of the percentages of frequencies, means and standard deviations for each item and the entire axis and a t-test for comparing averages by gender.

#### **3.11.5 Programme Effectiveness Interviews**

Interviews were conducted with faculty members who have taught students at the undergraduate level who have completed the PYP, as well as students who have not done so. The interview started by reminding the interviewees of their anonymity, as well as their right to withdraw from the interview or request the withdrawal of their interview data from the study at any point. The subject and aim of the study as a whole and the interviews specifically were explained. The primary question guiding the interviews was: *'Comparing graduates of the preparatory year that you have taught with students who did not attend the preparatory year, is there a noticeable difference between the two groups?'*

Next were questions about specific skills and knowledge to identify in detail the differences between the two groups. As such, interviewees were selected to represent both male and female genders.

The interviewees were asked the primary question as an open question at first and then were asked to elaborate on their responses without explicit guidance from the interviewer. This was important to avoid the interviewer guiding their answers and thereby potentially missing unexpected aspects.

Once the interviewee has responded to the primary question freely, he or she will be asked to elaborate on any observed differences in the following respects:

‘In light of the answer to this question, please explain the observed differences in the following areas: English language skills, Computer use, Cooperative learning/teamwork ability/constructive dialogue, Decision-making/problem-solving/response to constructive criticism, Conscious interaction with the university environment and the local environment, Work ethic and commitment to attendance, Identifying their abilities, potential and independence, Being accustomed to structured learning and planning and Ability to quickly understand learning topics’

Next were the following questions: ‘Is either group easier to deal with? Are the differences because of what the students studied in the preparatory year, or are there other factors at play?’ The interview concluded with the following question: ‘Is there any additional information you deem appropriate?’

### **3.12 Summary**

The present chapter outlined the methodological approach to data collection and analysis used to address the RQs. The chapter was split into four other parts. Each addressed one of the four RQs because the methodological treatment of each research question, as well as the data collection instruments used, differed significantly. These four sections each included subsections describing the data collection instrument and study populations, including any exclusion criteria, the methodological strategy to be taken, and descriptions of items in the case of the surveys and their underlying constructs. The ethical considerations were discussed in a subsection of the introduction, as the ethical considerations applied across the different parts of the study

because the data collection instruments, which were surveys and semi-structured interviews, differed in content rather than form.

The Mixed methods concurrent triangulation strategy was used in this study to collect quantitative and qualitative data at the same time, which was then analysed separately to compare or combine the results of each.

Based on the literature review and study questions, the items used in each survey concerned outcome and process indicators, as opposed to input and output indicators. This approach was taken with consideration for the assertions in the literature that these indicators have been neglected in higher education, despite their importance for effectiveness at the course, faculty, institution and national levels (Chalmers 2008a, 2010). The ethical considerations involved in the present study were relatively straightforward. That is, there were no minor children or vulnerable groups involved, so all participants were able to understand the description of the survey and give informed consent.

The student survey explored the predictive values of admissions criteria, with comparisons between track and gender groups of the study population. This concerned RQ1 (What is the predictive value of the admission criteria for the preparatory year programme at the University of Taibah, for each track and each gender within each track?) explicitly. The ultimate objective was to suggest relative weightings for the different admissions criteria analysed by track and by gender groups within each track. As pointed out in detail, this dissection into subgroups was important; both as the skills required for success in different tracks, as well as the curricular contents differ, and co-mingling the data would ignore such differences and result in a predictive model that fits poorly for some subgroups. Also, as discussed in the literature review, gender was of particular importance in the case of Saudi Arabia because males and females are taught separately; therefore, any inherent differences between genders may be magnified. This marked a difference from the popular approaches to such research. A correlation study using Pearson's correlation coefficient was performed to explore the correlations between GPA and HSG, Capabilities Test and Achievement Test for each track (health sciences, natural sciences, and social studies) and each gender.

This student questionnaire and associated semi-structured interviews (n=8) concerned the effectiveness of the preparatory year programme from the perspective of students. This provided an explicit answer to RQ2 (How effective is the Preparatory Year Programme from the perspective of students for each track and each gender within each track?). First, the data collection tools were explained, along with the study population and participant selection. The items concerning each of the underlying constructs of academic content effectiveness, trainers' effectiveness, assessment methods, academic advising, university environment and achievement of objectives for the PYP were described and justified for inclusion. Eight students were chosen to participate in the interviews. The means score and factor score for each item or factor was calculated. Then, ANOVA analysis was applied to reveal statistically significant ( $p < .05$ ) differences in factor scores across the six track/gender combinations of females in each of the tracks, and males in each of the branch).

The trainer questionnaire and interviews (n=4) concerned the effectiveness of the preparatory year programme from the perspective of trainers. This addressed RQ3 (How effective is the Preparatory Year Programme from the perspective of trainers in each academic subject?). First, the data collection tools were explained, along with the study population and participant selection. Similarly, to the student questionnaire, items concerning each of the underlying constructs of academic content effectiveness, academic advising, university environment, and achievement of objectives for the PYP were described and justified for inclusion. Four trainers were chosen to participate in the interviews. As with the methodology for RQ2, the means score and factor score for each item and factor were calculated. Then, ANOVA analysis was applied to reveal statistically significant ( $p < .05$ ) differences in factor scores across the six track/gender combinations of females in each of the branch, and males in each of the branch).

Finally, the questionnaire concerning the effectiveness of the preparatory year from the perspective of undergraduate faculty members examined the effectiveness of the preparatory year programme from the perspective of faculty members asked to compare the performance of students who have completed the PYP and those who have not. This answered RQ4 (How effective is the preparatory year programme in terms of improving undergraduate performance of students who went through the programme compared to students who did not?). This part of the study differed

significantly from the student and trainer-based data, as the distinction between process and outcome indicators was somewhat blurred, as discussed previously.

## **Chapter 4 Quantitative Results**

### **4.1 Introduction**

This chapter presented the analytical results for the quantitative data collected from the study sample. The analysis was intended to obtain answers to RQ1, for which the final sample recruited comprised 3876 students. The first section discussed the findings on the predictive validity of the criteria for admission into the PYP. Validity was determined by measuring the relationship between three admission criteria and a student's GPA at the end of the preparatory year. The second and third sections explained the students' and trainers' evaluations of the PYP. Dedicated questionnaires were designed and administered to enable the respondents to assess programme components, including curriculum, environment, academic advising and examination methods. The study sample for the evaluations comprised 1972 students and 165 trainers belonging to various university branches and specialisations. The evaluations were designed to derive answers to RQ2 and RQ3. The fourth section discussed the effectiveness of the preparatory year programme from the perspectives of college faculty who instruct students in the programme. A total of 98 trainers from various branches and specialisations were recruited. With a dedicated questionnaire, the respondents identified the differences in skills between programme graduates and students who have not enrolled in the PYP. This survey was intended to acquire answers to RQ4.

All the data was analysed using the Statistical Package for the Social Sciences (SPSS) software. Microsoft Excel 2013 was used to generate charts.

### **4.2 Ability of Admission Criteria to Predict Academic Performance**

This section concerned the ability of Taibah University's admission criteria to predict the academic performance of preparatory year students. Pearson's correlation coefficient and multiple regression analyses were conducted, and frequency tables and graphs were used to display the data.

### 4.3 Study Sample

Tables 13-15 and Figures 9-11 show the total number of respondents, their distribution regarding gender and their distribution with respect to study track, respectively. The study sample consisted of all students who have completed the programme at the Madinah, Alula and Yanbu branches of the university. Amongst the respondents, 1690 were male, and 2186 were female. These students belonged to three tracks, namely, health sciences (548), natural sciences (2133) and social studies (1195).

*Table 13 Branch Breakdown: The Ability of Admission Criteria Sample*

Branch	Frequency	Percent
Madinah	2383	61.5
Yanbu	917	23.6
Alula	576	14.9
Total	3876	100.0

*Table 14 Gender Breakdown: The Ability of Admission Criteria Sample*

Gender	Frequency	Percent
Male	1690	43.6
Female	2186	56.4
Total	3876	100.0

*Table 15 Tracks Breakdown: The Ability of Admission Criteria Sample*

Track	Frequency	Percent
Health Sciences	548	14.15
Natural Sciences	2133	55.05
Social Studies	1195	30.80
Total	3876	100.0

Following the method of Tabachnick and Fidell (2001), the minimum sample size for testing multiple predictors was determined using the formula  $N \geq 50 + 8m$ , where  $m$  is the number of independent variables. That is,  $N \geq 50 + (8 \times 3) = 74$ . In the current research, the lowest sample size was 548, which exceeded the recommended size according to equation.

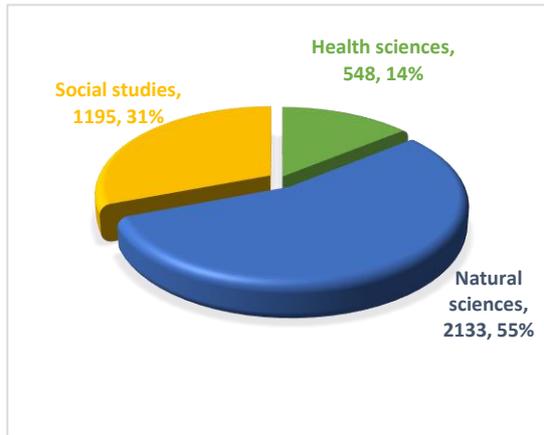


Figure 9 Tracks Breakdown: The Ability of Admission Criteria Sample

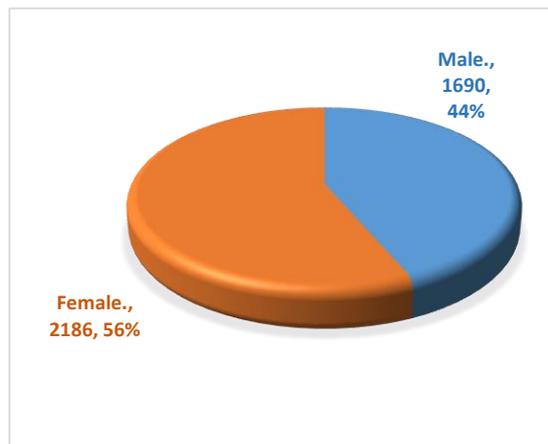


Figure 10 Gender Breakdown: The Ability of Admission Criteria Sample

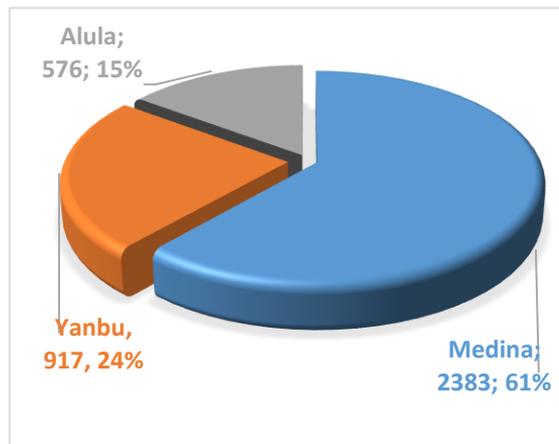


Figure 11 Branches Breakdown: The Ability of Admission Criteria Sample

### 4.3.1 Statistics of Full Study Sample

The analysis discussed in this section was conducted on the entire sample of 3,876 students. Students who did not receive a passing rate in the PYP were excluded for different reasons, as explained in the Methodology chapter. Students who dropped out of the programme were also excluded given that the circumstances surrounding the academic study of such group was beyond the scope of this work. Table 4 shows a description of the different variables related to the sample, as well the averages and standard deviations of the variables associated with the entire data set used in the research.

*Table 16 Description of Variables of the Ability of Admission Criteria Sample.*

	N	Mean	Std.
High School	3876	92.54	6.558
Capabilities	3876	72.59	8.194
Achievement	3876	69.89	8.435
GPA	3876	3.67	.788
N	3876		

#### 4.3.1.1 Pearson's Correlation Coefficient:

Pearson's correlation coefficient was used to illustrate the relationship between each admission criterion and student GPA for the PYP and the association amongst the admission criteria. The results revealed a statistically significant coefficient of correlation ( $p < 0.01$ ) between the achievement test scores, high school marks and capability test scores of each student and his or her GPA. The specific coefficients were 0.658, 0.599 and 0.523 for the correlations between GPA and achievement test scores, capability test scores and high school marks, respectively (Table 5). Because all the coefficients were higher than .5, the correlations indicated a significant relationship value, as evaluated in accordance with Cohen's (1988) guidelines (Pallant 2013). All the values were also statistically significant at the .01 level.

*Table 17 Pearson's correlation coefficient of Admission Criteria*

	GPA	High School	Capability
GPA	1.000		
High School	.523	1.000	
Capability	.599	.407	1.000
Achievement	.658	.474	.718

#### **4.3.1.2 Multicollinearity:**

When two variables or a high number of independent variables are strongly correlated, separating the effect of each on a dependent variable is difficult and leads to inaccurate estimates (Amin 2008). Field (2013) added that measuring the individual importance of a predictor is challenging under multicollinearity predictors. With a high correlation between two independent variables that are used to construct a regression model, the regression coefficient derived is one characterised by an inaccurately large standard error (Bashir 2003).

Multicollinearity can be determined in two ways. The first is to examine the coefficients of correlation between independent variables; a coefficient greater than 0.8 indicates a potential multicollinearity problem (David 2012). As shown in Table 17, the highest coefficient derived in this work was 0.718. This value, which pertained to the correlation between capacity test scores and achievement test scores, indicated no multicollinearity between the variables. The second method of determining multicollinearity is examination based on the variance inflation factor (VIF). A VIF that is lower than 0.1 or tolerances that are greater than 10 are causes for concern (Landau and Everitt 2004). Table 20 shows that all the VIF values in this research were acceptable.

#### **4.3.1.3 Multiple Linear Regression Analysis–Enter Method:**

The ENTER method of multiple linear regression was performed to identify which of the independent variables of achievement test scores, capability test scores and high school marks best predict the dependent variable of GPA.

Adopting ENTER multiple regression means that all predictor variables are simultaneously incorporated into a regression equation (Landau and Everitt 2004). This method is used when no theoretical basis explains the sequence with which predictors are incorporated into a model (Chongwony 2008), as was the case in this study.

Table 18 shows that three variables were entered, and none were removed from the model adopted in this research. Table 19 provides the  $R^2$  value (also called the coefficient of determination), which can be used to determine a good fit between a

regression model and corresponding data. It can also be used to measure the proportion of variance in a dependent variable explained by independent variables. In this work, achievement test scores, capability test scores and high school marks accounted for 52% of the variance in GPA.

*Table 18 Variables Entered/Removed of the Ability of Admission Criteria Study*

Model	Variables Entered	Variables
1	Achievement	.
2	High School	.
3	Capability	.

The F-ratio in ANOVA measures the ratio between the variance in a model-explained dependent variable and unexplained variance (Field 2013). The F-ratio in this research indicated that the independent variables statistically significantly predict the dependent variable ( $p < 0.0005$ , Table 19). The regression model, therefore, exhibited good fit with the data. A significance of 0 represented a relationship between each variable and GPA. The ANOVA results showed that the regression was significant and that the regression equation was acceptable.

*Table 19 Model Summary of the Ability of Admission Criteria Study*

Model	R Square	F	Sig
	.518	1384.509	.000

Table 20 presents the results of the t-test on the three independent variables. The variables were found to be statistically significant, rendering them suitable for incorporation into the regression equation.

*Table 20 Coefficients of the Ability of Admission Criteria Study*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	Beta			
(Constant)	-3.199	.128		-24.965	.000	
Achievement	.035	.002	.376	22.450	.000	2.247
High School	.031	.002	.255	19.954	.000	1.306
Capability	.022	.002	.227	14.068	.000	2.088
Capability	.022	.002	.227	14.068	.000	2.088

The multiple regression test indicated that achievement test scores, high school marks and capability test scores statistically significantly predicted GPA. A significant model emerged [F (3.3873) = 1384.509,  $p < 0.0001$ ,  $R^2 = .518$ ]. The significance levels and coefficients of the variables are shown below:

Predictor variable	Beta	p
Achievement test scores	.376	$p < 0.001$
High school marks	.255	$p < 0.001$
Capability test scores	.227	$p = 0.001$

All the correlations, as well as the prediction model [F (3.3873) = 1384.509,  $p < .001$ ], were statistically significant. The model accounted for approximately 52% of the variance in GPA ( $R^2 = .518$ ) and ascribed the strongest weight to performance on achievement tests, followed by high school marks and performance on capability tests.

The ability to predict student GPA in the preparatory year followed the sequence achievement test scores > high school marks > capability test scores.

The regression equation can be expressed thus:

$$\text{GPA} = (\text{Achievement test scores} \times .035) + (\text{High school marks} \times 0.31) + (\text{Capability test scores} \times .022) - 3.199$$

#### **4.3.1.4 Normality Distribution of Residuals:**

Linear regression analysis assumes the accuracy of the normal distribution of residuals (Field 2013). Amin (2008), however, revealed that this assumption can be abandoned when working with large samples, as was the case in the present study. Nevertheless, the histogram of standardised residuals (Figure 12) and the normal P-P plot of the regression standardised residual (Figure 13) show that the distribution of residuals approximated a normal distribution.

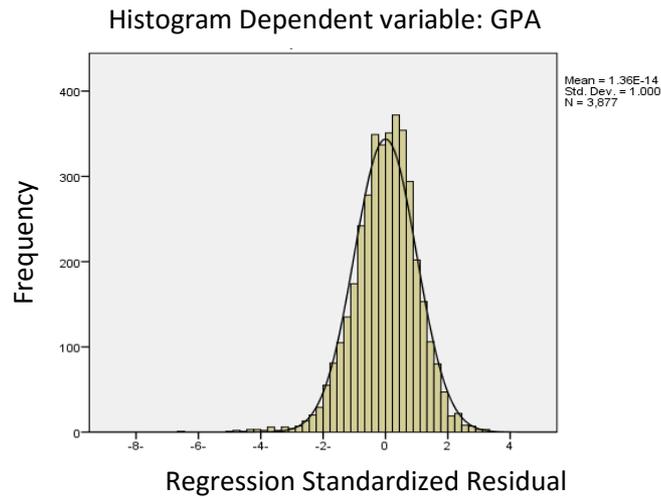


Figure 12 Histogram of standardised residuals

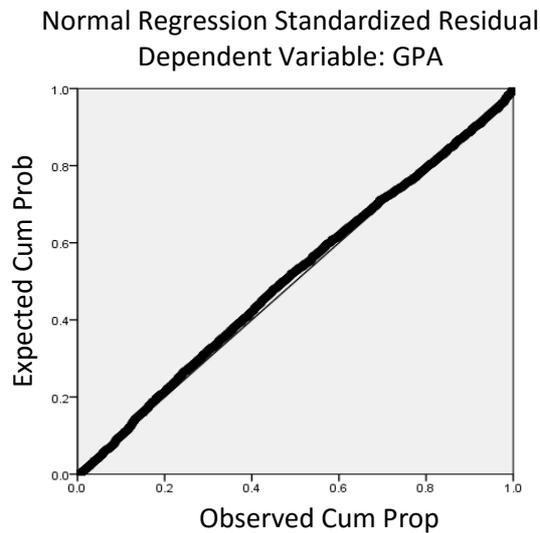


Figure 13 Normal P-P Plot of regression standardized residual

#### 4.3.2 Statistics for Males and Females Separately:

To determine the predictive ability of the admission criteria by gender, separate analyses were conducted for male and female students. Gender was an important variable in the Saudi context, where public education institutions and universities are characterised by complete segregation between men and women. Such separation was applied even in the locations of student achievement and capability tests. Considering this division was necessary to ascertain the predictive ability of the criteria and to

arrange them by their predictive power. The results were then compared to determine the similarities and differences between male and female students. A total of 1690 males and 2186 females from various branches and tracks were recruited. Table 21 shows the averages and standard deviations of the variables associated with the analyses oriented towards gender.

*Table 21 Descriptive Statistics- Male and Female*

Gender	Male			Female		
	Mean	Std. Deviation	N	Mean	Std.	N
GPA	3.44	.7850	1690	3.845	.7495	2186
High School	89.99	6.813	1690	94.51	5.607	2186
Capability	71.64	8.364	1690	73.31	7.986	2186
Achievement	67.88	7.813	1690	71.43	8.570	2186

#### 4.3.3 Pearson's Correlation Coefficient:

The gender-based analyses revealed a statistically significant coefficient of correlation ( $p < 0.01$ ) between the achievement test scores, high school marks and capability test scores of a student and his or her preparatory year GPA. The coefficients of correlation between achievement test scores and GPA were 0.603 and .672 for males and females, respectively; those between capability test scores and GPA were .555 and .633 for males and females, respectively; and those between high school marks and GPA were 0.409 and .558 for males and females, respectively (Table 22). With the exception of one, all the correlation values were higher than .5, which pointed to a large relationship value, as determined by the guidelines of Cohen (1988). The correlation coefficient of high school marks and GPA for males pointed to a medium relationship value (Pallant 2013). All the coefficients were statistically significant at the .01 level.

*Table 22 Pearson Correlation Coefficient- Male and Female*

	Male			Female		
	GPA	High School	Capability	GPA	High	Capability
GPA	1.00			1.00		
High	.409	1.00		.558	1.00	
Capability	.555	.424	1.00	.633	.377	1.00
Achievement	.603	.471	.721	.672	.419	.716

#### **4.3.3.1 Multicollinearity:**

Determining strong correlation between two variables or a high number of independent variables diminishes the effectiveness of a model. This problem necessitates the application of the strategies adopted in the analysis of the full sample, that is, examining multicollinearity on the basis of a correlation coefficient (no greater than 0.8) and VIF (VIF below 0.1 or tolerances greater than 10) values. This time, however, separate explorations were conducted for males and females.

Table 22 illustrates that in the analysis for male students, the highest coefficient of correlation between the independent variables of performance on capacity tests and achievement tests was 0.721; in the examination of female students, the highest coefficient of correlation between such variables was .716. These values demonstrated that no multicollinearity occurred between the variables. Table 25 also shows that all the VIF values for males and females were acceptable.

Separate multiple linear regression analyses used the ENTER method for males and females. Because no strong theoretical basis can be relied upon in determining the sequence of predictors in the regression model, the ENTER method was adopted to incorporate the predictor variables into the regression equation. Incorporation was carried out simultaneously, but the analyses were conducted separately for males and females.

As shown in Table 23, three variables were entered, and none were removed from the model of the separate analyses for males and females. Table 24 provides the  $R^2$  values, which were used to determine a good fit between the regression model and the data, as well as ascertain the variance in GPA, the dependent variable) that is explained by achievement test scores, capability test scores and high school marks, the independent variables. As indicated in the 'R Square' column, the three independent variables accounted for 58% and 41% of the variance in GPA amongst female and male students, respectively.

*Table 23 Variables Entered/Removed- Male and Female*

Model	Variables Entered	Variables Removed
1	Achievement	.
2	Capability	.
3	High School	.

*Table 24 Model Summary- Male and Female*

Model	R Square	F	Sig
Male	.407	386.474	.000
Female	.578	994.254	.000

The F-ratio in the ANOVA (Table 24) shows that the independent variables predicted the dependent variable at a statistically significant level ( $p < 0.0005$ ). The regression model thus exhibited good fit with the data in both the analyses for males and females. A significance equal to zero indicated that each variable was associated with GPA. The ANOVA demonstrated that the regression was significant and that the regression equation was acceptable for the analysis of male and female students.

#### **4.3.3.2 Male sample:**

Table 25 displays the t-test results on the three independent variables, which were statistically significant and suitable for entry into the regression equation.

*Table 25 Coefficients of Male Sample*

Model	Unstandardized		Standardized	t	Sig.	VIF
	Coefficients					
	B	Std. Error	Beta			
(Constant)	-2.050	.201		-10.189	.000	
Achievement	.038	.003	.375	13.365	.000	2.237
Capability	.021	.003	.227	8.318	.000	2.122
High School	.016	.002	.136	6.345	.000	1.310

The multiple regression test illustrated that achievement test scores, high school marks and capability test scores predict GPA at a statistically significant level. A significant model emerged [ $F(3, 1690) = 386.474, p < 0.0001, R^2 = .518$ ]. The significance levels and coefficients of the variables are listed as follows:

Predictor variable	Beta	p
Achievement test scores	.375	p<0.001
Capability test scores	.227	p = 0.001
High school marks	.136	p<0.001

All the correlations, as well as the prediction model, were statistically significant [F (3.1690) = 386.474, p<.001]. The model accounted for approximately 41% of the variance in GPA ( $R^2 = .407$ ). The strongest weight was assigned to achievement test scores, followed by capability test scores and high school marks.

The ability of the admission criteria to predict male students' GPAs in the preparatory year followed the order achievement test scores > capability test scores > high school marks.

The regression equation can be written as follows:

$$\text{GPA} = (\text{Achievement test scores} \times .038) + (\text{High school marks} \times 0.21) + (\text{Capability test scores} \times .016) - 2.050$$

#### **4.3.3.3 Normality Distribution of Residuals for Male Sample:**

The histogram of standardised residuals (Figure 14) and the normal P-P plot of the regression standardised residual (Figure 15) indicated that residual distribution approximated a normal distribution.

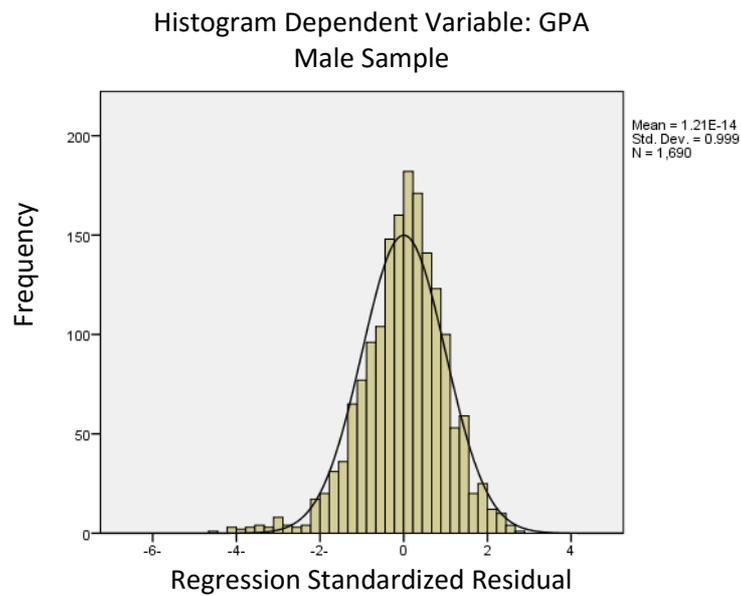


Figure 14 Histogram of #Standardised Residual of Male Sample

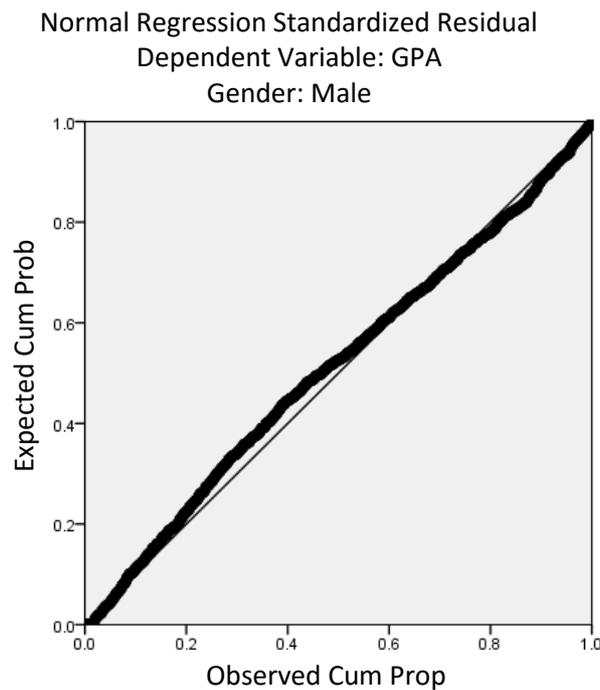


Figure 15 Normal P-P Plot of Regression Standardised Residual of Male Sample

#### 4.3.4 Female Sample:

Table 26 lists the findings of the t-test on the three independent variables, which were statistically significant and suitable for integration into the regression equation.

Table 26 Coefficients of Female Sample

Model	Unstandardized		Standardized	t	Sig.	VIF
	Coefficients		Coefficients			
	B	Std. Error	Beta			
(Constant)	-4.046	.178		-22.720	.000	
Achievement	.031	.002	.354	17.312	.000	2.165
High School	.041	.002	.310	20.098	.000	1.231
Capability	.024	.002	.263	13.085	.000	2.080

The multiple regression test demonstrated that the measures of performance on achievement tests, high school and capability tests predicted GPA with statistical significance. Similar to the previous analyses, a significant model emerged [F (3.2186 = 994.254,  $p < 0.0001$ .  $R^2 = .578$ ]. The significance levels and coefficients of the variables are shown below:

Predictor variable	Beta	p
Achievement test scores	.354	$p < 0.001$
High school marks	.310	$p < 0.001$

All the correlations and the prediction model were statistically significant [F (3.1690) = 2186.994,  $p < .001$ ], with the model accounting for approximately 58% of the variance in GPA ( $R^2 = .578$ ). The variable with the strongest weight was performance on achievement tests, followed by performance on capability tests and high school.

The ability of the admission criteria to predict female students' GPAs in the preparatory year was in the order achievement test scores > high school marks > capability test scores.

The regression equation is expressed in this manner:

$$\text{GPA} = (\text{High school marks} \times 0.41) + (\text{Achievement test scores} \times .031) + (\text{Capability test scores} \times .024) - 4.046$$

#### 4.3.4.1 Normality Distribution of Residuals for Female Sample:

The histogram of standardised residuals (Figure 16) and the normal P-P plot of the regression standardised residual (Figure 17) reflect that the distribution of residuals resembled a normal distribution.

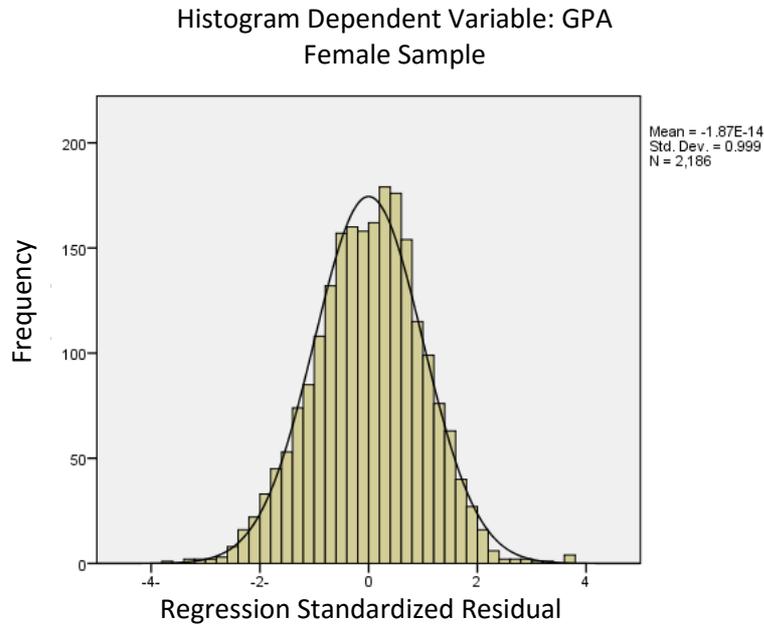


Figure 16 Histogram of Standardised Residuals of Female Sample

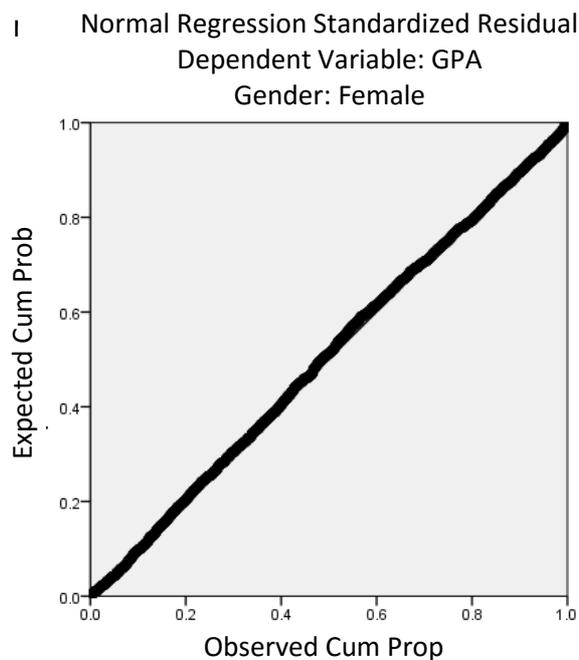


Figure 17 Normal P-P plot of Regression Standardised Residual of Female Sample

#### 4.3.4.2 Comparison Between Males and Females:

The three admission criteria predicted the GPAs of male and female preparatory students, but predictive ability differed regarding magnitude and sequence of predictive power. The criteria accounted for approximately 41% and 58% of the variance in GPA amongst males and females, respectively. Predictive power was greater amongst females than males. Performance on capacity tests ranked second in predictive power amongst male students and third amongst female students. In the female group, high school marks placed second in predictive power. With regard to sequence, achievement test score was the strongest criterion amongst both males and females.

#### 4.3.5 Statistics for Separate Tracks

To determine predictive ability by programme track, the tracks were individually analysed. As previously explained, the PYP features three tracks: health sciences, natural sciences and social studies. The natural sciences and health sciences tracks accept students graduating from the natural sciences programme of secondary school. The social studies track accepts graduates of the Islamic and Arab studies programme of secondary education. To reiterate, achievement and capability exams vary depending on the specialisation of a student in secondary school. Subjects and their contributions to the degree awarded to a secondary school student differ according to specialisation. The consideration of such division was essential to ascertaining the predictive ability of the admission criteria and arranging them according to predictive power. The differences and similarities amongst tracks were then compared. Table 27 lists the number of enrollees in each track, as well as the averages and standard deviations of the variables related to the tracks.

*Table 27: Descriptive Statistics - Tracks*

Gender	Natural Sciences			Health Sciences			Social Studies		
	Mean	Std. Deviation	N	Mean	Std. Deviation	N	Mean	Std. Deviation	N
GPA	3.38	.7290	213	4.44	.4997	548	3.84	.709	119
High School	91.63	6.77	213	98.00	1.83	548	91.65	6.35	119
Capability	70.00	7.40	213	81.42	5.55	548	73.14	7.62	119
Achievement	67.02	6.66	213	80.44	6.08	548	70.16	8.31	119

#### 4.3.5.1 Pearson's Correlation Coefficient:

Pearson's correlation coefficient analysis was carried out to ascertain the relationship between each admission criterion and student GPA and the association amongst the admission criteria. A separate analysis was conducted for each track. The individual analyses reflect a statistically significant coefficient of correlation ( $p < 0.01$ ) between achievement test scores, capability test scores and high school marks and preparatory GPA.

