The utilisation of technology in teaching the Arabic language in secondary schools in Riyadh, Saudi Arabia

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This thesis is submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in Education, University of Western Sydney
DEDICATION

This work is dedicated to:

My Father Falah and My mother Sabha

My beloved wife Fareedah

My sons Khalid and Abdullah

My daughters Renad and Hasna

My best friend Abdullah

For their unfailing love, support, and prayers throughout the course of this dissertation, may God bless you all
I would like to acknowledge and praise the assistance, influence and support of the following people without whom this thesis would never have been the light of day.

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Finally, thank you to my best friend, Abdullah Albeshr, who has always been and will always be with me through thick and thin.
STATEMENT OF AUTHENTICATION

The work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in full or part, for a degree at this or any other institution.

Hamed Alasaadi

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# TABLE OF CONTENTS

**DEDICATION** ........................................................................................................... I

**ACKNOWLEDGEMENTS** ........................................................................................ II

**STATEMENT OF AUTHENTICATION** .................................................................. III

**TABLE OF CONTENTS** .......................................................................................... IV

**LIST OF TABLES** .................................................................................................. VIII

**LIST OF FIGURES** ................................................................................................ X

**LIST OF APPENDICES** ......................................................................................... XI

**ABBREVIATIONS** ................................................................................................. XII

**ABSTRACT** ................................................................................................................ XIII

**CHAPTER 1: INTRODUCTION** .............................................................................. 1
  1.1 Problem and purpose ....................................................................................... 2
  1.2 Research questions .......................................................................................... 3
  1.3 The approach taken .......................................................................................... 5
  1.4 Significance of the study .................................................................................. 6
  1.5 Thesis structure ............................................................................................... 7

**CHAPTER 2: BACKGROUND** .............................................................................. 10
  2.1 Context .............................................................................................................. 10
     2.1.1 Saudi Ministry of Education initiatives ..................................................... 10
       Location map of CIC....................................................................................... 12
     2.1.2 Educational system of Saudi Arabia .......................................................... 14
       Structure of public education ......................................................................... 16
     2.1.3 Smart schools in the Kingdom of Saudi Arabia ....................................... 17
       National Educational Project ......................................................................... 18
       Attractiveness of information technology development .............................. 21
     2.1.4 Pedagogy in Middle Eastern countries ...................................................... 22
     2.1.5 Limited use of technology ......................................................................... 24
       Saudi Arabia ................................................................................................... 25
       Other countries ............................................................................................... 26
     2.1.6 Limited availability of modern educational technology ............................ 28
       Lack of availability of educational technology in Saudi Arabia .................... 29
       Lack of availability of educational technology in Middle Eastern countries ... 30
  2.2 Conclusion .......................................................................................................... 31
CHAPTER 3: LITERATURE REVIEW .................................................. 33
  3.1 Introduction ................................................................................. 33
  3.2 Constructivist learning theory ................................................... 34
    3.2.1 Constructivism versus Objectivism .............................................. 35
    3.2.2 Educational technology and constructivist ................................... 38
  3.3 Current Arabic pedagogy ........................................................... 41
    3.3.1 Teaching Arabic grammar ............................................................ 42
  3.4 Old and modern technology ...................................................... 44
  3.5 Obstacles that affect the use of technology ............................. 47
    3.5.3 Lack of coordination of types of technology ......................... 48
    3.5.4 Lack of teacher training in the use of technology ............... 48
    3.5.5 Lack of technical support .......................................................... 50
    3.5.6 Lack of basic infrastructure ....................................................... 50
    3.5.7 Summary ....................................................................................... 51
  3.6 Benefits of educational technology .......................................... 52
  3.7 Modern technology: New challenges in Arabic teaching ........ 54
  3.8 Conclusion .................................................................................. 57

