FACTORS AFFECTING POST-BASIC STUDENTS' INTENTION TOWARD SCIENCE COURSES IN OMAN

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BY

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ABSTRACT

The objective of this study was to investigate the factors that influence students' intention to continue studying science subjects in precollege. The study framework contained two independent variables, namely students' attitude toward science subjects, and school science curriculum. The dependent variable of this study was students' intention to study science. A quantitative correlational study design was used to achieve the study objective. Data were collected through the questionnaire survey method from 341 secondary school students. The population of the study was the students of post-basic schools in Oman. The samples were chosen randomly from seven post-basic schools located in Al-Sharkiyaha North governorate in Oman. The data was analysed using SPSS version 23.0. The main findings of this study showed that students' attitude and science curriculum had positive significant relationship with students' intention to study science subjects. This study offers insights for policy makers, school administrators and teachers on understanding the role of student's attitude towards learning science subjects and the nature and design of the science curriculum on students' intention to continue studying science subjects in post-secondary education. It can be understood that by employing effective instructional strategies and engaging curriculum schools and teachers can facilitate students to develop positive intention to continue studying science subjects in post-secondary education.

Keywords: Intention, Attitude, Science Curriculum, Oman, Post-Basic School

ABSTRAK

Objektif kajian ini adalah untuk mengkaji faktor-faktor yang mempengaruhi tujuan pelajar untuk terus belajar mata pelajaran sains dalam pre-kolej. Rangka kerja kajian mengandungi dua pemboleh ubah bebas iaitu sikap pelajar terhadap mata pelajaran sains, dan kurikulum sains sekolah. Pembolehubah bersandar kajian ini adalah tujuan pelajar untuk belajar sains. Satu kajian kuantitatif menggunakan reka bentuk korelasi telah digunakan untuk mencapai objektif kajian. Data dikumpul melalui kaedah tinjauan soal selidik daripada 341 pelajar sekolah menengah. Populasi kajian adalah pelajar-pelajar sekolah kursus pengkhususan di Oman. Sampel dipilih secara rawak dari tujuh buah sekolah kursus pengkhususan terletak di kawasan yang di bawah bidang kuasa Al-Sharkiyaha Utara di Oman. Data dianalisis menggunakan perisian SPSS versi 23.0. Penemuan utama kajian ini menunjukkan bahawa sikap pelajar dan sains kurikulum mempunyai hubungan yang signifikan positif dengan tujuan pelajar untuk terus belajar mata pelajaran sains. Kajian ini menawarkan hala tuju bagi pembuat dasar, pentadbir sekolah dan guru untuk memahami peranan yang dimainkan oleh sikap pelajar terhadap pembelajaran mata pelajaran sains, dan struktur dan reka bentuk kurikulum sains terhadap tujuan pelajar untuk terus belajar mata pelajaran sains dalam pendidikan lepasan menengah. Boleh disimpulkan bahawa dengan menggunakan strategi pengajaran yang efektif dan kurikulum sekolah yang menarik, guru boleh membantu pelajar untuk membangunkan keinginan positif untuk terus belajar mata pelajaran sains dalam pendidikan lepasan menengah.

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LIST OF ABBREVIATIONS

SI	Students Intention
SA	Students Attitude
SSC	School Science Curriculum
DV	Dependent Variable
IV	Independent Variable
H1	First Hypothesis
H2	Second Hypothesis
SPSS	Statistical Package of Social Science

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The chapter contains six main sections. They are focusing on the background of the study, the statement of research problem, research questions, objectives of the study, the scope of the research, lastly the research significance. The main purpose of this part is to introduce the structure of the study and the context of this research.

This chapter describes the general idea of the study that was investigated. Moreover, it debates about the factors that influence students' intention to study science subjects in secondary schools. These factors are; students' attitude to study science and science curriculum.

1.2 Background of Study

The education system in Oman has witnessed dramatic development in the last few decades with the accession to power of His Majesty Sultan Qaboos bin Said on the 23rd of July, 1970. The quality and quantity of education has increased rapidly since then; the school buildings became more modern and fully equipped with advanced technology and instructional media, and the framework of the education management has become more organized.

During the past ten years, the education system has changed in Oman to Basic Education System which includes Cycle 1 (Grades 1-4) and Cycle 2 (Grades 5-10). This is followed by Grades 11 and 12 which are called "Post-Basic Education". In grade 12 which is the last grade in the system, students sit for national exams in different subjects. Based on

their results , they can apply in different fields of study in and outside the country's colleges and universities, both government and private.(Al-Jardani, 2012). However, students from grade 1 to grade 10 have to study science as compulsory subject. The common topics for science curriculum are; physical, life, earth, space, and human sciences. Furthermore, school science curriculum in primary education requires that all pupils develop their performance levels of scientific literacy, and make foundation for the study of science subjects in the post-basic education. Most importantly, it cultivates a positive attitude to science and provides pupils with opportunities to experience the excitement of working as a scientist. On other hand, the curriculum in Post-Basic Education is organized on a "core plus electives subjects, which gives students an element of choices in the subjects that will be studied. For the science subjects, it is introduced into four separate courses; biology, chemistry, physics, and technology science. Students can choose one, or two, or three courses within this science subjects group. The table below shows the core and elective subjects in Post-Basic Education (Ministry of Education, 2012).

Table 1.1: The core and elective subjects in Post-Basic Education in Oman

Core Subjects	Electives Subjects	
	Group 1	**Group 2**
• Islamic • Arabic • English • Social	• Pure Mathematics • Applied Mathematics • Biology • Chemistry	• English Language Skills • Biology • Chemistry

• Student' Professional Path	• Physics • Technology Science–non-science.	• Physics • Geography • History • Arts • Music Skills • School Sport • ICT

According to the table, the number of subjects that student must be study are ten; five core subjects and five electives subjects. There are two groups in electives subjects; First group, student must choose only one subject from the three science subjects (Biology, Physics, or Chemistry) and one subject from mathematics (Pure or Applied). While in the Second group, students can choose three subjects which are not repeated chosen in the first group.

A range of courses vary according to students' abilities, interests and aspirations So, Omani students in tenth grade usually start to choose what they want to study in Post-basic education. For example, student who likes science subjects can take: Pure Mathematics, Biology, Chemistry, Physics, and Sport Class, beside the five core subjects, while students who dislike all science subjects, can avoid Biology, Chemistry, and Physics. For instance, they can choose; Applied Mathematics, Technology Science, Geography, History, Sport, and the five core subjects. Students who didn't select science subjects, they are not eligible to enrol in scientific disciplines in higher education, e. g; engineering.

Many students wonder why they need to learn science - in general, biology, chemistry, and physics as subject areas. Others just fail to understand the importance of including it in the school years. Science offers the answers to various questions that most people ask out of curiosity, in our early years. For instance, how does it rain? How does our body function? and many more. Furthermore, science education in other fields has been reported in history to be early education at the Stone Age where the early humans invent a weapon for hunting and farming activities. Contrary to layman believes that science education is to produce future scientist, Oriahi, Uhumuavbi and Aguele (2010) argued that science education is to educate people on how to tackle current issues that may arise as a result of climate change, food production, energy resources on a large scale.

Regularly in education, teachers are concern about their pupils' results. Most teachers hope their pupils will success. Therefore, understanding students' intention is essential in supporting students' achievement in a particular subject. If students are not interested in science, they tend not to make efforts to learn and understand the meaning of concepts that are being taught to them (Lindahl, 2003). It was shown that the most effective factor contributing to students' decisions to study science is their interest in the subject (Hofstein & Mamlok-Naaman, 2011). Scholars have emphatically and consistently highlighted the importance of enhancing favourable attitudes toward scientists, science, as well as science learning among pre college pupils as an indicator to reinforcing the health of the scientific education channel (Osborne,Simon, & Collins, 2003; Trumper, 2006). The American Association advancement of Science (AAAS), in Science for American nation (1990), stated that pupils enter elementary school with an impulsive interest in nature, besides many appear from school seeing science as too gloomy to

interest them and too boring to study. Additionally, school science is often described as unrelated, difficult, and boring to learn in comparison with other topics. Actually, there are remarkable consistent descriptions of school science have been distinguished across Australia, England, and Sweden (Lyons, 2006). From this description, it ought to come as no wonder that scholars have investigated students' attitudes toward science due to a fundamental hypothesis that attitudes assist to motivate school performance as well as career choice (Craker,2006). Strangely enough that concerns about the negative consequences towards school science might have in detouring pupils are well founded considering that as a current evidence (e.g; Said, Summers, Abd-El-Khalick, & Wang ,2016) who stated students' comparatively higher attitudes toward science in society, or global science.

However, in studying the students' intention to study science, researchers of science education Yunus and Ali (2013) attempted to determine factors that influence secondary school students to choose science course. They found, there are various factors can contribute with students' intention. One of them is students' attitude to study science, and science curriculum, which are the focus of this study. In accordance to Hofstein and Mamlok-Naaman (2011), attitudes of students towards science are formed at an early age, teachers and parents can recognize the pupils' attitude towards science disciplines. When the pupils display negative attitude in learning science process, teachers and parents can take required actions in order to make the pupils have a significant positive attitude towards science disciplines. Furthermore, significant positive attitudes toward science have been asserted to encourage student interest in science curricula (Kaya & Böyük, 2011), and science-related careers (Hofstein & Mamlok-Naaman ,2011; Hagay & Baram-

Tsabari, 2015). In addition, Karabenick and Moosa (2005) concluded evidence that has been adequate to increase general acceptance which effective accomplishment in science will gain positive attitudes toward science, so, that positive attitudes toward science enhance student achievement as well. However, recent research compliments and extends information have shown students' attitudes toward science decrease when they move from elementary stage to middle stage to high school (Sjøberg, 2002; Craker, 2006; Murphy, Ambusaidi, & Beggs, 2006). The science curriculum is fundamental factors that affected towards pupils' attitude to science. Some pupils consider science as an unfavorite subject because of the quantity of information they have to study besides the total of time spent for writing in science courses (Holbrook & Rannikmae, 2007; Erdemir, 2009). Another research compliments and extends information from Jegede (2007) argued that a lot of students said that chemistry is too broad for them to learn in a short time. Students find it a bit difficult to learn science because of its cramped syllabus. In addition, a lot of science teacher have to make extra classes to cover all of the chapters in the syllabus. Students who truly want to learn will have little problem grasping the concepts. However, weak students will find science exceedingly dull and dreary.