Table 28 shows that the coefficients of correlation between achievement test scores and GPA were 0.597 for natural sciences, .571 for social studies and .487 for health sciences. Those between capability test scores and GPA were 0.531 for social studies, .511 for natural sciences and .184 for health sciences. The coefficients of correlation between high school marks and GPA were 0.488 for natural sciences, .467 for social studies and .353 for health sciences. As determined on the basis of Cohen's (1988) guidelines, these correlation values, except one, indicated a medium to large relationship. The coefficient of correlation between capability test scores and GPA for health sciences corresponded to a small relationship value (Pallant 2013). Note, however, that the ENTER method involved the incorporation of independent variables into a regression model regardless of their Pearson's coefficients of correlation with a dependent variable. All the values derived in this work were statistically significant at the .01 level.

*Table 28 Pearson Correlation Coefficient- Tracks*

	natural Sciences			Health Sciences			Social Studies		
	GPA	High School	Capability	GPA	High School	Capability	GPA	High School	Capability
GPA	1.00			1.00			1.00		
High School	.488	1.00		.353	1.00		.467	1.00	
Capability	.511	.307	1.00	.184	-.013	1.00	.531	.368	1.00
Achievement	.597	.365	.630	.478	0.163	.297	.531	.457	.709

#### 4.3.5.2 Multicollinearity:

As in the previous analyses, attempts to detect a strong correlation between two variables or a large number of independent variables diminishes the effectiveness of a

model, thus driving the need to examine multicollinearity on the basis of the correlation coefficients of independent variables and the VIF. The same strategies were adopted here, but individual analyses were conducted on each track.

As shown in Table 28, the highest coefficients of correlation between independent variables in the social studies, natural sciences and health sciences tracks were 0.709, .630 and .297, respectively. All the values pertained to the association between capacity test scores and achievement test scores. As can be seen, the variables exhibit no multicollinearity. Table 31 also indicates that all the VIF values of the tracks were acceptable.

#### **4.3.5.3 Separate Multiple Linear Regression Analysis (Enter Method) for each Track:**

As explained previously, the absence of a strong theoretical basis for arranging the predictors in the regression model prompted the use of the ENTER method of linear regression analysis. All the predictor variables were concurrently added to the regression equation, but separate analyses were carried out on each track.

The three variables were entered, and none were removed from the model (Table 29) for any track. Table 30 presents the R<sup>2</sup> values, which were used to ascertain good fit between the regression model and the data of individual tracks. The table also indicates that achievement test scores, capability test scores and high school marks accounted for 46%, 39% and 31% of the variance in GPA under the natural sciences, social studies and health sciences tracks, respectively.

*Table 29 Variables Entered /Removed- tracks*

Model	Variables Entered	Variables Removed
1	Achievement	.
2	Capability	.
3	High School	.

*Table 30 Model Summary- tracks*

Model	R Square	F	Sig
natural sciences	.461	607.947	.000
Health sciences	.310	81.454	.000
Social studies	.386	249.772	.000

The F-ratio in the ANOVA test (Table 30) shows that the independent variables predicted the dependent variable with statistical significance ( $p < 0.005$ ), indicating a good fit between the regression model and each track. A significance equal to zero reflected a relationship between each variable and GPA. The ANOVA also pointed to the significance of the regression and the acceptability of using the regression equation to analyse each track.

#### 4.3.5.4 Natural Sciences Track:

The t-test on the three independent variables yielded statistically significant results, thus making the variables suitable for entry into the regression equation (Table 31).

*Table 31 Coefficients of Natural Sciences Sample*

Model	Unstandardized		Standardized	t	Sig.	VIF
	Coefficients					
	B	Std. Error	Beta			
(Constant)	-3.551	.173		-20.503	.000	
Achievement	.041	.002	.371	17.629	.000	1.751
Capability	.018	.002	.187	9.076	.000	1.676
High School	.032	.002	.296	17.213	.000	1.167

The multiple regression test illustrates that the measures of performance on achievement tests, high school and capability tests predicted GPA at a statistically significant level. A significant model emerged [ $F(3, 2133) = 607.947, p < 0.0001, R^2 = .461$ ]. The significance levels and coefficients of the variables were as follows:

Predictor variable	Beta	p
Achievement test scores	.371	$p < 0.001$
High school marks	.296	$p < 0.001$
Capability test scores	.187	$p = 0.001$

All the correlations and the prediction model were statistically significant [ $F(3, 2133) = 607.947, p < .001$ ]. The model accounted for approximately 46% of the variance in GPA ( $R^2 = .461$ ) and assigned weight in the following sequence: achievement test scores, capability test scores and high school marks.

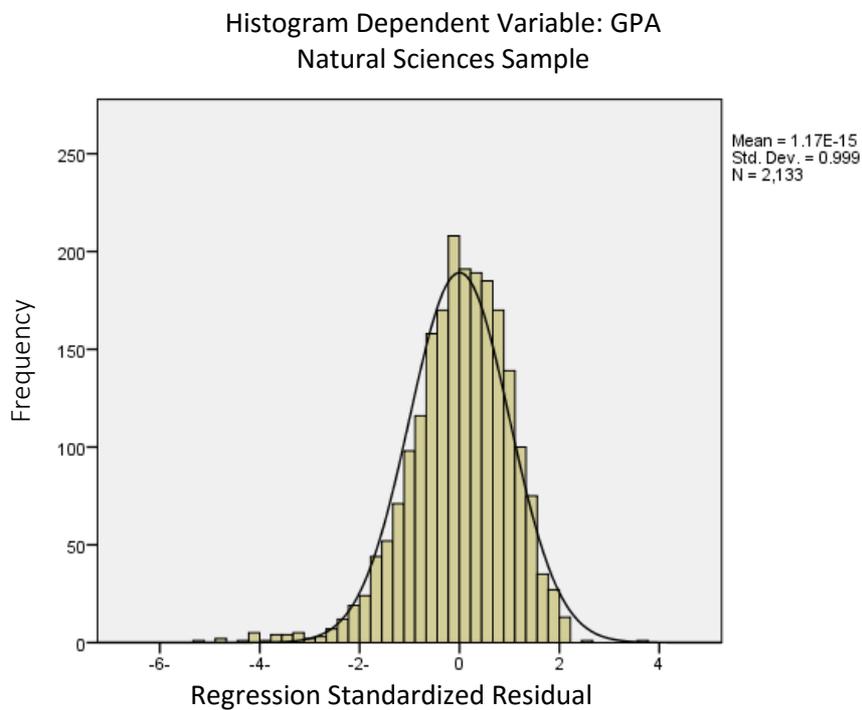
The ability of the admission criteria to predict female students' GPAs in the preparatory year followed the order achievement test scores > high school marks > capability test scores.

The regression equation is written thus:

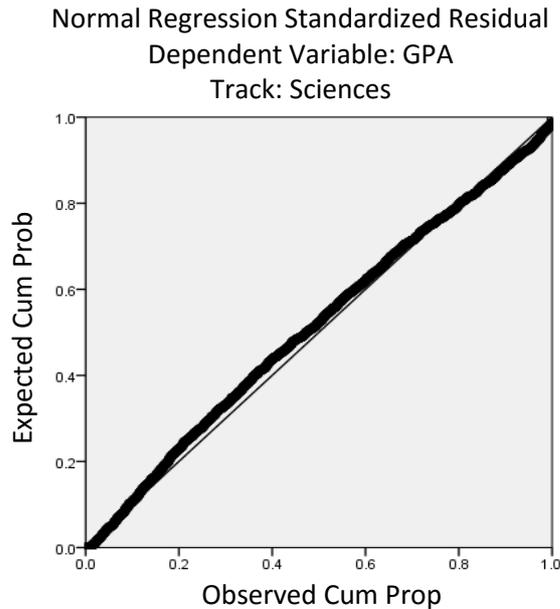
$$\text{GPA} = (\text{High school marks} \times 0.041) + (\text{Achievement test scores} \times .032) + (\text{Capability test scores} \times .018) - 3.551$$

#### 4.3.5.5 Normality Distribution of Residuals for Natural Sciences:

As previously stated, although the accuracy of the normal distribution of residuals is assumed in linear regression (Field 2013), such assumption can be disregarded when working with large samples (Amin 2008). In this study, however, the histogram of standardised residuals (Figure 18) and the normal P-P plot of the regression standardised residual (Figure 19) showed resemblance between residual and normal distributions.



*Figure 18 Histogram of Standardised Residuals of Natural Sciences Sample*



*Figures 19 Normal P-P Plot of Regression Standardised Residual of Natural Sciences Sample*

#### 4.3.5.6 Health Sciences Track:

The t-test on the three independent variables generated statistically significant results for high school marks and achievement test scores but statistically non-significant findings for capability test scores (Table 32). Thus, the first two variables were entered into the regression equation. For this reason, the multiple regression test was re-run, with capacity test scores excluded.

*Table 32 Coefficients of Health Sciences Sample*

Model	Unstandardized		Standardized Beta	t	Sig.	VIF
	B	Std. Error				
(Constant)	-4.426	.992		-6.478	.000	
Achievement	.034	.003	.412	10.877	.000	1.131
High School	.078	.010	.286	7.915	.000	1.032
Capability	.006	.003	.065	1.741	.082	1.101

Table 33 presents the results of the regression without capacity test scores. Achievement test scores and high school marks accounted for 31% of the variance in GPA under the health sciences track. The F-ratio in the ANOVA test (Table 34) shows that the two independent variables statistically significantly predicted the dependent variable ( $p < 0.005$ ), demonstrating good fit between the regression model and the data on health sciences.

*Table 33 Model Summary of Health Sciences Sample*

Model	R Square	F	Sig
Health sciences	.306	120.216	.000

The multiple regression test revealed that achievement test scores and high school marks predicted GPA at a statistically significant level. As in the previous analyses, a significant model emerged [F (2.548) = 120.216,  $p < 0.0001$ .  $R^2 = .306$ ]. The significance levels and coefficients of the variables are shown below:

Predictor variable	Beta	p
Achievement test scores	.412	$p < 0.001$
High school marks	.286	$p < 0.001$

*Table 34 Re-test Coefficients of Health Sciences Sample*

Model	Unstandardized		Standardized	t	Sig.	VIF
	Coefficients		Coefficients			
	B	Std. Error	Beta			
(Constant)	-5.971	.959		-6.228	.000	
High School	.077	.010	.282	7.804	.000	1.027
Achievement	.036	.003	.432	11.946	.000	1.027

All the correlations were statistically significant. The prediction model, which was also statistically significant [F (2.548) = 120.216,  $p < .001$ ], accounted for approximately 31% of the variance in GPA ( $R^2 = .306$ ). The model ascribed the strongest weight to achievement test scores and the second strongest weight to high school marks.

The ability of the admission criteria to predict female students' GPAs in the preparatory year followed the sequence achievement test scores > high school marks. By contrast, performance on capability tests was statistically non-significant.

The regression equation is

$$\text{GPA} = (\text{High school marks} \times 0.077) + (\text{Achievement test scores} \times .036) - 5.971$$

#### 4.3.5.7 Normality Distribution of Residuals for Health Sciences:

The histogram of the standardised residuals (Figure 20) and the normal P-P plot of the regression standardised residual (Figure 21) indicated that the distribution of residuals was close to normal distribution.

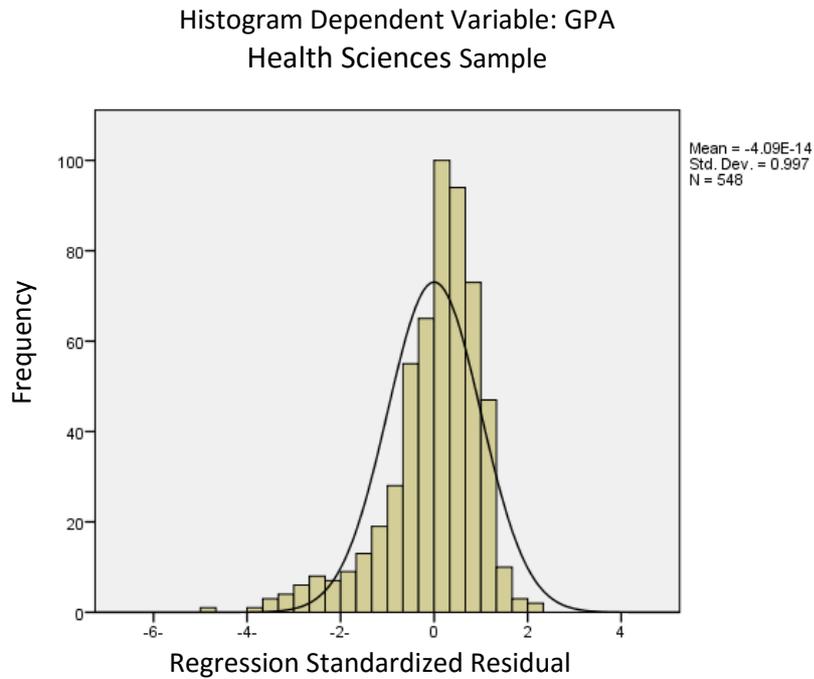


Figure 20 Histogram of Standardised Residuals of Health Sciences Sample

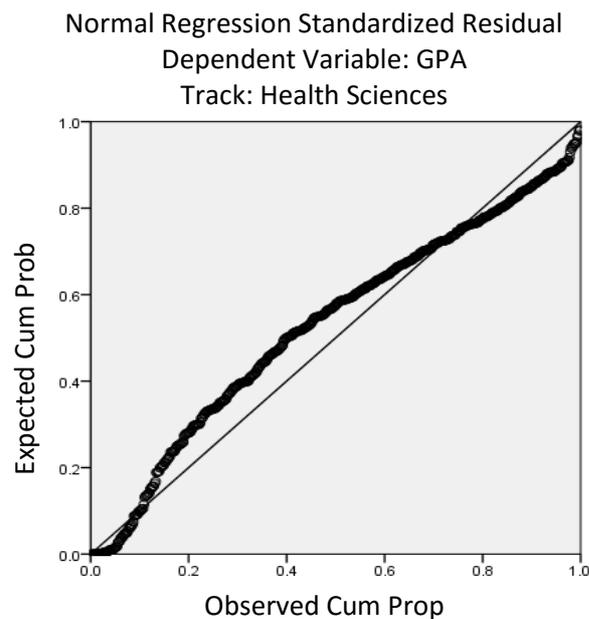


Figure 21 Normal P-P Plot of Regression Standardised Residual of Health Sciences Sample

#### 4.3.5.8 Social Studies Track:

The t-test on the three independent variables was statistically significant; thus, they were entered in the regression equation (Table 35).

*Table 35 Coefficients of Social studies Sample*

Model	Unstandardized		Standardized	t	Sig.	VIF
	Coefficients		Coefficients			
	B	Std. Error	Beta			
(Constant)	-2.084	.245		-8.503	.000	
Achievement	.017	.003	.204	6.035	.000	2.212
High School	.030	.003	.268	10.485	.000	1.271
Capability	.027	.003	.288	8.907	.000	2.023

The multiple regression test showed that GPA was predicted by the achievement test, high school performance and capability test measures at a statistically significant level. A significant model was derived [F (3.1195 = 249.772),  $p < 0.0001$ .  $R^2 = .386$ ]. The significance levels and coefficients of the variables are listed below:

Predictor variable	Beta	p
Capability test scores	.288	$p = 0.001$
High school marks	.268	$p < 0.001$
Achievement test scores	.204	$p < 0.001$

All the correlations and the prediction model were statistically significant [F (3.1195) = 249.772,  $p < .001$ ]. The model explained approximately 39% of the variance in GPA ( $R^2 = .386$ ). Achievement test scores were assigned the strongest weight, whereas capability test scores and high school marks were ascribed the second strongest.

The ability of the admission criteria to predict female students' GPAs in the preparatory year was in the order capability test scores > high school marks > achievement test scores.

The regression equation is written in the following form:

$$\text{GPA} = (\text{High school marks} \times 0.030) + (\text{Capability test scores} \times .027) + (\text{Achievement test scores} \times .017) - 2.084$$

#### 4.3.5.9 Normality Distribution of Residuals for Social Studies:

4.3.5.10 Assuming accuracy of the normal distribution of residuals is common in linear regression analysis (Field 2013), but this assumption can be disregarded in situations wherein analysis involves large samples (Amin 2008). In any case, this recommendation was inapplicable to the current work given that the histogram of standardised residuals (Figure 22) and the normal P-P plot of the regression standardised residual (Figure 23) indicated the residual distribution to be close to normal distribution.

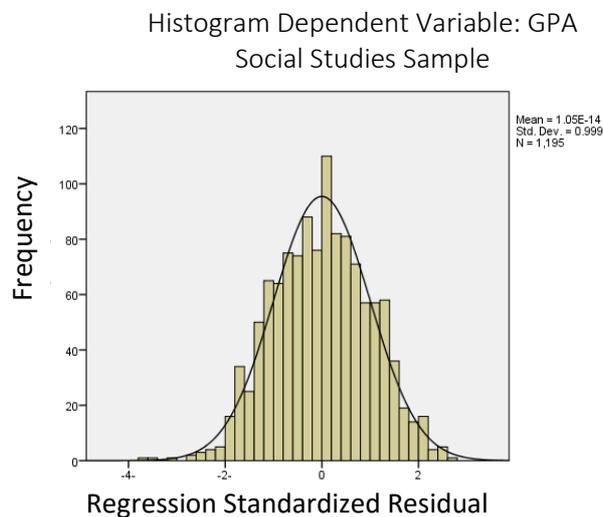


Figure 22 Histogram of Standardised Residuals of Social Studies Sample.

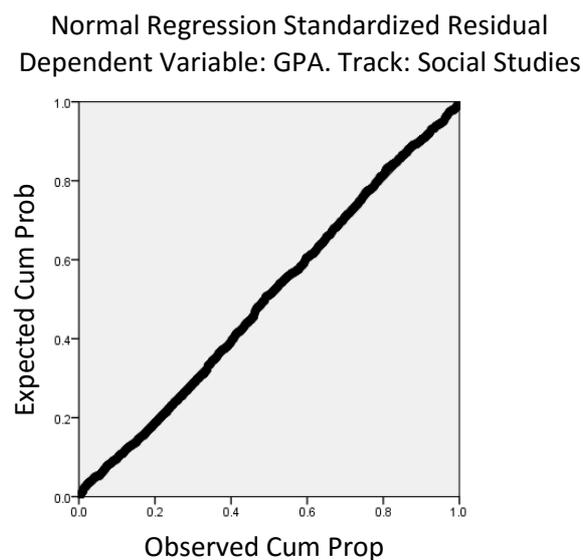


Figure 23 Normal P- Plot of Regression Standardised Residual of Social Studies Sample

#### **4.3.5.11 Comparison of Health Sciences, Natural Sciences and Social Studies:**

All the three admission criteria predicted student GPA in the preparatory year under the natural sciences and social studies tracks, but the predictive ability of capability test scores was statistically non-significant in the health sciences programme. All three differed with respect to the magnitude and sequence of predictive power. The criteria explained approximately 46%, 39% and 31% of the variance in GPA under natural sciences, social studies and health sciences, respectively. Predictive power was stronger under natural sciences than social studies and health sciences. With regard to sequence, achievement test scores ranked first under the health sciences, and natural sciences tracks. Conversely, capability test scores placed first in social studies but third in the natural sciences track. In all the three tracks, high school marks ranked second in terms of power.

#### **4.4 Student Assessment of Programme Components (Student Questionnaire)**

This section presented the quantitative findings derived via an online questionnaire that was intended to illuminate the students' perspectives regarding the effectiveness of the preparatory year programme. This was related to answer the RQ 'From the perspectives of students, how effective is the preparatory year programme for each track and gender within each branch?'

The sub-questions are as follows:

- What are the students' evaluations of the programme's main elements (academic content, trainers, methods of evaluation, academic advising and university environment)?
- To what extent does the programme achieve its goals?
- What is the relationship between the subjects offered in the programme and its goals?
- Do the students significantly differ in their evaluations of the programme's main elements in relation to branch?
- Do the students significantly differ in their assessments of the programme's main elements in relation to gender?

As explained in the Methodology chapter, the questionnaire was designed and implemented for the pilot and final surveys. A Google application was used to ease interaction with the respondents, who reside in Saudi Arabia. It also fully supported the Arabic language, which was the language used to communicate with the participants. The decision to use the application was also informed by advice from the technical deanship of the Information Technology College at Taibah University. The Dean assisted the research by distributing the questionnaires to all the target respondents by email and text messaging, which were accredited by the university as appropriate tools of communication with students.

The student questionnaire consisted of two main themes. The first dealt with the evaluation of the programme in dimensions of academic content, trainers, assessment methods, academic advising, university environment and the extent to which programme goals are achieved. A five-point Likert scale ('strongly agree' to 'strongly disagree') was used to rate the items. The second theme explored the relationship between academic subjects and the goals of the PYP as perceived by the students. The five-point scale ranged from 'very strongly related' to 'not related'. Of the 68 items, twelve items were devoted to academic content, fourteen items were designed to measure trainer performance, five items were related to assessment methods, seven items were related to academic advising, twelve items were intended to assess university environment, five items measured programme goals achievement and thirteen items revolved around the relationship between academic subjects and goals.

Gender, branch and track were treated as stand-alone variables. Data were analysed using SPSS (v. 21), and descriptive statistics were adopted to examine demographic data and viewpoints. Microsoft Excel (v. 2013) was used to generate graphs.

#### **4.4.1 Sample of Students Survey**

An online-based questionnaire was administered to 5224 students in July 2013. The questionnaire was completed by 1972 students, representing a response rate of 38%. Of these, 281 belonged to the health sciences track, 1087 were enrolled in the natural sciences programme and 604 belonged to the social studies track. Table 36 and Figures 24, 25 shows the composition of the student sample in terms of university branch and gender.

Table 36 Students Survey Sample Description

Branch	Tracks						Total
	Health		Natural		Social studies		
Madinah	Male	92	Male	262	Male	197	1237
	Femal	189	Femal	272	Femal	225	
Yanbu	Male	—	Male	113	Male	22	404
	Femal	—	Femal	178	Femal	91	
Alula	Male	—	Male	130	Male	29	331
	Femal	—	Femal	132	Femal	40	
Total	281		1087		604		1972

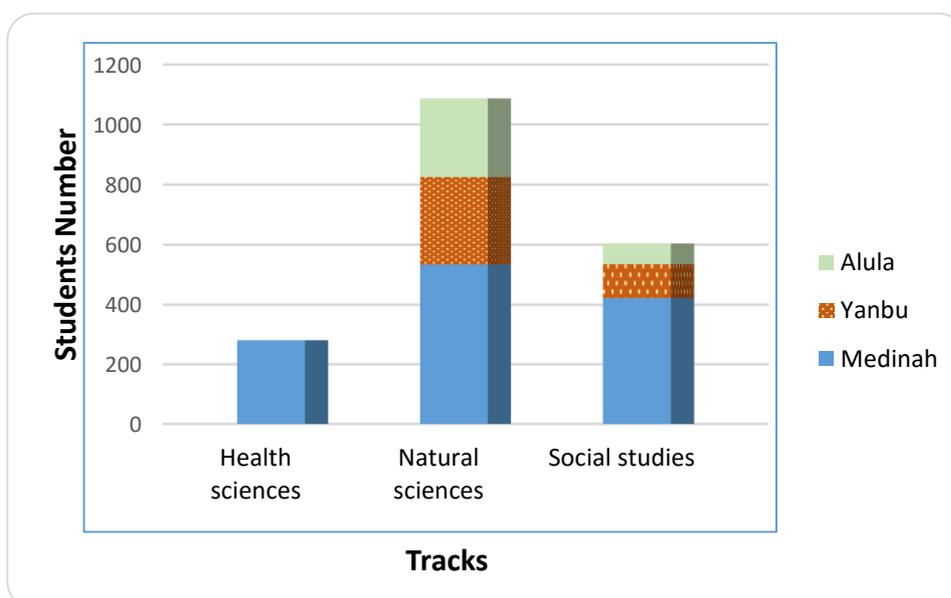
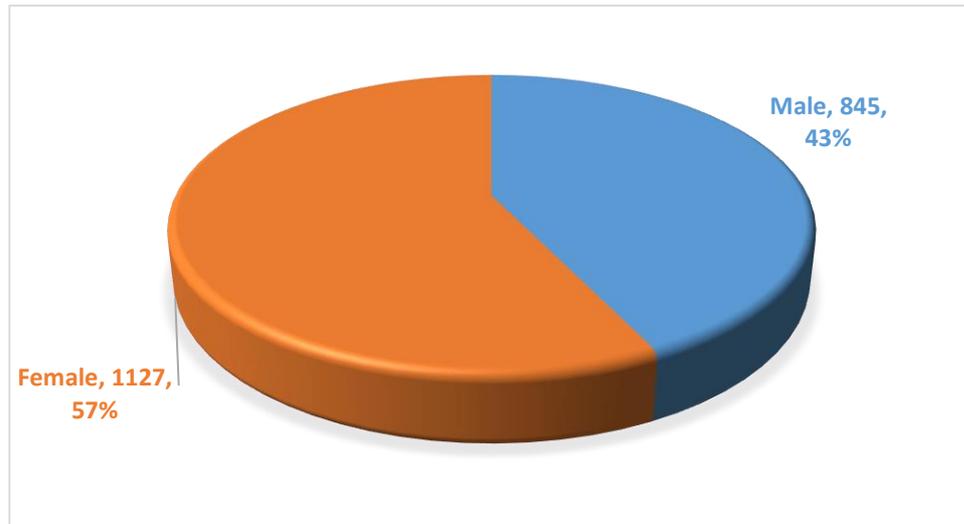


Figure 24 Tracks / Branches Breakdown: Students Survey Sample



*Figure 25 Gender Breakdown: Students Survey Sample*

#### **4.4.2 Dealing with Missing Data**

Missing data were minimal and did not exceed five in any of the cases. Nevertheless, Tabachnick and Fidell (2001) caution that missing data patterns are more important than the quantities of missing data. To precisely determine the extent of missing data, the author conducted Little's missing completely at random (MCAR) test (Little 1988) and found that data in the study were unaccounted for in an entirely randomly. The author, however, moderated the cautionary attitude by stating that randomly missing data cause minor problems. Expectation maximisation (EM) was recommended by Schafer and Graham (2002) as a method for addressing missing data. In the current research, statistical analysis was carried out to calculate the percentages of frequencies, means and standard deviations for each item and for an entire axis; a t-test was conducted to compare averages on the basis of gender, and one-way ANOVA was performed to compare means on the basis of branch. Finally, posthoc tests that were based on the ANOVA results were conducted when needed. Tables and charts were created to illustrate the data analysis.

#### **4.4.3 Reliability:**

The internal consistency and reliability of the scales for academic content, trainers, assessment methods, academic advising, university environment and extent to which programme goals are achieved were verified. Cronbach's alpha was adopted to assess the internal consistencies of the scales; the results were as follows: academic content

= .917, trainers = .926, assessment methods = .843, academic advising = .914, university environment = .903 and programme goals achievement = .924 (Table 37). These values showed that all the items were highly internally consistent.

*Table 37 Cronbach's Alpha of Students Survey Axis*

axis	Cronbach's Alpha	Mean	Std. Deviation
Academic content	.917	2.70	.884
Assessment of trainers	.926	3.13	.887
Assessment methods	.843	2.89	.960
Academic advice	.914	2.73	1.149
University	.903	2.25	.915
Achieving goals	.924	3.16	.884

#### **4.4.4 Theme I, Part 1: Student Assessment of Academic Content**

This section discussed the evaluation of the programme in terms of academic content. The questionnaire comprised 12 items, which were rated on a five-point Likert scale (1 = 'neutral', 6 = 'disagree'). The averages are listed in Table 38 in descending order according to the mean of each item. The table also shows that the weighted mean value of the students' views regarding academic content was 2.70 ('neutral'). Moreover, the mean scores of the criteria for evaluation ranged from 3.23 ('neutral') to 2.18 ('disagree'). The highest evaluation was for the item on content supplementing and developing the knowledge and academic skills of the students, whereas the lowest was that for the suitability of content units regarding length. Six items received mean scores corresponding to 'disagree', whereas the rest of the items received scores corresponding to 'neutral'. Items whose mean scores corresponded to the former were related to content-based decisions to promote understanding, content and consistency of ideas in subjects, encouragement of student-trainer interaction, the appeal of subjects, relevance to student specialisation and subject length.

Table 38 Student assessment of programme academic content

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
12. The contents added to my knowledge and raised my academic skills.	17.0	9.1	24.2	34.0	15.8	3.23	1.301	Neutral
10. The language of contents is sound, clear and error-free.	13.9	13.7	22.4	37.8	12.3	3.21	1.232	Neutral
3. Contents would be useful to me as a reference in the future	18.9	12.0	24.2	32.9	12.2	3.07	1.296	Neutral
8. Contents contains a series of exercises and problems that develop different thinking skills	18.0	20.0	31.2	25.2	5.6	2.80	1.166	Neutral
2. It is easy to understand the content of academic subjects which they are clear	16.7	27.9	22.7	28.4	4.3	2.76	1.160	Neutral
11. There is diversity in course content.	24.3	23.9	20.9	23.7	7.2	2.66	1.272	Neutral
6. There is activities in contents decisions to understanding	26.8	22.3	24.6	12.2	5.1	2.56	1.231	Disagree
4. Contents ideas are consistent and coherent	25.3	25.7	24.9	18.3	5.9	2.54	1.214	Disagree
7. Contents encourage me to interact with the trainer in light of educational material	27.2	25.3	26.3	16.0	5.3	2.47	1.195	Disagree
1. Contents of preparatory year subjects are interesting	24.4	27.5	29.9	15.3	3.1	2.45	1.108	Disagree
9. Contents are suitable for my specialist area.	33.5	24.0	13.4	23.7	5.4	2.44	1.310	Disagree
5. Contents units are suitable in terms of length	37.1	28.2	17.3	14.5	2.9	2.18	1.162	Disagree
Students opinion about the content of the preparatory year						2.70	.8844	Neutral

#### 4.4.4.1 Student assessment of academic content–gender differences:

The means derived on the basis of branch on this axis were as follows: Madinah = 2.71, Yanbu = 2.571 and Alula = 2.81. One-way ANOVA was run to determine whether differences in means existed amongst the three branches (Pallant 2013). Table 40 shows a  $p = .001$  (less than 0.5%), indicating that at least two averages were

unequal. That is, students' opinions regarding programme content differed in at least two branches.

*Table 39 T test Results - Differences between Means of Male and Female Views about the Programme Content.*

t	df	means		Sig. P value
		Male	Female	
2.432	1970	2.75	2.65	.015

#### 4.4.4.2 Student Assessment of Academic Contents–Branch Differences:

The means derived on the basis of branch on this axis are as follows: Madinah = 2.71, Yanbu = 2.571 and Alula = 2.81. One-way ANOVA was run to determine whether differences in means exists amongst the three branches (Pallant 2013). Table 40 shows a  $p = .001$  (less than 0.5%), indicating that at least two averages are unequal. That is, students' opinions regarding programme content differ in at least two branches.

*Table 40 One-way ANOVA Results - Differences between Branches Means of Students' Views about the Programme Content*

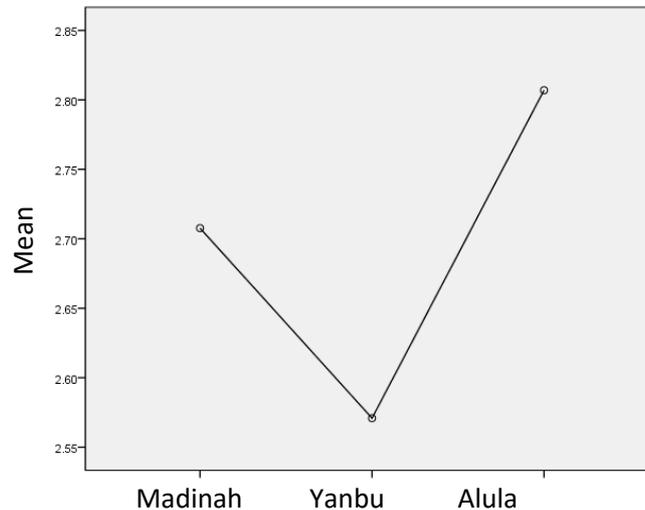
	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	10.567	2	5.283	6.794	.001
Within Groups	1531.140	1969	.778		
Total	1541.707	1971			

Given the statistically significant difference, the posthoc test results were reviewed to examine further the differences amongst the three branches (Pallant 2013). Statistically significant differences occurred in the means of Madinah and Yanbu ( $p = .007$ ) and in the means of Alula and Yanbu ( $p = .000$ ) (Table 41). By contrast, no statistically significant differences were found between Madinah and Alula ( $p = .069$ ).

*Table 41 Posthoc Results - Differences between Branches Means of Students' Views about the Programme Content.*

	Mean Difference	Sig.
Madinah - Yanbu	.1368	.007
Madinah - Alula	-.099	.069
Yanbu - Alula	-.236	.000

Figure 26 graphically depicts the differences in means amongst the three branches on this axis.



*Figure 26 Branch Mean Scores of Students' Views about Programme Content*

#### **4.4.5 Theme I, Part 2: Student Assessment of Trainers**

This section presented the students' views about the programme trainers. The questionnaire contained 14 items, which are listed in Table 42 in descending order according to the mean of each item, as well as the percentages of frequencies, means and standard deviations of each item and the entire axis. The overall mean was 2.88 ('neutral'). The ratings of the criteria for evaluation ranged from 3.7 ('neutral') to 2.59 ('disagree'). The highest-scored criteria were the adequacy and appropriateness of trainer appearance, the availability of trainers during office hours and the trainers' commitment to lecture dates. These three items received means that corresponded to 'agree'. The other items, except one, received 'neutral' average scores. The only item with which the students disagreed was the diversification of trainers in their teaching methods.

Table 42 Student Assessment of Trainers

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
11. Trainer appearance adequate and well-groomed.	8.2	4.5	22.0	39.7	25.7	3.70	1.143	agree
8. Trainer is mostly available during office hours.	8.2	10.3	30.0	30.9	20.7	3.46	1.165	agree
6. Trainer is committed to the dates of the beginning and the ending of lectures.	14.2	11.0	17.3	31.0	26.4	3.44	1.361	agree
3. Trainer focuses on the key points in the lesson.	13.2	10.3	26.6	36.4	13.5	3.26	1.211	Neutral
9. Trainer is fluent in contacting and dialoging with students.	12.8	12.6	25.3	35.9	13.5	3.25	1.215	Neutral
12. Trainer encourages outstanding work of students.	14.6	10.8	30.4	26.0	18.3	3.23	1.277	Neutral
14. Trainer deals with students in an open manner.	13.4	7.4	33.7	34.8	10.6	3.22	1.157	Neutral
13. Trainer encourages the spirit of creativity and scientific thinking in his students.	15.5	14.8	27.3	26.8	15.6	3.12	1.283	Neutral
4. Trainer explains the lesson in a coherent and seamless method.	15.9	14.1	25.2	33.3	11.5	3.10	1.249	Neutral
10. Trainer uses assistive technology during the explanation in a proper way.	15.5	16.3	27.4	30.2	10.6	3.04	1.227	Neutral
1. Trainer taught scientific material efficiently.	15.9	21.2	27.2	21.9	13.8	2.96	1.272	Neutral
2. Trainer begins and terminates lessons in distinct manner.	20.3	23.4	30.4	18.2	7.8	2.70	1.204	Neutral
5. Trainer takes into account the different levels of students.	28.9	17.5	22.5	19.7	11.5	2.67	1.371	Neutral
7. Trainer diversifies in the use of teaching methods.	21.7	29.8	25.2	14.3	9.1	2.59	1.227	Disagree
Students opinion about the programme Trainers						2.88	.887	Neutral

#### 4.4.5.1 Student Assessment of Trainers – Gender differences:

A t-test was run to determine whether differences in means existed amongst the students' assessments of trainers on the basis of gender. A  $p = .600$  was derived, indicating no statistically significant differences in means between males and female on this axis. (Table 43)

Table 43 T test Results - Differences between Means of Male and fFemale Students' Views about the Programme Trainers.

t	df	means		Sig. P value
		Male	Female	
.525	1970	3.14	3.12	.600

#### 4.4.5.2 Student Assessment of Trainers – Branch Differences:

On this axis, the means of the branches were as follows: Madinah = 3.19, Alula = 3.03 and Yanbu = 2.99. To determine whether differences in means existed amongst them, one-way ANOVA was performed (Pallant 2013). The p-value was .000 (less than 0.5%), indicating that at least two means were unequal (Table 44). That is, the students' opinions regarding the programme trainers differed in at least two branches of the university.