CHAPTER 4: METHODOLOGY.......................................................... 59
  4.1 Introduction ................................................................................. 59
  4.2 Research paradigms ................................................................... 61
  4.3 Overview of quantitative and qualitative methodologies ...... 63
    4.3.1 Quantitative techniques ................................................................. 63
    4.3.2 Qualitative techniques ................................................................... 64
  4.4 Summary of the procedure ........................................................ 66
  4.5 Questionnaire .............................................................................. 67
    4.5.1 Purpose of the questionnaire ......................................................... 67
    4.5.2 Design68 ...................................................................................... 69
    4.5.3 Sampling ....................................................................................... 69
    4.5.4 Data collection .............................................................................. 70
    4.5.5 Data analysis ................................................................................. 71
    4.5.6 Questionnaire validity and reliability ........................................... 72
    4.5.7 Strengths and limitations .............................................................. 73
  4.6 Interviews .................................................................................... 74
    4.6.1 Purpose of the interviews .............................................................. 74
    4.6.2 Design75 ...................................................................................... 75
    4.6.3 Sampling ....................................................................................... 75
    4.6.4 Interview procedure ...................................................................... 76
    4.6.5 Data analysis of interviews ........................................................... 77
    4.6.6 Pre-application testing of tools ..................................................... 80
    4.6.7 Strengths and limitations .............................................................. 80
  4.7 Ethics clearance and consideration............................................ 81
CHAPTER 5: QUESTIONNAIRE FINDINGS ................................. 83
5.1 Introduction ................................................................................. 83
5.2 Teacher characteristics .............................................................. 83
  5.2.1 Age of teachers ................................................................. 84
  5.2.2 Number of years teaching ................................................. 85
  5.2.3 Qualifications of teachers ..................................................... 86
  5.2.4 Teachers’ skills for the use of educational technology ................. 86
  5.2.5 Methods of acquiring skills in the use of educational technology ..................................................................................... 87
      5.2.6 Summary ............................................................................... 88
5.3 Availability of technology ........................................................ 89
  5.3.1 Availability of educational technology ........................................ 89
  5.3.2 Availability of software programs ............................................ 91
  5.3.3 Summary ............................................................................... 93
5.4 Using technology ......................................................................... 93
  5.4.1 Use of computers and software ............................................ 97
  5.4.2 Summary ............................................................................... 99
5.5 Perceived function of and reasons for using educational technology ......................................................................................... 100
  5.5.1 Purpose of educational technology ........................................ 100
  5.5.2 Motivation for using educational technology .......................... 102
  5.5.3 Summary ............................................................................... 103
5.6 Conclusion ................................................................................ 103

CHAPTER 6: FINDINGS OF THE INTERVIEWS ......................... 106
6.1 Introduction ............................................................................... 106
6.2 Respondents and their characteristics ................................ 106
6.3 Interview findings ................................................................. 108
6.4 What educational technology is available in your school? .. 108
  6.4.1 What educational technologies are available in the school? ...... 109
  6.4.2 What is the location of computers for students in the school? ... 111
6.5 How have teachers of the Arabic language used educational technology in secondary school in Riyadh? .... 112
  6.5.1 Which kind of educational technology do you use in the classroom? ......................................................................................... 112
  6.5.2 Why are you using educational technology in your teaching? ... 117
  6.5.3 What are the advantages of the introduction of educational technology in teaching the Arabic language? .............................................. 119
  6.5.4 How are you currently using educational technology in your teaching? ......................................................................................... 123
  6.5.5 What factors affect utilising educational technology in teaching the Arabic language? ................................................................. 126
6.6 What are the differences between educational technology now and in the past? ................................................................. 129
  6.6.1 What are the differences between educational technology used in the present and in the past? Which is better, the present or the past? Why? ................................................................. 130
  6.6.2 When did you start using educational technology in your teaching and what was your opinion of it at the period? ............ 132
  6.6.3 What incentives are there to use educational technology in your teaching? ................................................................. 134

6.7 What is the best way to use educational technology in teaching the Arabic language? ................................................ 137
  6.7.1 How often do you use educational technology in your personal life? ................................................................. 137
  6.7.2 In what subject/s of Arabic language do you use educational technology? ................................................................. 139
  6.7.3 Which educational technology does not have any benefit? ..... 140
  6.7.4 How can teachers use this educational technology without ignoring the traditional methods? ........................................ 141

6.8 Summary ................................................................................... 142

CHAPTER 7: DISCUSSION ............................................................ 145
  7.1 Introduction............................................................................... 145
  7.2 Key finding [A]: Use of the latest modern technology at home and at school ................................................................. 146
  7.3 Key finding [B]: ‘External’ motives for using modern technology ..................................................................................... 150
  7.4 Key finding [C]: Obstacles to utilisation of educational technology .................................................................................. 153
  7.5 The importance of utilising personal computers and digital mobile technology ................................................................. 157
  7.6 Conclusion ................................................................................ 161

CHAPTER 8: CONCLUSION ........................................................... 165
  8.1 Introduction............................................................................... 165
  8.2 Summary of aims, methods and findings .................................. 166
    8.2.1 Significance of results ......................................................... 168
  8.3 Limitations of the study ............................................................ 170
  8.4 Recommendations for future research .................................... 171