1.3 Problem Statement

Developing positive attitudes toward and interest in science in general and learning science in particular is one of the key goals for teaching and learning the sciences. However, it is observed widely for example; Oriahi, Uhumuavbi and Aguele (2010) found that almost of students tend to choose non-science subjects. E.g, Economics, Literature, Secretarial Studies, Banking and Finance more than science subjects,

E.g,Mathematics, Physics, Biology and Chemistry. However, in Biology that might show up with a chance to be popular, the enrolment rate of this subject is poor. More to this, Yunus and Ali (2013) found that decline of students' intention toward science due to negative attitude of students towards science. In addition, a curriculum as a factor contributes to declining students' intention to study science in secondary school (Erdemir,2009). Related to the situation in Arab countries, the Arab Human Development Report (United Nations Development Programmer [UNDP],2015 which precisely announced to scientific production in Arab nations, informed to pay attention to two, likely consistent, concerns linked to production and scientific research in Arab states: the almost total absence of quality advanced studies in certain fields, for instance, molecular biology and information technology, besides, the low number of qualified engineering and science (E&S) workforces (Said, Summers, & Wang, 2016). In addition, it is important to note that is the number of Arab pupils registering in scientific courses in higher education, which is correspondingly low. Moreover, in 2008 report 'The Road Not Travelled—Education in the Middle East,' the World Bank showed that only 20 percent of higher institutions students in most Arab states are registered in science and engineering compared, for example, to 47 percent in China (Said, Summers, Abd-El-Khalick, & Wang,2016).

The case in Omani school in particular indicates the same issue. Omani school students' statistical data (2015/2016) (appendix 1) shows that less than 35% of students selected biology subject, whereas, around 40% of them chose Chemistry and Physics as well. On the contrary, the students who chose technology science subject were over 58%. That is

referring to perspective of student which they feel Technology Science subject is the easiest subject within science elective groups. This course considered as a non-science subjects and instead of biology, chemistry, and physics.

In Al-Sharkiyaha North governorate in Oman which the field of the study concern, students' intentions are similarly to the phenomena of students' intention around the country in general. Where students preferred to study Technology Science by 56%. On the other hand, they showed less intention toward Biology, Physics, and Chemistry, only around 35%, 44%, 44% respectively. From these percentages of this data, researcher conclude the problem of study interest that the students who are taking science courses at post-basic education is in line with the globally issue that is students are not preferring to focus on study science whenever they have a choice, despite the ministry's efforts to enhance students to choose more science subjects.

However, in the interest and attitude researches, there are very comprehensive review studies by many researchers, like (Oriahi & Uhumuavbi, 2010; Hofstein & Mamlok-Naaman,2011; Yunus & Ali, 2013; Said, Summers, Abd-El-Khalick, & Wang,2016). Nevertheless, a review study for school students attitude toward science subjects in different nations by Sarwar and Noreen (2011), found that students' interests vary remarkably in different parts of the world, and they are not the same due to a student's nationality does affect his attitude. It is observed that students in developing countries demonstrate positive intention to study science courses and science related- careers. While, students in some developed countries demonstrate little interest in the science subject. Because of these contradictory findings, this study comes to justify the situation

in Oman. In addition, there are very few studies that have investigated factors that affect students' intention to study science in the Arab country such as in Omani context. On other hand, Murphy, Ambusaidi and Beggs 2006, conducted their study on students in grades (1 – 4) concluded that Omani pupils in grades (1-4) had optimistic views about the science curriculum- in general. They expected that the science curriculum would become more interesting as they expect to do much more practical work. Omani children also expected the content to be related to their daily life and that the topics will be easier because of the good foundation they have from primary schooling. Moreover, Omani students' intention were directly related to students' experiences with science, or at least the degree to which they were in science curricula (Karabenick & Moosa 2005). Therefore, this study focuses in Oman at Post-Basic Education to investigate attitude towards science, and science curriculum that is contributing to fewer Omani students' interest in science courses.

1.4 Research Objectives

The objectives of the study are to:

RO1- To determine if students' attitude plays a significant role in their intention to study science subjects (Biology, Chemistry, and Physics).

RO2- To determine if science curriculum plays a significant role in students' intention to study science subjects (Biology, Chemistry, and Physics).

1.5 Research Questions

The study questions for the particular objectives are as mention below:

RQ1- Is there any relationship between students' attitude and their intention to study science?

RQ2- Is there any relationship between science curriculum and students' intention to study science?

1.6 Research Hypotheses

H1 -There is a significant relationship between students' attitude to study science and their intention toward science courses.

H2- There is a significant relationship between science curriculum (Biology, Chemistry, and Physics) and students' intention toward science courses.

1.7 Significance of the study

This study refers to several learning theories; in addition, it focuses on practical interventions that might improve students' intention toward study science subjects, which is an indicator of the academic success of a student. From a practical perspective, this study is important for the administrators, teachers, parents, and students at North of Al-Sharkiyaha schools as well as administrators, teachers, and students across the nation. The significance of this study intends to provide evidence in explaining the relationship between students' attitude, science curriculum, and intention to study science. The results of the present study will provide insight to students and teachers alike to understand the influence of attitudes, science curriculum, on students' intention towards

science courses. In addition, the results of the study will help the decision makers to improve the science curriculum to attract students' intention to study science course.

From this perspective, in a regular education set, teachers are concern about their pupils' results. Hence, most teachers hope their pupils will succeed. There are several factors that contribute to pupils' success. One of critical factors is pupils' intention in learning process. Furthermore, understanding students' intention is crucial in supporting students' achievement in a particular subject. If students are not interested in science, they tend not to make an effort to learn and understand the meaning of concepts that are being taught to them. It was shown that the most effective factor contributing to students' decisions to study science is their interest in the subject (Yunus & Ali, 2013).

1.8 Scope of the Study

The scope of this study is limited to the investigation of the factors that influence students' intention to continue studying science subjects in precollege of Al-Sharkiyaha North in Oman. The intention to study science in schools is considered a worthy asset to the students' performance (Sarwar & Noreen, 2011).

1.9 Operational Definitions of terms

1.9.1 Student's intention:

Liñán and Chen (2009, defined the concept of intention as a person's intention in turn a function of his attitude toward performing the behaviour and of his subjective norm. It follows that a single act is predictable from the attitude toward that act, provided that there is a high correlation between intention and behaviour.

1.9.2 Attitude towards science:

Traditionally, Hofstein and Mamlok-Naaman (2011), clarified attitude as feelings of "like or dislike". Similarly, Swirski and Baram-Tsabari (2014), defined that attitude toward science is the degree to which the individual holds a positive or negative personal valuation about science.

1.9.3 Science curriculum:

Science curricula refers specifically to a planned sequence of instruction, or to a view of the students' experiences in terms of the educator's or school's instructional science goals (Kardash and Wallace 2001). Science curriculum in this study refers to three courses**:** Biology, Chemistry, and Physics.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Based on the statement of the problem in chapter one and the question being asked, this chapter will review previous studies and notes their findings on the relevant variables in questions. The independent variables to be considered are students' attitude, and curricular, while the dependent variable is student intention to study science.

2.2 Theory of Planned Behaviour (TPB)

The theory of planned behaviour known as Ajzen's theory, will be employed as this study underpinning theory. This theory was developed by psychologist Ajzen (1985, 87, 91) and it's widely used by scholars in the many fields such as entrepreneur and has been proved to work well in determining intention in fields such as marketing Taylor & Todd (1995), e-commerce Pavlou & Fygenson (2006), organization behaviour, education Davis, Ajzen, Saunders, & Williams (2002) and many more fields.

In summary, this theory is concluded to be well supported by real evidence. Intentions to execute behaviours of dissimilar kinds can be anticipated with high precision from attitudes to the behaviour, subjective norms, as well as perceived behavioural control; likewise, these intentions, together with perceptions of behavioural control, describe for considerable variance in real behaviour. Attitudes, subjective norms, and perceived behavioural control are revealed to be associated to appropriate sets of prominent

behavioural, normative, and control beliefs around the behaviour, but the precise nature of these associations is still indefinite.

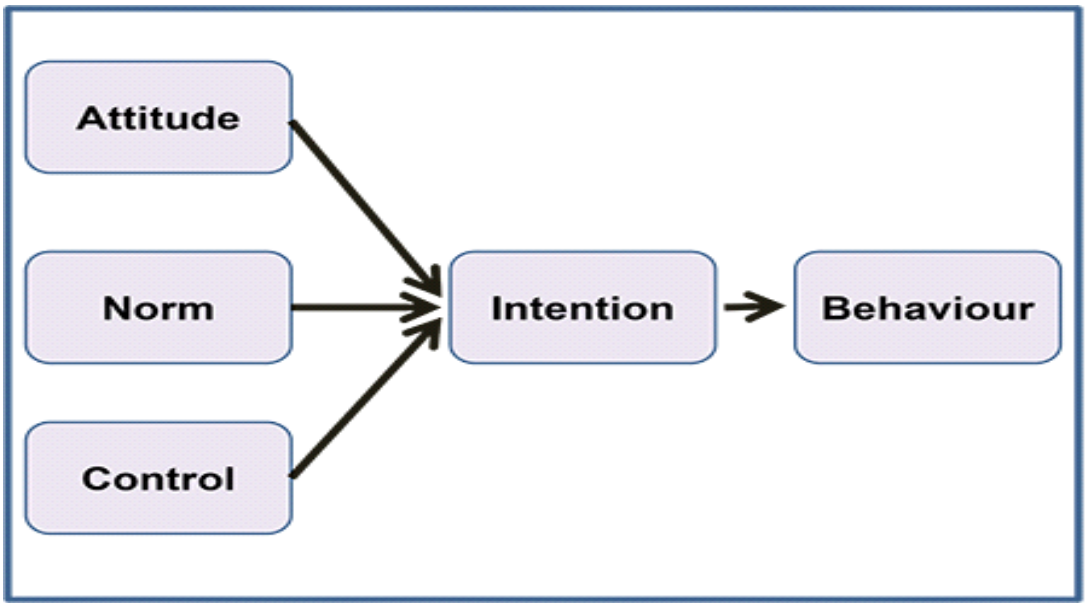

Figure 2.1 Ajzen (1991) Theory of Planned Behaviour

2.3 Theoretical Background of Intention to Study Science

The theory of planned behaviour (Aizen, 1991) defined intention as an effort to perform a given behaviour instead of the actual performance. Nevertheless, early researchers such as (Harding,1986; Harlen, 1992) revealed that a strong relationship exist between measures variables about attempting to perform a given behaviour as well as measures variables that deal with the real performance of the behaviour. Likewise, Liñán (2009), asserted that intention is an attempt that an individual make to execute a behaviour. Thus, the intention to execute a desire could be affected by numerous factors, like needs, values, desires, habits as well as beliefs (Adesoji, 2008). Specifically, the cognitive

elements affecting intention are known as motivational antecedents (Ajzen, 1991). More favourable antecedents may boost the start-up intention (Liñán, 2004). Therefore, it captures the three motivational elements or factors affecting intention (Ajzen, 1991; Liñán, 2004): such as (1) personal attitude, (2) Subjective norm, and (3) Perceived behavioural control. Moreover, a study by Oon & Subramaniam (2011) pay attention to intention to study physics, following that, they defined intention as preference to engage in science activities instead of others.