*Table 44 One-way ANOVA Results - Differences between Branches Means of Students' Views about the Programme Trainers*

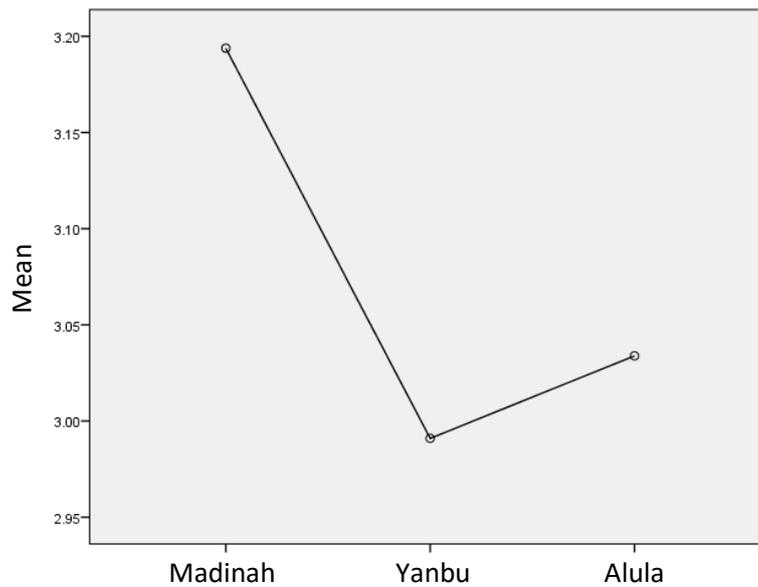
	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	15.864	2	7.932	10.176	.000
Within Groups	1534.803	1969	.779		
Total	1550.667	1971			

The statistically significant difference prompted a review of the posthoc tests to identify differences amongst the branches (Pallant 2013). Table 45 shows statistically significant differences in means were found between Madinah and Yanbu ( $p = .000$ ) and between Madinah and Alula ( $p = .003$ ). Conversely, no statistically significant differences were found between Yanbu and Alula ( $p = .512$ ).

*Table 45 Posthoc results - Differences between Branches Means of Students' Views about the Programme Trainers.*

	Mean Difference	Sig.
Madinah - Yanbu	.203	.000
Madinah - Alula	.160	.003
Yanbu - Alula	-.043	.512

Figure 27 illustrates the differences amongst the means of the branches with respect to trainer performance.



*Figure 27 Branch Mean Scores of Students' Views about Trainers*

#### **4.4.6 Theme I, Part 3: Student Assessment of Programme Assessment Methods**

This section revolved around the students' views on the assessment methods adopted in the programme. A seven-item questionnaire was administered to the respondents. Table 46 displays the items in descending order according to the mean of each item and the percentages of frequencies, means and standard deviations of each item and the entire axis. The overall mean of the students' views about assessment methods was 2.89 ('neutral'). The ratings of the criteria for evaluation ranged from 3.37 ('neutral') to 2.50 ('disagree'). The highest-scored criteria were those related to knowledge of test dates and hall locations and the appropriateness of test timing. The means of five items corresponded to a 'neutral' rating. The mean scores of the timely receipt of grades and differences in evaluation methods adopted corresponded to a 'disagree' rating.

Table 46 Students Opinion about the Programme Assessment

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
7. I know the dates of the tests and the location of halls at an appropriate time.	16.9	9.1	17.6	33.2	23.2	3.37	1.375	Neutral
6. Time of the tests are appropriate.	19.6	12.4	16.5	35.0	16.5	3.16	1.376	Neutral
5. Tests atmosphere is comfortable.	21.9	17.7	21.0	29.1	10.3	2.88	1.320	Neutral
2. Test questions cover content of the subjects.	22.1	23.0	15.6	24.5	14.8	2.87	1.391	Neutral
1. Exam question types are appropriate.	19.0	19.0	25.7	28.7	7.6	2.87	1.234	Neutral
4. I get my grades in a timely manner.	32.1	17.1	19.6	22.6	8.6	2.58	1.361	Disagree
3. Different methods evaluation were used.	29.4	26.9	14.9	21.4	7.4	2.50	1.307	Disagree
Students opinion about the programme						2.89	.960	Neutral

#### 4.4.6.1 Students' Opinions about Assessment Methods – Gender Differences:

A t-test was performed to determine any gender-based differences in means amongst the students' assessments of trainers. A  $p = .718$  was derived, indicating that no statistically significant differences occurred between males and females on this axis (Table 47).

Table 47 T test results - differences between means of male and female students' views about the programme Assessment.

t	df	means		Sig. P value
		Male	Female	
.361	1970	2.90	2.89	.718

#### 4.4.6.2 Students' Opinions about Assessment Methods – Branch Differences:

On this axis, the means of the branches were 2.97 for Yanbu, 2.91 for Madinah and 2.73 for Alula. To determine whether differences in means occurred amongst the branches, one-way ANOVA was run (Pallant 2013). Table 48 shows a  $p = .001$  (less than 0.5%), which indicated that at least two mean scores were unequal. In other words, the students' perspectives regarding assessment methods varied in at least two branches of the university.

*Table 48 one-way ANOVA Results - Differences between Branches Means of Students' Views about the Programme Assessment Methods.*

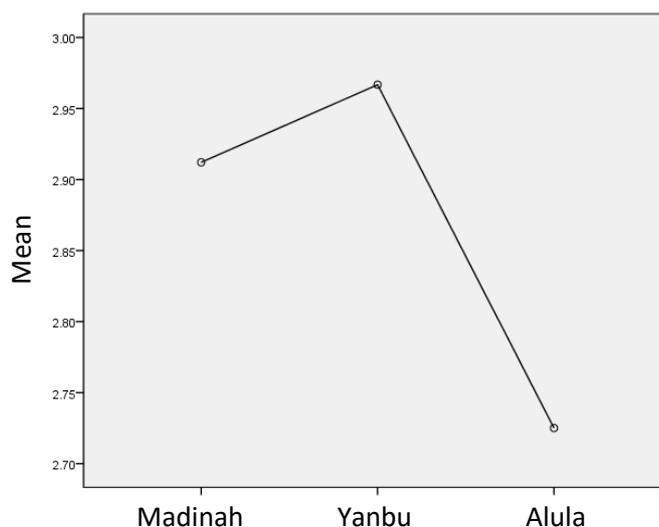
	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	11.981	2	5.991	6.537	.001
Within Groups	1804.491	1969	.916		
Total	1816.473	1971			

The posthoc test results were reviewed to ascertain the differences amongst the branches. Statistically significant differences in means were found between Madinah and Alula ( $p = .002$ ) and between Yanbu and Alula ( $p = .001$ ); by contrast, no statistically significant differences were found between Madinah h and Yanbu ( $p = .319$ ) (Table 49).

*Table 49 Posthoc Results - Differences between Branches Means of Students' Views about the Programme Assessment.*

	Mean Difference	Sig.
Madinah h - Yanbu	-.055	.319
Madinah – Alula	.187	.002
Yanbu - Alula	-.242	.001

Figure 28 depicts the assessment-based differences in mean scores amongst the students' opinions.



*Figure 28 Branch mean Scores of Students' Views about Assessment Methods*

#### 4.4.7 Theme I, Part 4: Students' Perspectives on Academic Advising

This section discussed the students' standpoints regarding academic advising, for which five items were provided in the questionnaire. Table 50 lists the items in descending order according to the mean of each item and the percentages of frequencies, means and standard deviations for each item and the entire axis. The overall mean of the students' outlooks regarding academic advising was 2.73 ('neutral'). The ratings of the criteria for evaluation ranged from 2.98 ('neutral') to 2.32 ('disagree'). The highest-scored criteria were those pertaining to the availability of the academic advisor and his or her efforts at individually and collectively communicating with students. Three of the five items generated a mean score corresponding to 'neutral'. The two items whose mean scores were equivalent to 'disagree' were those related to the support that students obtain from the academic advisor and his or her classroom visits.

*Table 50 Student Opinion in Academic Advice.*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
2. Academic advisor is continuously available to respond to my questions.	20.6	2.4	27.9	26.7	12.5	2.98	1.310	Neutral
3. Academic advisor communicates with students individually and collectively.	21.9	12.1	28.3	24.3	13.6	2.96	1.334	Neutral
1. Academic advice is effective and useful.	25.3	11.8	29.2	18.4	15.4	2.87	1.383	Neutral
5. Students get great support from the academic advisor.	34.0	16.3	26.9	10.4	12.5	2.51	1.375	Disagree
4. Academic advisor visits to the students inside the classroom.	35.3	21.8	25.5	10.3	7.2	2.32	1.250	Disagree
Student opinion in academic advice.						2.73	1.15	Neutral

##### 4.4.7.1 Students' Opinions about Academic Advising – Gender Differences:

A t-test was performed to identify any gender-based differences in means amongst the students' assessments of academic advising. Statistically significant differences in favour of males were found (Table 51).

*Table 51 T test Results - Differences between Means of Male and Female Students' Views about the Programme Advice.*

t	df	means		Sig. P value
		Male	Female	
4.110	1670.264	2.85	2.63	.000

#### 4.4.7.2 Students' Opinions about Academic Advising – Branch Differences:

On this axis, the means of Madinah, Yanbu and Alula were 2.84, 2.58 and 2.51, respectively. As in the previous analyses, one-way ANOVA was run to determine differences in means amongst the branches (Pallant 2013). Table 52 shows a  $p = .000$  (less than 0.5%) was obtained, indicating that at least two means were unequal. Put differently, the students' opinions about academic advising varied in at least two branches.

*Table 52 One-way ANOVA Results - Differences between Branches Means of Students' Views about the Programme Advice.*

	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	39.144	2	19.572	15.041	.000
Within Groups	2562.125	1969	1.203		
Total	2601.269	1971			

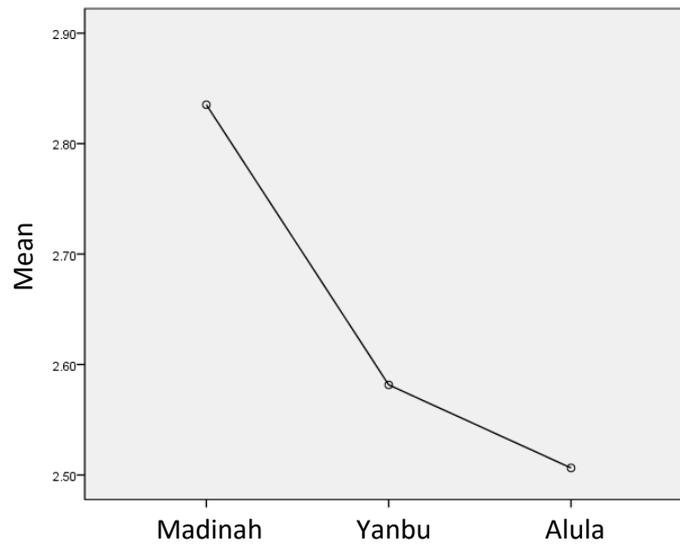
Again, the posthoc test results were examined to ascertain differences amongst the branches. The means of Madinah and Yanbu ( $p = .000$ ) and those of Madinah and Alula ( $p = .000$ ) exhibited statistically significant differences, whereas those of Yanbu and Alula ( $p = .374$ ) showed no such variances (Table 53).

*Table 53 Posthoc results - Differences between Branches Means of Students' Views about the Programme Advice.*

	Mean	Sig.
Madinah h - Yanbu	.2537	.000
Madinah - Alula	.329	.000
Yanbu - Alula	.752	.374

The differences in means amongst the branches are graphically represented in Figure 29.

*Figure 29 Branch Mean Scores of Students' Views about Academic Advising*



#### **4.4.8 Theme I, Part 5: Students' Perspectives on University Environment**

This section dealt with the students' views about university environment, whose questionnaire contains 12 items. Table 54 presents the items in descending order according to the mean of each item and the percentages of frequencies, means and standard deviations for each item and the entire axis. The overall mean of the students' perspectives regarding university environment was 2.25 ('disagree'). The ratings of the criteria for evaluation ranged from 3.05 ('neutral') to 1.78 ('strongly disagree'). The highest-scored criteria were those that pertained to the ease with which the university's electronic registration system is used and the sufficiency and appropriateness of computer labs. The mean scores of these items were equivalent to 'neutral', whereas those of the rest, except one, corresponded to 'disagree'. The only item to which a rating of 'strongly disagree' was assigned was the availability of stadiums and halls for sports and recreational activities.

*Table 54 Students Opinion about the University Environment.*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
10. It is easy to use the electronic registration system of the university.	21.8	8.3	24.8	33.7	11.4	3.05	1.322	Neutral
5. Computer labs sufficient and appropriate.	28.2	20.3	15.6	19.6	16.3	2.76	1.456	Neutral
11. In case of any problem using the electronic registration system it is easy to communicate with technical support.	27.4	14.9	39.7	11.8	6.3	2.55	1.187	Disagree
3. Devices within classrooms operate efficiently in most cases.	34.2	20.2	19.2	17.7	8.7	2.47	1.346	Disagree
6. Library provides adequate sources and	46.7	17.5	16.0	13.2	6.5	2.15	1.312	Disagree
2. Lighting, ventilation and classroom environment are conducive to understanding and learning.	47.8	17.4	18.6	6.6	9.6	2.13	1.333	Disagree
1. Classrooms are comfortable and clean and its area is appropriate.	47.7	22.0	11.8	10.4	8.1	2.09	1.317	Disagree
4. Laboratories are properly equipped.	50.8	13.8	23.9	3.0	8.5	2.05	1.276	Disagree
12. Food and beverages facilities provide appropriate services and meet the needs	52.8	16.7	11.0	12.5	7.0	2.04	1.331	Disagree
7. Library provides an appropriate places for viewing and reading.	48.7	10.3	9.2	14.4	7.3	2.01	1.383	Disagree
8. Library provides adequate and sufficient computers for reading and research.	57.3	14.6	12.0	11.0	5.1	1.92	1.261	Disagree
9. Stadiums and halls are available for practicing sports and recreational activities.	64.7	13.3	7.7	7.9	6.4	1.78	1.253	Strongly disagree
Students opinion about PYP Environment						2.25	.915	Disagree

#### **4.4.8.1 Student Assessment of University Environment – Gender Difference:**

A  $p = .000$  was derived, indicating statistically significant differences between males and females in favour of the former (Table 55). This result was attributed to the fact that the male mean was the highest on this axis.

*Table 55 T test Results - Differences Between Means of Male and Female Students' Views about the University Environment.*

t	df	means		Sig. P value
		Male	Female	
9.172	1618.664	2.47	2.09	.000

#### 4.4.8.2 Student Assessment of University Environment – Branch Differences:

On this axes, the means of the branches were 2.32, 2.13 and 2.13 for Madinah, Alula and Yanbu, respectively. The one-way ANOVA results showed a  $p = .000$ , less than 0.5%, which signified that at least two means were unequal (Table 56). That is, the students' perspectives regarding university environment varied in at least two branches of the institution.

*Table 56 One-way ANOVA Results - Differences between Branches Means of Students' Views about the University Environment*

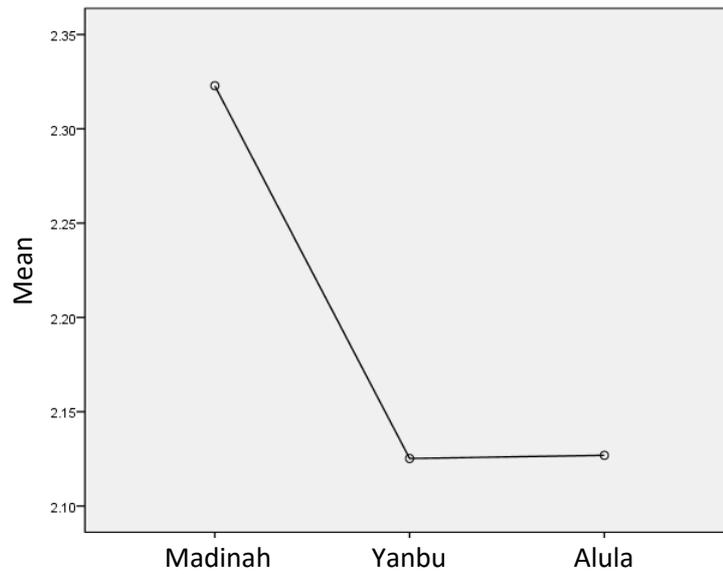
	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	17.868	2	8.934	10.771	.000
Within Groups	1633.180	1969	.829		
Total	1651.048	1971			

The posthoc test results (Table 57) showed that statistically significant differences existed in the means of Madinah and Yanbu ( $p = .000$ ) and Madinah and Alula ( $p = .000$ ). No such differences were found between Yanbu and Alula ( $p = .980$ ).

*Table 57 Posthoc Results - Differences between Branches Means Students' Views about the University Environment.*

	Mean Difference	Sig.
Madinah - Yanbu	.198	.000
Madinah - Alula	.196	.001
Yanbu - Alula	-.0017	.980

Figure 30 illustrates the differences amongst the means of the three branches in relation to student assessment of university environment.



*Figure 30 Branch Mean scores of Students' Views about University Environment*

#### **4.4.9 Theme I, Part 6: Students' Perspectives on the Achievement of Programme Goals**

This section centred on whether the students regarded the programme as successfully achieving its goals. The analysis was directed towards five programme goals, which are arranged in Table 58 in descending order according to the mean of each item, as well as the percentages of frequencies, means and standard deviations for each item and the entire axis. The overall mean of the students' views on goals achievement was 2.40 ('disagree'). The means of the items ranged from 2.42 to 2.37, which corresponded to a rating of 'disagree'.

Table 58 Students Opinion about the Programme Achieving Goals

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
3. The programme directs students to the appropriate college given their abilities and skills.	35.4	20.9	18.3	17.3	8.1	2.42	1.336	Disagree
4. The programme promotes the outstanding academic performance of the students.	29.2	23.4	28.5	13.5	5.1	2.41	1.186	Disagree
2. The programme provides a well-developed course with high quality standards.	29.5	24.9	26.5	14.0	5.2	2.41	1.192	Disagree
1. The preparatory year programme contributes to deepening the Islamic and national identity through the curriculum and student activities.	37.2	17.1	22.6	15.8	7.3	2.39	1.318	Disagree
5. The programme provides a high-quality learning environment to improve the outcome of university education.	34.5	21.7	22.2	16.1	5.7	2.37	1.259	Disagree
Students opinion about the programme achieving goals.						2.398	1.10	Disagree

#### 4.4.9.1 Assessment of Goals Achievement – Gender Differences:

The p value obtained was .000, indicating statistically significant differences between males and females in favour of the former (Table 59). Again, this finding was attributed to the male mean being the highest on this axis.

Table 59 T test Results - Differences between Means of Male and Female Students' Views about the Programme Achieving Goals.

t	df	means		Sig. P value
		Male	Female	
5.286	1610.541	2.55	2.28	.000

#### 4.4.9.2 Assessment of Goals Achievement – Branch Differences:

The means of Alula, Madinah and Yanbu were 2.62, 2.41 and 2.20, respectively. The one-way ANOVA yielded a p = .000, or less than 0.5%, signifying that at least two

means were unequal (Table 60). In other words, the means of students' points of view regarding goals achievement varied in at least two branches of the institution.

*Table 60 One-way ANOVA Results - Differences between Branches Means of Students' Views about the Programme Achieving Goals.*

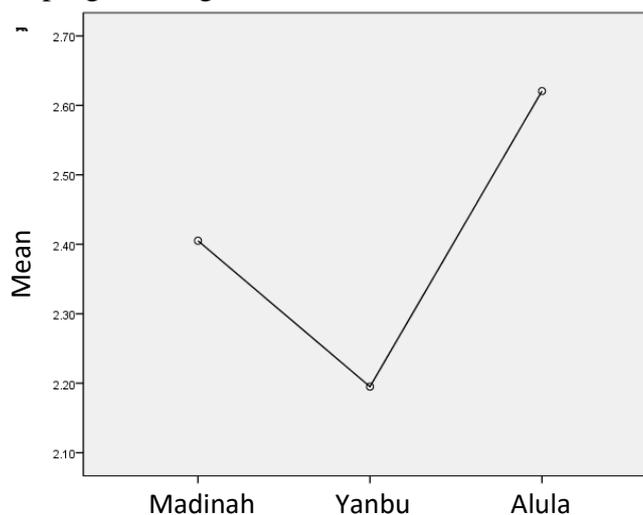
	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	33.096	2	16.548	13.757	.000
Within Groups	2368.486	1969	1.203		
Total	2401.583	1971			

The posthoc test results (Table 61) pointed to statistically significant differences in the means of Madinah and Yanbu ( $p = .001$ ), Madinah and Alula ( $p = .002$ ) and Yanbu and Alula ( $p = .000$ ).

*Table 61 Posthoc Results - Differences between Branches Means Students' Views about Achieving Goals.*

	Mean Difference	Sig.
Madinah - Yanbu	.210	.001
Madinah - Alula	-.215	.002
Yanbu - Alula	-.425	.000

Figure 31 represents the differences amongst the means of the branches in terms of the achievement of programme goals.



*Figure 31 Differences amongst the Means of the Branches in Relation to Goals Achievement*

#### 4.4.10 Theme II: Student Assessment of the Relationship between Academic Subjects and Programme Goals

This theme revolved around the relationship between academic subjects and the goals of the preparatory year programme as viewed by the students. The analysis was directed towards 13 programme subjects, which were classified according to different tracks. The items were rated on a five-point Likert scale, where one corresponded to 'not related' and 5 indicated 'very strongly related'. The subjects were enumerated in Table 62 in descending order according to the means of the programme goals as determined by the students' viewpoints and the percentages of frequencies, means and standard deviations for each subject and the entire axis. The overall mean of the students' perspectives in this regard was 3.16 ('moderately related'). The top five subjects on mean scores were Medical Terminology, Principles of Human Physiology, Principles of Human Anatomy, Ethics for Health Professions and Chemistry for Health Sciences. All these subjects are offered only in the health sciences track. The subjects with the lowest mean was Engineering Technology (2.49 = 'slightly related').

Table 62 Students Opinion about Relationship between Subjects and the Goals

	N	No Related	Slightly Related	Moderately Related	Strongly Related.	Very Strongly R.	Mean	Std. Deviation	
		%	%	%	%	%			
Medical terminology	270	4.4	9.3	26.3	26.3	60.0	4.37	.978	Very Strongly
Principles of human physiology	269	1.9	2.6	14.5	27.5	53.5	4.28	.935	Very Strongly
Principles for Human Anatomy	269	4.5	4.5	10.0	27.5	53.5	4.21	1.08	Very Strongly
Ethics for health professions	270	6.3	3.0	11.5	23.7	55.6	4.19	1.15	Strongly
Chemistry for Health Sciences	268	6.3	9.7	19.4	37.7	26.9	3.69	1.15	Strongly
Computer Skills	197	9.4	9.3	25.2	25.2	30.9	3.59	1.27	Strongly
English language	197	11.6	13.9	16.6	27.7	30.2	3.51	1.35	Strongly
Mathematics	107	20.2	15.7	15.6	30.1	18.5	3.11	1.41	Moderately
University study skills	197	21.9	19.2	13.9	24.1	20.8	3.03	1.46	Moderately
Health education and leisure	196	21.5	23.1	13.7	14.4	27.2	3.03	1.52	Moderately
Basic Science	105	24.9	11.8	17.6	35.3	10.5	2.95	1.37	Moderately
Physics for Health Sciences	268	20.5	9.0	40.3	17.2	13.1	2.93	1.26	Moderately
Engineering Technology	108	42.5	9.7	18.9	13.6	15.3	2.49	1.51	Slightly
Students opinion about relationship between subjects and the goals							3.16	.884	Moderately Related

#### 4.4.10.1 Student Assessment of Relationship between Academic Subjects and Goals – Gender Differences:

Table 63 reflects a  $p = .000$ , which indicated significant statistical differences between males and female in favour of the former with respect to the relationship between academic subjects and goals. This finding was attributed to the male mean being the highest on this axis.

*Table 63 T test Results - Differences between Means of Male and Female Views about the Relationship between Subjects and Goals.*

t	df	means		Sig. P value
		Male	Female	
4.948	1680.532	3.27	3.07	.000

#### 4.4.10.2 Student assessment of relationship–branch differences:

On this axis, the means of the branches were 3.24 for Alula, 3.17 for Madinah and 3.06 for Yanbu. The one-way ANOVA generated a  $p = .000$  (less than 0.5%), indicating that at least two mean scores were unequal (Table 64). That is to say, the students' views regarding the relationship between academic subjects and goals varied in at least two branches of the university.

*Table 64 One-way ANOVA results - Differences between Branches Means of Students' Views about the Relationship between Subjects and Goals.*

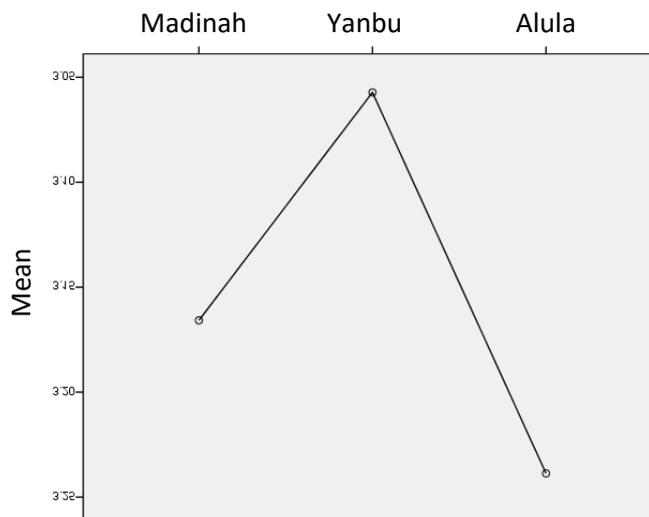
	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	6.325	2	3.162	4.059	.017
Within Groups	1534.163	1969	.779		
Total	1540.488	1971			

The posthoc test results (Table 65) revealed statistically significant differences in the means of Madinah and Yanbu ( $p = .032$ ) and Yanbu and Alula ( $p = .006$ ); no such variances were found between Madinah and Alula ( $p = .182$ ).

*Table 65 Posthoc Results - Differences between Branches Means Views about the Relationship between Subjects and Goals.*

	Mean Difference	Sig.
Madinah - Yanbu	.109	.032
Madinah - Alula	-.073	.182
Yanbu - Alula	-.181	.006

The differences amongst the means of the branches with regard to the relationship between academic subjects and goals are graphically shown in Figure 32.



*Figure 32 Differences between Branches Means Views about the Relationship between Subjects and Goals.*

#### **4.5 Trainer Assessment of Programme Components (Trainers Questionnaire).**

This section related to the effectiveness of the PYP, as viewed from the perspectives of trainers. The following sub-questions were presented to the respondents:

From your perspective, how do trainers evaluate the programme's main elements (academic content, academic advising and university environment)?

- In your opinion, to what extent does the programme achieve its goals?
- What is the relationship between the subjects offered in the programme and its goals?

- Is there a significant difference amongst trainers in their evaluations of the programme's main elements with respect to the branch variable?
- Is there a significant difference amongst trainers in their evaluations of the programme's main elements in relation to the gender variable?

The trainer questionnaire was also designed and implemented using Google Docs for the pilot and final surveys. The deanship of the Information Technology College at Taibah University distributed the questionnaires to all the programme trainers via email and text messaging.

The questionnaire consisted of two main themes. The first centred on the evaluation of the programme in the dimensions of academic content, assessment methods, academic advising, university environment and the extent of goals achievement. The five-point Likert scale ranged from 'strongly agree' to 'strongly disagree'. The second theme was intended to investigate the relationship between the academic subjects taught by the trainers and the goals of the PYP, as understood by the trainers. In the five-point Likert scale for this questionnaire, the ratings ranged from 'very strongly related' to 'not related'. The 37 questionnaire items included twelve items that measured academic content, twelve items related to assessment methods, seven items related to academic advising, twelve items associated with university environment, five items measuring the achievement of programme goals and one item related to the relationship between academic subjects and goals

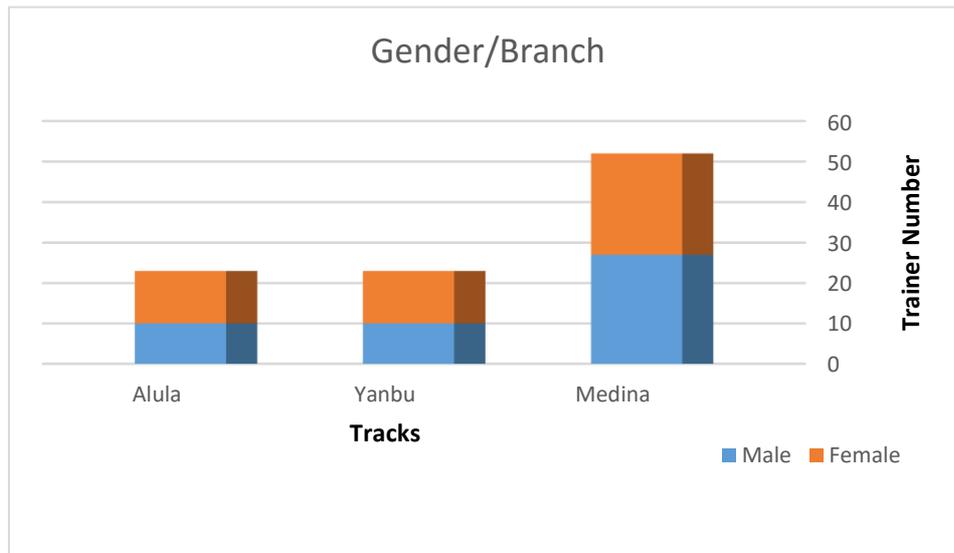
Gender, branch and specialisation were treated as stand-alone variables. Data analysis was conducted using SPSS (v. 21). Descriptive statistics were used to examine demographic data and the trainers' viewpoints, and Microsoft Excel 2013 was used to generate graphs.

#### **4.5.1 Sample of trainers Survey**

An online-based questionnaire was administered to 240 trainers in July 2013. Table 66 shows that 98 trainers completed the questionnaire, representing a response rate of 41%. Figure 33 shows the distribution of the respondents by campus assignment and gender.

*Table 66 Trainers Sample Description*

	Male	Female	total
Madinah	27	25	52
Yanbu	10	13	23
Alula	10	13	23
Total	47	51	98



*Figure 33 Tracks / Branches Breakdown: Trainer Survey Sample*

#### **4.5.2 Dealing with Missing Data:**

Minimal data were missing and did not exceed three in any of the cases. Reiterating, Tabachnick and Fidell's (2001) recommend that missing data patterns are more critical than the quantities of missing data. The author carried out Little's MCAR test (Little 1988) but also explained that only a few problems arose from data missing in random fashion. Another method for resolving the issue of missing data is EM (Schafer and Graham 2002). In the current research, this problem was addressed through statistical analysis for the calculation of the percentages of frequencies, means and standard deviations for each item and the entire axis; a t-test for the gender-based comparison of averages; and one-way ANOVA for the comparison of means by branch. Post-hoc tests based on the ANOVA results were also performed when necessary.

### 4.5.3 Reliability:

The internal consistency and reliability of academic content, assessment methods, academic advising, university environment and extent of goals achievement were verified (Table 67). The Cronbach's alpha values were .950 for academic content, .781 for assessment methods, .926 for academic advising, .903 for university environment and .914 for goals achievement. These findings demonstrated the high internal consistency of the scales.

*Table 67 Cronbach's Alpha of Trainers' Survey Axis*

axis	Cronbach's	Mean	Std.
Academic content	.950	3.16	.921
Assessment	.781	2.87	.719
academic advice	.926	2.81	1.079
University	.903	.242	.763
achieving goals	.914	2.62	1.404

As previously explained, the core themes explored in the trainers' questionnaires were the evaluation of the programme in relation to academic content, academic advising, university environment and extent of goals achievement and the relationship between academic subjects and programme goals. Table 68 shows the distribution of the study sample by specialisation.

*Table 68 Trainers' Specialization*

Specialization	Frequency	Percent
English language	32	32.7
Computer Skills.	12	12.2
Health education and leisure.	6	6.1
University study skills.	9	9.2
Principles of human physiology.	1	1.0
Chemistry for Health Sciences.	1	1.0
Medical terminology.	1	1.0
Principles for Human Anatomy.	2	2.0
Physics for Health Sciences.	2	2.0
Ethics for health professions.	2	2.0
Mathematics.	12	12.2
Basic Science.	11	11.2
Engineering Technology.	7	7.1
Total	98	100.0

#### **4.5.4 Theme I, Part 1: Trainers' Assessment of Academic Content**

The questionnaire for the trainers' evaluation of the programme's academic content comprised 12 items, which were rated on a five-point Likert scale. The means of these items are displayed in Table 69 in descending order according to the mean of each item. The weighted mean value of the trainers' views regarding academic content was 3.16 ('neutral'). The mean scores of the criteria for evaluation ranged from 3.39 to 2.87 ('neutral'). The highest rating was conferred to the consideration of continuity in subject content, and the lowest was given to the suitability of content organisation to student's needs. All the items received mean scores corresponding to 'neutral'.

Table 69 Trainers' Assessment of Aprogramme Academic Content

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
10. Contents take into account students levels and their mental abilities.	9.2	2.0	42.9	32.7	13.3	3.39	1.052	Neutral
11. Language of contents sound, clear and error-free.	8.2	8.2	39.8	26.5	17.3	3.37	1.116	Neutral
12. Textbooks are appropriate and well organized.	12.2	15.3	10.2	53.1	9.2	3.32	1.206	Neutral
3. Contents' ideas are consistent and coherent.	9.2	11.2	46.9	18.4	14.3	3.17	1.103	Neutral
6. Contents encourage students to interact with the trainer in light of educational material.	8.2	19.4	36.7	18.4	17.3	3.17	1.176	Neutral
2. It is easy to identify the scientific objectives of the contents.	16.3	8.2	36.7	21.4	17.3	3.15	1.279	Neutral
4. Contents' Units are suitable in terms of length.	10.2	14.3	43.9	14.3	17.3	3.14	1.175	Neutral
8. Contents are relevant to intended purposes.	10.2	14.3	39.8	23.5	12.2	3.13	1.127	Neutral
1.Contents of preparatory year courses suit the needs of students.	14.3	8.2	39.8	28.6	9.2	3.10	1.144	Neutral
5. Activities in contents help to achieve learning goals.	9.2	16.3	42.9	21.4	10.2	3.07	1.077	Neutral
7. Contents contain a series of exercises and problems that develop student's thinking skills.	15.3	12.2	32.7	32.7	7.1	3.04	1.166	Neutral
9. The organization and arrangement of the content suitable to student's needs.	16.3	13.3	43.9	20.4	6.1	2.87	1.109	Neutral
Trainers' opinion about the content of the preparatory year						3.16	.920	Neutral

#### 4.5.4.1 Trainers' Assessment of Academic Content – Gender Differences:

A t-test was conducted to determine gender-oriented differences amongst the means of the trainers' assessment of academic content. Statistically significant differences were found in favour of females (Table 70).