REFERENCES ............................................................................. 174

APPENDICES .............................................................................. 187
LIST OF TABLES

Table 2.1     Number of female and male students passing and attending the three stages in school (2006) .......................................................... 17

Table 4.1     Themes and categories ...................................................................... 78

Table 4.2     Coding under utilisation ............................................................... 79

Table 5.1     Age of teachers .............................................................................. 84

Table 5.2     Number of teaching years ............................................................. 85

Table 5.3     Teachers’ skills for the use of educational technology .............. 87

Table 5.4     Availability of modern educational technology ...................... 90

Table 5.5     Availability of old educational technology ............................. 91

Table 5.6     Availability of educational technology programs .................... 92

Table 5.7     Directly related to Arabic language teaching ............................. 94

Table 5.8     Not directly related to Arabic language teaching ..................... 95

Table 5.9     Administrative activities ............................................................... 96

Table 5.10    Development of new material for Arabic language lessons ........ 97

Table 5.11    Use of software programs ............................................................. 98

Table 5.12    Perceived purpose of educational technology ......................... 101

Table 5.13    Reasons for using educational technology ............................... 102
| Table 6.1 | Characteristics of the teachers (pseudonyms used) ....................... 107 |
| Table 6.2 | Location of computer for students in the school ......................... 111 |
| Table 6.3 | Differences between educational technology used in the past and present 130 |
| Table 6.4 | Period using educational technology in teaching and opinion ... 132 |
| Table 6.5 | Subjects of the Arabic language ........................................... 139 |
| Table 6.6 | Non-beneficial educational technology .................................. 141 |
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2.1</td>
<td>Computer and Information Centre</td>
<td>12</td>
</tr>
<tr>
<td>Figure 4.1</td>
<td>Abstract relationship between Theme, Category and Code</td>
<td>77</td>
</tr>
<tr>
<td>Figure 5.1</td>
<td>Percentage breakdown of age cohorts</td>
<td>85</td>
</tr>
<tr>
<td>Figure 5.2</td>
<td>Methods of acquiring skills</td>
<td>88</td>
</tr>
<tr>
<td>Figure 6.1</td>
<td>Availability of educational technology in secondary schools in Riyadh</td>
<td>110</td>
</tr>
<tr>
<td>Figure 6.2</td>
<td>Kinds of educational technology used in the classroom</td>
<td>114</td>
</tr>
<tr>
<td>Figure 6.3</td>
<td>Using educational technology in teaching</td>
<td>118</td>
</tr>
<tr>
<td>Figure 6.4</td>
<td>Advantages of introduction of educational technology in teaching</td>
<td>121</td>
</tr>
<tr>
<td>Figure 6.5</td>
<td>Current usage of educational technology in teaching</td>
<td>125</td>
</tr>
<tr>
<td>Figure 6.6</td>
<td>Factors’ effect on utilising educational technology in teaching the Arabic language</td>
<td>128</td>
</tr>
<tr>
<td>Figure 6.7</td>
<td>Incentives to use educational technology in your teaching</td>
<td>135</td>
</tr>
<tr>
<td>Figure 6.8</td>
<td>Educational technology used by teachers in life</td>
<td>138</td>
</tr>
<tr>
<td>Figure 6.9</td>
<td>Usage of educational technology without ignoring traditional methods</td>
<td>141</td>
</tr>
</tbody>
</table>
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Information Sheet for Teachers (English)</td>
<td>188</td>
</tr>
<tr>
<td>2</td>
<td>Interview Questions for Teachers (English)</td>
<td>197</td>
</tr>
<tr>
<td>3</td>
<td>Questionnaire (Arabic)</td>
<td>199</td>
</tr>
<tr>
<td>4</td>
<td>Interview (Arabic)</td>
<td>207</td>
</tr>
<tr>
<td>5</td>
<td>Human Research Ethics Committee (English)</td>
<td>211</td>
</tr>
<tr>
<td>6</td>
<td>Permission of Department of Learning and Education (Arabic)</td>
<td>212</td>
</tr>
<tr>
<td>7</td>
<td>Permission of Ministry of Education (Arabic)</td>
<td>213</td>
</tr>
<tr>
<td>8</td>
<td>Participant Consent Form for Questionnaire (English)</td>
<td>214</td>
</tr>
<tr>
<td>9</td>
<td>Participant Information Sheet (English)</td>
<td>215</td>
</tr>
<tr>
<td>10</td>
<td>Participant Consent Form for Interview (English)</td>
<td>217</td>
</tr>
<tr>
<td>11</td>
<td>Letter of Permission of Survey (English)</td>
<td>218</td>
</tr>
</tbody>
</table>
ABBREVIATIONS