Specifically, an interest can be referred to as extremely precise kind of attitude: When people are concerned about a specific action or phenomenon, people are favorable disposed to join to it as well as giving a time to it. According to Trumper (2006) intentions play a significant role in the decision to study science. The significant of cognitive variables in the understanding of personal decision has be emphasized by Archer, at el (2010). Current researches such as (Liñán & Chen, 2009; Oriahi & Uhumuavbi, 2010; Hofstein & Mamlok-Naaman, 2011; Yunus and Ali ,2013; Hagay & Baram-Tsabari, 2015; Said, Summers, Abd-El-Khalick, & Wang ,2016) as well as dissertation published globally with the aim of examining the sources, reasons as well as theoretical limitation for enhancing students intention in science in general and specifically learning the sciences. Over the past decade, scientist, science educators such as curriculum developers and teachers frequently highlight on the significant of the effective domain in general and specifically intention as an innermost elements of the goals for teaching as well as learning the sciences.

The utmost goal of science education is to stimulate in the child, to know if the child will become a professional scientist, a sense of the joy, the enthusiasm, as well as the

intellectual power of science (Said et al., 2016). Hagay and Baram-Tsabari (2015) highlighted the significant of affect, imagination, intuition, as well as attitude as a result of science teaching at least as significant as their cognitive counterparts. Though studies on students' intention towards learning science in secondary schools were fuelled by numerous research projects both in Arab as well as global studies, there were major decrease in science education such as biology, physics, in addition to chemistry which are the science subjects that can be selected (e.g, Kaya & Böyük, 2011; Bybee & McCrae, 2011; Said, Summers, Abd-El-Khalick, & Wang, 2016).The percentage of intention toward science vary from state to state, as highlighted in Murphy, Ambusaidi, and Beggs (2006) who did a comparison between Northern Ireland (UK) and Oman and they concluded that reduction in Northern Ireland children's interest and enjoyment in science is much higher than that which is observed in Omani pupils at the end of primary schooling. Because factors such as appraisal procedures, in Northern Ireland there is a high-stakes national test and children spend a lot of their time revising content as opposed to investigative and experimental science. There is no high-stakes national test for Omani pupils at the end of their primary schooling.

Nevertheless, the issue of intention to study science has become a global worry, therefore, some researchers have made effort to predict as well as have a comprehensive understanding of students' intentions to engage in different activities such as studying science courses. Hofstein and Mamlok-Naaman (2011) argued that the way students perceive as well assess their associate with any type of knowledge is significant in their learning process. On the condition that the students are not willing to do science, they be likely not to make attempt to learn as well as understand the meaning of concepts that

they are being trained. According to Adesoji (2008) the most efficient elements influencing student's decisions to study science is the content. It is recommended that when students feel they are well-known with the concepts or issues from their prior studies, as well as feel confident to explain, it go a long way in influencing their motivation as well as their achievements. The chemistry content as well as syllabus are other aspects that influenced negative attitudes of the pupils.

Similarly, Yunus and Ali (2013) stressed that chemistry syllabus in addition to the teachers' enthusiasm, effectiveness in teaching are factors that influences reduction in students' interest to chemistry. Moreover, students' attitudes towards various science subjects can influence their intention; negative attitude to particular topic will result to absence of interest. In contrast, a positive attitude towards science subjects will leads to a positive commitment to science disciplines that affect science learning process as well as lifetime interest (Trumper, 2006). Additionally, there are extensive re-examination on gender matters connected to pupils' intention to science disciplines (e.g, Karabenick & Moosa , 2005;Trumper, 2006; Murphy, Ambusaidi, 2006). In the same line, Hofstein and Mamlok-Naaman (2011) showed the significance of distinguishing between physical as well as biological sciences in regards to gender disparity in attitudes to science. Hence, the present will examine some factors aforesaid to explain the important factors that influence intention among students in secondary schools.

2.4 Theoretical Background of attitude toward Science Courses

Many researchers define attitude in different perspectives and it is very hard to get one definition of attitude (Osborne & Dillon, 2008). Meanwhile, Sarwar, Naz, & Noreen (2011) argued that defining attitude is quite challenging to any researchers because any

definition must explain the nature of the concept being defined. This paper however focuses on the definitions of the attitude, which are given within the adoption theories. Ajzen (1991) define attitude as "an attitude toward any concept is simply a person general feeling of favourableness or un-favourableness for that concept". Moreover, Karabenick & Moosa (2005) defines attitude as the "individual's forms favourable or unfavourable attitude toward innovation". Many scholars have investigated high school students' attitude towards science subjects or becoming a future scientist. Most findings, it is the observed students' attitude towards science subjects are really declining, which leads to some scholars make the recommendation. As stated in the previous chapter in the problem statements, attitudes of students towards science subjects has been inconclusively debated and has sparked many investigations by scholars both at tertiary level or high school level.

Hofstein & Mamlok-Naaman (2011) examined how to enhance and increase student's attitude towards science subjects, with their investigations they were unable to provide a conclusive recommendation on how to improve students' attitude on science course particular in chemistry class. Although, they opined that science (chemistry) teachers should inculcate a positive attitude to motives students towards the course. More so, Siegel and Ranney (2002) studied two different high schools so as to investigate their changes in attitudes over time about science subjects. Using "Developing the Changes in Attitude about the Relevance of Science (CARS) Questionnaire" and applying different treatments on the two samples but with the same objectives. They were able to conclude that the student's attitude towards science subjects can be increased through innovative

issue based activities, that is, relating what is being taught in class to real life. Likewise, in Malaysia, similar studies have been conducted to determine students' attitude towards chemistry subjects. Even when the intention is primarily under the control of normative considerations, its correlation with attitude toward the action is usually found to be quite high.

Studies by Yunus & Ali (2013) revealed that students appreciate chemistry course if they were allowed to experiments what they've learnt in the laboratory, also, it is concluded by them that tutors attitude when delivering lectures influence students' attitude to the subjects. However, the study concluded that most pupils have a significant negative attitude to the chemistry course itself due to absence of interest and the course syllabus itself. Similarly to this, Erdemir (2009) investigated two different groups of students to determine and analyse their attitude towards Physics subjects. He allowed the first group experimental group while the second group consists of traditional teaching methods. It is observed that the attitude of the first group, that is, the experimental group is positively inclined to studying physics compared to the controlled group. With this, it was suggested that to improve student's attitude towards science courses, instructors must allow for self-practice.

Furthermore, the study of Craker (2006) suggested that student expected grades, previous science course, gender and perception of teacher's attitude influence student's attitude towards studying science courses likewise majoring in science courses. Contrary to some findings in Yunus & Alin (2013), Kaya & Böyük (2011) suggests that there is no significance difference in student's attitude as regards to gender how affirm their work as

regards students' grades and gender influence student's attitude towards science courses. From the above arguments, it could be deduced that attitude is or can be improved with blending science courses rather than traditional teaching techniques. Evident can be found from the conclusion of the study of Erdemir (2011), similar to his study, discussed above using two groups while controlling one particular group, but in this, he tried to investigate "effects of PowerPoint and Traditional Lectures on Students' Achievement in Physics". He found out that samples that use power-point in learning are more inclined to physics than those that use traditional method of teaching.

2.5 Theoretical Background of the school science curriculum

The concept of curriculum has different meanings. The most suitable meaning for the concept of curriculum in this study is perhaps the prescriptive, as well as is subject to a more universal content which only state what themes must be understood as well as to what extent to attain a specific grade or standard (Oriahi, et al.2010). In a similar settings, Holbrook & Rannikmae (2007) defined curriculum as the content of a concept, subject as well as tasks to be obtained, planned activities, the needed learning outcomes with experiences, product of culture as well as an agenda to restructure society. Additionally, Hagay and Baram-Tsabari (2015) stated that the concept of curriculum refers to a written document that thoroughly explains goals, objectives, content, activities of learning, evaluation etc. This study stresses on biology curriculum, physics curriculum, as well as chemistry curriculum. Science has important roles in life. Majority of the studies as well as discussions on science education are linked to the growth of science curriculum as well as science education in school (e.g,Braund & Reiss,2006;

Hodson, 2014). Science curriculum must be improved subject to student as well as society demands, scientific with technological improvements in the field of science and educational science. The objectives of science curriculum should replicate the factors presented above. The objective of science curriculum is as well refer to changing philosophy of education (Osborne & Collins,2001). Besides, Hodson (2014) emphasized that currently science topics have been extended widely and so closely into every department of life, particularly in all questions associated to health as well as welfare, it is imperative that the community should have a universal awareness of its scope and objectives.