Table 70 T test Results - Differences between Means of Male and Female Views about the Programme Content.

t	df	means		Sig. P value
		Male	Female	
.394	96	3.12	3.20	.007

#### 4.5.4.2 Trainers' Assessment of Academic Content – Branches Differences:

The means of the branches were 3.90, 2.97 and 2.86 for Alula, Madinah and Yanbu, respectively. Differences amongst the three branches were determined by one-way ANOVA (Pallant 2013), which generated a  $p = .000$  (less than 0.5%). This value indicated that at least two averages were unequal. That is, the mean scores of the trainers' opinions on the content of the preparatory year programme varied in two branches of the university. (Table 71)

*Table 71 One-way ANOVA Results - Differences between Branches Means of Trainers' Views about the Programme Content*

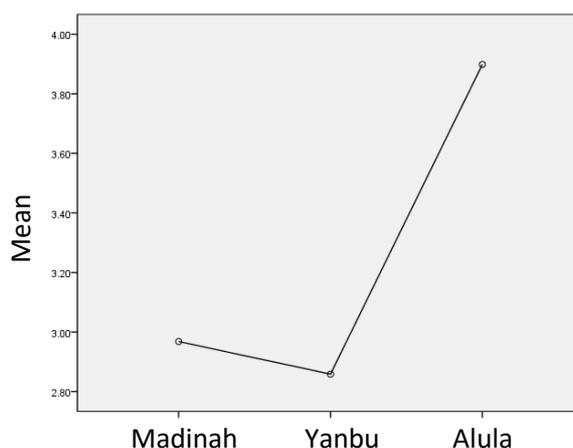
	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	16.551	2	8.276	11.966	.000
Within Groups	65.702	95	.692		
Total	82.253	97			

Statistically significant differences in means were found between Madinah and Alula ( $p = .000$ ) and between Yanbu and Alula ( $p = .000$ ), but no such differences were found between Madinah and Alula ( $p = .601$ ) (Table 72).

*Table 72 Posthoc Results - Differences between Branches Trainers' Views about the Programme Content.*

	Mean Difference	Sig.
Madinah - Yanbu	.109	.601
Madinah - Alula	-.931	.000
Yanbu - Alula	-1.040	.000

The differences amongst the branches are graphically represented in Figure 34.



*Figure 34 Branch Mean Scores of Trainers' Views about Programme Content*

#### 4.5.5 Theme I, Part 2: Trainers' Perspectives on Assessment Methods

The trainers were administered a seven-item questionnaire on their views regarding the assessment approaches adopted in the programme. The descending arrangement of the items in Table 73 was implemented according to the mean of each item, as well as the percentages of frequencies, means and standard deviations for each item and the entire axis. The overall mean of the trainers' perspectives about assessment methods was 2.87 ('neutral'), and the ratings of the criteria for evaluation ranged from 3.64 ('agree') to 1.62 ('disagree'). The highest-scored criterion was the comfort of testing atmosphere. The means of four items corresponded to 'neutral', and the mean of the variety of assessment methods used was equivalent to 'disagree'.

*Table 73 Trainers' Opinion about the Programme Assessment Methods*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
5. Tests atmosphere is comfortable.	3.1	4.1	39.8	31.6	21.4	3.64	.966	agree
7. Students know the dates of the tests and the location of halls at an appropriate time.	22.4	6.1	9.2	45.9	16.3	3.28	1.420	Neutral
4. Students get grades in a timely manner.	7.1	17.3	43.9	21.4	10.2	3.10	1.040	Neutral
2. Test questions cover content of the subjects.	14.3	9.2	38.8	28.6	9.2	3.09	1.150	Neutral
6. Time of the tests is appropriate for students.	10.2	18.4	54.1	9.2	8.2	2.87	1.001	Neutral
1. Exam question types are appropriate for students.	19.4	37.8	22.4	16.3	4.1	2.48	1.105	Disagree
3. Different methods evaluation were used.	61.2	18.4	18.4	1.0	1.0	1.62	.891	Disagree
Trainers' opinion about the programme Assessment						2.87	.719	Neutral

#### 4.5.6 Trainers' Opinions about Assessment Methods – Gender Differences:

A t-test was performed to identify any gender-oriented differences amongst the means of the trainers' assessments. The generated p value was .383, indicating that no statistically significant differences existed between the male and female trainers. (Table 74).

*Table 74 T test results - differences between means of male and female Trainers' Views about the Programme Assessment.*

t	df	means		Sig. P value
		Male	Female	
.876	96	.280	.293	.383

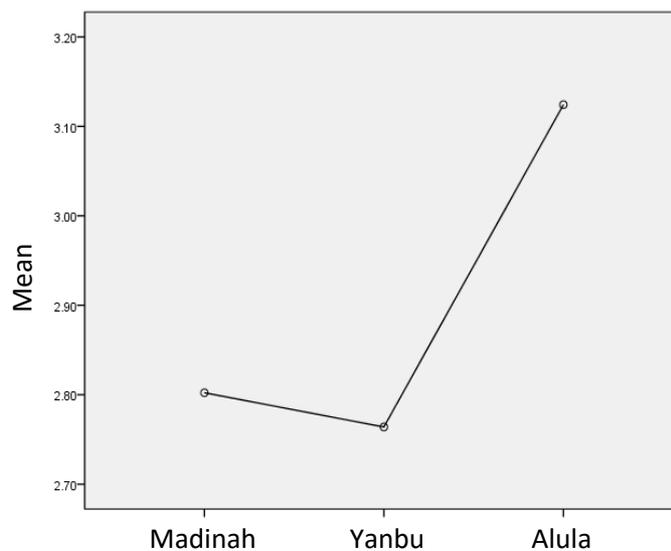
#### **4.5.6.1 Trainers' Opinions about Programme Assessment Methods – Branch Differences:**

On this axis, the mean scores of the branches were 3.12 for Alula, 2.80 for Madinah and 2.76 for Yanbu. Differences amongst the branches were determined by one-way ANOVA (Pallant 2013). Table 75 shows that  $p = .147$  (higher than 0.5%), which denotes that no significant branch-based differences existed amongst the trainers.

*Table 75 One-way ANOVA Results - Differences between Branches Means of Trainers' Views about the Programme Assessment.*

	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	1.984	2	.992	1.955	.147
Within Groups	48.207	95	.507		
Total	1816.473	97			

Figure 35 depicts the differences amongst the means of the three branches with respect to the trainers' opinions regarding the assessment axis.



*Figure 35 Branch Mean Scores of Trainers' Views on Assessment Methods*

#### 4.5.7 Theme I, Part 3: Trainers' Opinions Regarding Academic Advising

A five-item questionnaire was distributed to the trainers to obtain insights into how they viewed academic advising under the PYP. Table 76 presents the items in descending order according to the mean of each item and the percentages of frequencies, means and standard deviations for each item and the entire axis. The overall mean score of the views regarding academic advising was 2.81 ('neutral'), and the ratings of the criteria for evaluation ranged from 3.20 ('neutral') to 2.34 ('disagree'). The highest-scored criteria were the support derived by trainers from the academic advisor and the efforts of the advisor to individually and collectively communicate with students. Three of the five items exhibited a mean score equivalent to 'neutral'. The items that exhibited mean scores corresponding to 'disagree' were the effectiveness and utility of academic advising and the classroom visits conducted by the advisor.

*Table 76 Trainers' Opinion in Academic Advice.*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
5. Trainers find great support from the academic advisor.	25.5	5.1	8.2	45.9	15.3	3.20	1.457	Neutral
3. Academic advisor communicates with students individually and collectively.	11.2	13.3	44.9	21.4	9.2	3.04	1.083	Neutral
2. Academic advisor is continuously available to respond to my questions.	15.3	12.2	44.9	20.4	7.1	2.92	1.109	Neutral
1. Academic advice is effective and useful.	21.4	39.8	12.2	16.3	10.2	2.54	1.278	Disagree
4. Academic advisor visits the students inside the classroom.	24.5	42.9	14.3	11.2	7.1	2.34	1.175	Disagree
Trainers' opinion in academic advice.						2.8	1.079	Neutral

##### 4.5.7.1 Trainers' opinions about academic advising—gender differences:

A t-test showed statistically significant gender-based differences amongst the mean scores of the trainers' perspectives on academic advising, with the difference oriented towards females (Table 77).

*Table 77 T test Results - Differences between Means of Male and Female Trainers' Views about the Programme Advice.*

t	df	means		Sig. P value
		Male	Female	
2.747	96	2.51	3.09	.007

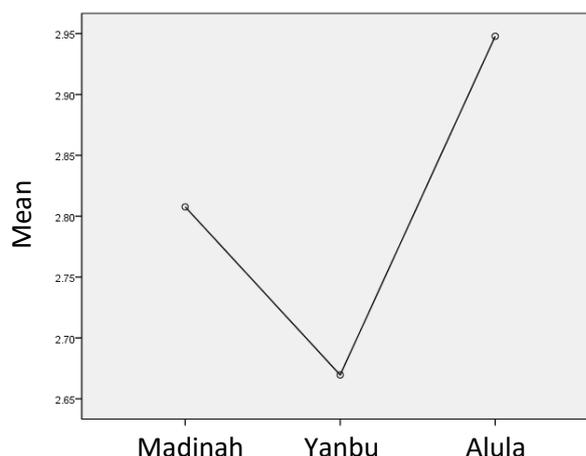
#### **4.5.7.2 Trainers' Opinions About Academic Advising – Branch Differences:**

The means of the branches were 2.95, 2.81 and 2.67 for Alula, Madinah and Yanbu, respectively. The one-way ANOVA generated a  $p = .686$  (higher than 0.5%), indicating that no significant differences existed amongst the means of the three branches with respect to academic advising (Table 78).

*Table 78 One-way ANOVA Results - Differences between Branches Means of Trainers' Views about the Programme Advice.*

	Sum of	df	Mean Square	F	Sig. P
Between Groups	.890	2	.445	.378	.686
Within Groups	111.983	95	1.179		
Total	112.873	97			

Figure 36 shows the differences amongst the means of the branches.



*Figure 36 Branch Mean Scores of Trainers' Views about Academic Advising*

#### **4.5.8 Theme I, Part 4: Trainers' Perspectives on University Environment**

The questionnaire on university environment contained 12 items, which are arranged in Table 79 in descending order according to the mean of each item and the percentages of frequencies, means and standard deviations for each item and the entire axis. The

overall mean score of the teachers' views regarding university environment was 2.31 ('disagree'). The criteria for evaluation received ratings of 2.83 ('neutral') to 1.54 ('strongly disagree'). The highest-scored criteria were the sufficiency and appropriateness of computer labs and the ease with which faculty can communicate with technical support regarding problems in the electronic registration system. Four items scored means that were equivalent to 'neutral, and the rest, except one, generated mean scores corresponding to 'disagree. Appropriately equipped laboratories were the only item that received a score corresponding to 'strongly disagree'.

*Table 79 Trainers' Opinion About the Programme Environment.*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
5. Computer labs sufficient and appropriate.	12.2	18.4	52.0	9.2	8.2	2.83	1.036	Neutral
11. In case of any problem using the electronic registration system it is easy to communicate with technical support.	23.5	13.3	36.7	12.2	14.3	2.81	1.321	Neutral
3. Devices within classrooms operate efficiently in most cases.	11.2	45.9	10.2	27.6	5.1	2.69	1.143	Neutral
10. It is easy to use the electronic registration system of the university.	21.4	18.4	41.8	10.2	8.2	2.65	1.167	Neutral
7. Library provides an appropriate places for viewing and reading.	37.8	9.2	34.7	16.3	2.0	2.36	1.204	Disagree
1. Classrooms are comfortable and clean and its area is appropriate.	29.6	16.3	45.9	6.1	2.0	2.35	1.036	Disagree
2. University environment characterized by health standards such as lighting and ventilation.	18.4	51.0	14.3	11.2	5.1	2.34	1.064	Disagree
6. Library provides adequate sources and references.	35.7	16.3	37.8	10.2	0	2.22	1.051	Disagree
9. Stadiums and halls are available for practicing sports and recreational activities.	45.9	13.3	36.7	4.1	0	1.99	1.000	Disagree
8. Library provides adequate and sufficient computers for reading and research.	37.8	33.7	25.5	1.0	2.0	1.96	.930	Disagree
12. Food and beverages facilities provide appropriate services and meet the needs	43.9	35.7	10.2	4.1	6.1	1.93	1.124	Disagree
4. Laboratories are properly equipped.	67.3	14.3	16.3	1.0	1.0	1.54	.875	Strongly disagree
Trainers' opinion about PYP Environment						2.31	.720	Disagree

#### 4.5.8.1 Trainers' Assessment of University Environment – Gender Differences:

A  $p = .766$  was derived, indicating that no statistically significant differences were found between the opinions of the male and female trainers (Table 80).

*Table 80 T test Results - Differences between Means of Male and Female Trainers' Views about the Programme Environment.*

t	df	means		Sig. P value
		Male	Female	
.299	96	2.33	2.28	.766

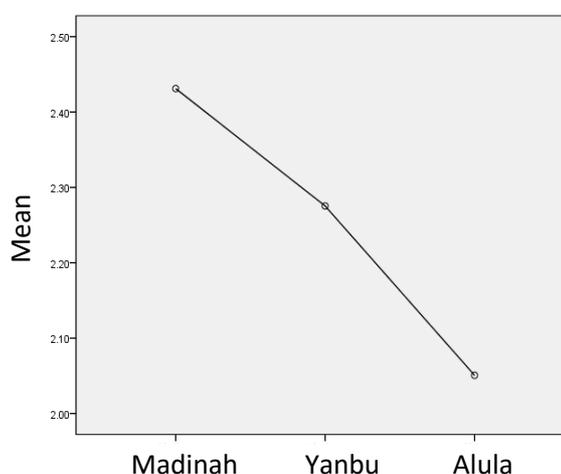
#### 4.5.8.2 Trainers' Assessment of University Environment – Branch Differences:

On this axis, the means of the branches were as follows: Madinah = 2.43, Yanbu = 2.27 and Alula = 2.05). Table 81 shows the  $p$  value of .105 (higher than 0.5%), which denoted no significant differences amongst the mean scores of the three branches with respect to the university environment.

*Table 81 One-way ANOVA Results - Differences between Branches Means of Trainers' Views about the Programme Environment*

	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	2.334	2	1.167	2.310	.105
Within Groups	47.999	95	.505		
Total	50.333	97			

The differences amongst the mean scores of the branches of Trainers' views about the programme environment are illustrated in Figure 37.



*Figure 37 Branch Mean Scores of Trainers' Views about University Environment*

#### 4.5.9 Theme I, Part 5: Trainers' Perspectives on Goals Achievement

The questionnaire on goals achievement focused on five of the programme's goals. In Table 82, the goals are listed in descending order according to the mean of each item and the percentages of frequencies, means and standard deviations for each item and the entire axis. The overall mean score of the trainers' opinions regarding goals achievement was 2.62 ('neutral'). Three of the items received 'neutral' ratings, and two received 'disagree' ratings. The means ranged from 2.22 to 2.94.

*Table 82 Trainers' Opinion about the Programme Achieving Goals*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	
	%	%	%	%	%			
3. The programme directs students' to the appropriate college given their abilities and skills.	19.4	24.5	15.3	14.5	16.3	2.94	1.391	Neutral
2. The programme provides a well-developed course with high quality standards.	13.3	15.3	51.0	20.4	0	2.79	.922	Neutral
5. The program provides a high-quality learning environment to improve the outcome of university education.	19.4	23.5	30.6	22.4	4.1	2.68	1.145	Neutral
4. The programme promotes the outstanding academic performance of the students.	20.4	37.8	21.4	16.3	4.1	2.46	1.114	Disagree
1. The preparatory year programme contributes to deepening the Islamic and national identity through the curriculum and student activities.	43.9	22.4	14.3	6.1	13.3	2.22	1.411	Disagree
Trainers' opinion about the programme achieving goals.						2.62	1.044	Neutral

##### 4.5.9.1 Trainers' Perspectives on Goals Achievement – Gender Differences:

No statistically significant differences between the male and female trainers were found, as determined from the p value of .434, derived using a t-test (Table 83).

*Table 83 T test Results - Differences between Means of Male and Female Trainers' Views about the Programme Achieving Goals.*

t	df	means		Sig. P value
		Male	Female	
.786	96	2.70	2.53	.434

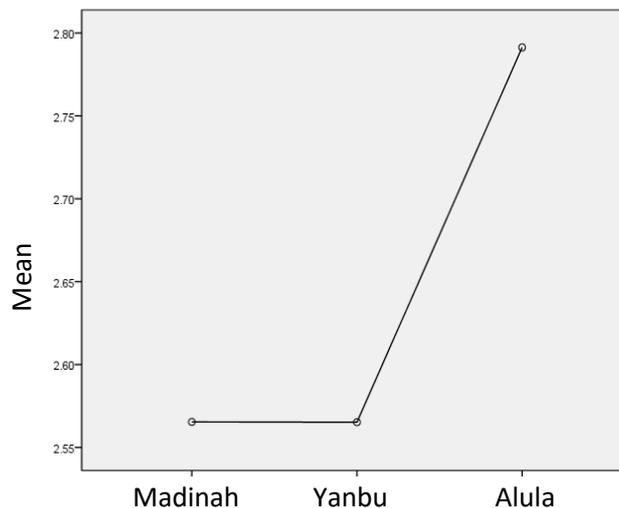
**4.5.9.2 Trainers' perspectives on goals achievement–branch differences:**

The mean scores of the branches were 2.79 for Alula, 2.57 for Madinah and 2.57 for Yanbu. The p value of .667 (higher than 0.5%) indicated that the mean scores of the three branches exhibited no significant differences (Table 84).

*Table 84 One-way ANOVA Results - Differences between Branches Means of Trainers' Views about the Programme Achieving Goals.*

	Sum of Squares	df	Mean Square	F	Sig. P value
Between Groups	.899	2	.449	.407	.667
Within Groups	104.788	95	1.103		
Total	105.687	97			

Figure 38 presents the differences amongst the means of the three branches with regard to goals achievement.



*Figure 38 Differences amongst the Means of the Branches in Relation to Goals Achievement*

#### 4.5.10 Theme II: Perspectives of Trainers’ on the Relationship between Academic Subjects and Programme Goals

This section discussed the relationship between academic subjects and programme goals, as viewed by the trainers. The questionnaire includes items on 13 subjects, which were classified under the different tracks. The items were rated on a five-point Likert scale, wherein 1 indicated ‘not related’ and 5 corresponded to ‘very strongly related’. Table 85 lists the subjects in descending order according to the mean of the programme’s goals, as determined from perspectives of the trainers, as well as the percentages of frequencies, means and standard deviations for each subject and the entire axis. The overall mean of the trainers’ views about the subject–goals relationship was 2.76 (‘moderately related’). The top three subjects in terms of mean scores were Ethics for Health Professions, Health Education and Leisure and Computer Skills. The lowest-scoring subject was Engineering Technology (1.86 = ‘slightly related’).

*Table 85 Trainers’ Opinion about Relationship between Subjects and the Goals*

	N	No. Related	Slightly	Moderately	Strongly	Very Strongly	Mean	Std. Deviation	
		%	%	%	%	%			
Ethics for health professions	2	0	0	50	50	0	3.50	.707	Very Strongly
Health education and leisure.	6	0	0	66.7	33.3	0	3.33	.516	Very Strongly
Computer Skills.	12	0	8.3	66.7	25.0	0	3.17	.577	Very Strongly
Principles of human physiology	1	0	0	100	0	0	3.00		Strongly Related
Chemistry for Health	1	0	0	100	0	0	3.00		Strongly Related
Principles for Human Anatomy	2	0	50	0	50	0	3.00	1.41	Strongly Related
University study skills	9	0	33.3	44.4	22.2	0	2.89	.782	Strongly Related
Mathematics	12	16.7	0	66.7	16.7	0	2.83	.937	Moderately
Basic Science	11	0	36.4	45.5	18.2	0	2.82	.751	Moderately
English language	32	21.9	21.9	34.4	21.9	0	2.56	1.08	Moderately
Physics for Health Sciences	2	0	50	50	0	0	2.50	.707	Moderately
Medical terminology.	1	0	100	0	0	0	2.00		Moderately
Engineering Technology	7	57.1	0	42.9	0	0	1.86	1.07	Slightly
Trainers’ opinion about relationship between subjects and the goals	98	13.3	18.4	48.0	20.4	0	2.76	.931	Moderately

**4.5.10.1 Trainers’ Opinions about the Relationship between Subjects and Goals – Gender Differences:**

Table 86 shows a  $p = .588$ , which signified no statistically significant differences between the male and female trainers on how they viewed the relationship between academic subjects and programme goals.

*Table 86 T test Results - Differences between Means of Male and Female Trainers’ Views about the Relationship between Academic Subjects and PYP Goals.*

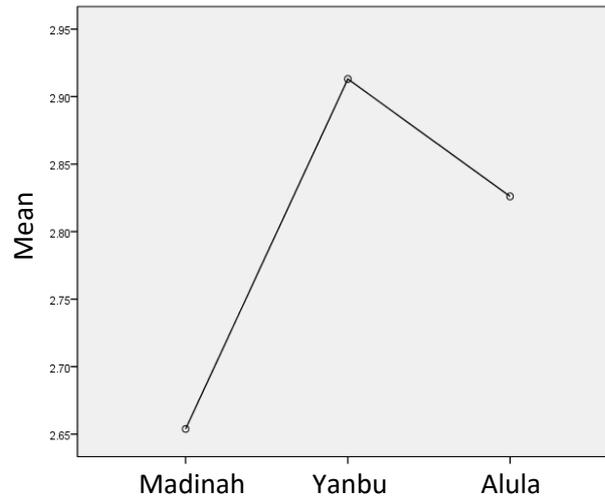
t	df	means		Sig. P value
		Male	Female	
.543	96	2.81	2.71	.588

**4.5.10.2 Trainers’ Opinions about the Relationship between Subjects and Goals – branch Differences:**

The means of the branches were 2.91, 2.83 and 2.65 for Yanbu, Alula and Madinah, respectively. The one-way ANOVA yielded a  $p = .499$  (higher than 0.5%), indicating that no significant differences were found amongst the means of the three branches in relation to the trainers’ opinions about the relationship between academic subjects and programme goals (Table 87). The results are graphically depicted in Figure 39.

*Table 87 One-way ANOVA results - Differences between Branches Means of Trainers’ Views about the Relationship between Academic Subjects and Goals.*

	Sum of	df	Mean Square	F	Sig.	P
Between Groups	1.223	2	.611	.701	.499	
Within Groups	82.900	95	.873			
Total	84.122	97				



*Figure 39 Differences amongst the Means of the Branches in Terms of Subject – Goals Relationship*

#### **4.6 Faculty Members’ Views Regarding the Effectiveness of the Preparatory Year Programme (Faculty Member Questionnaire)**

This section related to the faculty’s perspectives concerning the difference in academic efficiency between graduates of the preparatory year programme and students who have not enrolled in the programme. The specific skills of these groups of students were compared. Additionally, the analysis was directed towards determining whether the faculty members significantly differed in their opinions in relation to gender.

The survey was designed and implemented using Google Docs for both the pilot and final surveys, and the questionnaires were distributed to the respondents by the deanship of the Information Technology College via email and text messaging.

The faculty members’ questionnaire included 25 items, amongst which 24 covered the skills and knowledge critical to student performance. A five-point Likert scale was used by the respondents to rate the items. The ratings ranged from ‘no difference’ to ‘very big difference’. Item 25 covered the overall views of the faculty regarding the effects of the programme on students. For this item, the scale ranged from 1 = ‘no effect’ to 5 = ‘very positive effect’.

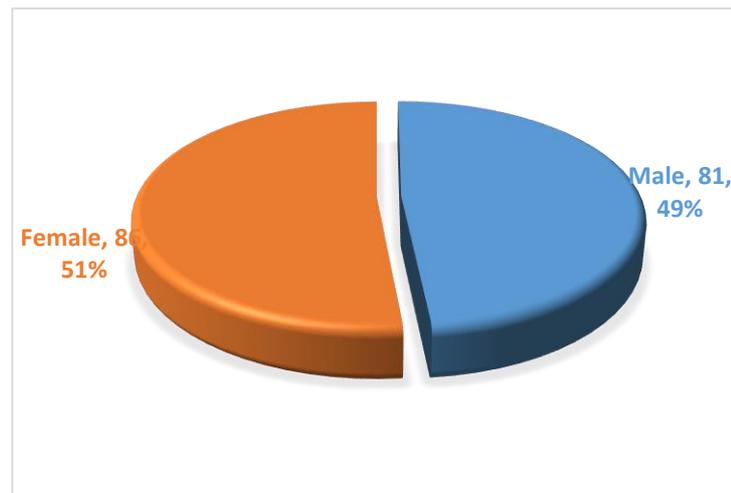
Gender was treated as a stand-alone variable. The analysis was conducted using SPSS (v. 21), and demographic data and the trainers' viewpoints were examined using descriptive statistics. Microsoft Excel (2013) was used to generate graphs.

#### 4.6.1 Sample of Faculty Members

An online-based questionnaire was distributed to the faculty members in July 2013. Table 88 shows 167 of faculty who completed the questionnaire, and Figure 40 shows their distribution by gender.

*Table 88 Faculty Members Sample Description.*

	Male	Female	total
Frequenc	81	86	167
Percent	48.5%	51.5%	100%



*Figure 40 Gender Breakdown: Faculty Members Sample*

#### 4.6.2 Dealing with Missing Data

Minimal data were missing, with few exceeding three in any of the cases. This study previously addressed the problem of missing data with reference to the recommendations of Tabachnick and Fidell (2001) and Schafer and Graham (2002). Specifically, statistical analysis for the calculation of the percentages of frequencies, means and standard deviations for each item and the entire axis and a t-test for comparing averages by gender were adopted.

#### **4.6.3 Reliability:**

The internal consistency and reliability of the scales were determined by Cronbach's alpha test. The Cronbach's alpha of the scales was .951, indicating high internal consistency.

#### **4.6.4 Differences in Academic Efficiency between the Two Types of Students:**

Table 89 lists the items in descending order according to the mean of each item and the percentages of frequencies, means and standard deviations for each and all the items. The weighted mean value of the 24 items was 2.74, which pointed to a difference in certain skills between programme graduates and students who have not enrolled in the PYP. The mean scores ranged from 3.78 ('big difference') to 2.30 ('slight difference'). Significant differences were found between the two types of students regarding computer use, English language skills and basic scientific skills. The nine items that exhibited mean scores equivalent to 'difference' were effective leadership, conscious interaction with the university environment and university study, conscious interaction with the environment and the needs and trends of the scientific and local communities, commitment to attendance, commitment and accountability, student independence and responsibility for his or her academics, student precision and planning, effective interaction in volunteer work and positive communication within groups. The rest of the items exhibited mean scores that corresponded to 'slight difference'.

Table 89 The Difference in Academic Efficiency between the Two Types of Students.

	No difference	Slight difference	Difference	Big difference	Very Big Difference	Mean	Std. Deviation	
	%	%	%	%	%			
2. computers using	1.2	12.0	31.7	18.0	37.1	3.78	1.11	Big difference
1.English writing, reading and conversation	2.4	23.4	19.2	24.6	30.5	3.57	1.21	Big difference
3. Basic scientific skills in studied course.	1.8	11.4	29.9	50.9	6.0	3.48	.842	Big difference
16. Effective Leadership.	7.2	25.7	42.5	12.6	12.0	2.96	1.08	difference
13. Conscious interaction with the university environment and university	19.8	13.8	29.9	24.0	12.6	2.96	1.30	difference
14. Conscious interaction with the environment and the needs and trends of the scientific and local community.	13.8	25.7	29.9	18.6	12.0	2.89	1.21	difference
23. Commitment to attendance.	19.2	18.6	26.3	29.9	6.0	2.85	1.22	difference
12. Commitment and accountability.	13.2	25.7	30.0	24.6	6.0	2.84	1.12	difference
22. Student independence and take himself responsibility.	19.2	25.1	37.7	12.0	6.0	2.79	1.14	difference
24. Student accustomed to precision and planning.	13.8	25.1	43.1	18.0	0	2.65	.931	difference
15. Effective interaction in volunteer	24.4	31.7	34.1	13.8	6.0	2.65	1.07	difference
7. Positive communication within groups (teamwork).	25.1	18.6	31.1	18.0	7.2	2.63	1.24	difference
21. Identify the abilities and potential.	19.2	25.1	37.7	12.0	6.0	2.60	1.11	Slight difference
9. Decision-making.	25.7	19.2	29.9	19.2	6.0	2.60	1.23	Slight difference
19. Responsibility towards national development.	13.2	19.8	61.1	6.0	0	2.60	.792	Slight difference
11. Ability to response to constructive	13.8	13.8	72.5	0	0	2.59	.722	Slight difference
5. Creative thinking and innovative and	19.8	37.1	13.2	29.9	0	2.53	1.12	Slight difference
20. With respect to the chosen scientific and career path.	30.5	13.8	37.1	12.6	6.0	2.50	1.22	Slight difference
4. Cooperative learning (with colleagues and other appropriate sources).	25.1	31.1	19.8	18.0	6.0	2.49	1.22	Slight difference
10. Ability to overcome problems and	19.8	37.1	30.5	6.6	6.0	2.42	1.07	Slight difference
17. Linking information with realistic applications.	25.1	25.7	43.1	6.0	0	2.37	.788	Slight difference
6. knowledge of scientific research.	25.2	31.7	31.1	6.0	6.0	2.36	1.10	Slight difference
8. Constructive dialogue.	32.3	24.6	24.0	13.2	6.0	2.36	1.23	Slight difference
18. Work ethic.	25.1	25.7	43.1	6.0	0	2.30	.915	Slight difference
all items						2.74	.750	difference

#### 4.6.4.1 Faculty Members Views Regarding Academic Efficiency– Gender Differences:

Table 90 shows a  $p = .421$ , which indicated no statistically significant differences between the male and female faculty members regarding how they viewed the academic efficiency of the two types of students.

*Table 90 the Difference in between the Two Types of Students by Gender.*

t	df	means		Sig. P value
		Male	Female	
.807	165	2.79	2.70	.421

#### 4.6.5 Faculty members’ overall view of programme effects:

Table 91 lists the mean, percentages of frequencies and standard deviation of the faculty members’ overall views on the impact of the programme on students. The weighted mean value was 3.43, which corresponds to ‘positive effects’.

*Table 91 Faculty Members Overall View of the Impact of the Programme on the Student.*

	No impact	Slightly positive	Moderately positive	Positive	Very positive	Mean	Std. Deviation	
	%	%	%	%	%			
Overall view of the impact of the programme on the student.	2.4	15.6	26.9	47.3	8.4	3.43	.935	positive

#### 4.6.5.1 Faculty Members’ Overall View of Programme Effects–Gender Differences:

Table 92 shows a  $p = .610$ , which denoted that no statistically significant differences were found between the male and female faculty members’ overall views regarding programme effects.

*Table 92 Faculty Members Overall View by Gender.*

t	df	means		Sig. P value
		Male	Female	
.511	162.018	3.47	3.40	.610

#### **4.7 Summary**

This chapter discussed the quantitative data analysis under four main sections. Section 1 concerned the predictive validity of the criteria for admission into the PYP at Taibah University. This analysis was designed to determine whether the admission criteria can predict the academic performance of preparatory year students. The data were obtained from the Deanship of the Admission and Registration Division of the institution. The final sample for this analysis in the first section comprised 3876 students, from which students who did not receive an acceptable GPA at the end of the programme were excluded. Pearson's correlation coefficient and multiple linear regression analyses were carried out initially on the entire sample and then on separate samples with consideration for gender and track.

Section 2 presented the data analysis of the preparatory year students' views about programme components; namely, academic content, trainers, evaluation methods, academic advising, university environment, programme goals achievement and subject-programme goals relationship. This analysis was intended to determine the effectiveness of the programme from the perspectives of the students. The sample for this analysis consisted of 1972 male and female students belonging to the Madinah, Yanbu and Alula branches of the university. A statistical analysis was performed to calculate the percentages of frequencies, means and standard deviations for each item and entire axes. A t-test and one-way ANOVA were also conducted to compare averages by gender and means by branch, respectively. When necessary, posthoc tests based on the ANOVA results were carried out.

Section 3 dealt with the viewpoints of trainers on the same programme components included in the students' questionnaires, except one item, which was trainer performance. This exploration was designed to illuminate the trainers' perspectives regarding programme effectiveness and was conducted on a sample of 98 male and

female instructors belong to the three branches of the university. Statistical analysis, t-testing and one-way ANOVA were conducted similarly to how these were conducted for the student sample. Post-hoc tests based on the ANOVA findings were also carried out when needed

Section 4 revolved around the opinions of the faculty regarding differences between graduates of the preparatory year programme and students who enrolled in college directly from high school. This examination was carried out to determine whether these student groups differed in academic efficiency and featured a sample comprising 167 male and female trainers from different specialisations at the three branches of Taibah University. The percentages of frequencies, means and standard deviations for each item and the entire axis were calculated (statistical analysis) and averages were compared by gender (t-test).

## Chapter 5: Qualitative Results

### 5.1 Introduction

This chapter presents the findings from the semi-structured interviews, which were explored and examined to shed light on the research questions. Seventeen participants from Taibah University were interviewed, amongst which were eight students of the preparatory year programme, four trainers in the said programme and five faculty members. The interview questions were developed in a way that corresponds to the key topics in the questionnaires and the research questions. The male participants were interviewed in a face-to-face setting, whereas the female respondents were interviewed over the phone. All the interviews were conducted in adherence to the ethical standards of Dublin City University. The participants were asked for permission to record the conversations. The interviews were conducted in Arabic, after which the transcripts were translated into English.

To ensure anonymity, each participant was provided with an alias and coded as follows:

- Students of the preparatory year programme: S1, S2, S3, S4, S5, S6, S7 and S8
- Trainers in the preparatory year programme: T1, T2, T3 and T4
- Faculty members: F1, F2, F3, F4 and F5

### 5.2 Findings from Student Interviews

These interviews were designed to derive answers to RQ2 (**‘From the perspectives of students, how effective is the preparatory year programme?’**). To facilitate the qualitative data analysis, the transcripts were imported into NVivo 10™. The interview questions included the following programme elements:

- Content
- Trainers
- Evaluation methods
- University environment
- Academic guidance
- Achieving programme goals

- Relationship between subjects and goals

These elements were encoded to parent Nodes and child Node (see Appendix H) to organize and analysis data.