CIC    Computer Information Centre
ET     Education Technology
GOTEVT General Organisation for Vocational Training and Technical Education
GPGE   General Presidency of Girls Education
IT     Information Technology
LRC    Learning Resources Center
MCSA   Microsoft Certified Systems Engineer
ABSTRACT

This study is about the availability and utilisation of educational technology by Arabic language teachers in secondary schools in Riyadh in the Kingdom of Saudi Arabia. There is a paucity of empirical evidence about the supply of educational technology in secondary schools, and little knowledge at present about whether the technology that is available is in fact being utilised. As such, this thesis aims to provide knowledge that will improve understanding of the current usage of technology, as well as obstacles to its use by secondary school teachers.

This study is geographically focused on Riyadh because it is Saudi Arabia’s most populous city. It focuses on male secondary school teachers because sex segregation in Saudi Arabia made the investigation of female teachers difficult. It attends to Arabic language teachers because this cohort of teachers has been studied little in the literature.

Two types of methodology – qualitative and quantitative – were used in the investigation of educational technology utilisation in secondary schools of Riyadh among Arabic language teachers. The quantitative methodology involved using an extensive questionnaire administered to 100 Arabic language teachers drawn from 40 secondary schools in Riyadh. The qualitative methodology involved interviews conducted with eight respondents to the questionnaire.

The key original findings of the research were that modern educational technology was available in schools to a greater extent than much old technology, however, was not matched by utilisation in the classroom. It was found that teachers used modern technology in their personal lives more so than in their professional lives. Findings indicate that teachers were motivated by several external factors in their potential utilisation patterns and have the desire to utilise modern educational technologies in schools, but they were encountered by many barriers such as lack of coordination, lack of training, lack of technical support and unsuitable modern educational technologies infrastructure in the schools. Generally, this study provides new
information that is necessary for better assessment how to integrate modern educational technology into secondary schools of Riyadh.
CHAPTER 1:
INTRODUCTION

This thesis is about the availability and use of educational technology, especially its availability and usage in boys’ secondary schools by Arabic language teachers in Riyadh, the Kingdom of Saudi Arabia. This topic is of particular interest and importance to me personally because of my professional background and nationality. I am a secondary school teacher of the Arabic language from Saudi Arabia’s largest city, Riyadh.

A challenge that both I and my colleagues have faced in recent years is the growing disparity between the technological sophistication of our students relative to the use of technology in our classrooms. We have also become keenly aware of an apparent technological lag in Saudi schools compared to Western developed countries. Closing the gap, both relative to our students and relative to developed countries, seems to be a necessary goal if Saudi Arabia’s secondary school system is not to languish.

Unfortunately, making the transition to a more technologically sophisticated learning environment for Arabic language students has been a difficult one for a number of reasons. Obviously resourcing of schools by government is a serious if predictable barrier to the availability of modern educational technology. However, I also discerned a reticence or reluctance to using modern educational technology when it was available. I became concerned that these amounted to potentially serious barriers to the development for technologically enhanced innovations in teaching practices for Arabic language in Saudi schools. However, such fears were based only on my own personal anecdotal experiences. More systematic research was necessary in order to discern whether my concerns were well-founded or not. Unfortunately, my exploration of the academic literature in the specific fields I was interested in – Arabic language teaching in Saudi high schools – revealed that very little study had been conducted.
Thus the modest goal of this thesis’ was to collect vital information through quantitative and qualitative approaches to provide better understanding about the types of educational technology that are available; and to what extent modern educational technology is available; and the utilisation of the available technology.

1.1 Problem and purpose

The overarching concern motivating this thesis is that Saudi Arabian schools should be using, or at least making available to teachers and students, the latest educational technology. This concern is premised on the assumption that educational technology is designed to, and can, be beneficial in the learning process – that it can help students to assimilate and construct existing and new knowledge. Different kinds of educational technology will serve different educationally goals, but the greater the variety of educational technologies that are available, the greater the opportunities for teachers to utilise those technologies to serve many goals in ways that are beneficial to students (Almalki & Williams, 2012).

This concern with having a variety of educational technologies available extends to all subjects taught in Saudi Arabian schools, however, being able to employ ‘best practice’ in Arabic language classes is particularly important because mastery of the Arabic language, which is largely completed in high school, is the essential cornerstone to success in all other subjects, as well as for post-school life in Saudi Arabia (Ismail, Almekhlafi, & Al-Mekhlafy, 2010).