In an analysis of science school practical study, science educators in majority of countries have articulated interest that recent delivery at schools (particularly at age 14-16 years) tools are too often dull, inappropriate as well as obsolete; intended only to teach a few future scientists, instead of preparing many with the scientific literacy, knowledge, as well as reasoning they needed to engage as citizens in the 21st Century (Goodrum et al., 2001; Holbrook & Rannikmae , 2007; Yunus & Ali ,2013). The best students have a scientific system that is sufficiently good to get great examination results. However, after the firms have been gathered the land is bare, many ideas are lost and daily life is unchanged (Ross et al., 2004).

Similarly Braund & Reiss (2006) asserted that school science ought to offer various practical experiences that are in line with the kinds of actions that both technologists as well as scientists do in the actual world of science, in addition, like these experiences ought to incorporate student-oriented tasks as well as better open-ended examination. On

the other hand, school science applies the subject direct related to science as practical opportunities outside the school. Additionally, Hodson (2014) argued the view of contributions out-of-school environment can facilitate the learning process of science for school-aged students. Likewise, in pupils' homes, the development in the use of multi-channel television as well as the internet have generated sources of high-quality as well as pleasantly packaged issues and information about science that significance to young people. In line with this argument, recent study conducted in United Kingdom revealed that is students spend their time on ICT at home (excluding gaming) currently is a great extent go beyond that spent at school. Newspapers as well as magazines provides further rich basis for science as well as argument about current, significant and often contentious issues, however a new study showed that most issues are not so understandable (as museums and science centres are) to students as a basis for scientific education (Haste, 2004). Hence, the responsibility of science is to reveal the laws of nature. On the other hand, Braund and Reiss (2006) put forward that nature is faraway too difficult for pupils to be able to apply this. They recommended that the greatest way forward is to make sure that pupils study science in school laboratories. There only, variables can be measured and controlled in order for pupils to distinguish that lack of objects, friction can continuously move at a steady velocity; which crystals of sodium chloride might be dissolved in water and reconstituted once the water evaporates; that silt sediments more slowly than sand; in addition, that respiring organisms create carbon dioxide as well as water vapour. Moreover, Kaya and Böyük (2011) revealed how teachers of science in England separated their instructions into theory as well as practical work as such determined that student laboratory action seems to be fundamental part to science

curriculum. Similarly, Yunus and Ali (2013) highlighted that chemistry trails are the way of linking school chemistry to the actual world. In the viewpoint of many pupils: it can make chemistry important. So, they will consider chemistry trails as are not complex to make. Hodson (2014) offer numerous recommendations; for instance, they might be utilized to examine such issues in applied chemistry as building resources as well as air pollution issue. Of course, students can conclude their own trails as well.

2.6 Students' attitude and students' intention to studying science:

It is imperative to say that, attitude toward school's curriculum are considered as one of the major element affecting individuals to choose or refuse specific subject. Majority of researchers examined the influence of attitude toward science (e.g. Trumper, 2006; Osborne & Dillon, 2008; Sarwar, Naz, & Noreen,2011; Said, Summers, Abd-El-Khalick, & Wang, 2016). This section make clearer how attitude influence individual to choose as well as continue to study science, specifically the attitude of students in secondary schools to study biology, physics, in addition to chemistry identified as the science subjects that can be chosen. As widely reported in the literature, students' early positive attitude to science subject changes noticeably in the upper grades, particularly in chemistry as well as physics. Murphy and Beggs (2001) and Murphy, Ambusaidi, & Beggs (2006) make effort to conclude the changes in enjoyment of science subjects over time between Oman, Northern Ireland, and British students. The findings showed that nine years old students demonstrate significantly better positive enjoyment of science than older students, particularly in the Omani and Ireland samples.

Current literature study the linkage between pre-college pupils' attitudes and their intentions to pursue further studies in science (e.g. Trumper ,2006). Conversely, the researcher observed that negative attitude to a particular topic will results to absence of intention, in addition, student choose subjects in senior secondary school to avoid certain topics or courses. On other hand, a significant positive attitude toward science lead to a positive commitment to subject that related to science which further influences lifetime interest as well as learning science. This justify why major reform in science education highlighted the development of students' attitudes. In the same way, significant positive attitudes toward science have been established to stimulate pupils' interest in science teaching (Kaya & Böyük, 2011), and science-related careers (Hofstein & Mamlok-Naaman ,2011; Hagay & Baram-Tsabari, 2015). Moreover, a research conducted by SJØBERG (2000) showed a positive relationship between achievement in science and attitude constructs.

While other researches showed no clear (or negative) relationship between attitudes towards learning science and intention to studying science (Osborne & Dillon, 2008). A study by Archer et.al (2010) has demonstrated that students with a positive perception of science, who are attentive naturally occurrences, besides who identify the overall significant of science or the role that science subject play in their future, however, might not be so concern in the term of biology topic they encounter in the schoolroom. For instance, Oriahi, Uhumuavbi, et al (2010), recommended that enrolment in science subjects is an important factor of students' attitude at the school level, particularly in the post-compulsory phase of schooling, on the other hand, recommended that intention as well as enrolment in science subjects should not be used as the sole measure of attitudes

toward sciences, in addition, researchers should think about including in their studies measures such as economic opportunities, gender issues, as well as perceived difficulties of different subjects. A significant result in recent view is that pupils in East Asian demonstrate an extraordinarily low concern in science subjects, particularly the girls. Korea, Japan, China, as well as Hong Kong frequently emerge the best in science achievement tests within international comparisons, however the lowest on students attitude as well as not specifically developing interest in science (Lyons, 2006). Holmegaard, Madsen and Ulriksen (2014) published an extensive review on gender issues in regard to pupils' attitudes to science topics. Erdemir(2009) revealed the significant of differentiating between the biological and physical sciences in relation to gender discrepancies in attitudes to science subject. In a study of gender disparity in achievement, attitudes, as well as personality of science students, asserted that there are clear disparity in the nature of 'boys' and 'girls' in scientific interests. That is, boys showed considerable better interest in physical science activities, whereas girls are more concerned in biological as well as social science topics". In a recent survey, Bell et. al. (2014) revealed that there was bias against physical sciences held by girls, recommending that at an individual level the overwhelming majority of girls still prefer not to do physical science when they are capable to do it. Their wide-ranging survey indicated that is one of the most motivators of gender associated studies in science teaching is the fact that there are limited girls in technical and science-related occupations, whereas more capable personnel are required. In general, attitude of students are highly positive toward biology course unlike as physics and chemistry.

2.7 School Science Curriculum and Students' Intention

Developing highly intention in science in general and specifically in learning science is one of the major objectives for teaching as well as learning the sciences. Therefore, over the past decade, this area fuelled numerous researches, focusing: content, pedagogical, as well as curricular issues. This study focuses on improving the interests in the context of science learning primarily at the upper secondary level of schooling such as Post-Basic education in Oman.

School curriculum have been recognized as one of the major element that enhance high school students' intention towards learning science subject (Hofstein & Mamlok-Naaman,2011). Similarly, Hagay and Baram-Tsabar (2015) argued that students who pay attention to science as well as understand the scientific concepts, will have better positive attitudes towards the study of science unlike those who have learning challenges in the field of science. A study by Holmegaard et al. (2014) on intention towards science as well as science learning, concluded that people are committed to science when they have better knowledge of science, desire to take more science courses in addition continue to read about science. The researchers further claimed pupils only learn when they desire to learn. There are numerous problems in relation to the method in which science is taught in school, particularly in regards to non-science-oriented students as a significant target population. A study by Lindahl(2003) and Holbrook and Rannikmae (2007) highlighted that the theoretical understanding of science curriculum as well as appreciating the nature of science be likely to be immaterial for our daily life functions, that is, applicable to the home, the environment, and absolutely for future science-related changes and developments that can occur in our society. The present study hypothesized that

relevance and intention to the subject they learn are connected. On the other hand, if students find the science content they learn important to their every day life in addition to the society in which they function, there is a better opportunity that they will build better intention towards the subject. Currently, the content as well as pedagogy of science education have frequently been examined. Several science education studies have made effort to re-orient science education towards meaningful, genuine, appropriate, as well as contextualized education (Aguele, Ojugo & Imhanlahimi, 2010; Bybee & McCrae, 2011). Currently, there are numerous support in regards to the concept that the major reason for the decline in the interest in science in general and specifically physical sciences (physics and chemistry), is directly associated to the nature as well as content of the present curricula, concerning both the contents and their pedagogies (Hagay & Baram-Tsabar ,2015). Researchers have showed the effect of strategies of science learning on students' intention towards science. Hofstein and Mamlok-Naaman (2011) examined the influence of problem solving strategies in Chemistry course. The result indicated that students in the experimental group developed more positive intention towards Chemistry after the treatment. Similarly, Holbrook and Rannikmae (2007) argued that diagnostic-prescriptive treatment stimulated positive attitude. In the light of the above, Lindahal (2003) asserted that groups that significantly higher in science achievement test also scored extensively higher in interest test. In majority of countries, school science curricula are illustrated to be overloaded with content that wholly highlighted on the internal content structure of the related academic discipline (Aguele, Ojugo & Imhanlahimi, 2010). This usually result to curricula differentiated by isolated facts separated from their scientific origins (Bybee & McCrae, 2011), as well as containing low levels of

orientation towards related issues taken from students' daily life or for societal interest (Holbrook, 2005). Hence, pupils are unsuccessful in connecting between different facts as well as concepts presented and their practical applications, in that way missing the 'big picture' of science and never build up self-confidence in its relevance. Specifically, all these issues have possible effect on their intention. For instance, New Zealand recognized this issues as such intended to restrain it by introducing new proposal that will bring computing subjects to high school students at their last three years. The proposed structure incorporated proposing Digital Technologies as a separate field in the technology syllabus, in addition, comprises a strand called "Computer Science and Programming" that has sufficient coverage to interconnect to students what the topic area is really about. According to ministry of education in New Zealand, this will help to expose as well as inspire students to what is actually needed of them and enlarge their knowledge in the area of science (Bell, Andreae, & Robins, 2014).