### 5.2.1 Student Sample

I was aware of the university’s plans to abolish the rest of the tracks and integrate them into the natural sciences track, under which all the student interviewees belong. The students of the programme studied all the subjects that fall under the social studies track and most of the subjects in the course of study for the health sciences. Out of the four males and four females, four were from the Madinah branch of the University, two were from the Yanbu branch and two were from the Alula branch. Their ages ranged between 19 and 21 years, with the average age being 19.88 (n = 8). An issue worth noting is that Saudi Arabia uses the lunar calendar as its official calendar (1 lunar year = ~354.37 days). Table 93 lists the demographic characteristics of the participants.

*Table 93 Student Sample Demographic Data for Interviews*

Participants*	Branch	Gender	Track	Age
S1	Yanbu	Male	Natural Sciences	19
S2	Alula	Male	Natural Sciences	20
S3	Medina	Male	Natural Sciences	19
S4	Medina	Male	Natural Sciences	21
S5	Alula	Female	Natural Sciences	20
S6	Yanbu	Female	Natural Sciences	21
S7	Medina	Female	Natural Sciences	20
S8	Medina	Female	Natural Sciences	19

\*S = Student

### 5.2.2 Part 1: Students’ Opinions Regarding the Content of the Preparatory Year Programme

This section covers the students’ opinions regarding the content of the preparatory year programme. The main question presented to the interviewees was ‘**What is your general opinion regarding the content of the preparatory year programme?**’

Seven students shared positive points of view: 'It is fine' (S1); *'It is an excellent programme. It enabled me to learn the English language and improve on it and other skills. The content is excellent'* (S2); *'Excellent in general'* (S3); *'...good'* (S4, S5 and S7); *'...suitable.'* (S6). Only one student (S8) viewed the programme in a negative manner. Despite the overall positivity. However, seven students highlighted the difficulty of the programme as they responded to the question. When asked to what factor they attribute this difficulty, five (S4–S8) of the seven respondents identified their English proficiency as the cause:

*The subjects are too difficult because we study them in English. This makes them hard because the students' English levels are too weak. If they were to study in Arabic, they would be much easier. Moreover, the majority of the students do not like the scientific specialisations. Most of them suffer from studying in English.* (S4)

*'The problem is that our English does not help us in understanding the subject because our English is still weak'* (S5).

*'...We need to develop more in the language before we study it'* (S6).

*'Our problem is a weakness in the English language, and this makes it difficult to benefit from the classes. Generally, it would be good if they were in the Arabic language'* (S7).

S1 referred to the difficulty of the subjects themselves and the inability of teachers to effectively deliver information as the causes of their difficulty in coping under the programme. S4 added that numerous difficult subjects were taught. S5 and S6 stated that although they have previously taken the programme subjects *'science, math'* (S6) in secondary school, the fact that they are taught in English adds to the challenge of understanding the subjects.

The participants were then asked about **whether they find the courses interesting and exciting or boring**. Their responses significantly differed. Only one student (S3) evaluated the courses as exciting and interesting without reservation. From the perspective of S6, the subjects are boring because they had already studied them in high school. For the same reason, however, S2 and S7 consider the subjects exciting. S4 stated that the issue of whether the subjects are boring or interesting *'...depends a lot on the students' tendencies'*. S1 evaluated the subjects as excellent but consisting

of certain boring features, whereas S8 assessed them only as uninteresting. S5 explained the factors that make the subjects unexciting thus: *'They are boring because they are lacking on the scientific side and in practical training or activities. In fact, the study depends a lot on theoretical explanations and lecturing from the teachers.'*

Six respondents (S1, S2, S3, S5, S6 and S8) regard the connection to previously learned knowledge, consistency and sequence of lessons as satisfactory: *'...when we study a lesson, we find it is connected to the one before'* (S6). S4 estimated that 70% are connected to each other in general. S7 stated that basic science and mathematics not excluded: *'...I feel that these two are not connected.'*

### **5.2.2.1 Length of Subjects:**

Students provided differing perspectives on **whether the length of the subject content is appropriate** (at the lesson level or the entirety of a subject). Four of the students (S1, S2, S3, S7) deem subject length appropriate, whereas the remaining four (S4, S5, S6, S8) regard it as inappropriate, with length rendering time insufficient for a comprehensive discussion or study of lessons/subjects. According to S1, teachers provided books late in the programme. *'We did not get the books early enough, so we could not finish the subject'* (S1). S2 criticised the exclusion of the basic sciences and saw the length as disproportionate to the time allotted for studying a subject: *'...take too long to complete...The time is not enough to finish the whole subject.'* S3 stated that the amount of time devoted to a subject depends on a student's capacity for understanding *'...because the subjects are a rerun of what we studied at the secondary stage'*. He excluded math from this assessment, stating that this subject *'...needs summarising or an increased time allotted for it'*. S5 indicated that the length of the subjects drives some teachers to exclude some lessons, thus negatively affecting the sequence of lessons. *'... I wish that we could study some subjects, but they are omitted.....The omissions reduce the sequence by jumping to new lessons... because of the shortage of time'* (S5). Some of the interviewees regard lesson length as a source of pressure in completing lessons: *'... there is pressure on the timetable'* (S6); *'...they put us under pressure'* (S8). Teachers also provide additional lectures for the purpose of completing lessons (S8). By contrast, S7 believes that enough time is allocated to each course but that a longer period of instruction and study should be devoted to other

subjects. *'...I feel that the time allotted for English is more than is required; '...the English Language curriculum should be cut' (S7).*

### **5.2.2.2 Link to Specialisation:**

The interviewees were then asked about **whether they regard programme content as connected to their chosen specialisation**. They were asked to clarify whether they believe that they will benefit from such content in the future. Seven of the eight participants responded in the affirmative: *'...will benefit me in my specialisation in the future' (S1); '...sure they will benefit me, because they include the principles of what I aim to study in the future...I will specialise in computer science or math (S6); 'I feel that I will benefit' (S7); '...It might be useful for me in the specialisation I intend to study (math)' (S8).* S5, however, shared a contrasting view:

*Truthfully, we are studying subjects that I do not think will benefit my future specialisation and are not connected to it...we study chemistry and biology, and these are not connected to the specialisation that I intend to study, which is computer science.*

### **5.2.2.3 Activities and Exercises:**

The respondents were also enquired as to **whether activities and exercises that enhance the understanding of lessons are provided** and all of them stated that such components are offered in the courses. Some of the students (S1, S3, S6) found these particularly useful. *'Yes, there are some activities and exercises that help me in understanding and some workshops that teachers hold for students to help them better understand the lessons' (S1).*

By contrast, S2 explained that only some of the subjects come with helpful activities and exercises: *'...only in the university learning skills...The practical exercises in the English language class are not enough.'* S4 views the activities/exercises as helpful but without practical value because no laboratory work is involved: *'...,but there are no experiments in the science subjects because there are no laboratories available...'* S5 believes that utility is limited because no feedback is derived from teachers: *'...does not give them back to us, and we do not know if the work we did was done correctly or not.'* S7 sees the activities/exercises as useless because of the difficulty of subject matter: *'...but I do not think they help in understanding because they are*

*difficult*'. Similarly, S8 regards them as only minimally beneficial *'because they are not enough explained to us'*.

### **5.2.3 Part 2: Students' Opinions Regarding Trainers**

This section presents the responses to the question about trainers, including their teaching methods and how they deal with the students. The respondents were asked primarily about **what they think of the course teachers in general**. The students provided varied assessments of the trainers. S1 and S2, for example, rated teacher performance as good. As stated by S1, *'... but some teachers become nervous from students' questions'*. S3 and S4 evaluated the teachers as excellent, indicating that *'...they are cooperative and their ethical approaches are good'* (S3). Despite the positive evaluation from S1, he complained about how some trainers behave when a student asks questions: *'...some become nervous when students ask questions (they are a few), maybe because of the lack of time'*. S5 shared the following perspectives: *'...Some teachers' teaching methods are good. Others are nervous and shout at the students who do not understand the lessons. The teachers might even ask them to leave the room because they do not understand the lesson'*. (S5)

S4 believes that certain trainers are capable instructors but lack proficiency in teaching methods, whereas some apply excellent teaching techniques. S5 observed a distinction in dealing with the students, pointing to *'...discrimination between those who are married and those who are not, for example'*. S6 noticed that some of the trainers implement teaching methods that do not correspond to the students' proficiency levels, whereas S7 evaluated some of the teachers as exhibiting satisfactory performance (*'...60% have excellent methods'*). S8 declared that although most of the teachers exhibit good interaction with the students, they apply boring methods, with lecturing as the principal technique used in lesson delivery. *'...Most of the teachers use boring methods...They deal with us is good...the explanation methods should be improved...If I were to evaluate them, I would give them 5 out of 10'* (S8).

#### **5.2.3.1 Facilitating Understanding:**

The conversations regarding assistance were designed to determine how the trainers engage with the students in and out of class when the latter do not understand lessons

or a specific issue in the lectures. All the students, except S5 and S6, stated that most of the trainers are cooperative and re-explain issues to facilitate understanding. S7 and S8 stated that this cooperative approach varied depending on availability: '*...but sometimes there is not enough time*' (S7); '*...if there is enough time*' (S8). S6 evaluated some of the trainers as cooperative and others as uncooperative. '*...Some of them will explain the point individually in their offices. Others will say that they have already explained and done what they are required to do*' (S6). S5 shared that some trainers feel anxious and sometimes ask a student to leave the classroom:

*...Others are nervous and shout at the students who do not understand the lessons. The teachers might even ask them to leave the room, because they do not understand the lesson.....She will not give her the chance to ask and will reply nervously to the student that she has explained the lesson....Some teachers will explain the point to me individually. Most of them say that they have explained it in the class.* (S5)

#### **5.2.3.2 Using Teaching Aids:**

With respect to the issue of teaching aids, the respondents were asked about **whether teachers use such tools in instruction**. All of them revealed that the majority of the trainers use computers and provide data. S7 stated that all the teachers, except the math trainer, use instructional aids, and S3 and S7 indicated that some of the teachers do not use the smartboards in lecture halls.

#### **5.2.3.3 Discussions between Teachers and Ttudents:**

The interviews were then directed towards discussing the quality of teaching methods and whether trainers use interactive teaching techniques and discourses. For this purpose, the question '**Are there discussions between teachers and students?**' was presented to the respondents. S1, S2 and S3 replied in the affirmative: '*Yes, and also workshops...*' (S1); '*...most encourage discussions between the students*' (S3). Conversely, S5 and S6 declared that not all the trainers engage in discussions during teaching: '*...Maybe 50/50...*' (S4); '*Half of the teachers hold discussions...*' (S5); '*...Some...just by lecturing*' (S6). S7 confirmed the perspective shared by S6, stating that most of the trainers depend on lectures as the primary form of lesson delivery. Finally, S8 recounted that the trainers allow students to raise questions at the conclusion of each lesson. '*...I feel there is a need for discussions during the lessons to make sure students have understood...*' (S8).

#### 5.2.3.4 Maximising Time:

The questions regarding time were designed to determine the extent to which the trainers save on lesson time and take advantage of the total amount of time allotted for each lesson. Specifically, the students were asked about **the extent of commitment to time that the teachers exhibit from the beginning to the end of a class and whether they maximise total lesson time**. S2, S3 and S4 stated without reservation that the teachers are committed to making the most of the time allotted to lessons. S4, in particular, indicated that the teachers are '*...excellent in their commitment to making use of the time*'. S7, however, criticised a few trainers who waste time on discussions that are unrelated to the lessons. '*They are excellent...a few teachers waste time in things and discussions that are not related to the lesson...*' (S7). She added that some of the teachers forgo rest time between lessons, which she evaluated as being an unfavourable practice. The other students indicated that a few of the trainers waste time because they leave the class during a lesson. Along with S1, S5 and S8 complained about the teachers' lack of commitment to time, which causes delays in lesson delivery: '*...is late by half an hour...*' (S5); '*... They might be an hour late...*' (S6); '*There is no commitment at all. They are late...*' (S8). S5 added that sometimes, the teachers change lesson schedules without informing the students. '*Sometimes, we come to class and find that the teacher has changed the lecture time without giving us notice*' (S5).

#### 5.2.4 Part 3: Students' Opinions Regarding University Environment

The interviews devoted to the study environment at Taibah University are intended to determine the students' perspectives regarding the quality of the building, classrooms, library, laboratories, resting and eating places and spaces for activities, amongst other issues. They were first asked about their opinions regarding the **physical environment of the university**. S3, S4, S7 and S8 regard the building as being of good or excellent quality, whereas the remaining respondents deem the building unsuitable for the study. It is basically an apartment building and not an educational structure. The students' criticisms about the building were as follows:

- Insufficient parking (S2)
- Small building (S1, S2, S5, S6)

- Dirty surroundings (S3)
- Long distance between the building and the main gate (S7, S8)

*The distance between the main gate and the building is too far, and there is not enough transportation between them. Most of the time, we travel it on foot. You can imagine what it feels like to walk in the 45-degree heat. (S8)*

Some students noted the presence of hazardous materials and building components: ‘...the tiles are slippery...’ (S8); ‘...there is an exposed ventilation opening outside the building. I think that could pose a threat to the students’ (S7); ‘...there are leaks when it rains...’ (S5).

#### **5.2.4.1 Students’ Opinions Regarding Classrooms:**

Six of the eight respondents view the lighting and air conditioning in the classrooms as being of good quality, but S5 and S6 evaluated these components as inferior. *‘The air conditioning and lighting are weak’* (S5); *‘The air conditioning is sometimes weak, and the lighting is not good’* (S6). S1, S2, S3, S5, S6 and S7 view the small classrooms as inappropriate for study. S2 stated that *‘...the classes were small and crowded...’*

All the respondents declared that the classrooms are equipped with whiteboards and projectors, and some are equipped with smartboards. However, S3 and S7 revealed that the teachers do not use the smartboards in the lecture halls. The rest of the observations revolved around the following issues:

- Some of the projectors show unclear images (S3, S8).
- Some of the projectors are broken (S3, S5, S6).
- The chairs are uncomfortable (S4, S8).

#### **5.2.4.2 Students’ Opinions Regarding Places for Resting, Eating and Activities:**

Out of the respondents, five lamented the lack of spaces for resting at break time: *‘No resting places are available; they are only in corridors...’* (S1); *‘...only corridors’* (S5); *‘...we go outside the building’* (S2). Three of the respondents stated that few spaces are available for resting: *‘The rest places for breaks are too few’* (S4); *‘There are not enough resting places’* (S6); *‘...but there are few...’* (S3).

S1, S2, S7 and S8 declared that no dining establishments are available for the students. Some indicated the presence of poorly designed (S3, S4, S5) or inappropriate (S6) dining establishments, whereas the others complained about the expensive prices (S6) or dirty surroundings (S5) in these places. S7 and S8 stated that only self-service machines were available.

*There is no dining area in the building. There are self-service machines, but these are few. The things they provide are limited, and the distance to the dining areas in the other buildings inside the university but too far (S7).*

Because the building is excessively small, no spaces are allocated to sports events or other activities (S1, S2, S5, S6). *'No. The building is too small for activities...'* (S6). S3 and S4 indicated that a hall is available for sports activities but that this space is limited in terms of size and equipment. S7 and S8 stated that a basketball court is located outside the building.

#### **5.2.4.3 Students' Opinions Regarding Laboratories and Library:**

The respondents were also enquired as to the **laboratories and library at the University**. All the participants agreed that no laboratories were available for all the subjects, except computer science, for which computer labs are provided. With the exception of S7, all the students highlighted the need for laboratories. The computer labs were criticised by the respondents thus:

- No Internet connection is provided (S1).
- Some computers are broken (S3, S6, S8).
- The number of computers is insufficient for the students (S5, S6, S7, S8).

S5 and S6 complained that *'...sometimes, there is more than one student to a computer'*. S7 confirmed that *'...there are not enough for all the students'*.

The library is not available to students of the preparatory year programme, as indicated by all the respondents. S4, S5, S7 and S8 expressed how they miss studying in a library. S1, S2, S7 and S8 indicated that the university library is far from their building. *'...The library of the university is excellent and contains good places with computers, but it is too far from the preparatory year building'* (S8). S1 also discussed the lack of training

or explanation on how to use the university library. *'There is no library in the building. There is one in the main university. It is far away, and I did not use it before. No one showed us how to use and benefit from it'* (S1).

#### **5.2.4.4 Students' Opinions Regarding Online Services:**

Internet use in the programme is reserved for registry functions, obtaining academic timetables and accessing test results. For some subjects, the teachers provide online content that comprises interactive exercises, explanations and additional information to facilitate student understanding. The conversations regarding online services encompassed Internet availability in the educational building, the ease with which students navigate online service platforms, the problems that students face when accessing the services and the provision of technical support when a problem occurs. S3 and S4 said that Internet access is available to them in the educational building, but the rest provided contrasting accounts. *'It is only available for teachers, not for students'* (S1). Six of the respondents (S1, S2, S3, S4, S6, S7) have not encountered any problems with Internet services. *'...Some students have had difficulties, but I have not had any problems'* (S1). When a problem occurs, however, Students asking for assistance from the programme administration (S1, S4, S5, S7, S8). (S2), (S6) or from Academic Advising. S4, S6, S7 and S8 stated that no remote support is available. *'...If you are far away, there is no technical support'* (S7).

#### **5.2.5 Part 4: Students' Opinions about Evaluation Methods**

This interview centred on the students' opinions about evaluation methods, including their observations on the types of assessment approaches, the distribution of marks, the quality of exam questions and the process by which they derive their test results. The following questions were presented to the participants:

- What evaluation methods are used? What do you think of them?
- How are marks distributed for exams, activities, class participation and homework?
- Do you find this distribution of marks fair?
- Are the results given soon after the exams or are they late?
- What is your opinion about the quality of questions?

According to all the students, they were given quizzes, midterm exams and final exams, as well as activities, homework and class participation activities. '*...There are quizzes, midterm exams, final exams and activities...*' (S1, S3). '*...There are monthly exams, midterms and final exams, as well as class participation and homework...*' (S7). A consensus amongst the respondents is that the distribution of marks is as follows: 90% is allotted to tests, and 10% is allocated to the rest of the output generated by the students: '*...90% are given for exams and 10% for activities, research works and attendance*' (S1); '*...90% are given for exams and 10% for all other work*' (S5); '*There are 90% for exams and 10% for all other work...*' (S8).

With respect to fairness, all the students agreed that the distribution of marks is unfair but provided different reasons for this evaluation. With the exception of S1 and S6, the participants believe that other activities should be given higher marks than 10%. '*I do not feel it is fair. The exams make up the major percentage...*' (S2). '*I do not find it fair.... Exams receive most of the marks*' (S3). '*...10% are not equal to the effort put into activities and class participation*' (S4).

*...10 marks are not enough for activities and homework. Although we are mandated to do some activities and homework, I feel these are not appreciated or fairly evaluated to equal the effort spent on them. Also, we are not informed of how many marks we have gained for these activities and homework. (S7)*

S1 and S6 view the distribution as fair because exams more accurately reflect students' abilities. '*...I find exams more accurate*' (S1, S6).

Regarding accessing test results, all the students reported a delay in results distribution. S5 stated that the students are compelled to wait up to three weeks to obtain their test results, whereas S2 and S6 reported a waiting period of one month. '*...Sometimes we complete another exam before getting the grade of the previous one....*' (S7). S4 believes that such delay occurs only with some trainers, whereas S1 attributes the delay to corrections by the programme management. '*If the teacher is correcting the exams, there will not be a delay. But when a committee corrects them, there is a delay*' (S1).

According to the students, test questions were mostly of multiple-choice type, but some subject exams feature other methods, such as listening tests (for English) and practical training (for computer science). '*...In the English Language exam, there are listening exams. In the computer exam, we get practical questions*' (S3). Five of the

students prefer multiple choice question. *'I think, the best, and corrections can be done automatically, which improves accuracy and fairness'* (S2). *'All the questions are multiple choice, which are better than other question types...'* (S5). *'...I prefer these types of questions'* (S6). Only two students indicated a preference for a diverse set of questions. *'...I would prefer for the questions to vary and not all are multiple choice.... I hope there will be a variety of questions in the future, like essay questions and other types'* (S4). S7 also said that the questions of teachers are easier than those of the programme administration. She added that *'...a 60% pass rate for English is too high. I hope it will be 50%, like in other subjects.'* S6 expressed his desire for questions to be translated into Arabic: *'...Sometimes, we do not understand the question...'*

### **5.2.6 Part 5: Students' Perspectives about Academic Guidance**

This section covers the students' perspectives on academic guidance. The questions presented were as follows:

- What is your opinion regarding the academic advice given to students? (main question)
- Is there an educational counsellor? Does he/she come to classes?
- Does anyone visit classes to give advice and instructions?
- If a problem occurs between you and a colleague or a teacher, where do you go for assistance?

Seven of the respondents provided positive points of view: *'... good and useful to us'* (S1); *'... Our relationship with her is excellent. She is useful for students and cooperative'* (S8). S5 was the only student to report the absence of an academic advisor. *'I only know the person who is responsible for the programme. When we need anything related to the programme, we go to her'* (S5). With regard to support for the students, as well as advice and instructions, all the respondents, except S5, stated that an academic advisor visits students in the classroom and shares tips and information. The students are also encouraged to visit the advisor's office when they need help resolving problems, whether these are conflicts between students or problems with the flight simulator. *'The educational guide comes nearly once a week. He might call some student into his office...'* (S1); *'...visits us in the classes and gives us instructions...'*

(S6); *'...the educational guide visits us in the classes to give instructions and listen to our problems or take any notes. Mostly, we go to her in her office'* (S7).

S8 indicated that the academic advisor infrequently visits classrooms. *'The visits from the guide to classes are few...I think that one guide is not enough...'* (S8).

### **5.2.7 Part 6: Students' Perspectives about Achieving Programme Goals**

This section presents opinions regarding **the extent to which the programme objectives are achieved**. The respondents were asked to state whether the programme accomplishes the objectives that it purports to pursue. Except for S1 and S2, the students evaluated the programme as failing in this regard. They also pointed to the fact that the courses offered in the programme and the programme goals are unrelated. *'I do not think so'* (S3); *'...no connection between what we are studying...'* (S6); *'There is no relationship between this objective and the programme'* (S7); *'...surely does not'* (S8). S2, however, observed a minimal relationship. *'There is a simple connection between our studies and the objectives, especially the skills gained from the university life objective'*. This respondent also confirmed a relationship between the programme and its objectives. *'Yes, there is connection between this objective and the programme. So, the programme achieves this'* (S2).

The questions raised in the succeeding interviews revolved around the relationship between each programme objective and the courses offered under the programme.

**Goal 1:** *'The preparatory year programme contributes to deepening the Islamic and national identity through the curriculum and student activities.'*

All the respondents indicated that no relationship exists between what they were studying and Goal 1; thus, the programme was unable to satisfy it: *'...no relationship between this and the content of the programme'* (S2); *'The programme is not achieved this goal'* (S5); *'...no relationship between what we are studying and this goal'* (S6).

**Goal 2:** *'The programme provides a well-developed course with high-quality standards.'*

Without reservation, five of the students believe that this goal and programme content are related, thus enabling achievement of the goal. The rest of the participants raised the following concerns: '*...the subjects need developing*' (S3); '*There is a medium connection*' (S7); '*The quality standards are high, but they are higher than the students' levels*' (S8).

**Goal 3:** 'The programme directs students' to the appropriate specialisation and college given their abilities and skills.'

Except for S6, the respondents see no relationship between what they were studying and this goal. Thus, the programme failed to satisfy Goal 3. '*No, ...determined by the student's final grade*' (S2); '*...because the programme guides the students according to their overall mark in the programme...*' (S5); '*...no connection, because the guidance is based on the final grade...*' (S7); '*...does not help students in their future specialisations*' (S8). Only S6 evaluated the programme as having successfully accomplished this goal.

**Goal 4:** 'The programme promotes the outstanding academic performance of the students.'

S1, S2, S3, S6 and S8 declared that because this goal is related to the courses offered under the programme, it successfully realised this goal. '*Yes, the programme develops the students' performances*' (S2); '*Yes, for sure...*' (S6); '*Yes, somewhat...*' (S8). The remaining three students evaluated the programme as a failure in this respect. '*No, I do not think so, because the programme depends a lot on exams*' (S4); '*I do not think so...*' (S5); '*No, it is not good enough in this regard*' (S7).

**Goal 5:** 'The programme provides a high-quality learning environment to improve the outcome of university education.'

All the students (except S8) assessed the programme is failing to realise this goal: '*...the quality of the building is not good*' (S2); '*The environment is not suitable for learning*' (S3); '*The environment is of a poor quality*' (S6).

### **5.2.8 The Relationship between Subjects and Goals**

The respondents were also presented with questions regarding the relationship between some subjects and the programme objectives.

#### **Subject 1: University Life Skills**

All the students maintained that a relationship exists between the programme goals and University Life Skills course. *'Yes, there is a connection, and it accomplishes what the programme aims for'* (S8).

#### **Subject 2: English**

S2, S4, S6 and S8 deem the English course and the objectives as exhibiting association. *'Yes, it achieves the programme objectives'* (S2); *'In a simple way...'* (S4); *'Yes, it is connected. It is the most important element in the preparatory year'* (S8). The remainder of the respondents believe otherwise.

#### **Subject 3: Basic Science**

All the participants agreed that a relationship exists between the Basic Science subject and the course objectives but viewed such association with varying degrees. *'Yes, it achieves the objective...'* (S2); *'To some extent, yes'* (S3); *'...but the lack of labs hinders this'* (S5); *'...but only in science'* (S7).

#### **Subject 4: Mathematics**

S1, S2, S4 and S6 stated that the objectives and Mathematics are related, whereas the rest of the respondents believe otherwise. *'Not really...'* (S5); *'...for sure, there is not...'* (S7); *'...definitely no connection'* (S8).

#### **Subject 5: Computer Skills**

Except for S8, the students evaluated the programme objectives and Computer Skills as related.

### 5.3 Findings from Trainers' Interviews

The interviews with the trainers were designed to derive answers to RQ3 ('**From the perspectives of trainers, how effective is the preparatory year programme?**'). Similar to the transcripts of the student interviews, those of conversations with the trainer were imported into NVivo 10™ to facilitate the qualitative data analysis. The interview questions were directed towards the following programme elements:

- Content
- Evaluation methods
- University environment
- Academic guidance
- Achieving programme goals
- Relationship between subjects and goals

These elements were encoded to parent Nodes and child Node (see Appendix I) to organize and analysis data.

Except issues regarding trainer evaluation, the rest of the elements mentioned above are identical to those tackled in the student interviews.

#### 5.3.1 Trainer Sample for Interviews

Table 94 shows out of the four trainers (two males, two females), two were from the Madinah campus of the University, one works at the Yanbu branch and the last is assigned to the Alula branch. Their training experiences span a period between two and 17 years, with the average length of experience being 7.25 years (n = 4). All the trainers specialise in different courses.

*Table 94 trainers Sample Demographic Data for Interviews*

Participants*	Experience	Gender	Location	Specialisation
T1	6	Male	Alula	English
T2	17	Female	Yanbu	Basic Science
T3	4	Female	Madinah	Math
T4	2	Male	Madinah	Computer

\*T = Trainer

### 5.3.2 Part 1: Trainers' Opinions Regarding the Content of the Preparatory Year Programme

This section discusses the trainers' views regarding the content of the preparatory year programme. The main question presented to the interviewees was **'What is your general opinion regarding the content of the preparatory year programme?'**

All the trainers positively assessed programme content: *'The programme is very good'* (T1); *'It is an excellent programme'* (T2 and T3); *'...magnificent.'* (T4). T1 and T2 evaluated the programme as an avenue that elevates student learning from general education to higher education. T1 expounded on the importance of this feature with his observation that students exhibit a lack of basic skills upon entry into university: *'...This programme develops students' skills and abilities and raises their proficiency levels to make them capable of studying at university.'*(T1). T4 deems the programme magnificent because it enables students to obtain the International Computer Driving License (ICDL).

Except for T4, all the other trainers believe that the most significant issue facing students is a weakness in English. The contents of the programme are of a higher level than students' English proficiencies—a problem that is exacerbated by the fact that the medium of teaching is English. *'...There is a gap between the course level and the students' levels...'* (T1); *'...This makes it difficult for them to understand the subjects...'* (T2); *'...Some students cannot spell words or do not know the different parts of speech (noun, verb, adjective, etc.). They cannot write a sentence...'* (T1). In some of the subjects, however, students are not compelled to grapple with their limited English abilities. For example, T3 indicated that fewer language problems occur in mathematics than in other subjects, while T4 stated that computer science is taught in both Arabic and English.

When asked about **'whether they find the courses interesting and exciting or boring'**, the trainers provided significantly different responses. T2 and T4 confidently attested to the stimulating nature of the courses. *'The practical aspects give are thrilling and suspenseful and a thrill to the students and this attracts them to the subjects; '...because there are many practical exercises and few theoretical explanations.'* (T2). By contrast, T3 regards the subjects as unexciting because the

students had already studied them in high school, and T1 ascribes the tediousness of the subjects to their lengths: *‘...especially for low-level students of English. This weakness makes [a subject] boring for them because they don’t understand it’* (T1).

All the respondents evaluated the lessons as proceeding in the correct sequence and in a consistent manner. *‘There is some kind of connection...’* (T1).

### **5.3.2.1 Length of Subjects:**

The trainers similarly provided varying perspectives on **‘whether the length of the subject content is appropriate,** (at the lesson level or the entirety of a subject). T4 believes that subject length is appropriate, but the rest of the respondents think otherwise. *‘... We cannot cover the entire subject... We need to shorten the curricular requirements.’* (T1); *‘...we asked the programme supervisor to delete two chapters from the course and redistribute the lessons of the course...especially as it contains lots of new vocabulary for the students, and they have a weakness in English’* (T2); *‘...It is too long, especially given the students’ weakness in the English language’* (T3).

### **5.3.2.2 Activities and Exercises:**

The conversations were then steered towards **whether activities and exercises that enhance the understanding of lessons are provided.** All of the interviewees stated that such components are offered in the courses. Additional exercises and activities are also provided to students. A specific example shared by T4 is the computer science class, which features *‘...practical activities and exercises and... an evaluation of the activities’.* Three of the trainers (except T4) located the challenge of enhancing student understanding of Internet-related issues. T1 declared that the availability of Internet resources demotivated students, whereas T2 and T3 identified problems in Internet access in the building or students’ homes as obstacles to their efforts to increase student comprehension. *‘...I wish that we had more time and a computer lab to train students in how to use the website for a textbook’* (T3).

### **5.3.3 Part 2: Trainer’s Opinions Regarding University Environment**

Similar to the student interviews, the trainer interviews regarding the study environment at Taibah University revolved around quality (i.e. building, classrooms,

library, laboratories, resting and eating places and spaces for activities, etc.). The first issue discussed during the sessions was the **physical environment in the university**. Only T4 regards the building as being of excellent quality. T3 stated that although the building is new, it lacks some essential facilities, such as ‘...*resting places and labs.*’ (T3). The remaining respondents indicated that the building is unsuitable for study because it is an apartment building and not an educational structure. ‘...*It lacks lots of things and doesn’t provide an appropriate educational environment*’ (T1); ‘...*It doesn’t offer an appropriate educational environment*’ (T2).

#### **5.3.3.1 Trainer’s Opinions Regarding Classrooms:**

All the respondents view the lighting and air conditioning in the classrooms as first-rate facilities. T3 and T4 deem classroom space appropriate and favourable for teaching and learning, whereas T1 and T2 believe the opposite. ‘...*The halls are small. The trainer cannot even move comfortably with the students*’ (T1); ‘*The halls are small, with a capacity of 20 students. You can find 30 students in there at once, so it is too crowded. It does not allow the trainer to move comfortably inside the hall.*’ (T2). Similar to the student respondents, the trainers acknowledged the presence of whiteboards and projectors in classrooms, but T1 believes room for improvement exists; some classrooms lack equipment, such as ‘...*A trainer’s table. Also, the students’ tables cannot be used for group work*’.

All the respondents regard their offices as un conducive to efficient work and consultations given their small sizes and lack of privacy. The offices are located in a common room. ‘*When you need to talk with a student privately without other trainers hearing your conversation, you have to go outside the room or even outside the building*’ (T1, T2); ‘...*We lose privacy, especially ...when we need to speak with a student in confidence.*’ (T3). T4 said that he used the computer labs as an office as well.

#### **5.3.3.2 Trainer’s Opinions Regarding Places for resting, eating and activities:**

Amongst the respondents, only T4 expressed a consistently positive assessment of the spaces for resting, eating and activities in the campus. He stated that resting places, activity spaces and a satisfactory dining area are available within or outside the

building's premises. The rest of the respondents were critical of the dining facilities. T3, for instance, commented that only self-service machines are available. '*...The dining halls are far from the building*' (T3).

The interviewees provided varying responses on activity spaces. Whereas T1 stated that no spaces are allocated to sports events or other activities, T2 indicated that a hall is available for sports activities. Nevertheless, she evaluated the hall as '*...small and inappropriate*'. T3 revealed that only a basketball court is located outside the building. With the exception of T4, the remaining interviewees referred to the need to pay attention to extracurricular activities.

### **5.3.3.3 Trainer's Opinions Regarding Laboratories and Library:**

The next quality-related issue that the respondents were asked to deliberate on was the presence of **laboratories and a library at the University**. All the participants agreed that not all subjects had a dedicated laboratory. Only the computer science classes are provided with computer labs. All the trainers highlighted the need to increase the number of such facilities in the campus. '*...I feel there is a great need for English and scientific labs*' (T1); '*...there is a need for scientific labs in math; more aids would help in the explanations*' (T3). Although T4 deems the computer labs satisfactory, he also pointed to the lack of support on technical and maintenance matters. '*Most of the time, we do it ourselves*' (T4).

As indicated by the interviewees, trainers of the preparatory year programme do not have access to a library. T1 and T2 expressed a longing for access to library resources. Although the university has a main library, this is located far from their building, as indicated by T3 and T4. '*...There is no library in the building. There is one big library in the university equipped with computers and appropriate areas for reading, but it is far away*' (T3).

### **5.3.3.4 Trainer's Opinions Regarding Online services:**

The respondents were asked to share their perspectives regarding online services, specifically concerning Internet availability in the educational building. T3 and T4 said that Internet access is available to them in the educational building, but the two other trainers contradicted this statement. '*... We use our own personal Internet connections*'

(T1); ‘...Some students do not have an Internet connection at home. We provide the labs for them to do the tasks required of them, but sometimes the lab schedules do not help’ (T4); ‘...In the university, there is a trend of electronic (online) testing, but the lack of a high-speed Internet connection and inadequate English labs are obstacles.’ (T2).

According to all the respondents, the programme administration solves any other problem that they encounter in online services.

### **5.3.4 Part 3: Trainers’ Opinions about Evaluation Methods**

Similar to the students, the trainers were interviewed regarding evaluation, specifically on issues such as types of assessment approaches, distribution of marks, quality of exam questions and distribution of test results. The questions presented to the participants were as follows:

- What evaluation methods do you use? What are your perspectives regarding these approaches?
- How do you distribute marks for exams, activities, class participation and homework?
- Do you find this distribution of marks appropriate?
- Do you return exam results to students in a timely manner or is distribution late?
- What is your opinion about the quality of questions that you provide in assessment activities?