On the other hand, the study indicated that majority of the pupils have a significant negative attitude towards chemistry course because of absence of interest as well as the course syllabus. In the same way, a study by Erdemir (2009) following his examination of two dissimilar groups of students in order to decide their perception towards teaching methods as well as the school curriculum, examining their attitude towards (science subject) paying attention to physics subjects. Permitting the first group experience mixed method of teaching even as the second group comprises of traditional teaching methods. It was observed that the attention of the first group, that is, the experimental group was positively disposed to studying physics unlike the controlled group. In view of this, it was

recommended that to enhance student's intention to study science courses, instructors should permit self-practice.

In a similar study, Craker (2006) asserted that student probably grades, earlier science course, as well as teacher's attitude affects student's intention towards studying science courses as well as majoring in science courses. Confirming Craker (2006) finding, Yunus and Alin (2013), Kaya and Böyük (2011) found that students' grades as well as school curricular affect student's intention towards science courses.

2.8 Chapter Summary

This chapter had made an in-depth discussion about the literature of subject matter selected in order to clarify the research issues. With the literature review, readers can obtain the basic understanding of this study topic and also the bases of the next chapter. These include the theoretical background of dependent variable that is students' intention to study science, besides independent variables which are students' attitude, and school science curriculum. Moreover, it explains the correlation between these two independent variables and dependent referring to the past studies. Due to all of this literature is fundamental in order to assist readers to understand the research.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter revealed the methods used to study the relationships between the independent variables students' attitude, science curriculum and the dependent variable students' intention to study science. The items addressed in this chapter include: research design and sampling, type of study, research interference, units of analysis, time horizon, questionnaire design, measurement, data analysis, descriptive analysis and reliability.

3.2 Research Framework

In an effort to study the relationships, based on hypotheses developed in the literature review, a research model was developed as shown in figure 3.1.

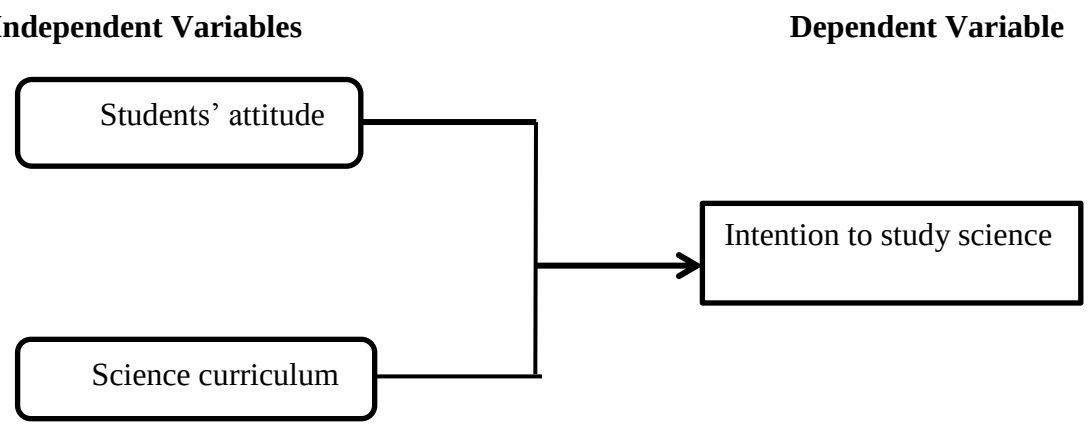

Figure 3.1 Research Framework

3.3 Research Design

The researcher adopted a survey research methods to conduct this study. So, it is a quantitative research which tests objective theories by investigating the relationship among variables that is measured by using instruments and a certain procedure for data statistical (Kirshenblatt-Gimblett, 2006). So, the present study used a questionnaire for data collection, questionnaires are an efficient data collection instrument when the research scholar familiar with the required and how to measure the variable of concern (Sekaran & Bougie, 2010). This research utilized personally administered questionnaires in which it can compile groups of personnel to respond to questionnaires at the schools. This assisted the researcher to collect all the completed responses in a short term.

This research was cross-sectional study. Besides, it was a correlation study because there was a more discussion about intention for studying science for students in schools of post-basic education in Oman. However, this survey was equalized with a set of self-administrated questionnaires via stratified sampling.

3.3.1 Unit of Analysis

The analysis unit argues about the grade of cumulating data that gathered during the following data in the examination phase (Sekaran & Bougie, 2010). The observed population of this study carried out through distributing questionnaire upon students in post-basic education schools in Al-Sharkiyaha North in Oman. This paper wanted to investigate the influence of student' attitude and science curriculum on student' interest toward study science. This stuyd focused on individual students in the schools and have to catch out what did their interest. So, the individual is the unit of analysis.

3.4 Population and Sampling

The population of the paper indicates to the whole group of individuals, things, or event, of concern that researcher prepared to examine (Sekaran & Bougie, 2010). In this specific study, the sample focused on the students studying in post-basic schools in Oman.

Hair, Money, and Samouel (2007) defined a sample as a comparatively small part of the population. Since, the population was quite large, this study utilized sampling for some purpose. First, it is not practical to distribute surveys on all populations. Second reason is related to time constraints. It is necessary to make sure that the study sampling has the similarity of the larger population as far of possible, in order to assure that the sampling is representative of the population, and random selection is conducted. The size of sample is required more than 30 and less than 500 for appropriate study (Roscoe, 1975). The survey was carried out post-basic education schools in Al-Sharkiyaha North in Oman. According to Sekaran & Bougie (2010) the sample size was specified from the population by the number of 2964, the sample size was carried out in number of 341. This research uses the stratified random sampling for sampling technique. The stratified sampling is the process of segregation or stratification, followed by random choice of subjects from each stratum. The researcher conducted Stratified Sampling based on study by Ahmed (2009) which concluded that stratified sampling sense to divide the population into groups. These groups are called strata. An individual group is called a stratum. With stratified sampling one should:

- divide the population into groups (strata)
- take a simple random sample from each group (stratum)
- collect the data on each sampling unit that was randomly sampled from each group.

Table 3.1 Stratified Sample for the study

Population	Groups(Strata)	Simple Random	Sample
All post-basic students in the schools under Al-Sharkiyaha North district.	7 different post-basic schools under Al-Sharkiyaha North district	All Students in grade eleventh from each of the 7 post-basic schools.	341

3.5 Measurement of instruments

Measurement is the assignment of numbers or symbols to the characteristics or attributes of objects based on a pre-specified set of rules (Sekaran, 2010). This study employed a set of questionnaire that utilizes a standardized set which are expected to be consistently associated. The questions were designed to measure with the use of scales. The researcher preferred to use the 4-Likert scale for some reason whereby it ranges from strongly agree, agree, disagree and strongly disagree. This allowed the respondent to choose based on their level of heir agreements to measurements. Actually, the questionnaire didn't label the traditional Likert scales, which includes 5 Likert scale; strongly agree, agree, neutral, disagree, strongly disagree. The researcher in this study ignored the mid-point, because of several reasons; 1) It confuses a respondent when questions are ambiguous, which might introduce measurement error. 2) Mid-point can be seen an easy option for students, especially , when they have unsure response or don't take enough time for each response(Boone and Boone 2012).

The questionnaire divided into four sections. Section A was demographic information for respondents. Section B consisted of students' intention. Section C consisted of students' attitude. Finally, section D consisted of science curriculum.

Questionnaires were posed in dual language English and Arabic. In order to make easier to understand the respondents towards the questionnaire, the survey was conducted in Oman. So, in translating process, it brought more attention on the issues regarding reliability and validity. Because of that pilot test came up to set the questionnaire calibrate with certain populations. Adapted questionnaire from another language with different cultures will influence the validity of local culture in order to assure the measurement properties still same as the original one (Juniper, 2009).

3.5.1 Students' intention to studying science courses

Liñán and Chen (2009) measured entrepreneurial intention through a Likert-type scale with five items. These are general sentences indicating different aspects of intention. The researcher adapted all five items for education aspect. Similar items have already been used by Zhao et al. (2005). However, Armitage and Conner (2001) identified three distinct types of intention measures: self-prediction ("How likely it is . . ."), desire ("I want to . . ."), and behavioural intention ("I intend to . . ."). This later type provides slightly better results in the prediction of behaviour (Armitage & Conner, 2001) . The alpha coefficients values range from .773 to .943. Thus, theoretically the scales are considered as reliable (Liñán & Chen, 2009).

3.5.2 Students' attitude toward science courses

Over the years many research instruments have been developed in an effort to produce reliable and valid instruments to measure attitudinal constructs toward science. It includes written questionnaires (e.g., Likert-type questionnaires in which pupils have to respond to statement such as I enjoy learning chemistry, or chemistry is fun), personally structured and semi-structured interviews, as well as various measures that were implemented to assess students' perceptions of various interactions that occur in the learning environment in the science classroom or laboratory. Another source of information is of course students' enrolment in the various science (non-compulsory) subjects (Hofstein & Mamlok-Naaman, 2011).

However, Swirski and Baram-Tsabari (2014) developed items addressing general, specific, relatedness, and competence in science based on items from numerous questionnaires (Gonzales et al., 2008; Israeli Ministry of Education & RAMA, 2012; Schreiner & Sjøberg, 2004). The questionnaire involved 20 items ranked on a 1- 4 likert scale (strongly disagree- strongly agree). It was conducted with primary school's population, so the neutral option was removed due to simplify scale for the students. Based on the questionnaire results, high reliability was found of all 20 items, it was 0.86 using cronbach's alpha.

The researcher adopted 12 items which related directly to measure students' attitude. While the rest items measured science teacher effect which is not include in this paper.

3.5.3 School science curriculum

Kardash and Wallace (2001) created survey to measure school science curriculum. There were three resources provided the primary basis for generating the items: Tobias's (1990) book, They're Not Dumb, They're Different: Stalking the Second Tier; Seymour and Hewitt's (1997) book, Talking About Leaving: Why Undergraduates Leave the Sciences and a report from the National Science Foundation (1996), Shaping the Future: New Expectations for Undergraduate Education in Science, Mathematics, Engineering, and Technology. Kardash and Wallace (2001) measured six factors under school science curiculum by generating 68 items; factor 1 labeled as pedagogcial strategies, factor 2 about science faculty, factor 3 about perceived competence in science, factor 4 was labelled passive, factor 5 included items deal with students' grades in their science classes, and factor 6 categorized laboratory experiences learning. The reliability for the 68-item scale was .94, which indicating that factors analysis was highly appropriate for the data set.

However, the present study adapted 11 items within 68-item scale, while the rest items not interest in this study. So, the researcher focused on factor 1 which included items relate to classroom presentation of information, and connections with real-life experiences. In addition, the study adapted items from factor 3 which reflected students who view science as exciting and relevant, who enjoy science classes, and who feel competent in their ability to understand and do science. Furthermore, a few items that tap students' perceptions of the laboratory activities associated with their science classes within factor 6.

3.6 Procedures of Data Collection

With a view to disseminate the questionnaires to the schools' students, the researcher followed some procedures such as for seeking legal permission from seven post-basic schools. Firstly, the research needed to apply and submit the letter for data collection from Awang Had Salleh Gradute School of Arts and Science in University Utara Malaysia. Thereafter, the researcher immediately distributed the questionnaire in eleventh grade in the seven schools. The questionnaires were distributed randomly to the students regardless their level of achievement. Furthermore, the researcher determined appointment to gather the questionnaire back from all schools. The data collection took around one week. The researcher collected 328 questionnaires back from 341 collections of questionnaire disseminated.

3.7 Data Analysis

The current paper used SPSS software 23.0 to examine the theoretical framework. The SPSS software was taking into account as the most appropriate technique in this study for many reasons. A number of procedures were adopted it in the data analysis process because of its popularity within academic, making it the most widely used package of its type. SPSS is also a versatile package that allows many different types of analyses, data transformations, and form of output- in short, it will more than adequately serve our purposes (Levesque, 2005).

After gathering the data from the questionnaires, a testing was made to ensure the information thoroughness of the data collected. The information gathered through questionnaire was examining and coded using the computerized SPSS. A common first step in data analysis was to summarize information about variables in the dataset, such as

the averages and variances of variables. Therefore, the descriptive statistics in SPSS could be used to determine measures of central tendency (mean), measures of dispersion (range, standard deviation, variance, minimum and maximum). The descriptive procedure will not prove helpful for interpreting categorical data. Instead, it is more useful to investigate the numbers of cases that fall into various categories. The frequencies option can have used for simple description of nominal-level variables (groups) (Muijs, 2010). In this study, the frequencies allowed to obtain the number of students within gender and interested field categories in the dataset.

Another most common form of data analysis was a correlation, which was considered as a type of inferential statistics. Correlations measure the linear relationship between two variables. In this study, a correlation coefficient described the type of relationship between students' attitude and students' intention to studying science, and the relationship between science curriculum and students' intention.

3.8 Chapter Summary

This chapter has specified the study design, operate, measurement variables, the population of the study and sampling size and technique, besides data collection process and data analysis technique. This study was a quantitative research and adopted instrument for the questionnaire in order to gather the data from the participants. Moreover, this research utilised the techniques of stratified sampling to select the sample for the reason, that it gave smallest bias and more significant to the context of the research (Sekaran, 2010). The sample in this research was the students in eleventh grade in seven schools in Oman. They were 341 respondents that have been selected as the

sample of the research. SPSS software was employed as a technique to analyse data. Furthermore, this study used a questionnaire for data collection, especially personally administered questionnaires in which it could accumulate groups of personnel to respond to questionnaires at the schools. This helped the researcher to collect all the finalized responses in a short time.

CHAPTER 4

RESULTS AND FINDINGS

4.1 Introduction

This chapter reports the results of this study. The results are divided into three major phases; first, pilot test with reliability and validity. Second, descriptive statistical analysis of the data and followed by the last phase which focuses on reliability, correlation and regression analysis for answering the research questions and hypotheses of the study.

4.2 Pilot test

Researcher utilized SPSS version 23 to define the reliability of the study. Test of reliability taken into consideration of the study was used. Such technique was utilized to explore the reliability factors for study. The study employed adequate statistical tools reveal the findings.

In this paper, a pilot test was conducted with a view to ensure the reliability and validity (face and content) of the disseminated questionnaires. The measurement of reliability revealed the range to which it is without bias (error free), hence, to ensure reliable measurement through time and through the several items in the instrument.

Validity indicates to the significance that the technique, instrumentation, or procedures used to quantify a nation do indeed measure the purpose notion (Sekaran & Bougie, 2010). The information acquired was analysed using the Cronbach's Alpha Test in SPSS. The test items were checked for its face validity and content using experts opinions. Difficulty in understanding the items during pilot was resolved by rephrasing the items for the final study.

4.2.2 Reliability Test

Reliability is the enclose level of measurement without bias. Consequently, harmonious and similar results can be gained across circumstances and in excess of time. 30 samples of questionnaires were collected to test whether the respondents were able to understand the content and the language used in the questionnaires. The Cronbach Alpha coefficient would be an allusion tool to explore the coherence.

In more details, the table 3.9 illustrated Cronbach's Alpha in each variable. Referring to the pilot test, it demonstrated that the reliability for students' attitude was .644, and the reliability for school science curriculum was 0.73 while, the reliability of students' intention was .72. However, According to Nunnally (1978) indicated that internal consistency reliability of .60 is acceptable and satisfactory. Hence, it can be supposed that the internal coherence of these three variables take into account be good.

Table 4.1 Variables' Reliability Statistics of pilot study

Variables	N of Items	Cronbach's Alpha
Students' attitude	12	.64
School science curriculum	11	.73
Students' intention	5	.72

4.3 Response Rate

In this research, a total of 341 questionnaires were circulated to the students in the post-basic education schools situated in Al-Sharkiyaha North in Oman. Consequently, the results of these efforts yielded 328 reverted questionnaires, out of 341 questionnaires.

This provided a response rate of 96.2 % of these 328 questionnaires. Thus, a valid response rate of 96.2 % was reflected sufficient for the analysis in this research because Sekaran and Bougie (2010) proposed that a response level of 30% is adequate for surveys (see Table 4.2).

Table 4.2 Response Level of the survey

Response	Frequency/ Rate
No. of circulated questionnaire	341
Reverted questionnaire	328
Reverted and applicable questionnaires.	328
Questionnaires not reverted	13
Response rate	96%
Valid response rate	96%

Source: The Researcher

4.4 Data Screening and Initial Analysis

Preliminary data screening is very critical in any multivariate analysis for the reason that it aids researchers recognize any possible violations of the key assumptions about the application of multivariate procedures of data analysis (Hair, Money, Samouel, & Page, 2003).

Furthermore, preliminary data screening assistances researchers to better realize the data collected for extra analysis. Previous to initial data screening, all the 328 returned and usable questionnaires were entered and coded into the SPSS. Then, all the negatively phrased items in the questionnaires were reversed coded which include SA2, SA6, and SC4. Following to entry data and coding, the subsequent initial data analyses were

completed: (1) missing value analysis, (2) valuation of outliers, (3) normality test, and (4) multicollinearity test (Hair, Black, Babin, Anderson, & Tatham, 2006).

4.4.1 Missing Value Analysis

Missing data, according to Tabachnick and Fidell (2007) is one of the most pervasive problems in data analysis. Hair et al. (2006) clarify that it exists when there are valid values on one or more variables which are not available. Therefore, one of the preliminary techniques used in this study in minimizing the volume of missing data was by monitoring the respondents while they were completing the survey. This method assisted the study in recovery the missing data by encouraging participants to fill in the missing items. Also, the Missing Value Analysis (MVA) was conducted and the results reveal that a few missing values occurred in the variables that the study used in the proposed model. In total, the missing values in the original SPSS data points, 168 of the 9184 datasets that were randomly neglected, that counted for 1.8 %. Precisely, students' attitude had 71 missing values which were the highest and science curriculum had 61 missing values. Then, students' intention had 36 missing values.

Hereafter, in this research, randomly missing values were substituted by means of replacement (Tabachnick & Fidell, 2007). The table 4.3 illustrates the ratio of randomly missing data in current research.

Table 4.3 The ratio of missing Values

Latent Constructs	Number of Missing Values
Students' attitude	71
Science Curriculum	61
Students' intention	36
Total	168 out of 9184 data points
Percentage	1.8 %

4.4.2 Assessment of Outliers

The concept of outliers is distinct by Barnett and Lewis (1994) as remarks or subsections of observations which give the idea to be unreliable with remnant of the numbers. In fact, in a regression-based analysis, existence of outliers in the data points can extremely misrepresent the regression coefficients assessments that give unpredictable outcomes (Verardi & Croux, 2008). Indeed, to distinguish any observation which seems to be outside the SPSS data labels as an outcome of incorrect numbers entry, firstly, table of frequency were classified for all constructs by maximum and minimum numbers. Regarding to this preliminary frequency statistics analysis, there was no any data noticed to be outside the predictable scope.

So, to distinguish univariate outliers, the technique of multivariate outliers was identified employing Mahalanobis distance. Early research by Tabachnick and Fidell (2007) explained Mahalanobis distance as the range of a case from the central point of remaining cases where this central point generated at crossing of the means of all latent constructs. Based on 28 detected latent variables of this research, suggested starting of chi-square is 56.89 ($p = 0.001$). Mahalanobis values that transcend this starting were removed. Next to

this standard, eleven multivariate outliers (i.e., 8, 13, 81, 86, 90, 107, 120, 165, 206, 297, and 310) were identified and then removed from the dataset for the reason that they could influence the precision of the technique of data analysis. So, after deleting three multivariate outliers, the last dataset in this study was 317.

4.5 Demographic Profile of Respondent

The demographic profile for the 328 respondents was gathered in order to provide a clear understanding about the distribution of respondents in terms of gender, and interest field of study. These properties were included in order to give demographic profile information on the sample. Table 4.4 explains the descriptive statistics demographic profile for each item in this study.

Table 4.4 Summary of Demographic Profile

	Frequency	Percentage
Gender		
Male	116	35.4
Female	209	63.7
Interest		
All three science subjects (biology, chemistry, and physics)	85	25.9
Two subjects only	103	31.4
One subject only	41	12.5
Technology science only	93	28.2

As a demonstrated in the Table 4.4 among 317 respondents, there were quite more female (64%) than male (35%). In terms of interest field of study, the majority of respondents choose two subjects only, which represented 31% of the total respondents. This was

followed by respondents who prefered technology science subject (28%), and 26% of them attended to study biology, chemistry, and physics. While the rest 41, representing 12.5%.