Except for T4, the rest of the trainers stated that they provide quizzes, midterm exams and final exams, as well as activities, homework and class participation activities, to students. ‘...There are quizzes (writing, speaking, etc.) that are given a mark of 7.5, as well as midterms and final exams.’ (T1); ‘...There are two short exams, midterm exams and the finals...’ (T2); ‘...individual and group activities...’ (T4). Regarding the distribution of marks, T2 and T3 indicated that 90% is allotted to tests, and 10% is allocated to the rest of the output generated by the students. T4’s specific process in distributing marks is as follows: ‘There is a group activity that is given 20 marks, Internet exercises that are scored with 20 marks and midterms and final exams, which

are given 60 marks.' T1 added that in the English subject, assessment and marking depend only on tests.

When asked about the appropriateness of marking, T1, T2 and T3 disapproved of the current distribution process adopted in the centre. '*...The fewer marks for activities reduces the motivation of the students*' (T3); '*...I wish that more marks could be given for evaluation tools other than exams*' (T2).

Regarding access to test results, all the trainers reported no delay in results distribution. Concerning the quality of test questions, all the trainers, except T4, stated that exams feature mostly multiple-choice questions, but some subject exams consist of other activities, such as writing: '*...writing, which is a simple part of the exams. Conversation and writing are not included in the midterms and final exams. They are in the short exams only*' (T1). T2 and T3 asserted that all exams contained only multiple-choice questions. The questions and evaluation methods used in computer science differ from those used in other subjects: '*The exams are given in both Arabic and English. There are questions that require theoretical answers and others that require practical answers using the computer*' (T4).

T1, T2 and T3 underscored the need to incorporate a variety of questions in student exams because such variety '*...would improve the accuracy and comprehensiveness of the results.*' (T1). '*They are not good. Diversification of questions is needed, especially in math, which requires students to solve problems and equations and sometimes draw conclusions, not just choose an answer.*' (T3). T2, however, argued that other types of questions would be difficult for students to handle '*...because of their weakness in English, especially if the questions required the students to write*'. T1 is of the opinion that the number of exams is excessive.

*...The students do not know if they are supposed to study or take exams. Hardly a day or two passes without the students having a test in one of the courses. This exhausts both the students and the teacher...* (T1).

T2 identified other negative aspects in this regard.

The questions and choices are lengthy; these require a long time to complete. Students spend a lot of time reading the questions and understanding them, especially when they have a weakness in English and cannot translate the questions into Arabic.

T1 hopes to be given the chance to formulate questions and test students: '*...questions are prepared by the English Language Centre independently. I hope that teachers will be given the chance to evaluate their students. Even for the tests on speaking skills, the questions come from the English Language Centre...*' (T1)

#### **5.3.5 Part 4: Trainers' Perspectives on Academic Advising**

The following questions facilitated the interviews on academic guidance:

- What is your opinion regarding the academic advice provided to students? (main question)
- Is there an educational counsellor? Does he/she come to classes?
- Does anyone visit classes to give advice and instructions?
- If students encounter problems, where do they go for assistance?

T2, T3 and T4 positively evaluated the process of academic advising: '*...there is an interest in the academic guiding unit in the programme. There are efforts made to guide students as they deal with their problems*' (T2); '*...There are efforts towards directing students to solve their problems.*' (T3). T4 evaluated the comprehensive care unit as excellent and helpful to students. He added that although no academic advisor is employed by the centre, a trainer works with the comprehensive care unit on a part-time basis. '*...One of the trainers (who has classes and subjects to cover) is assigned to deal with students' problems. The academic guidance on offer is less than desirable.*' With respect to support for the students, advising and instruction, T2, T3 and T4 reported that an academic advisor visits students in classrooms to share tips and information. '*...When I feel that any student has a problem, I send them to the academic guide*' (T2); '*...The academic guide cooperates with the trainers in solving students' problems.*' (T3); '*...The guide cooperates with the trainers*' (T4). T1 acknowledged the presence of student support but believes that the advisor should focus on absenteeism: '*...but he is more interested in attendance. His role is not broad enough*'. (T1)

### 5.3.6 Part 5: Trainers' Viewpoints Regarding Goals Achievement

In this interview, the trainers were asked whether they believe that the programme accomplishes each of its espoused goals. The goals presented to this group of respondents are the same as those discussed with the student interviewees.

Three of the respondents assessed the programme as failing to satisfy Goal 1 (deepening cultural identity) given that it is unrelated to what students are studying. '*I have not noticed any relationship or connection between what is taught in the programme and this objective*' (T1); '*No, I do not think there is a connection*' (T3). Only T2 believes that Goal 1 and student lessons are related.

With respect to Goal 2 (course quality), all the respondents unequivocally attested to the goal's association with what they are teaching. However, they regard Goal 3 (direction regarding specialisation) as unrelated to teaching content:

Decisions related to directing students are made in light of their general average grade at the end of the preparatory year. I hope that a student's grade in a particular subject will be considered when guiding the student to choose an appropriate specialisation. For example, the programme should consider the student's math grade if he/she chooses to specialise in math. (T3)

Three of the respondents declared that the programme achieved Goal 4 (promoting academic performance). '*Yes, the programme prepares students for university*' (T1); '*...The programme achieves this somewhat*' (T3); '*...To some extent*' (T4). T2 agreed with the other respondents' assessments but stated that achievement is of a very low degree '*...about 10%*'.

The responses reflect that both T1 and T4 assessed the programme as relatively achieving Goal 5 (quality of learning environment): '*...in some ways*' (T1); '*...but the learning environment needs to improve*' (T4). Conversely, T2 and T3 averred that the programme failed to realise this goal: '*No. The learning environment needs to be developed*' (T3).

Part of the interview sessions were devoted to deliberations on **the relationship between the subjects that the trainers teach and the programme objectives**. All the trainers recognise a connection between these components.

#### **5.4 Findings on Programme Effectiveness**

The effectiveness of the preparatory year programme was explored on the basis of the perspectives shared by undergraduate faculty members. To examine this issue, the faculty members were asked to provide a general comparison of the performance of students who have completed the preparatory year programme and those who have not. The faculty members were also instructed to compare the students regarding specific skills and knowledge.

The question presented to the respondents was ‘How effective is the preparatory year programme in terms of improving the undergraduate performance of students who enrolled in the programme compared with students who did not enrol in the programme?’ As previously stated, the faculty members were instructed to compare graduates of the preparatory year programme and students who have not enrolled in the programme in general terms. Students were also compared in terms of the following competencies:

- English language skills
- Computer use
- Cooperative learning, teamwork and constructive dialogue
- Decision making, problem solving and responding to constructive criticism
- Interaction with the environment
- Work ethic and attendance
- Identifying abilities
- Student–teacher dynamic
- Structured learning and planning
- Comprehension

The transcripts were imported into NVivo 10™ to facilitate the qualitative data analysis. These elements were encoded to parent Nodes and child Nodes (see Appendix J) to organize and analysis data.

### 5.4.1 Faculty Members Sample for Interviews

The table 95 shows the sample for the interviews comprised three female and two male faculty members, three of whom were from the Madinah campus, one was from the Yanbu branch and one works at the Alula branch. Their experiences span a period between two and seven years, with the average experience being 4.6 years (n = 5). Two of the participants specialise in English.

Table 95 Demographic data on the faculty members for Interviews

Participants*	Branch	Experience	Gender	Specialisation
F1	Madinah	6	Male	Computer science
F2	Madinah	5	Female	Biology
F3	Madinah	3	Female	English
F4	Yanbu	7	Male	Chemistry
F5	Alula	2	Female	English

\*F = Faculty member

### 5.4.2 General Differences between Students

This section discusses the interviews regarding **detectable differences between graduates of the preparatory year programme and students who have not enrolled in the programme**. All the faculty members recognised a clear difference, with the variance in favour of programme graduates. F5 pointed to a ‘...a great difference between them’. While F4 stated that graduates exhibit better performance in terms of ‘...the way that they deal with lessons and activities and respond to what happens in the classroom’. The rest of the responses reflect a similar standpoint: ‘...have skills that the other students do not’ (F1); ‘...have acquired all the skills needed to enter the university’ (F2); ‘...have more flexibility in dealing with articles and tests’ (F3). F2 added that ‘...students coming directly from public education have a shortage of skills and capabilities’.

The succeeding sections discuss the differences between students in terms of specific skill sets.

### **5.4.3 English Language Skills**

The faculty members asserted that programme graduates exhibit more advanced English language proficiency than do other students: They '*...have a more developed English vocabulary and more knowledge of terms. They are better in English language skills...*' (F1); '*...They have a good understanding of terminology and concepts, as well as better skills...*' (F2); '*...have a very good vocabulary...*' (F3). According to F1, all students are deficient in English writing skills. F2 agreed with this assessment but identified speaking as another shortcoming of learners. Nevertheless, the respondents insisted that programme graduates possess better speaking and writing competencies than do other learners.

### **5.4.4 Computer Use**

The consensus amongst the faculty members was that programme graduates are more skilled in computer use than other students. 'Because it is my speciality, I assure you, preparatory year students have better computer skills than the other students. Preparatory year students hold the ICDL' (F1).

### **5.4.5 Cooperative Learning, Teamwork and Constructive Dialogue**

The same evaluation was provided with respect to cooperative learning, teamwork and constructive dialogue; that is, these skills are more developed amongst programme graduates than amongst other learners. Even though F1 believes that most students show weaknesses in these aspects, '*...in general, preparatory year students are better than the other students...*'(F1). F4 shared the following points: '*Preparatory year students are the best at positively interacting with their fellow students and teachers. They do this through cooperative education and active participation in the classroom.*'

### **5.4.6 Decision Making, Problem Solving and Responding to Constructive Criticism**

F3 and F5 declared that preparatory year students excel in decision-making, problem-solving and responding to constructive criticism. '*Preparatory year students are better at these skills*' (F3); '*...They deal successfully with problems...*' (F5). Conversely, the rest of the faculty evaluated all students as deficient in these competencies. Despite

this weakness, however, the positive evaluations still lean towards preparatory year students. *'A few of the preparatory year students are marginally better than the rest'* (F1); *'...Preparatory year students are a little better at these'* (F2); *'...but the preparatory year students are better'* (F4). F1 and F2 demanded a review of the preparatory year curriculum for the development of the aforementioned skills. *'...You must review the preparatory year curriculum to pay more attention to these aspects'* (F1); *'...The preparatory year curriculum needs to focus more strongly on these skills'* (F2).

#### **5.4.7 Interaction with the Environment**

Regarding conscious interaction with the university and local environments, all the faculty members stated that preparatory year students are more proficient than other students. *'Preparatory year students are the best at interacting with the surrounding environment...'* (F4); *'Preparatory year students get used to the university environment, as well as the local environment, so it does not come as a sudden shock'* (F5). Despite this positive assessment, however, F2 pointed to the necessity of addressing the *'...acute shortage of laboratory skills amongst all students'*.

#### **5.4.8 Work ethic and Attendance**

In evaluating work ethic and commitment, most of the respondents (except F4) conceded an advantage to programme graduates. *'Preparatory year students are more committed to attending classes and have a better work ethic in areas such as citation and writing references'* (F2); *'...I have no doubt that they have a more committed work ethic'* (F1). F4 stated that he could not detect a clear difference between students in this respect.

#### **5.4.9 Identifying Abilities**

Concerning the identification of abilities, potential and independence, the responses once again reflect favour for students of the preparatory year programme. *'Preparatory year students more thoroughly understand themselves and their potential; they are more self-reliant and asking for help less often.'* (F1); *'...they have less trouble switching between different departments and specialisations'* (F2);

*‘Preparatory year students are better, although weakness exists amongst all the students in these areas...’ (F3).*

#### **5.4.10 Student – Teacher Dynamic**

The question of student–teacher dynamic revolves around whether faculty members find certain types of students easier to interact with. The consensus is that preparatory year students are easier to handle. *‘For sure, preparatory year students are easier to deal with’ (F2); ‘Preparatory year students are dramatically easier to deal with’ (F1); ‘Sure, students who went through the preparatory year are easier to deal with. They respond to instructions faster as they have had similar experiences in their other courses.’ (F5).*

#### **5.4.11 Structured Learning and Planning**

All the faculty members agreed that programme graduates are superior to other learners regarding structured learning and planning: *‘...they are more capable of achieving the work assigned to them’ (F1); ‘...more committed to delivering what they are asked to produce in a timely manner’ (F2); ‘...more capable of achieving what is asked of them on time’ (F3); ‘They are very organised...’ (F5).* F4 stated that such abilities vary depending on a student’s education before university study, but he also concurred that *‘...the preparatory year students are better than the rest of the students’.*

#### **5.4.12 Comprehension**

The pattern of excellent evaluations of preparatory year students remained in the discussion of comprehension. *‘Preparatory year students absorb lesson topics much faster than the other students and so are more capable of retaining information and developing skills’ (F1); ‘There is definitely a clear difference, with preparatory year students being better than the other students.’ (F2); ‘Preparatory year students are characterised by their ability to learn easily’ (F4).* F3 views this skill as dependent on individual differences but agrees with the rest of the respondents concerning the superior level of preparatory year learners in this respect.

#### **5.4.13 Determinants of Difference**

The interview sessions more comprehensively probed into the issue of differences in skill set between students by determining to what factors the faculty members attribute such variances. To guide the participants, they were enquired as to whether the differences stem from the courses that students learn under the preparatory year programme or whether other factors are at play. All the respondents ascribed the majority of differences in programme content, but F3 cautioned against disregarding other factors. *‘...We should not lose sight of other reasons, such as individual differences, intelligence and interest in study’* (F3).

#### **5.4.14 Additional Insights**

Before the sessions were concluded, the participants were asked to share any additional information that they deem essential to clarifying the perspectives that they shared. F1 underlined the need for the preparatory year programme to focus on certain skills, *‘...such as decision-making and problem-solving’*. F2 and F4 expressed concern over the lack of laboratory skills amongst all students: *‘...The preparatory year curriculum must, therefore, be reviewed to ensure that it includes these skills’* (F2); *‘We should pay attention to the development of the preparatory year curriculum. There is a shortage of laboratory among students’* (F4).

#### **5.5 Summary:**

This chapter has discussed the findings derived from three sets of interviews. The first set of interviews were conducted with eight male and female students of the preparatory year programme at Taibah University. The students were from the Madinah, Alula and Yanbu campuses of the University. The sessions focused on the students’ assessments of the preparatory year programme, with specific reference to subjects, teachers, university environment, evaluation methods, academic guidance and the extent to which the programme achieves its goals, as well as the relationship between programme content and goals.

The second set of interviews was carried out with four trainers of the courses offered under the preparatory year programme. The sessions centred on the trainers’ evaluations of the programme. The interview questions for this group of respondents

featured the same elements as those presented to the student, except for the issue of trainer assessment.

The third set of interviews involved five faculty members who have taught students who have studied under the programme and those who have not. The core issue addressed in these sessions is whether differences in skills and knowledge exist between the two types of students.

The responses of the interviewed groups exhibited points of convergence and difference, which will be explored in Chapter 6. This chapter also presents a comparison of the quantitative analysis results provided in Chapter 4.

## **Chapter Six Discussion**

### **6.1 Introduction**

This chapter seeks to discuss the findings presented in Chapters IV and V of this study and compare it with what was addressed in the literature review with the aim of answering the research questions. The results were analysed in four main sections. The first section deals with the predictive ability of the admission criteria used in the preparatory year programme at the University of Taibah, including the effect of gender and track variables on this ability. The second section lays out a discussion of the study findings regarding the effectiveness of the preparatory year programme from the perspective of students. This takes into account various programme elements (content, trainers, assessment methods, academic advice, university environment, the programme's objectives and the relationship between the subjects and the goals of the programme), as well as the effects of gender and the branch of study on the students' opinions. The third section deals with a similar discussion, this time from the trainers, looking at the same factors (except the effect of trainers). The effectiveness of the preparatory year programme in improving the performance of undergraduate students who completed it, in comparison with those who did not enrol in it, is explored from the perspective of faculty members who have taught both types of students. The effect of gender on tutors' opinions is included. Both quantitative and qualitative data are used in the discussion of this chapter. However, due to the nature of the admission criteria, which relies completely on quantitative data, the researcher discusses section one using quantitative methods in order to test the predictive ability of admission criteria. Furthermore, this study also compares the results of this study to previous studies in order to find agreements and differences. Lastly, this chapter provides the most important recommendations and potential implementations of this study.

### **6.2 Ability of Admission Criteria to Predict Academic Performance**

This section concerns RQ 1 – What is the predictive effectiveness of the criteria for admission into Taibah University's preparatory year programme for each track and gender? As clarified earlier, the admissions to the preparatory year programme at the University are differentiated between students applying, and are weighted by class, as

50% for The student average in high school, for 25% Achievement test scores and 25% for Aptitude test scores.

### **6.2.1 Correlation Coefficients between the Three Criteria and GPA**

Pearson's correlation coefficient was used to illustrate the relationship between each admission criterion and the student GPA. The results reveal a statistically significant correlation coefficient ( $p < 0.01$ ) between the high school marks and GPA, reaching 0.523 (Table 5).

This is close to that achieved in a study by AlMohamadi (2011), where the value of the Pearson correlation coefficient was 0.498. AlMohamadi's study was conducted at the time when standardised secondary school exams were being developed and distributed by the Ministry of Education. In other studies, the coefficient ranged from 0.48 (Alshehri 2011) to 0.322 (AlGhamdi 2007). As our coefficient is higher than 0.5, it indicates a large relationship value, as evaluated in accordance with Cohen's (1988) guidelines (Pallant 2013). The present study shows a significant relationship between the achievement test and the GPA, whereby the Pearson correlation coefficient reaches 0.658; this is higher than in AlMohamadi's (2011) study (0.406) and Alshehri's (2011) study (0.40). There is also a similar relationship between the capability test and the GPA (0.599), whereas this was 0.169 in AlMohamadi's study (2011) and 0.34 in AlGhamdi's study (2010).

### **6.2.2 Predictive Ability of the Admission Criteria for the Entire Sample**

The results of the current study show that the three criteria for admission are reliable factors for predicting the GPA of students in the preparatory year. The value of the coefficient of determination  $R^2$  reached 0.518 (Table 19). The three criteria, taken together, accounted for approximately 52% of the total variation in students' GPA in the preparatory year. The remainder of the variation cannot be explained in this way. This result is higher than that attained by AlMohamadi's (2011) study conducted at Taibah University, in which the value of the  $R^2$  was 0.285. It also surpasses that found by Alshehri (2011) at Taif University (0.297). This may be due to the development of these criteria.

Regarding the order of these criteria in terms of power, the study shows that the achievement test is the strongest, followed by the high school rate and finally the

capability test. This result differs from the findings of AlMohamadi's study, which concluded that the rate of the high school was the most powerful criterion, followed by the achievement test. This may be because this study was conducted when the Ministry of Education centrally directed high school tests in Saudi Arabia. Earlier studies did not address the predictive ability of the test achievement because it was a relatively new criterion, except for Alzamil (2010) study, which was conducted on males and females separately.

The regression equation can be expressed as follows:

$$\text{GPA} = (\text{achievement test scores} \times 0.035) + (\text{high school marks} \times 0.031) + (\text{capability test scores} \times 0.022) - 3.199$$

### **6.2.3 Predictive Ability of the Admission Criteria by Gender**

Because of the complete separation of the genders in public education institutions and universities, gender is an important variable in the Saudi context. Such separation is even applied in the areas of student achievement and capability tests. It is necessary to bear this division in mind when determining the predictive ability of the criteria and arranging them accordingly. Data was analysed for 1690 males and 2186 females from various branches.

#### **6.2.3.1 Pearson's Correlation Coefficient**

The gender-based analyses reveal a statistically significant coefficient of correlation ( $p < 0.01$ ) between students' achievement test scores, high school marks and capability test scores, and their GPA, in both males and females; however, it was higher in females than in males. The highest of these values is the correlation between the achievement test and GPA, reaching 0.653 for males and 0.672 for females. This is followed by that between the aptitude test and GPA (0.555 for males and 0.633 for females). Finally, the coefficient between the high school mark and GPA reached 0.409 for males and 0.558 for females. This is in line with the findings of Alzamil (2010) only regarding correlation coefficients between the aptitude test and GPA being higher among females, while it was lower between the achievement test and GPA and between the high school mark and the GPA.

### **6.2.3.2 Separate Multiple Linear Regression Analyses (Enter Method) for Males and Females:**

The current study shows that the variation in the GPA, which can be explained by the three criteria for admission, was higher among females than among males. The three independent variables account for 58% and 41% of the variance in GPA amongst female and male students, respectively. This is consistent with AlMohamadi's (2011) study with regards to the high school rate and achievement test, wherein the contribution to the variation in GPA was higher among females. The aptitude test has no statistically significant effect on GPA variation according to the results of AlMohamadi's study. Also, the values were lower than those found in this study (23% for males and 34% for females).

While Alzamil (2010) findings agree with ours regarding males, showing that the three criteria for admission combined account for 41.5% of the variation in males' GPA, this was reduced to 38.1% for females.

Regarding the order of these criteria in terms of power, our study shows that the achievement test is the strongest criterion for both males and females. This is consistent with AlMohamadi's (2011) and Alzamil (2010) studies in the finding that the achievement test criterion has the greatest ability to predict students' GPA in the preparatory year for both males and females. However, there was a difference in the determination of the second and third best criteria. The current study shows that high school is second best, followed by the capacity test, in terms of predictive ability for females, which does not conform with the above-mentioned studies.

According to the results of this study, the regression equation can be written as follows:

For males:  $GPA = (\text{achievement test scores} \times .038) + (\text{high school marks} \times 0.21) + (\text{capability test scores} \times .016) - 2.050$

For females:  $GPA = (\text{high school marks} \times 0.41) + (\text{achievement test scores} \times 0.031) + (\text{capability test scores} \times .024) - 4.046$

### **6.2.4 Statistics for Separate Tracks**

To determine predictive ability by the programme track, the tracks were individually analysed to ascertain the predictive ability of the admission criteria and arrange them accordingly. The differences and similarities amongst tracks were then compared. As

previously explained, the preparatory year programme features three tracks: health sciences, natural sciences and social studies.

#### **6.2.4.1 Pearson's Correlation Coefficient:**

Pearson's correlation coefficient analysis was carried out to ascertain both the relationship between each admission criterion and students' GPA and the associations amongst the criteria. A separate analysis was conducted for each track. The individual analyses reflect a statistically significant coefficient of correlation ( $p < 0.01$ ) between achievement test scores, capability test scores and high school marks and the preparatory GPA in each track.

#### **6.2.4.2 Separate Multiple Linear Regression Analysis (Enter Method) for each Track:**

The ENTER method of linear regression analysis was used to determine the predictive ability of the three criteria. All predictor variables were concurrently added to the regression equation, but separate analyses were carried out for each track.

The results show that the achievement test, capability test and high school marks account for 46% of the variance in GPA in the natural sciences track, 31% in the health sciences track and 39% in the social studies track. These results differ from those of AlMohamadi (2011), wherein the high school rate and the achievement test accounted for 27% of the variation in GPA in the natural sciences and 13.6% in the health sciences. The capability test was not statistically significant in the regression equation in that study in the natural sciences and health sciences tracks. With regards to the health sciences track, the results of this study are consistent with the findings of AlMohamadi in that the capability test does not have a statistically significant effect on the regression equation.

The orders of the three criteria differ in their predictive ability for the three tracks. This study shows that the achievement test is the strongest criterion, followed by the high school, for the natural sciences and health sciences tracks. Also, the capability test did not enter into the equation regarding the prediction of the health sciences, while AlMohamadi's (2011) study showed that the high school rate had the greatest predictive ability for the natural sciences and health sciences tracks. In the social studies track, regarding the order of these criteria in terms of power, this study showed

that the capacity test is the strongest criterion for both males and females students. The high school rate is second, followed by the achievement test.

### **6.3 Student Assessment of Programme Components**

This section aims to shed light on students' perspectives regarding the effectiveness of the preparatory year programme.

The sub-questions are as follows:

What are the students' evaluations of the programme's main elements (academic content, trainers, methods of evaluation, academic advising and university environment)?

To what extent does the programme achieve its goals?

What is the relationship between the subjects offered in the programme and its goals?

Do the students differ significantly in their evaluations of the programme's main elements in relation to branch?

Do the students differ significantly in their assessments of the programme's main elements in relation to gender?

The evaluation of the programme looked at academic content, trainers, assessment methods, academic advising, university environment, the extent to which the programme's goals are achieved and the relationship between academic subjects and the goals of the preparatory year programme). Quantitative data from questionnaires answered by 1972 students, and qualitative data from interviews with eight students, were used in this discussion.

#### **6.3.1 Students' Perspectives on the University Environment**

With respect to the elements of the programme, the university environment had the lowest weighted mean at 2.25 in the quantitative data. Both data types showed that the environment lacks many important elements such as entertainment venues and sports activities for leisure time, libraries and laboratories for scientific subjects; there is also a lack of an English language lab and deficiencies in food services. In addition, there is inadequate classroom space and poor cleaning standards. The interviews also showed that the students desire to have laboratories, which they see as critical to learning, and are affected by poor maintenance services and disruptions to many devices in classrooms and academic buildings. The elements of online registration,

technical support and computer labs attained higher means than the overall mean of this axis. However, the interviews showed that the number of devices in the computer labs is sometimes insufficient for the number of students. Also, machines occasionally break down. With regards to an English language lab, AlQahtani's (2004) study showed that 56% of the English Language programme students at King Faisal University preferred to learn English in a language lab, which is not available to PYP students at Taibah University according to the results of the current study.

Alankry (2012) study showed that the cost of meals and the lack of parking were the main problems faced by PYP students at King Saud University in Riyadh. Lack of parking also appeared to be an issue for the students in the current study. This point is important in the Saudi context, as private cars are an essential means of transport due to the scarcity of public transport services.

There was a statistically significant difference between the means in terms of gender variables in this axis in favour of males, which shows that the university environment is better for males overall.

The results show that statistically significant differences exist in the means of Madinah and Yanbu, as well as those of Madinah and Alula, in Madinah campus's favour. These differences are justified. According to the results of the interviews, the programme buildings in the Alula and Yanbu branches are mainly apartment buildings that are rented for educational use; therefore, they lack many of the important elements for education and are characterised by tight spaces and small classrooms. This is in contrast to the buildings in the city that were built on the campus, which are characterised by modernity and larger classrooms.

### **6.3.2 Students' Perspectives on the Achievement of Programme Goals**

From the point of view of the students, the programme did not achieve any of its goals; all five goals had "Disagree" ticked in the questionnaires. The interviews support this. The lowest goals mean was "The programme provides a high-quality learning environment to improve the outcome of university education". This is in line with the university environment axis attaining the lowest mean. This is in contrast to the findings of Hussein (2010), which showed that the preparatory year programme at the University of Tabuk achieved all of its goals in the opinion of students.

Our study shows that statistically significant differences exist between males and females in favour of the males. There are also statistically significant differences in the means between the three branches; Yanbu attained the lowest mean at 2.20.

### **6.3.3 Students' Perspectives on Academic Content**

The students' assessment of the academic content axis attained 2.7 as the third lowest mean. From the perspective of the students, the content was weak in terms of interaction with the trainer, and there was a lack of interest and suitability for students Specialty in the future, as it is not appropriate in terms of length. Students studying multiple subjects in their preparatory year (Mathematics, Computing, Biology, Physics, Chemistry and so on), therefore, may find that these topics are not related to their future majors, which are determined by students' GPA at the end of the PYP. Students being accepted to a speciality that is not of their choosing is one reason for failure, according to Abdulaal (2010). Meanwhile, according to Damietta (2010), problems related to courses ranked the highest among academic issues from the point of view of female students, averaging 3.61. Although clarity and ease of understanding the subject attained higher means than the overall average of the axis, the fact that programmes are taught in English is the greatest difficulty to do with subjects from the point of view of the students, even though the topics are mostly a repetition of what they studied in high school. At other times, the weakness of the students in the English language is the reason for their failure, according to Abdulaal (2010). The items that attained a higher mean than the overall average in this axis are those relating to content that is clear and error-free, diversity, associated activities and the fact that these subjects add to the student knowledge.

There was a statistically significant difference between the means according to gender variables in this axis in favour of males, although the curricula are the same for both genders. However, the differing teaching methods used may explain this discrepancy. The results show that there are no statistically significant differences between the means of Madinah and Alula while such differences do exist between Yanbu and other branches. Alula branch received the highest average in this axis.

### **6.3.4 Students' Perspectives on Academic Advising**

The overall mean in this axis is 2.73 (“neutral”). Only two items got “Disagree” responses, those relating to getting adequate support from the academic advisor, and the advisor visiting the classroom. The interviews showed a positive evaluation by the students of the role of the academic guide. PYP students also suffer from a lack of guidance services at King Saud University, according to Alankry (2012), while Damietta (2011) also identifies it as a problem from the viewpoint of female students at Taibah University. Abdulaal (2010), considered it one of the reasons for the failure of students at the University of Hail. There was a statistically significant difference between the means according to gender variables in this axis in favour of males.

The results show that statistically significant differences exist between the means of Madinah and Yanbu, as well as between Madinah and Alula, in favour of Madinah; these differences are justified. According to the interviews, the academic advisors are not dedicated to their work. There is also a trainer who teaches in addition to his/her work as an advisor in the Alula and Yanbu branches.

### **6.3.5 Student Assessment of Trainers**

Only one item received a “Disagree” response in this section relating to the diversity of teaching methods. The overall mean is 2.88 (“neutral”). The highest-rated items, according to the means, are related to trainers' appearance and time commitments. There were also positive points given from the perspective of students in the interviews, such as the use of teaching aids and responses to students' questions. However, there were some negative points, such as nervous responses to questions, distinctions made when dealing with students, and lack of time devoted to lessons on the part of some trainers. These situations were more prevalent for females than males, and cannot be generalised due to the small sample size in the interviews. It is worth noting that in Damietta's (2011) study, the problems related to faculty members came in fourth place, and the arithmetic mean was 3.36 in the issues faced by female students at Taibah University. Meanwhile, Alankry (2012) deemed that the development of good relationships between the faculty and student members is one of the most important means of addressing the academic and administrative problems faced by students in their preparatory year at King Saud University, although there were no statistically significant differences between genders on this axis. However, statistically

significant differences in the means were found between Madinah and Yanbu, and between Madinah and Alula, in favour of Madinah. From the point of view of the researcher, Madinah is a more attractive workplace for discerning trainers. There is also more experience in place, with Madinah being the oldest campus to apply the preparatory year programme.

### **6.3.6 Student Assessment of Programme Evaluation Methods**

The overall mean of the students' views on assessment methods is 2.89 ("neutral"). Just two items received "Disagree" responses, those relating to obtaining the results of tests in a timely manner and the diversity of assessment methods. The interviewed students confirmed that there were delays in getting test results. Exams account for at least 90% of the evaluation of subjects. According to the interviewees, the distribution of marks is unfair. These students prefer multiple choice questions and similar methods that do not require writing due to their weakness in written English. This is consistent with AlQahtani (2004), who found that 65% of students prefer these types of questions. The students also felt that there were more tests imposed than it was strictly necessary. There were no significant statistical differences between the genders on this axis. This is in line with the fact that assessment is done centrally by programme management and given out to all students. However, statistically significant differences in the means were found between Madinah and Alula and between Yanbu and Alula. Alula branch attained the lowest means in this axis, which can only be explained by how it executes exams and creates favourable conditions.

The fact that these students may not effectively communicate all that they have learnt in English give to a good number of students a hard time expressing what they have learnt in the course and this compromises their ability to receive the results that they deserve. It is important that the administration and policymakers create a level playing ground by giving the students an opportunity to be accredited by results from a variety of assessments. Multiple choice questions can also play an important role towards this goal. Delays in students receiving the exam results lead to limitation to the usefulness of these exams to improve their level of understanding and benefit from the feedback after the exam performance. The examination results should be disseminated after a period that allows the students to revisit the course components and acquaint themselves with what they got wrong. The late release of these results reduces their

relevance. Thus, there is a need to tackle the causes of delay in the results of students improving their performance. Also, the diversification of these assessment methods leads to the increase of their validity and reliability. This also acts as a motivating factor.

### **6.3.7 Student Assessment of the Relationship between Academic Subjects and Programme Goals**

The link between the subjects of the programme and its goals attained is an average of 3.16, meaning they are “moderately related”. Three subjects, “Medical Terminology”, “Principles of Human Physiology” and “Principles of Human Anatomy” were found to be “very strongly related”. These subjects attained the first three positions, while “Ethics for Health Professions” and “Chemistry for Health Sciences” got fourth and fifth respectively, and an overall average of “strongly related” in terms of the strength of their relationship with the programme goals. All of these subjects are studied in the Health Sciences track. In addition, “Computer Skills and English Language” achieved an overall average of “strongly related” and is studied in all programme tracks. At the University of Tabuk, “English Language” was ranked third in terms of relation to programme goals, according to Hussein (2010).

The study showed that there are statistically significant differences between males and females in favour of the males. There were also such differences in the means between the three branches; Yanbu attained the lowest mean at 3.06.

From these findings, it is important that the contents of the preparatory year program are directly related to the programme and its goals.

It appears from the need to review some of the subjects’ content so as to enhance the connection between these subjects and the goals programme. The relevant departments need to thoroughly review the PYP components related to Physics for Health Sciences and Engineering Technology as the results showed that these courses had the least correlated with the programme and its goals. The opinions of the students involved should be taken into account and incorporated in the changes where necessary.

### **6.4 Trainers’ Assessment of Programme Components**

This section is intended to illuminate the trainers’ perspectives regarding the effectiveness of the preparatory year programme. This is related to the answer to the

research question “From the perspectives of trainers, *how effective is the preparatory year programme?*”

The sub-questions are as follows:

- What are the trainers’ evaluations of the programme’s main elements (academic content, methods of evaluation, academic advising and university environment)?
- To what extent does the programme achieve its goals?
- What is the relationship between the subjects offered in the programme and its goals?
- Do the trainers differ significantly in their evaluations of the programme’s main elements in relation to branch?
- Do the trainers differ significantly in their assessments of the programme’s main elements in relation to gender?

The evaluation of the programme includes academic content, assessment methods, academic advising, university environment, the extent to which the program’s goals are achieved and the relationship between academic subjects and the goals of the PYP. The quantitative data was obtained from questionnaires given to 98 trainers while the qualitative data came from interviews with four trainers.

#### **6.4.1 Trainers’ Perspectives on University Environment**

As is the case among the students, the university environment got the lowest weighted mean at 2.31 in the quantitative data. Both data types showed that the university environment is missing many important elements such as entertainment venues and sports activities for leisure time, libraries, English language labs, laboratories for scientific subjects, and adequate food services. Also, there is insufficient classroom space and poor cleaning, lighting and ventilation. The interviews also showed that the trainers, like the students, desperately want laboratories, which they see as important for learning, and they also lambasted the poor maintenance services and the frequent disruptions to devices in classrooms and academic buildings. Computer labs, elements of online registration, devices within classrooms and technical support got higher means than the overall mean of this axis. The interviews also demonstrated that all the

respondents regarded their offices as un conducive to efficient work and consultations, given their small size and lack of privacy.

There was a statistically significant difference between the means according to trainers' gender variables in this axis.

The results show that statistically significant differences exist between the means of Madinah and Yanbu, as well as between Madinah and Alula, in favour of Madinah campus; these differences are justified. According to the results of the interviews, the program buildings in Alula and Yanbu branches are mainly apartment buildings rented for educational use. Therefore, they lack many of the crucial elements of education, are characterised by tight spaces, small classrooms and a lack of internet access, and are not appropriate for the educational process. In contrast, the buildings in the city were built on the campus and were distinguished by their modern style and large classrooms. However, all branches, including Medina, complained of poor trainers' offices and the lack of many of the important elements of education.

#### **6.4.2 Trainers' Perspectives on Goals Achievement**

This axis got the second lowest overall average at 2.62. From the point of view of the trainers, the programme does not achieve two out of the five goals, which received "Disagree" responses. This was supported by the interviews. The goal that got the lowest mean was "The preparatory year programme contributes to deepening the Islamic and national identity through the curriculum and student activities". This was confirmed by the interviews; three out of four interviewees assessed the programme as failing to satisfy this goal. This is in contrast to the findings of Hussein's (2010) study which showed that the preparatory year programme at the University of Tabuk achieved all of its goals from the perspective of faculty members. The study showed no statistically significant differences between males and females as well as no such differences in the means between the three branches.

It is, therefore, important to review the content of the program and elements to reveal the reason the programme failed to achieve some of the goals that put to it, and work to address the causes of that to achieve these goals. The two programmes that received a 'disagree' response should be thoroughly reviewed and overhauled if possible by changing their components or revising the various milestones and assessments administered towards the achievement of this goal.

### **6.4.3 Trainers' Opinions Regarding Academic Advising**

The overall mean in this axis is 2.81 (“neutral”); this is close to the overall average viewpoints of students (2.73). Only two items received “Disagree” responses, those relating to the efficacy, usefulness of academic advice, and the academic advisors’ visits to classrooms. Interviews showed a positive evaluation by trainers for the role of academic guide. The lack of advisor visits to classrooms may be due to the fact there is a shortage of advisors as well as the issue of advisors not being dedicated to such work, especially in Alula and Yanbu, as already explained. However, trainers received great support from the academic advisors, and this item attained the highest mean. It was confirmed by the interviewees that there was a shortfall in the number of advisors.

There was a statistically significant difference between the means according to gender variables in this axis in favour of females which is contrary to the perspective of students that appears to favour males. The results show that no statistically significant differences exist between the means of branches.

Although the results of the study showed a positive assessment by the trainers of the role of Academic Advising, that there was a shortage of academic advisors. The university needs to engage professions to assess the needs of the students in regard to academic advising and counselling and come up with recommendations on establishing an effective academic advising department that meets these needs.

### **6.4.4 Trainers' Perspectives on Assessment Methods**

The overall mean of the trainers’ views on assessment methods is 2.87 (“neutral”); this is higher than that of students (2.7). All items received “neutral” responses, including those relating to the appropriate quality of questions and diversity of assessment methods; this was confirmed by the interviews. Exams also account for 90% greater of the evaluation of subjects. The distribution of marks is unfair, according to the interviewees; they underlined the need to incorporate a variety of questions in exams, to increase the role of the trainer in the assessment of students, and to increase the grades for the activities of non-tests. There are more tests given than necessary from the point of view of trainers.

In any case, there were no statistically significant differences between genders or branches on this axis. This is in line with the fact that assessments were conducted centrally from the management of the programme to all students.

These findings are an indicator that the trainers are not satisfied with the criteria used to assess and rank the student's understanding of the various concepts taught throughout the program. This means that there is a need to diversify the assessments given to the various students. It is important for the trainers to be actively involved in the process of evaluating the current assessment procedures.

Their input can be used to diversify this aspect and ensure that the results given to each student are a true reflection of their abilities and input towards the program. The university should work to diversify the methods of evaluation and not be restricted on the exams and give the trainer a bigger role in the evaluation of his/ her students' leads to the improvement of the evaluation process in the program. There are among many other aspects that are taught in the program whose impact on the students may not be fully determined through written sit-in exams. Fairness and satisfaction of the trainers in the evaluation process will act as an incentive that will make them dedicate more time and effort towards this procedure.

#### **6.4.5 Trainers' Assessment of Academic Content**

Trainers' assessment of the academic content axis attained 3.16. This is higher than that of the students (2.7); interviews showed a positive evaluation of the programme among trainers. They felt that students were able to acquire the basic skills for success in college. However, the major challenges facing the students in the programme is their weakness in the English language. From the viewpoint of the trainers, the lessons are very long, leading to boredom for students. Additional exercises and activities are also provided to students online, but they do not use them.

There was a statistically significant difference between the means according to gender variables in this axis in favour of females. This means that the female overview is more positive in terms of the programme content.

The results show that statistically significant differences exist between the means of Alula and Madinah, as well as between Alula and Yanbu. Alula had a more positive overview of the programme content.

#### **6.4.6 Trainers' Assessment of the Relationship between Academic Subjects and Programme Goals**

The relationship between the subjects of the programme and its goals attained an overall average of 3.16, meaning they are “moderately related”. Three subjects, “Ethics for Health Professions”, “Health Education and Leisure” and “Computer Skills” were deemed “very strongly related”, and achieved the three highest positions. In addition, “Principles of Human Physiology”, “Chemistry for Health Sciences”, “Principles for Human Anatomy” and “University Study Skills” got an overall average of “strongly related”. According to Hussein (2010), Mathematics, Learning Skills and Biology had the greatest correlation with the programme goals from the perspective of faculty members at the University of Tabuk.

In any case, there were no statistically significant differences between genders or branches on this axis.

#### **6.5 Faculty Members' Views Regarding the Effectiveness of the Preparatory Year Programme**

This section relates to the faculty's perspectives regarding the difference in academic efficiency between graduates of the preparatory year programme and students who were not enrolled in the programme. The specific skills of these groups of students were compared. Additionally, the analysis was directed towards determining whether the faculty members differ significantly in their opinions about gender. This related to answering the research question “*How effective is the preparatory year programme in improving the performance of undergraduate students who completed it in comparison with those who did not enrol in it?*”

The sub-questions are:

- Do the faculty members differ significantly in the effectiveness of the preparatory year programme in relation to gender?

Findings were gathered as quantitative data from questionnaires with 167 faculty members while qualitative data was collected from interviews with five members.

Differences in academic efficiency between the two types of students:

The weighted mean value of the 24 items was 2.74, which points to a difference in certain skills between programme graduates and students who had not enrolled in the

PYP. The items relating to computer use, English language skills and basic scientific skills attained an answer of “big difference”. The nine items that exhibited mean scores equivalent to ‘difference’ were effective leadership, conscious interaction with the university environment and university study, conscious interaction with the environment and the needs and trends of the scientific and local communities, commitment to attendance, commitment and accountability, student independence and responsibility for his/her academics, student precision and planning, effective interaction in volunteer work and positive communication within groups (teamwork). The rest of the items exhibited mean scores corresponding to ‘slight difference’. Therefore, the study showed the effectiveness of the programme from the point of view of those who teach both types of students, and that there is a certified advantage for students who enrol in college to study after passing the PYP. The interviewees confirmed this. Graduates of the preparatory year are also easier to deal with and show more commitment to attending and performing what they are asked to do, according to the interviewees. These differences between students can be attributed mostly to the school that teaches students in their preparatory year, and not to other factors. Despite the weaknesses of both types of students in certain skills, such as English writing, cooperative learning, teamwork and constructive dialogue, decision-making and laboratory skills. However, there is a relative preference in favour of programme graduates.

The results show that there is no statistically significant difference between male and female faculty members in terms of how they view the academic efficiency of the two types of students.

#### **6.5.1 Faculty Members’ Overall View of the Programme’s Effects:**

The study shows that the weighted mean value of the faculty members’ overall views on the effects of the programme on students is 3.43, which corresponds to “positive effects”. Also, no statistically significant differences were found between the male and female faculty members’ overall views regarding programme effects.

#### **6.6 Recommendations**

Reconsideration should be made concerning the contribution of the admission criteria rates on a weighted percentage for acceptance into these programmes, where the

largest percentage should be given to achievement test, followed by high school, and finally aptitude test.

- PYP students should be given a chance to learn the study language before proceeding to the rest of the study subjects.
- More attention should be given to the development of good relationships between trainers and students.
- Improvement should be made to the content of the programme in order to achieve or realise the set goals.
- Improvement on the programme's teaching methods should be emphasised.
- Support should be given to the Academic Advising unit by providing a sufficient number of guides or distribution of work between all the trainers.
- Attention should be given to the university environment, so as to speed up the construction of buildings and facilities, such as resting places for students and particularly in the different branches of the University.
- Provision for laboratories and libraries should be considered within the buildings, where the programme is being undertaken.
- More attention should be given to the facilities that provide food services to students with quality being monitored regularly.
- The length of the curriculum in order to suit the allotted time for each academic subject should be reconsidered.
- Trainers should be given a key role in evaluating their students.
- The methods used to evaluate the students should be diversified to not only rely on the tests alone.

### **6.7 Proposals for the Study**

- ✓ To study the ability of preparatory-year students' GPAs to predict those students' GPAs in their university studies. The main objective of the preparatory-year programme is to prepare students for university study. The disclosure of the ability of students' results in the programme to predict their performance in their university studies reveals the extent of the programme's success.

- ✓ To study the ability of admission criteria to predict students' GPAs in their university studies. The current study showed that admission criteria can predict students' performance in the preparatory-year programme and the order of the ability of these criteria to do so. It would be useful to examine the ability of these parameters to predict the performance of students in college and the order of these in terms of power.
- ✓ To conduct content analysis study for the PYP subjects and its relationship with programme goals. The current study showed that the programme as it now stands, does not achieve its goals from perspective of students and does not achieve some its goals from the perspective of trainers and such as this study sheds light on that and why the program failed in achieve its goals.

### **6.8 Limitation and Delimitation of Study**

While every effort was made to make this a rigorous study, as with any study it is recognized that it has limitations, which undoubtedly impacted on the study.

Although the researcher has no relationship with the programme at the time of the study, he is a member of staff at Taibah University. The researcher made every effort to remain as neutral as possible. It is expected that the relatively large sample group reduced any potential bias. This study relies upon the opinions of the study sample at the time of data collection, and while this was the focus of the study, it would be useful to study the programme over a number of years, as a result of the constant changes to the programme's components.

This study was conducted in the three branches of Taibah University (Madinah, Alula and Yanbu) that the programme covers at the time of the study. Later Taibah University opened branches of the programme in other cities in the Medina region. These branches differ as to the elements of the programme. Therefore, it would be useful to conduct studies on the programmes in these branches.

### **6.9 Overall Conclusions**

In understanding the effectiveness of the preparatory program at Taibah University, it is important that one understands the motivations and expectations of the students and instructors in regard to it. These individuals expect that their participation in this

program will see a rise in GPA for students who attend it and generally have a positive impact on the subsequent learning.

Mixed research methods played a big role in the effective evaluation of the importance and influence of the various factors that were used to gauge the effectiveness of the program towards the intended course. These methods allowed the researcher to collect qualitative and quantitative data and gain insights from the respondents that were used in gauging their attitude towards the programme.

With regard to the criteria for admissions into the programme, the order of these criteria is regarded in terms of importance and influence. This study showed that the achievement test is the strongest, followed by the high school rate and, finally, by the capability test.

The study found out that none of the programme goals were achieved from the perspective of the students. On the other hand, three goals out of the five were achieved from the perspective of the instructors. Both the instructors and the students indicated that there was a “moderate relationship” between the subjects covered under the program and its goals. The findings also indicated that the programme did not offer a good learning environments both in the perspective of the trainers and that of the students. However, there was a significant positive difference between students who had enrolled in the preparatory programmes and those who had not in favour of the programme students. This difference is a reflection of the success of the optimism and efforts of the faculty members towards imparting skills and knowledge to the students who had enrolled in the programs.

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## **Appendixes**

**Appendix A – Permission to Carry Out Study**

Ollscoil Chathair Bhaile Átha Cliath  
Dublin City University



Dr. Gerard McNamara,  
School of Education Studies

9<sup>th</sup> July 2013

**REC Reference:** DCUREC/2013/136

**Proposal Title:** **Evaluation of Effectiveness and Validity of Preparatory Year Programme at Preparing Students for Studying in Taibah University in Saudi Arabia**

**Applicants:** Dr. Gerard McNamara, Mr. Ahmad AlBalawi

Dear Gerard,

Further to expedited review, the DCU Research Ethics Committee approves this research proposal. Materials used to recruit participants should note that ethical approval for this project has been obtained from the Dublin City University Research Ethics Committee. Should substantial modifications to the research protocol be required at a later stage, a further submission should be made to the REC.

Yours sincerely,

A handwritten signature in black ink that reads 'Donal O'Mathuna'.

Dr. Donal O'Mathuna  
Chairperson  
DCU Research Ethics Committee



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## Appendix B – Students Questionnaire

### Assessment of preparatory year programme components at Taibah University from the perspective of students.

#### —Students Questionnaire—

##### **Instruction:**

- This questionnaire is part of a study aimed to evaluation the preparatory year programme at the University of Taibah.
- The information gathered in the questionnaire will be treated confidentially and will be used for scientific research purposes only.
- That participation is optional.
- There is no need for any personal data.
- It will take 10 – 15 minutes.

Please tick the appropriate box or complete the answer. There is no right or wrong answer. Please choose the answer which represents your opinion.

Track :	Gender: <input type="checkbox"/> Female <input type="checkbox"/> Male
Branch:	

## Theme I

Assessment of preparatory year programme components at Taibah University from the perspective of students

Please indicate your response by place on **X** on the appropriate box.

### Part 1: Student assessment of academic contents

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Contents of preparatory year subjects are interesting					
2	It is easy to understand the content of academic subjects which they are clear					
3	Contents would be useful to me as a reference in the future					
4	Contents ideas are consistent and coherent					
5	Contents units are suitable in terms of length					
6	There is activities in contents decisions to understanding					
7	Contents encourage me to interact with the trainer in light of educational material					
8	Contents contains a series of exercises and problems that develop different thinking skills					
9	Contents are suitable for my specialist area.					
10	The language of contents is sound, clear and error-free.					
11	There is diversity in course content.					
12	The contents added to my knowledge and raised my academic skills.					

## Part 2: Student assessment of trainers

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1 Trainer taught scientific material efficiently.					
2 Trainer begins and terminates lessons in distinct manner.					
3 Trainer focuses on the key points in the lesson.					
4 Trainer explains the lesson in a coherent and seamless method.					
5 Trainer takes into account the different levels of students.					
6 Trainer is committed to the dates of the beginning and the ending of lectures.					
7 Trainer diversifies in the use of teaching methods.					
8 Trainer is mostly available during office hours.					
9 Trainer is fluent in contacting and dialoging with students.					
10 Trainer uses assistive technology during the explanation in a proper way.					
11 Trainer appearance adequate and well-groomed.					
12 Trainer encourages outstanding work of students.					
13 Trainer encourages the spirit of creativity and scientific thinking in his students.					
14 Trainer deals with students in an open manner.					

**Part 3: Student assessment of assessment methods**

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1 Exam question types are appropriate.					
2 . Test questions cover content of the subjects.					
3 Different methods evaluation were used.					
4 I get my grades in a timely manner.					
5 Tests atmosphere is comfortable.					
6 Time of the tests are appropriate.					
7 I know the dates of the tests and the location of halls at an appropriate time.					

**Part 4: Student opinion in academic advising**

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1 Academic advice is effective and useful.					
2 Academic advisor is continuously available to respond to my questions.					
3 Academic advisor communicates with students individually and collectively.					
4 Academic advisor visits to the students inside the classroom.					
5 Students get great support from the academic advisor.					

## Part 5: University environment

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1 Classrooms are comfortable and clean and its area is appropriate.					
2 Lighting, ventilation and classroom environment are conducive to understanding and learning.					
3 Devices within classrooms operate efficiently in most cases.					
4 Laboratories are properly equipped.					
5 Computer labs sufficient and appropriate.					
6 Library provides adequate sources and references					
7 Library provides an appropriate places for viewing and reading.					
8 Library provides adequate and sufficient computers for reading and research.					
9 Stadiums and halls are available for practicing sports and recreational activities.					
10 It is easy to use the electronic registration system of the university.					
11 In case of any problem using the electronic registration system it is easy to communicate with technical support.					
12 Food and beverages facilities provide appropriate services and meet the needs					

**Part 6: Extent of achieving the objectives of the Preparatory Year programme**

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	The preparatory year programme contributes to deepening the Islamic and national identity through the curriculum and student activities.					
2	The programme provides a well-developed course with high quality standards.					
3	The programme directs students to the appropriate college given their abilities and skills.					
4	The programme promotes the outstanding academic performance of the students.					
5	The programme provides a high-quality learning environment to improve the outcome of university education.					

## Theme II

Investigating the relationship between academic subjects and goals of the preparatory year from the perspective of students

Dear Student, please determine the relationship between academic subjects and goals of the preparatory year from your point of view by selecting the appropriate class for each subject in the following table:

	Academic Subject	Very Strongly Related	Strongly Related	Moderately Related	Slightly Related	Very Slightly Related
1	English language					
2	Computer Skills					
3	Health education and leisure					
4	University study skills					
5	Principles of human					
6	Chemistry for Health Sciences					
7	Medical terminology					
8	Principles for Human Anatomy					
9	Physics for Health Sciences					
10	ethics for health professions					
11	mathematics					
12	Basic Science					
13	Engineering Technology					

The end

Thank you

## Appendix C – Trainers Questionnaire

### Assessment of preparatory year programme components at Taibah University from the perspective of trainers.

#### —Trainer Questionnaire—

#### Instruction:

- This questionnaire is part of a study aimed to evaluation the preparatory year programme at the University of Taibah.
- The information gathered in the questionnaire will be treated confidentially and will be used for scientific research purposes only.
- That participation is optional.
- There is no need for any personal data.
- It will take 5 – 10 minutes.

Please tick the appropriate box or complete the answer. There is no right or wrong answer. Please choose the answer which represents your opinion.

College:	
branch	
Gender: <input type="checkbox"/> Female <input type="checkbox"/> Male	

#### Specialization:

1	English language		8	Principles for Human Anatomy	
2	Computer Skills		9	Physics for Health Sciences	
3	Health education and leisure		10	ethics for health professions	
4	University study skills		11	mathematics	
5	Principles of human		12	Basic Science	
6	Chemistry for Health Sciences		13	Engineering Technology	
7	Medical terminology				

## Theme I

Assessment of preparatory year programme components at Taibah University from the perspective of trainers

Please indicate your response by place on **X** on the appropriate box.

### Part 1: Trainer's assessment of academic contents

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Contents of preparatory year courses suit the needs of students.					
2	It is easy to identify the scientific objectives of the contents.					
3	Contents' ideas are consistent and coherent.					
4	Contents' Units are suitable in terms of length.					
5	Activities in contents help to achieve learning goals.					
6	Contents encourage students to interact with the trainer in light of educational material.					
7	Contents contain a series of exercises and problems that develop student's thinking skills.					
8	Contents are relevant to intended purposes.					
9	The organization and arrangement of the content suitable to student's needs.					
10	Contents take into account students levels and their mental abilities.					
11	Language of contents sound, clear and error-free.					
12	Textbooks are appropriate and well organized.					

**Part 2: assessment methods**

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Exam question types are appropriate for students.					
2	Test questions cover content of the subjects.					
3	Different methods evaluation were used.					
4	Students get grades in a timely manner.					
5	Tests atmosphere is comfortable.					
6	Time of the tests is appropriate for students.					
7	Students know the dates of the tests and the location of halls at an appropriate time.					

**Part 3: Trainer's opinion of academic advice**

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Academic advice is effective and useful.					
2	Academic advisor is continuously available to respond to my questions.					
3	Academic advisor communicates with students individually and collectively.					
4	Academic advisor visits the students inside the classroom.					
5	Trainers find great support from the academic advisor.					

**Part 4: University environment**

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Classrooms are comfortable and clean and its area is appropriate.					
2	University environment characterized by health standards such as lighting and ventilation.					
3	Devices within classrooms operate efficiently in most cases.					
4	Laboratories are properly equipped.					
5	Computer labs sufficient and appropriate.					
6	Library provides adequate sources and references.					
7	Library provides an appropriate places for viewing and reading.					
8	Library provides adequate and sufficient computers for reading and research.					
9	Stadiums and halls are available for practicing sports and recreational activities.					
10	It is easy to use the electronic registration system of the university.					
11	In case of any problem using the electronic registration system it is easy to communicate with technical support.					
12	Food and beverages facilities provide appropriate services and meet the needs					

## Part 5: Extent of achieving the objectives of the Preparatory Year programme

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	The preparatory year programme contributes to deepening the Islamic and national identity through the curriculum and student activities.					
2	The programme provides a well-developed course with high quality standards.					
3	The programme directs students to the appropriate college given their abilities and skills.					
4	The programme promotes the outstanding academic performance of the students.					
5	The programme provides a high-quality learning environment to improve the outcome of university education.					

### Theme II

Investigating the relationship between academic subjects and goals of the preparatory programme year from the perspective of Trainers

Dear trainer, I wish you to indicate the extent of the link between the courses you teach and the goals of the preparatory year programme from your point of view. Select the appropriate class in the following table:

Very Strongly Related	Strongly Related	Moderately Related	Slightly Related	Not Related

The end

Thank you

## Appendix D – Efficiency Questionnaire

### Identifying opinions of faculty members about the effectiveness of the preparatory year programme

#### Instruction:

- This questionnaire is part of a study aimed to evaluation the preparatory year programme at the University of Taibah.
- The information gathered in the questionnaire will be treated confidentially and will be used for scientific research purposes only.
- That participation is optional.
- There is no need for any personal data.
- It will take 5 – 10 minutes.

Please tick the appropriate box or complete the answer. There is no right or wrong answer. Please choose the answer which represents your opinion.

---

College:

Gender:

Years of experience in higher education:

Have you teach students who studied the preparatory year at Taibah University?	Yes	<input type="checkbox"/>	NO	<input type="checkbox"/>
--	-----	--------------------------	----	--------------------------

Have you teach students who not studied the preparatory year at Taibah University?	Yes	<input type="checkbox"/>	NO	<input type="checkbox"/>
--	-----	--------------------------	----	--------------------------

Comparing graduates of the preparatory year programme that you have taught, with students who have not studied the preparatory year, do you find a noticeable difference between the two groups in revision to the following skills and Knowledge:

	Statement	There is a very big difference	There is a big difference	There a difference	There is a slight difference	There is no difference
1	English writing, reading and conversation					
2	computers using					
3	Basic scientific skills in studied course.					
4	Cooperative learning (with colleagues and other appropriate sources).					
5	Creative thinking and innovative and positive.					
6	knowledge of scientific research.					
7	Positive communication within groups (teamwork).					
8	Constructive dialogue.					
9	Decision-making.					
10	Ability to overcome problems and obstacles.					
11	Ability to response to constructive criticism.					
12	Commitment and accountability.					
13	Conscious interaction with the university environment and university study					
14	Conscious interaction with the environment and the needs and trends of the scientific and local community.					
15	Effective interaction in volunteer work.					
16	Effective Leadership.					
17	Linking information with realistic applications.					

	Statement	There is a very big difference	There is a big difference	There a difference	There is a slight difference	There is no difference
18	Work ethic.					
19	Responsibility towards national development.					
20	With respect to the chosen scientific and career path.					
21	Identify the abilities and potential.					
22	Student independence and take himself responsibility.					
23	Commitment to attendance.					
24	Student accustomed to precision and planning.					

**Your Overall View of the Impact of the Programme on the Student.**

	Very positive	Positive	Moderately positive	Slightly positive	No impact
My overall view of the impact of the programme on the student.					

The end

Thank you

## **Appendix E – Students Interviews**

### **STUDENT INTERVIEWS**

INTERVIEWEE NUMBER: (for purposes of identification in data analysis and discussion)

GENDER:

TIME:

INTERVIEW LOCATION:

The interview started by reminding the student that their identity would not be revealed. They were also told of their right to withdraw from the interview at any point. The subject, the aim, and the location of the research were introduced.

#### **Questions:**

**Track:**

**Age:**

**Branch:**

Before we go into the details, what is your opinion of the content of the preparatory year in general?

Now, let us take a look at the axes or parts of the program.

#### **assessment of academic contents**

1. The first axis is the study subjects. You are studying scientific and theoretical subjects (Math, COMPUTER SKILLS, Science subjects etc.).
2. What is your opinion of the content of the study material? What is your opinion of the subjects in the program?
3. Do you find them interesting and exciting, or boring?
4. Do you find the content of the study subjects is connected, consistent, and sequential (Is the first subject connected to the second and so on)?
5. As for the length of the subjects, do you find them appropriate (at the level of the lessons or the whole subject)?
6. Do you think that the content of the program is connected to the specialization you will be studying? Do you think you will benefit from them in the future?
7. Are there activities and exercises in the subjects that enhance the understanding of the lessons?

## **Trainers**

1. What do think of the course teachers in general? What about their way of delivering the subjects? Also, what is your opinion of their ethics (morals in dealing with issues)?
2. What do you think about the way the teachers deliver information in the course?
3. If one student does not understand a particular point from the teacher, how does the teacher respond to this?
4. If you go to one teacher outside of class, and you say that you do not understand some points, in what way will they react?
5. Do teachers use teaching aids?
6. Are there discussions between teachers and students?
7. How much are teachers committed from the beginning to the end of the class? Do they take advantage of the whole time?
8. Could you give a percentage for time commitment by teachers?
9. Do you have any final comments about this axis (teachers and their teaching methods), negative or positive?

## **university environment**

1. What is your opinion of the physical environment in the university?
2. What about the lighting and air-conditioning?
3. Are the halls equipped with projectors and whiteboards?
4. Are the places for taking breaks between classes good enough?
5. Is there a dining area?
6. Is there a place for activities inside the building?
7. What do you think of the laboratories?
8. What do you think of the computer lab?
9. Is there an internet connection in the building?
10. What is your opinion of the library?
11. Are you allowed to use the library in the main university?
12. Is the university website practical and easy to use?
13. When there is a technical problem, is it solved? If so, how?

## **Evaluation Methods**

1. What evaluation methods are used? What do think of them?
2. How are marks distributed for exams, activities, class participation, and homework?
3. Do you find this distribution of marks fair?
4. Are the results given soon after the exams, or are they late?
5. What is your opinion about the type of questions?

## **Academic Advice**

1. What is opinion of the academic advice?

2. Is there an educational guide? Do they come to classes?
3. Does anyone come into classes to give advice and instructions?
4. If a problem occurs between you and a colleague or a teacher, where do you go?

### **Achieve goals**

When the university set this program, it meant to achieve certain goals, like:

1. The preparatory year program contributes to deepening the Islamic and national identity through the curriculum and student activities.  
Does this program achieve this objective?
2. The program provides a well-developed course with high quality standards.  
Does this program achieve this objective?
3. The program directs students to the appropriate college given their abilities and skills.  
Does this program achieve this objective?
4. The program promotes the outstanding academic performance of the students.  
Does this program achieve this objective?
5. The program provides a high-quality learning environment to improve the outcome of university education.  
Does this program achieve this objective?

### **The relationship between the subjects and the preparatory year goals**

Is there a relationship between the subjects and goals of the program?

1. University life skills
2. English language.
3. Basic Sciences.
4. Math.
5. Computer Skills.

Do you have any final comments on any positive or negative aspects of the program?

The end

Thank you

## **Appendix F – Trainers Interviews**

### TRAINERS' INTERVIEWS

INTERVIEWEE NUMBER (for purposes of identification in data analysis and discussion)

GENDER:

TIME:

INTERVIEW LOCATION:

The interview started by reminding the trainer that their identity would not be revealed. Also, they were told of their right to withdraw from the interview at any point. The subject, the aim, and the location of the research were introduced.

### **QUESTIONS**

SPECIALIZATION:

What is your opinion of the preparatory year program in Taibah University?

#### **assessment of academic contents**

1. What is your opinion of the subjects in the preparatory year? Are they appropriate for the students?
2. Are the content and the subjects exciting for the students, or are they boring?
3. Do you find the content of the material connected, consistent, and sequential (is the first subject connected to the second and so on)?
4. As for the length of the subjects, do you find them appropriate (at the level of the lessons or the whole subject)?
5. Are there any activities and exercises that strengthen the students' understanding of the lessons?
6. From your point of view, why don't they benefit from them?
7. Do you have any further comment on the subject material before we move to another topic?

#### **Evaluation Methods**

1. What are the evaluation methods? What do you think of them?
2. Are there any other evaluation methods except exams?
3. Do you find the distribution of the test scores for the four skills appropriate?
4. Are the tests results issued within an appropriate time frame, or are they delayed?

5. What do you think of the quality of the questions?
6. Do you think they are appropriate?
7. Do you have any comment on this axis?

### **Academic Advice**

1. What do you think of the academic guidance, regarding both trainers and students?
2. Does anyone come to classes to give advice or instructions?

### **university environment**

1. What is your opinion of the physical environment offered by the university?
2. What do you think of the classes in terms of lighting, air-conditioning, capacity, etc.?
3. Are the halls equipped with appropriate boards and projectors?
4. Are the trainers' offices appropriate?
5. Are resting places for between lectures and for breaks available?
6. Is there a dining area?
7. Is there a place for activities inside the building?
8. What do you think of the laboratories?
9. Do you feel there is a need for scientific labs?
10. Is there internet in the building?
11. What do think of the library?
12. Do you have any other comments on this axis?

### **Achieve goals**

When the university set this program, it meant to achieve certain objectives. Have you been briefed in these objectives?

One of the objectives:

1. The preparatory year program contributes to deepening the Islamic and national identity through the curriculum and student activities.  
Does this program achieve this objective?
2. The program provides a well-developed course with high quality standards.  
Does this program achieve this objective?
3. The program directs students to the appropriate college given their abilities and skills.  
Does this program achieve this objective?
4. The program promotes the outstanding academic performance of the students.

Does this program achieve this objective?

5. The program provides a high-quality learning environment to improve the outcome of university education.

Does this program achieve this objective?

### **The relationship between the subjects and the preparatory year goals**

The relationship between the material and the objectives of the preparatory year from the trainer's view (the second axis)

The relationship between the program objectives and the course you teach.

Do you have any final comment on any negative or positive aspects of the program?

Do you have any positive or negative points that you might want to add?

The end

Thank you

## Appendix G – Program Effectiveness Interviews

### PROGRAM EFFECTIVENESS INTERVIEWS

INTERVIEWEE NUMBER (for purposes of identification in data analysis and discussion)

GENDER:

TIME:

INTERVIEW LOCATION:

#### **Notes**

Interviews will be with faculty members who have taught students at undergraduate level who had completed the preparatory year program as well as students who had not done so.

The interview will start by reminding the interviewees of their anonymity as well as their right to withdraw from the interview or request the withdrawal of the interview data from the study at any point. The subject and aim of the study as a whole and the interviews specifically will be explained.

The following details will then be confirmed:

SPECIALIZATION

#### ***Interviews***

The primary question guiding the interviews is: Comparing graduates of the preparatory year that you have taught with students who have did not attend the preparatory year, is there a noticeable difference between the two groups?

In light of the answer to this question, I will ask questions about specific skills and knowledge to identify the differences between the two groups in detail. As such, interviewees will be selected to represent the different genders and tracks.

The interviewees will be asked the primary question as an open question at first and then be asked to elaborate on their responses without explicit guidance from the interviewer. This is important to avoid the interviewer guiding their answers and thereby potentially missing unexpected aspects.

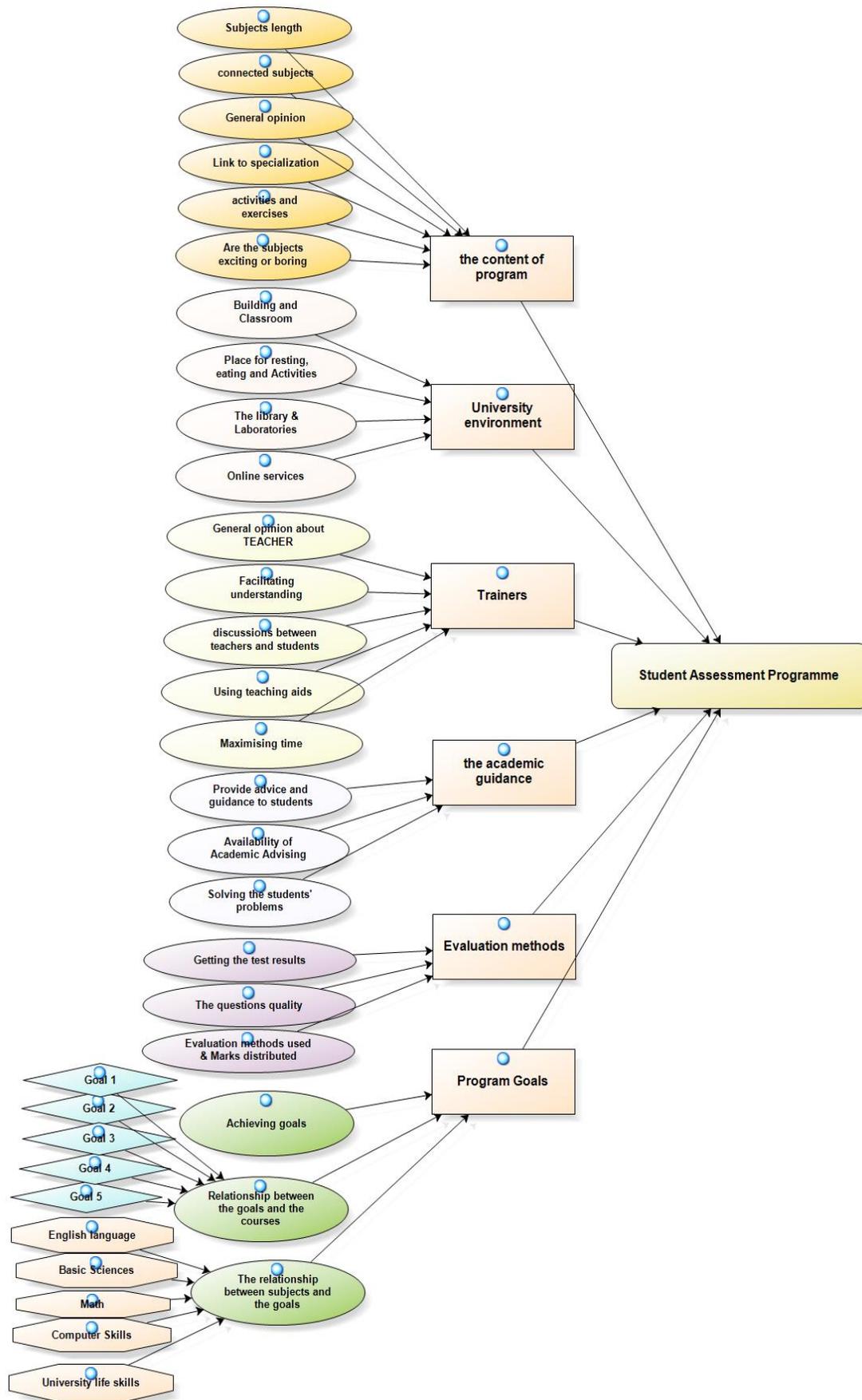
Once the interviewee has responded to the primary question freely, he or she will be asked to elaborate on any observed differences in the following respects:

- English language skills.
  - Computer use.
  - Cooperative learning/teamwork ability/constructive dialogue.
  - Decision-making/problem-solving/response to constructive criticism.
  - Conscious interaction with the university environment and local environment.
  - Work ethic and commitment to attendance.
  - Identify abilities, potential, and student independence.
  - Student accustomed to structured learning and planning.
  - Whether either group is easier to deal with.
  - Ability to quickly understand learning topics.
- 
- Whether differences are because of what the students studied in the preparatory year or if there are other factors at play.