4.6 Constructs Descriptive Analysis

This part describes the descriptive analysis of constructs in the current research. The descriptive analyses of the constructs in this study included name of variables, number of respondents, mean, and standard deviation (see Table 4.5).

Table 4.5 Descriptive Statistics for constructs

Variables	**Number of respondents**	**Mean**	**Standard Deviation**
Students' attitude	317	2.76	.56
School science curriculum	317	2.71	.26
Students' intention	317	2.89	.32

Table 4.5 illustrated that the overall mean for all the variables ranged between 2.71and 2.8. In specific, the standard deviation and mean for students' attitude were 2.76 and .56, respectively. Additionally, finding indicates (Mean = 2.7, Standard deviation = .264) for school science curriculum. Finally, table 4.2 illustrated that the mean for students' intention was 2.89, with a standard deviation of .327.

4.7 Reliability

Cronbach's alpha is measure of the internal consistency and scale reliability for the independent and dependent variables. The value used for Cronbach's alpha between 0.6

to 0.79 are the lower limit value of acceptability and the values between 0.80 to 0.89 indicate that the questions for the independent and dependent variables are more homogeneous. The Cronbach's alpha for this study was .76. So, this result showed quite acceptability. In details the coefficient of reliability of each item fluctuated from 0.73 to 0.78 with each more than the minimum satisfactory level of .70, recommending acceptable reliability of internal consistency utilized in this research (Hair et al., 2011).

4.8 Correlation Analysis

A correlation analysis was used to define the relationship between all independent and dependent variables namely students' attitude toward study science, and school science curriculum, dependent variable was students' intention to study science. Pearson's correlation analysis is ranged between +1 and -1 and such value explains the strength of relationship between independent and dependent variables which has been to categorized in to low, moderate or high based on value of the Pearson's correlation analysis.

Overall, Table 4.6 below showed all independent and dependent variables were significant to each other. The Pearson correlation showed that, students' attitude and science curriculum had positive relation with enhance students' intention to studying science in post-basic education.

Table 4.6 The correlation between the variable

Correlations				
		SI	SA	SSC
SI	Pearson Correlation	1		
	Sig. (1-tailed)			
	N	317		
SA	Pearson Correlation	**.360****	1	
	Sig. (1-tailed)	.000		
	N	317	317	
SS CM	Pearson Correlation	**.411****	**.357****	1
	Sig. (1-tailed)	.000	.000	
	N	317	317	317

**. Correlation is significant at the 0.01 level (1-tailed).

Thus, the results were positive and there were significant relationships. So, H1 and H2: students' attitude, and school science curriculum, can contribute to the students' intention to study science course were supported.

Table 4.7 Hypotheses Testing Result

Hypothesis	**Statement**	**Finding**
H1:	There is a significant relationship between students' attitude to study science and their intention toward science courses.	Supported
H2:	There is significant relationship between science curriculum (Biology, Chemistry, and Physics) and students' intention toward science courses.	Supported

4.9 Chapter Summary

The present chapter provided the detailed interpretation of the data analysed. The gathered data was analysed using descriptive statistical analysis, Pearson's correlation analysis and the regression analysis. Each independent variable was tested against the dependent variable. The analysis conducted highlighted significant relationship between the two independent variables and the dependent variable of the study. The results indicated high level of correlation among the variables and the findings used to discuss and answer the research questions and the hypotheses tested in this study, in Chapter 5 of this paper.

CHAPER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This last section of the study discussed the main findings were given in the previous chapter by involving them to the past literature and theoretical perceptions interrelated to intention for studying science subjects. In detail, this chapter included; part 2 summary the study's findings. In part 3, discussed the results of the study are highlighted in the line with underpinning theory and previous studies. Part 4 involved limitations of the study and suggestions for future study by referring to the limitations. Part 5 and 6 presented the conclusion and implications of the paper.

5.2 Summary the study's findings

The main aim of this study was to examine the relationship between attitude toward science course, and school science curriculum on intention to studying science among students in post-basic education in Oman. Generally, this study had succeeded in understanding of the main contributing factors of students' intention to study science subjects at schools by giving answers to following paper questions:

RQ1 Is there any relationship between students' attitude and their intention to study science?

RQ2 Is there any relationship between science curriculum and students' intention to study science?

Concerning the direct correlation between independent variables and dependent variable, the result of this research showed that of two hypotheses were supported. The results of SPSS indicated that students' attitude was significantly and positively related to their intention to study science subjects. School science curriculum was also found positively significant linked to students' intention.

5.3 Discussion

This part illustrated the study's results in the consistent with past literatures results besides the relevant theory. The subheadings were organized according to the questions study.

5.3.1 The Influence of students' attitude on their intention to study science subjects

The first question was whether students' attitude has any relationship with their intention to continue study science subjects. Referring to the hypothesis test (H1) which proposes that students' attitude toward science subjects has positive significant relationship with students' intention to study science subject in post-basic education. The result of the RQ 1 indicated that students' attitude is significantly related to the intention to continue study science subjects ($r = 0.360$, $p < 0.05$). This finding supported the hypothesis test (H1). Generally, there is a strong relationship between the two variables, when Pearson's r is close to 1. Furthermore, When Pearson correlation is positive (+), this means that both two variables increases or decrease in value. Based on study's result, the decline of students' intention to select science because of decrease in the value of pupils' attitude toward science subjects, however, the relationship was moderatly significant.

Students' attitude was closely connected with their intention to study science subjects in high school. The findings showed that negative attitude toward a particular subject led to absence of intention. So, students chose subjects in senior high school to avoid certain subjects or courses. Additionally, a positive attitude toward science result to a positive commitment to science which further effect lifelong intention as well as learning in science. This finding was supported by earlier studies which had investigated about the relationship of students' attitude toward science and their intention to continue studying science, especially in precollege students(Trumper, 2006; Osborne & Dillon, 2008; Sarwar, Naz, & Noreen,2011; Said, Summers, Abd-El-Khalick, & Wang, 2016) . In addition, similarity with the idea of Erdemir(2009) revealed the significant of differentiating between the biological and physical science topics in relation to gender discrepancies in attitudes to science. In a study of gender disparity in achievement, attitudes, as well as personality of science students, asserted that there are clear disparity in the nature of 'boys' and 'girls' in scientific interests. That is, boys showed considerable better interest in physical science activities, whereas girls are more concerned in biological as well as social science topics" (Bell et. al ,2014).

The present study finding is was line with prior studies results which indicated significant relationship between attitude and intention. Specifically, just two studies Trumper (2006); Kaya & Böyük (2011) focused on the relationship between students' attitude and their intention to continue studying science subjects. In more details, this study was focused on the influence of post-basic students' attitude toward biology, physics, and chemistry on their intention to continue studying these courses, and the finding was harmonizing with overall findings of past research findings.

5.3.2 The Influence of school science curriculum on students' intention to study science

The second question of this study was whether the school science curriculum has any relationship with the students' intention to study science. Based on second hypothesis test (H2) indicated that school science curriculum has significant relationship with students' intention to study science. The result of the RQ 2 indicated that school science curriculum is significantly related to the intention to continue studying science ($r = 0.411$, $p < 0.05$). This finding supported the hypothesis test (H2).

It was understood that poor perception of school science curriculum is related to students intention to avoid studying biology, physics, and chemistry in post-basic education. This positive relationship was also in line with previous researches indicating that school curriculum had been recognized as one of the key elements that enhanced secondary school students' intention towards learning science subject (Hofstein & Mamlok-Naaman,2011). Consistent with Holmegaard et al. (2014), this result suggested that pupils were committed to science subjects when they had better knowledge of science, aspiration to take more science subjects and continue to read about science. This result was also similar to studies by Lindahl(2003); Holbrook and Rannikmae (2007) who emphasized that appreciating the nature of science as well as the theoretical understanding of science curriculum be likely to be irrelevant for daily life functions, that is, related to the home, the environment, and for future science-related changes. The result of this study was supported by Hagay and Baram-Tsabar (2015), who found that the key reason for the decrease in the intention for science in general and specifically physics and chemistry, was directly linked to the nature as well as content of the present

curriculum, concerning both the pedagogies and their contents. This usually result to curriculum differentiated by isolated facts separated from the scientific contents (Bybee & McCrae, 2011), as well as the low levels of orientation towards related concerns taken from pupils' daily life or for social interest (Holbrook, 2005). Hence, pupils were unsuccessful in connecting between different concepts as well as facts presented and their practical implementation, in that way lost the 'big picture' of science. Specifically, all these issues had possible influence on their intention. In the same context, the current paper expected that school science curriculum is positively related to intention for studying science courses (Hypothesis 2). This finding was supported by past empirical researches for this hypothesis since a significant positive relationship was found (Lindahl,2003; Craker ,2006; Holbrook and Rannikmae ,2007; Kaya and Böyük ,2011; Yunus and Alin ,2013; Hagay and Baram-Tsabar, 2015).

5.4 Limitations and Recommendations

Even though this study had given support for the hypothesized relationships between the dependent and independent variables, the findings had to be deduced with consideration of the study's limitations.

Firstly, the current study offered quite limited generalizability as it was mostly considered on students from seven post-basic schools located in Al-Sharkiyaha North governorate in Oman. Therefore, further study is needed to involve students from various schools in order to generalize the result.

Secondly, the field of this study was all science subjects; biology, chemistry, and physics together, so there was weakness in identification of any of these subjects are having more negative students' attitude and lake of curriculum. Therefore, the need to study each

subject individual which sspecialize on students' attitude toward that subject only, and the nature of that curriculum. However, motivations in science courses are also a rich research area that needs study.

Finally, future study is needed to focus on other potential variables that could influence students to intent affectively towards science courses.