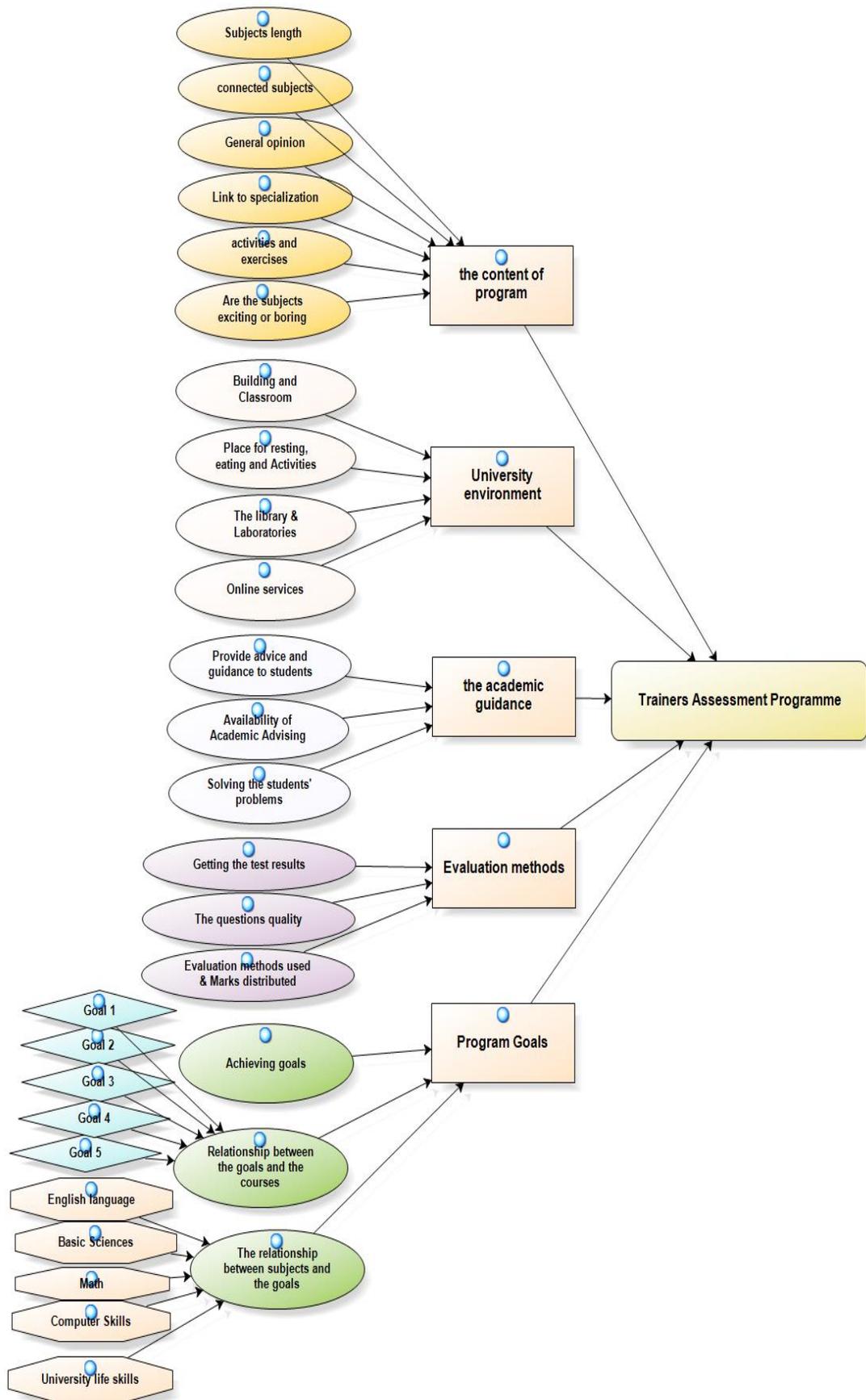
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Thank you

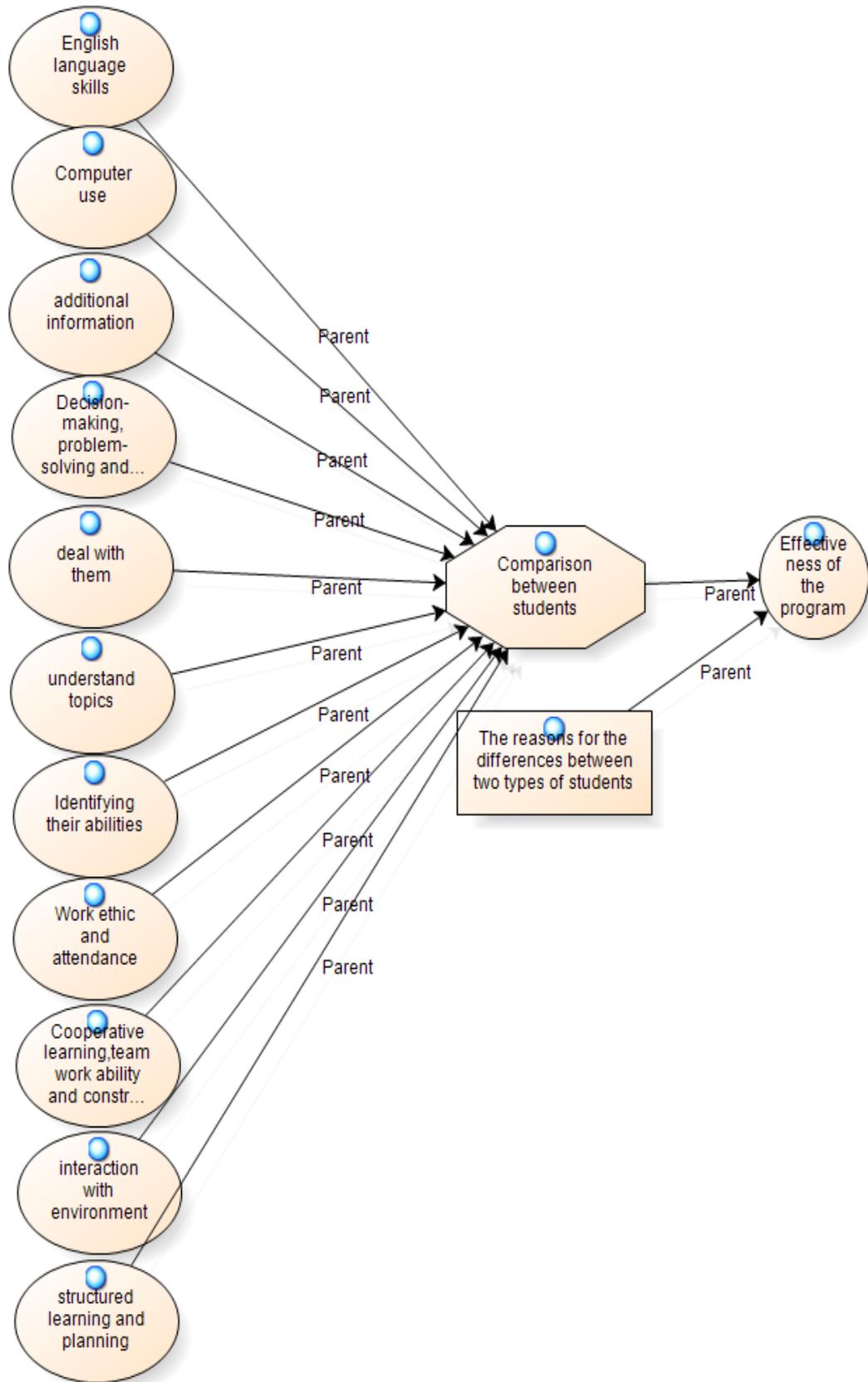
## Appendix H: Students Models



## Appendix I: Trainers Models



## Appendix J: efficiency Models



## Appendix K – pilot study analysis (Students) before deleting some items

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**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corre cted Item- Total Correl ation	Cronbach' s Alpha if Item Deleted
1. Contents of preparatory year subjects are interesting	37.15	93.791	.345	.851
2. It is easy to understand the content of academic subjects which they are clear	37.10	87.606	.571	.840
3. Contents would be useful to me as a reference in the future	36.88	85.191	.655	.834
4. Contents ideas are consistent and coherent	37.03	88.532	.560	.841
5. Contents units are suitable in terms of length	37.21	84.580	.647	.834
6. There is activities in contents decisions to understanding	36.71	89.122	.492	.844
7. Contents encourage me to interact with the trainer in light of educational material	37.32	92.053	.356	.852
8. Contents contains a series of exercises and problems that develop different thinking skills	37.05	83.521	.739	.829
9. The contents contains continuous assessment for my learning achievements.	36.31	97.433	.098	.867
10. Contents are suitable for my specialist area.	37.18	84.034	.626	.835
11. The language of contents is sound, clear and error-free.	36.19	88.625	.475	.845
12. Textbooks are appropriate.	36.39	102.221	-.086	.873
13. There is diversity in course content.	36.76	82.951	.686	.831
14. The contents added to my knowledge and raised my academic skills.	36.98	79.831	.824	.822

RELIABILITY

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	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
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## Scale: ALL VARIABLES

**Case Processing Summary**

		N	%
Cases	Valid	108	100.0
	Excluded <sup>a</sup>	0	.0
	Total	108	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.894	16

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Correct ed Item- Total Correlati on	Cronba ch's Alpha if Item Deleted
1. Trainer taught scientific material efficiently.	43.96	123.045	.510	.889
2. Trainer begins and terminates lessons in distinct manner.	44.23	120.217	.718	.883
3. Trainer focuses on the key points in the lesson.	44.44	115.520	.755	.880
4. Trainer explains the lesson in a coherent and seamless method.	43.90	117.606	.661	.883
5. Trainer takes into account the different levels of students.	44.27	120.703	.580	.887
6. Trainer is committed to the dates of the beginning and the ending of lectures.	43.75	120.208	.675	.884
7. Trainer balances during the presentation of the lesson between explanation, discussion and exercises.	43.64	131.653	.147	.902
8. Trainer diversifies in the use of teaching methods.	44.30	116.640	.690	.882
9. Trainer is mostly available during office hours.	43.59	118.431	.672	.883
10. Trainer is fluent in contacting and dialoging with students.	43.58	121.030	.555	.888
11. Trainer uses assistive technology during the explanation in a proper way.	44.19	123.423	.466	.891
12. Trainer appearance adequate and well-groomed.	44.16	119.498	.644	.884
13. Trainer encourages outstanding work of students.	44.05	118.886	.583	.886
14. Trainer encourages the spirit of creativity and scientific thinking in his students.	44.08	121.161	.507	.890
15. Trainer deals with students in an open manner.	44.44	119.874	.653	.884
16. Trainer is a fluent user of the English language.	43.59	133.178	.104	.903

RELIABILITY

```

/VARIABLES=c1 c2 c3 c4 c5 c6 c7 c8
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/SUMMARY=TOTAL.

```

## Reliability

### Notes

Output Created		22-APR-2016 05:07:29
Comments		
	Data	C:\Users\Admin\Desktop\pilot study\pilot study Student F.sav
	Active Dataset	DataSet2
Input	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY /VARIABLES=c1 c2 c3 c4 c5 c6 c7 c8
Syntax		/SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

[DataSet2] C:\Users\Admin\Desktop\pilot study\pilot study Student F.sav

## Scale: ALL VARIABLES

### Case Processing Summary

		N	%
Cases	Valid	108	100.0
	Excluded <sup>a</sup>	0	.0
	Total	108	100.0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	N of Items
.825	8

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Exam question types are appropriate..	20.37	29.432	.613	.796
2. I am being reviewed in a fair and objective way.	20.24	33.661	.207	.845
3. Test questions cover content of the subjects.	21.15	28.183	.528	.809
4. different methods evaluation were used.	20.88	29.116	.639	.793
5. I get my grades in a timely manner.	20.77	29.918	.525	.807
6. Tests atmosphere is comfortable.	20.71	28.562	.605	.796
7. time of the tests are appropriate.	20.56	27.575	.619	.794
8. I know the dates of the tests and the location of halls at an appropriate time.	20.46	28.270	.673	.787

```
RELIABILITY
/VARIABLES=d1 d2 d3 d4 d5 d6
/SCALE('ALL VARIABLES') ALL
```

**Reliability**

**Notes**

Output Created	22-APR-2016 05:08:15
Comments	
Input	C:\Users\Admin\Desktop\pilot study\pilot study Student F.sav
Data	
Active Dataset	DataSet2
Filter	<none>
Weight	<none>
Split File	<none>
N of Rows in Working Data File	108
Missing Value Handling	User-defined missing values are treated as missing.
Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax	RELIABILITY /VARIABLES=d1 d2 d3 d4 d5 d6 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.
Resources	Processor Time 00:00:00.02
	Elapsed Time 00:00:00.02

[DataSet2] C:\Users\Admin\Desktop\pilot study\pilot study Student F.sav

## Scale: ALL VARIABLES

**Case Processing Summary**

		N	%
Cases	Valid	108	100.0
	Excluded <sup>a</sup>	0	.0
	Total	108	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.862	6

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Academic advice is effective and useful.	13.33	21.776	.827	.807
2. Academic advisor is continuously available to respond to my questions.	13.19	20.620	.866	.797
3. I can contact academic advisor at any time, any place.	12.57	30.265	.089	.922
4. Academic advisor communicates with students individually and collectively.	13.06	20.670	.812	.807
5. Academic advisor visits to the students inside the classroom.	13.74	23.970	.604	.848
6. Students get great support from the academic advisor.	13.60	22.186	.784	.816

### RELIABILITY

```

/VARIABLES=e1 e2 e3 e4 e5 e6 e7 e8 e9 e10 e11 e12 e13 e14
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/SUMMARY=TOTAL.

```

## Reliability

		Notes
Output Created		22-APR-2016 05:09:14
Comments		
Input	Data	C:\Users\Admin\Desktop\pilot study\pilot study Student F.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Cases Used		Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY /VARIABLES=e1 e2 e3 e4 e5 e6 e7 e8 e9 e10 e11 e12 e13 e14 /SCALE("ALL VARIABLES") ALL /MODEL=ALPHA /SUMMARY=TOTAL.
Syntax		
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

[DataSet2] C:\Users\Admin\Desktop\pilot study\pilot study Student F.sav

## Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	108	100.0
	Excluded <sup>a</sup>	0	.0
	Total	108	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.886	14

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Classrooms are comfortable and clean and its area is appropriate.	30.94	96.333	.722	.870
2. In classrooms, an appropriate number of seats is available for the students.	29.32	115.062	-.074	.911
3. Lighting, ventilation and classroom environment are conducive to understanding and learning.	30.47	96.083	.674	.872
4. Devices within classrooms operate efficiently in most cases.	30.68	95.941	.782	.868
5. Facilities are modern and enhance learning.	29.61	116.034	-.102	.904
6. Laboratories are properly equipped.	30.69	97.451	.652	.874
7. Computer labs sufficient and appropriate.	30.56	94.734	.710	.870
8. Library provides adequate sources and references.	30.82	96.277	.751	.869
9. Library provides an appropriate places for viewing and reading.	31.01	97.953	.742	.871
10. Library provides adequate and sufficient computers for reading and research.	30.58	95.273	.732	.870
11. Stadiums and halls are available for practicing sports and recreational activities.	31.14	97.840	.744	.871
12. It is easy to use the electronic registration system of the university.	30.24	101.829	.438	.884
13. In case of any problem using the electronic registration system it is easy to communicate with technical support.	30.51	100.140	.585	.877
14. Food and beverages facilities provide appropriate services and meet the needs	31.09	97.281	.735	.870

## Appendix L – pilot study analysis (Students) after deleting some items

```
GET
DATASET NAME DataSet1 WINDOW=FRONT.
  /VARIABLES=a1 a2 a3 a4 a5 a6 a7 a8 a10 a11 a13 a14
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

### Reliability

		Notes
Output Created		29-APR-2016 07:02:52
Comments		
Input	Data	C:\Users\Admin\Documents\pilot study Student F_before deletion.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=a1 a2 a3 a4 a5 a6 a7 a8 a10 a11 a13 a14 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

[DataSet1] C:\Users\Admin\Documents\pilot study Student F\_before deletion.sav

### Scale: ALL VARIABLES

Case Processing Summary		
	N	%
Valid	108	100.0
Cases Excluded <sup>a</sup>	0	.0
Total	108	100.0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	N of Items
.889	12

## Reliability

### Notes

Output Created		29-APR-2016 07:04:34
Comments		
	Data	C:\Users\Admin\Desktop\البحث\الملاحق\النهائي\pilot study Student F_After deletion.sav
	Active Dataset	DataSet1
Input	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY
		/VARIABLES=b1 b2 b3 b4 b5 b6 b8 b9 b10 b11 b12 b13 b14 b15
Syntax		/SCALE('ALL VARIABLES') ALL
		/MODEL=ALPHA.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

## Scale: ALL VARIABLES

### Case Processing Summary

		N	%
Cases	Valid	108	100.0
	Excluded <sup>a</sup>	0	.0
	Total	108	100.0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	N of Items
.912	14

RELIABILITY

```

/VARIABLES=c1 c3 c4 c5 c6 c7 c8
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
    
```

### Reliability

#### Notes

Output Created	29-APR-2016 07:05:06
Comments	
Data	C:\Users\Admin\Desktop\البحث\الملاحق\النهائي\pilot study Student F_After deletion.sav
Active Dataset	DataSet1
Filter	<none>
Weight	<none>
Split File	<none>
N of Rows in Working Data File	108
Matrix Input	
Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Statistics are based on all cases with valid data for all variables in the procedure.
Cases Used	RELIABILITY
Syntax	<pre> /VARIABLES=c1 c3 c4 c5 c6 c7 c8 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.                     </pre>
Processor Time	00:00:00.02
Resources	
Elapsed Time	00:00:00.01

### Scale: ALL VARIABLES

#### Case Processing Summary

		N	%
Cases	Valid	108	100.0
	Excluded <sup>a</sup>	0	.0
	Total	108	100.0

- a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	N of Items
.845	7

```
RELIABILITY
/VARIABLES=d1 d2 d4 d5 d6
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```

### Reliability

#### Notes

Output Created		29-APR-2016 07:05:56
Comments		
	Data	C:\Users\Admin\Desktop\البحث\الملاحق\النهائي\pilot study Student F_After deletion.sav
	Active Dataset	DataSet1
Input	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY
		/VARIABLES=d1 d2 d4 d5 d6
		/SCALE('ALL VARIABLES') ALL
		/MODEL=ALPHA.
	Processor Time	00:00:00.00
Resources	Elapsed Time	00:00:00.01

### Scale: ALL VARIABLES

#### Case Processing Summary

		N	%
Cases	Valid	108	100.0
	Excluded <sup>a</sup>	0	.0
	Total	108	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.922	5

RELIABILITY

/VARIABLES=e1 e3 e4 e6 e7 e8 e9 e10 e11 e12 e13 e14  
/SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.

**Reliability**

**Notes**

Output Created		29-APR-2016 07:06:34
Comments		
	Data	C:\Users\Admin\Desktop\البحث\
	Active Dataset	DataSet1
	Filter	<none>
Input	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are
	Cases Used	Statistics are based on all cases with
Syntax		RELIABILITY
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

**Scale: ALL VARIABLES**

**Case Processing Summary**

		N	%
Cases	Valid	108	100.0
	Excluded <sup>a</sup>	0	.0
	Total	108	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.930	12

## Appendix M – pilot study analysis (Trainers) before deleting some items

### RELIABILITY

```
/VARIABLES=a1 a2 a3 a4 a5 a6 a7 a8 a9 a10 a11 a12 a13 a14
/SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.
```

### Reliability

		Notes
Output Created		29-APR-2016 08:09:41
Comments		
Input	Data	C:\Users\Admin\Desktop\Trainers pilot study.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	22
Missing Value Handling	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Cases Used	Missing Value Handling	Statistics are based on all cases with valid data for all variables in the procedure.
	Cases Used	
Syntax		RELIABILITY
		/VARIABLES=a1 a2 a3 a4 a5 a6 a7 a8 a9 a10 a11 a12 a13 a14
		/SCALE('ALL VARIABLES') ALL
		/MODEL=ALPHA
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

[DataSet2] C:\Users\Admin\Desktop\Trainers pilot study.sav

### Scale: ALL VARIABLES

#### Case Processing Summary

		N	%
Cases	Valid	22	100.0
	Excluded <sup>a</sup>	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

#### Reliability Statistics

Cronbach's Alpha	N of Items
.911	14

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.Contents of preparatory year courses suit the needs of students.	39.32	104.227	.740	.900
2. It is easy to identify the scientific objectives of the contents.	39.09	106.848	.551	.908
3. Contents' ideas are consistent and coherent.	39.41	103.968	.741	.900
4. Contents' Units are suitable in terms of length.	39.36	108.433	.752	.901
5. Activities in contents help to achieve learning goals.	39.86	111.742	.586	.906
6. Contents encourage students to interact with the trainer in light of educational material.	39.27	100.494	.897	.894
7. Contents contain a series of exercises and problems that develop student's thinking skills.	39.41	98.063	.939	.891
8. Contents are relevant to intended purposes.	39.36	105.004	.773	.899
9. Contents are comprehensive and deep.	40.36	127.766	-.215-	.927
10. The organization and arrangement of the content suitable to student's needs.	39.14	107.076	.497	.911
11. Contents take into account students levels and their mental abilities.	40.23	130.279	-.367-	.929
12. Textbooks are appropriate.	39.41	101.396	.825	.896
13. Language of contents sound, clear and error-free.	39.32	102.323	.823	.897
14. Textbooks are appropriate and well organized.	39.55	103.784	.892	.895

RELIABILITY

```

/VARIABLES=B_1 B_2 B_3 B_4 B_5 B_6 B_7 B_8
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/SUMMARY=TOTAL.

```

## Reliability

		Notes
Output Created		29-APR-2016 08:10:18
Comments		
Input	Data	C:\Users\Admin\Desktop\Trainers pilot study.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	22
Missing Value Handling	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Cases Used	Missing Value Handling	Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY /VARIABLES=B_1 B_2 B_3 B_4 B_5 B_6 B_7 B_8 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet2] C:\Users\Admin\Desktop\Trainers pilot study.sav

### Scale: ALL VARIABLES

#### Case Processing Summary

		N	%
Cases	Valid	22	100.0
	Excluded <sup>a</sup>	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

#### Reliability Statistics

Cronbach's Alpha	N of Items
.765	8

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Exam question types are appropriate for students.	20.14	23.266	.417	.748
2. Test questions cover content of the subjects.	20.45	22.926	.532	.730
3. different methods evaluation were used.	20.82	23.108	.359	.760
4. Students get grades in a timely manner.	20.55	21.307	.665	.706
5. Tests atmosphere is comfortable.	20.64	23.385	.440	.744
6. committees monitors and supervisors are understanding.	20.00	26.857	.031	.815
7. time of the tests are appropriate for students.	20.36	20.338	.651	.703
8. Students know the dates of the tests and the location of halls at an appropriate time.	20.27	19.922	.732	.688

RELIABILITY

/VARIABLES=b1 b2 b3 b4 b5 b6

/SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.

**Reliability**

**Notes**

Output Created		29-APR-2016 08:10:50
Comments		
	Data	C:\Users\Admin\Desktop\Trainers pilot study.sav
	Active Dataset	DataSet2
Input	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	22
	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling		Statistics are based on all cases with valid data for all variables in the procedure.
	Cases Used	
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

[DataSet2] C:\Users\Admin\Desktop\Trainers pilot study.sav

## Scale: ALL VARIABLES

### Case Processing Summary

		N	%
Cases	Valid	22	100.0
	Excluded <sup>a</sup>	0	.0
	Total	22	100.0

- a. Listwise deletion based on all variables in the procedure.
- b.

### Reliability Statistics

Cronbach's Alpha	N of Items
.815	6

### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Academic advice is effective and useful.	11.32	21.370	.746	.753
2. Academic advisor is continuously available to respond to my questions.	11.50	18.929	.850	.720
3. I can contact academic advisor at any time, any place.	11.73	33.922	-.420	.918
4. Academic advisor communicates with students individually and collectively.	10.86	18.695	.644	.774
5. Academic advisor visits the students inside the classroom.	11.36	20.433	.823	.735
6. Trainers find great support from the academic advisor.	11.41	18.158	.854	.714

### RELIABILITY

```

/VARIABLES=c1 c2 c3 c4 c5 c6 c7 c8 c9 c10 c11 c12 c13 c14
  /SCALE('ALL VARIABLES') ALL
 /MODEL=ALPHA
 /SUMMARY=TOTAL.

```

## Reliability

### Notes

Output Created		29-APR-2016 08:11:46
Comments		
Input	Data	C:\Users\Admin\Desktop\Trainers pilot study.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	22
Missing Value Handling	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet2] C:\Users\Admin\Desktop\Trainers pilot study.sav

## Scale: ALL VARIABLES

### Case Processing Summary

		N	%
Cases	Valid	22	100.0
	Excluded <sup>a</sup>	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	N of Items
.875	14

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Classrooms are comfortable and clean and its area is appropriate.	33.59	72.253	.642	.861
2. An appropriate number of offices and seats are available for trainers	33.95	84.903	.098	.888
3. University environment characterized by health standards such as lighting and ventilation.	32.36	71.290	.742	.856
4. Devices within classrooms operate efficiently in most cases.	32.91	74.372	.545	.867
5. Facilities are modern and enhance learning.	34.27	85.636	.139	.882
6. Laboratories are properly equipped.	33.09	80.087	.371	.875
7. Computer labs sufficient and appropriate.	33.18	77.775	.495	.869
8. Library provides adequate sources and references.	33.14	74.123	.621	.863
9. Library provides an appropriate places for viewing and reading.	32.68	72.608	.692	.859
10. Library provides adequate and sufficient computers for reading and research.	32.50	82.452	.330	.876
11. Stadiums and halls are available for practicing sports and recreational activities.	33.36	71.481	.732	.856
12. It is easy to use the electronic registration system of the university.	33.05	80.807	.607	.868
13. In case of any problem using the electronic registration system it is easy to communicate with technical support.	33.45	72.926	.884	.852
14. Food and beverages facilities provide appropriate services and meet the needs	33.50	72.833	.673	.860

## Appendix N– pilot study analysis (Trainers) after deleting some items

```
SAVE OUTFILE='C:\Users\Admin\Desktop\البحث النهائي\الملاحق\Trainers
pilot study after deletion.sav'
/COMPRESSED.
RELIABILITY
/VARIABLES=a1 a2 a3 a4 a5 a6 a7 a8 a10 a12 a13 a14
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```

### Reliability

		Notes
Output Created		29-APR-2016 08:16:12
Comments		
Input	Data	C:\Users\Admin\Desktop\البحث النهائي\الملاحق\Trainers pilot study after deletion.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	22
Missing Value Handling	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=a1 a2 a3 a4 a5 a6 a7 a8 a10 a12 a13 a14 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

[DataSet2] C:\Users\Admin\Desktop\البحث النهائي\الملاحق\Trainers pilot study after deletion.sav

**Scale: ALL VARIABLES**

**Case Processing Summary**

		N	%
Cases	Valid	22	100.0
	Excluded <sup>a</sup>	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.947	12

RELIABILITY

/VARIABLES=B\_1 B\_2 B\_3 B\_4 B\_5 B\_7 B\_8  
/SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.

**Reliability**

**Notes**

Output Created	29-APR-2016 08:16:31
Comments	
Data	C:\Users\Admin\Desktop\البحث النهائي\الملاحق\Trainers pilot study after deletion.sav
Active Dataset	DataSet2
Filter	<none>
Weight	<none>
Split File	<none>
N of Rows in Working Data File	22
Matrix Input	
Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Statistics are based on all cases with valid data for all variables in the procedure.
Cases Used	RELIABILITY /VARIABLES=B_1 B_2 B_3 B_4 B_5 B_7 B_8 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Syntax	
Processor Time	00:00:00.00
Resources	Elapsed Time 00:00:00.02

[DataSet2] C:\Users\Admin\Desktop\البحث النهائي\الملاحق\Trainers pilot study after deletion.sav

**Scale: ALL VARIABLES**

### Case Processing Summary

		N	%
Cases	Valid	22	100.0
	Excluded <sup>a</sup>	0	.0
	Total	22	100.0

- a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	N of Items
.815	7

RELIABILITY

/VARIABLES=b1 b2 b4 b5 b6 /SCALE('ALL VARIABLES') ALL/MODEL=ALPHA.

## Reliability

### Notes

Output Created	29-APR-2016 08:16:49
Comments	
Data	C:\Users\Admin\Desktop\البحث\الملاحق\النهائي\Trainers pilot study after deletion.sav
Active Dataset	DataSet2
Input	
Filter	<none>
Weight	<none>
Split File	<none>
N of Rows in Working Data File	22
Matrix Input	
Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Statistics are based on all cases with valid data for all variables in the procedure.
Cases Used	RELIABILITY
Syntax	/VARIABLES=b1 b2 b4 b5 b6 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	
Processor Time	00:00:00.00
Elapsed Time	00:00:00.01

[DataSet2] C:\Users\Admin\Desktop\البحث\الملاحق\النهائي\Trainers pilot study after deletion.sav

**Scale: ALL VARIABLES**

### Case Processing Summary

		N	%
Cases	Valid	22	100.0
	Excluded <sup>a</sup>	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	N of Items
.918	5

RELIABILITY

```
/VARIABLES=c1 c3 c4 c6 c7 c8 c9 c10 c11 c12 c13 c14
/SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
```

### Reliability

#### Notes

Output Created	29-APR-2016 08:17:07
Comments	
Input	C:\Users\Admin\Desktop\البحث\الملاحق\النهائي\Trainers pilot study after deletion.sav Data Active Dataset DataSet2 Filter <none> Weight <none> Split File <none> N of Rows in Working Data File 22 Matrix Input
Missing Value Handling	Definition of Missing User-defined missing values are treated as missing. Cases Used Statistics are based on all cases with valid data for all variables in the procedure.
Syntax	RELIABILITY /VARIABLES=c1 c3 c4 c6 c7 c8 c9 c10 c11 c12 c13 c14 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time 00:00:00.03 Elapsed Time 00:00:00.02

[DataSet2] C:\Users\Admin\Desktop\البحث\الملاحق\النهائي\Trainers pilot study after deletion.sav

**Scale: ALL VARIABLES**

### Case Processing Summary

		N	%
Cases	Valid	22	100.0
	Excluded <sup>a</sup>	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	N of Items
.900	12

## Appendix O – pilot study analysis (Efficiency) before deleting some items

GET

FILE='C:\Users\Admin\Desktop\Efficiency.sav'.

DATASET NAME DataSet3 WINDOW=FRONT.

DATASET ACTIVATE DataSet3.

DATASET CLOSE DataSet2.

RELIABILITY

/VARIABLES=a1 a2 a3 a4 a5 a6 a7 a8 a9 a10 a11 a12 a13 a14 a15 a16  
a17 a18 a19 a20 a21 a22 a23 a24 a25 a26

/SCALE('ALL VARIABLES') ALL /MODEL=ALPHA/SUMMARY=TOTAL.

### Reliability

#### Notes

Output Created		29-APR-2016 08:25:01
Comments		
	Data	C:\Users\Admin\Desktop\Efficiency.sa
	Active Dataset	DataSet3
	Filter	<none>
Input	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	22
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are
	Cases Used	Statistics are based on all cases with
Syntax		RELIABILITY
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

[DataSet3] C:\Users\Admin\Desktop\Efficiency.sav

### Scale: ALL VARIABLES

**Case Processing Summary**

		N	%
Valid		22	100.0
Cases Excluded <sup>a</sup>		0	.0
Total		22	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.893	26

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.English writing, reading and conversation	73.14	130.885	.556	.887
2.The use of computers and various applications in learning	72.95	138.141	.333	.892
3.Basic scientific skills in studied course	73.41	133.968	.642	.886
4.Cooperative learning (with colleagues and other appropriate sources)	73.95	138.712	.329	.892
5.Creative and innovative positive thinking.	73.45	128.450	.683	.883
6.Knowledge of scientific research.	73.68	133.751	.406	.891
7.Positive communication within groups (team work)	73.73	134.494	.593	.887
8.Constructive dialogue	74.00	127.714	.689	.883
9.Decision-making	73.82	135.489	.396	.891
10.Ability to overcome problems and obstacles.	74.23	134.946	.466	.889
11.Ability to response to constructive criticism.	73.64	143.481	.355	.892
12.Commitment and accountability.	73.27	137.065	.468	.889
13.Conscious interaction with the university environment and university study.	73.59	137.587	.319	.893
14.Conscious interaction with the Environment and the needs and trends of the scientific and local community.	73.55	129.307	.867	.881

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
15.Effective interaction in the student activities.	73.68	144.418	.081	.896
16.Effective interaction in volunteer work.	73.95	136.426	.447	.889
17.Self-development to meet the requirements of the labor market and national development.	73.95	145.474	.009	.897
18.Effective Leadership.	73.23	137.613	.530	.888
19.Linking information with realistic applications.	73.45	135.022	.551	.887
20.Work ethic.	73.95	138.998	.292	.893
21.Responsibility towards national development.	73.55	141.784	.266	.893
22.With respect to the chosen scientific and career path.	73.59	134.920	.577	.887
23.Capability of identify the abilities and potential.	73.36	130.719	.659	.884
24.Student willingness to take responsibility.	73.55	132.736	.551	.887
25.Commitment to attendance.	73.55	126.641	.696	.883
26.Student accustomed to precision and planning.	73.41	137.587	.323	.893

## Appendix P – pilot study analysis (Efficiency) after deleting some items

```
RELIABILITY
/VARIABLES=a1 a2 a3 a4 a5 a6 a7 a8 a9 a10 a11 a12 a13 a14 a16 a18
a19 a20 a21 a22 a23 a24 a25 a26
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```

### Reliability

		Notes
Output Created		29-APR-2016 08:29:20
Comments		
	Data	C:\Users\Admin\Desktop\البحث\الملاحق\النهائي\pilot study Efficiency _after deletion.sav
	Active Dataset	DataSet3
Input	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	22
	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY
		/VARIABLES=a1 a2 a3 a4 a5 a6 a7 a8 a9 a10 a11 a12 a13 a14 a16 a18 a19 a20 a21 a22 a23 a24 a25 a26
		/SCALE('ALL VARIABLES') ALL
		/MODEL=ALPHA.
	Processor Time	00:00:00.02
Resources	Elapsed Time	00:00:00.01

[DataSet3] C:\Users\Admin\Desktop\البحث\الملاحق\النهائي\pilot study Efficiency \_after deletion.sav

## Scale: ALL VARIABLES

**Case Processing Summary**

		N	%
Cases	Valid	22	100.0
	Excluded <sup>a</sup>	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.900	24