5.5 Conclusion

This project was focused to study the relationship of pupils' attitude toward science subjects, and school science curriculum on students' intention to studying science in post-basic schools in Oman. The findings from the analysis had confirmed that there are significant and positive relationships between independent latent constructs and dependent variable. It was found that students attitude toward science education were negative. The finding also confirmed that school science curriculum was being the most importance variable to decrease intention toward science courses among students in post-basic schools in Oman.

5.6 Research Implications

The study is specified its implications in two different types which are theoretical level, as well as practical level in order to increase pupils' intention to science subjects, and improve their achievement.

5.6.1 Theoretical implications

In the theoretical filed, this study contributes a small quota of knowledge to the literature about attitude of students , and science curriculum toward intention to continue studying science subjects. However, there is a limited research focusing on these variables in

Oman education, especially on school science curriculum. So this paper may give an insight to the future study by adding knowledge to the present literature with current result that would help academicians and scholars to conduct deeper and wider study on these variables. However, the findings will give well understanding of the relationship among each variable. Thus, this study enhanced knowledge about students' attitude, and science curriculum that could contribute to intention to study science at the upper secondary level of schooling.

5.6.2 Practical implications

The study has implication for science tecahers. The teachers should do make effort to enhance students attitude toward science as the study shows there is poor student's attitude can affect intention to study science. Hence, by this study they can identify the points that led to negative attitude and improve them.

For the administration: They can use the study in guiding science teachers to use different methods to make the science subjects interesting. They can administer the status of science labs from time to time to check the condition of the materials. To provide a new technology based literature and give appropriate teacher development trainings.

For curriculum developers: Based on the current results, they can introduce more areas which can be taught by experimental method. Furthermore, they can rich the curriculum more examples related to real life.

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APPENDIX A

Questionnaire Sheet in English

A Survey on factors affecting Post-Basic Students' Intention toward science courses in Oman.

Dear Participants

The questionnaire presented to you is purely intended for research purpose. All your honest responses would be respected and valued. Therefore; your cooperation and honest answers to the following questions are required. All information provided will be treated as confidential. Your participation is very important because it will support me to complete my research.

Yours Sincerely,

Samata Mohammed Humaid Alwahaibi
Email: samata217@gmail.com
Master's Degree student
Collage of Arts and Science
University Utara Malaysia

Section A: Demographic Information

Please tick (√) the appropriate box:

Gender: □ Male □ Female

Interested Field of Study:
- All three science subjects
- Two science subjects only
- One science subject only
- Technology Science

Section B: Please tick (√) the appropriate answer that reflects your intention toward science subjects

Students' Intention to study science	Strongly Disagree	Disagree	Agree	Strongly Agree
1. I am ready to do anything to be a scientist	1	2	3	4
2. My professional goal is to become a scientist.	1	2	3	4
3. I am determined to learn science subjects.	1	2	3	4
4. I have very seriously thought of starting my carrer in science and or it related field	1	2	3	4
5. I have determined to continue my studies in the sciences.	1	2	3	4

Section C: : Please tick (√) the appropriate answer that reflects your attitude toward science subjects

Students' attitude	Strongly Disagree	Disagree	Agree	Strongly Agree
1. Science is harder for me than for many of my classmates.	1	2	3	4
2. I feel there is no point asking questions in science class because no one will answer them anyway.	1	2	3	4
3. I usually do well in science.	1	2	3	4
4. I am interested in topics related to food, nutrition and digestion.	1	2	3	4
5. I only take science because it is a required course.	1	2	3	4
6. I do not expect to use science much when I get out of school.	1	2	3	4
7. I am interested in a career as a scientist or engineer.	1	2	3	4
8. I have support from others to excel at science.	1	2	3	4

9. In my spare time I enjoy watching Science/ Nature/ Environment programs (on TV or computer).	1	2	3	4
10. The things that I learn in science at school will be helpful in my daily life.	1	2	3	4
11. Science is boring.	1	2	3	4
12. I like science better than most other subjects	1	2	3	4

Section D: Please tick (√) the appropriate choice that reflects the school science curriculum

School Science curriculum	Strongly Disagree	Disagree	Agree	Strongly Agree
1.The information in science curriculum related to the real world.	1	2	3	4
2 The school curriculum is crowded, science suffers because of this.	1	2	3	4
3. Science has a high profile as a curriculum area.	1	2	3	4
4. Science has a low status as a curriculum area.	1	2	3	4
5.Science curriculum emphasizes memorization of facts.	1	2	3	4
6.Science curriculum provides good examples and practical applications of scientific concepts.	1	2	3	4
7.Science classes emphasize the understanding of concepts as much as the acquisition of scientific facts.	1	2	3	4
8.Science activities are lively and stimulating.	1	2	3	4
9.Science classes emphasize what students need to know,	1	2	3	4

rather than what they should be able to do with the information presented.				
10.Science classes focus more on the processes of science (e.g., how to pose questions, collect data, and assess quality of information) than on the transmission of facts.	1	2	3	4
11.The science resources are poorly organized.	1	2	3	4

THANK YOU FOR COMPLETE THIS QUESTIONNAIRE

APPENDIX B

Questionnaire Sheet in Arabic Language

استبيان حول العوامل المؤثرة على رغبة طلاب مابعد الأساسي في دراسة المواد العلمية في سلطنة عمان

عزيزي الطالب/ الطالبة

السلام عليكم ورحمة الله وبركاته،،،

مع أمنياتي لك/ لكي بالنجاح والتميز ، فإنني أضع بين يديك هذه الإستبانة والتي تتعلق بدراسة بحثية عنوانها " العوامل المؤثرة على رغبة الطلاب في اختيار مواد العلوم الاختيارية (الأحياء، الكيمياء، والفيزياء) " لذا يرجى التكرم بالإجابة على الأسئلة التالية مع مراعاة مايلي :- الحرية في الإجابة و توخي الصراحة و الأمانة - كتابة الاسم أمر غير إلزام. - الإجابة على هذه الإستبانة محاطة بالسرية التامة ولا تستخدم إلا لغرض الدراسة.

الباحثة : سمته بنت محمد بن حميد الوهيبية

طالبة ماجستير في مناهج وطرق تدريس العلوم

البريد الالكتروني : samata217@gmail.com

كلية العلوم والادآب - جامعة أوتارا ماليزيا.

الجزئية أ : الرجاء وضع علامة (√) على الإختيار المناسب وتعبئة الفراغ إن وجد

1. الجنس : - ذكر
   - أنثى

2. التخصصات العلمية التي تنوي دراستها : - المواد العلمية الثلاث (أحياء ،فيزياء ،كيمياء)
   - مادتين فقط
   - مادة علمية واحدة
   - مادة علوم وتقانة

الجزئية ب : رغبتك في دراسة مواد العلوم (أحياء، فيزياء، كيمياء)

الرجاء وضع علامة (√) على الإختيار المناسب والذي يشير إلى مدى رغبتك في دراسة الأحياء أو الفيزياء أو الكيمياء

العبارة	موافق بشدة	موافق	غير موافق	غير موافق بشدة
أنا على استعداد لفعل أي شيء لأكون متخصصا في مواد العلوم.				
هدفي المهني هو أن أصبح باحثا متخصصا في العلوم.				
أنا عاقد العزم على تعلم المواد العلمية.				
لقد فكرت جديا جدا لبدء مسيرتي في مجال العلوم أو مايتعلق به.				
لدي العزم على مواصلة دراستي الجامعية في أحد تخصصات العلوم.				

الجزئية ج: موقفك نحو المواد العلمية (أحياء، فيزياء، كيمياء)

الرجاء وضع علامة (√) على الإختيار المناسب والذي يشير إلى موقفك ووجهة نظرك في المواد العلمية

العبارة	موافق بشدة	موافق	غير موافق	غير موافق بشدة
العلوم هو الأصعب بالنسبة لي مقارنة بالكثير من زملائي.				
أشعر بأنه لا فائدة من طرح الأسئلة في حصة العلوم لأنه لن يجيب أحد على أي حال.				
عادة أحقق نتائج جيدة في العلوم.				
أنا مهتم بالموضوعات المتعلقة بالغذاء والتغذية.				
أنا أخذت مادة العلوم فقط لأنها متطلب اساسي				
لا أتوقع أن استفيد من العلوم كثيرا عندما أنتهي من اليوم الدراسي.				
أنا مهتم أن أصبح باحثا أو مهندسا.				
لدي دعم من الآخرين لكي اتفوق في العلوم.				
في وقت فراغي أستمتع بمشاهدة علوم / الطبيعة				

برامج البيئة (على شاشة التلفزيون أو الكمبيوتر).				
الأشياء التي تعلمتها في مواد العلوم سوف تكون مفيدة في حياتي.				
في نظري مواد العلوم مملة.				
أنا أحب العلوم أكثر من معظم المواد الأخرى.				

الجزئية د : مناهج العلوم (الأحياء، الفيزياء، الكيمياء)

الرجاء وضع علامة (√) على الإختيار المناسب والذي يشير إلى وجهة نظرك في مناهج العلوم

العبارة	موافق بشدة	موافق	غير موافق	غير موافق بشدة
المعلومات في مناهج العلوم ذات صلة بالحياة الواقعية.				
المناهج الدراسية كثيرة ولذلك تتأثر مناهج العلوم.				
مناهج العلوم يحوز الأولوية ضمن المناهج الدراسية.				
مناهج العلوم ليست له أولوية ضمن المناهج الدراسية.				
تؤكد مناهج العلوم على تحفيظ الحقائق				
يوفر منهج العلوم أمثلة جيدة وتطبيقات عملية للمفاهيم.				
تؤكد دروس العلوم على اكتساب الحقائق العلمية إلى جانب فهمها.				
الاستكشافات في مواد العلوم حيوية ومحفزة.				
تركز دروس العلوم على ما يحتاج الطلاب معرفته، أكثر من التركيز على ما يجب القيام به مع المعلومات المقدمة.				
دروس العلوم تركز أكثر على الخطوات العلمية أكثر من نقل الحقائق (مثل: وضع فرضيات، وجمع البيانات، وتقييم نوعية المعلومات).				
المصادر الخاصة بمناهج العلوم قليلة التنظيم(مثل: المراجع, الادوات المخبرية).				

شكرا لكم على استكمال الاستبيان