The primary problem faced by this thesis is the issue of whether Arabic language subjects in Saudi Arabian secondary schools have enough educational technology to serve the needs of teachers and students presently. If educational technologies demanded by schools, teachers and students are not available, then it is not possible to meet their needs. The government of Saudi Arabia has allowed the introduction of modern digital technology to the marketplace such that it is now quite affordable for the average household. This indicates the government’s desire that the nation should catch up to the level of technology utilised by developed nations. As a result both the government and a more technology-savvy civil society now places pressure on
teachers and students to use technology in the field of education. Further, teachers and students have increasingly demanded that educational technology be provided within the teaching and learning process. That said, at present, there is not sufficient information about the availability of technology in Arabic language classes. Therefore, this thesis seeks to deal with this problem by collecting information about the availability of educational technology in secondary schools in Riyadh. A related problem to be faced is whether the technology that is available is being utilised to its fullest extent. Again, there is a dearth of information about the use of educational technology in Arabic language classrooms (Ismail et al., 2010). This thesis seeks to fill that gap in our knowledge. It also explores what factors are affecting the use of educational technology. It examines the main difficulties that prevent Arabic language teachers from using educational technologies in their classes. This study, also, will examine how using educational technologies is impacted by variables such as teachers’ qualifications, training and experience. Furthermore, this study will investigate the extent of usage of technology by Arabic language teachers in the classroom in secondary schools. Therefore, this research will identify the issues and weaknesses that secondary schools may face which can respectively advance or impede the use of technology in teaching the Arabic language.

1.2 Research questions

In light of the problem and purpose of the thesis, this thesis will address seven specific questions about the availability and use of educational technology in Arabic language classes in secondary schools in Riyadh. The seven questions are as follows. This first question is both the most basic and the most essential. Without educational technologies being available, it is not possible to speak about utilisation of that technology and the factors which may affect that.

Q1. *To what extent are educational technologies available in teaching the Arabic language in secondary schools throughout the Riyadh Governorate?*
The next three questions are related to the utilisation of educational technology. Question 2 asks only about what is utilised, while Question 3 asks how much the available technologies are being utilised.

Q2. What educational technologies are utilised in teaching the Arabic language in secondary schools throughout the Riyadh Governorate?

Q3. To what extent are educational technologies used in teaching the Arabic language in secondary schools throughout the Riyadh Governorate?

Questions 4 and 5 ask about the association between the use of technologies and some salient demographic factors of teachers, especially related to teachers’ own education and training.

Q4. What differences exist in the use of technology by teachers according to such factors as their formal qualifications, training and number of years in service?

Q5. What training in educational technology skills do secondary school Arabic teachers gain and how do they acquire these skills?

The last two questions are normative in the sense that they relate to the valuation of educational technologies by teachers. Answers to these questions imply what worth teachers of Arabic give to the use of technologies in their pedagogical practices. So, they examine the effect of specific component variables on educational technology utilisation in secondary schools of Riyadh

Q6. How important is the use of modern educational technologies in teaching Arabic in secondary schools throughout the Riyadh Governorate?

Q7. What are the motives or reasons for using educational technologies in teaching Arabic in secondary schools throughout the Riyadh Governorate?
1.3 The approach taken

The approach taken in this thesis is informed by the philosophy of constructivism. Briefly, constructivism says that people learn new knowledge by actively constructing concepts in their minds via socially collaborative practices that are rooted in concrete problem solving (Glasersfeld, 1989).

According to Mann (1994), constructivism is particularly appropriate way to think about student learning as modern technologies become a more prevalent part of an educational landscape. Students involved in an educational process that is populated by modern technology become empowered because they are able to gain access to a wider variety of sources of knowledge and new techniques for knowledge transmission. This tends to allow students to become active learners as they take greater control over the resources that they can access and as they become participants in learning activities in the classroom. Different kinds of technology simultaneously give teachers the opportunity to change their traditional roles so that they can also take advantage of technological innovations in the classroom too. In short, constructivist theory enables one to see the importance that technological change can have on the educational process.

Constructivism informs and inspires the empirical investigation of the thesis because in order to begin to conceptualise the possible benefits associated with technological innovations being introduced into the classroom – and particularly for Arabic language classes – it is first necessary to know to what extent different kinds of educational technology are available and being used, who is using that technology, what their skill levels are, why they are using the technology that is available to them, and what opinions they hold about existing modern educational technology.

To answer the above questions, it was felt by the researcher that asking teachers about their own experiences of the availability and use of educational technologies (and related questions) was the best way to obtain data. As such, an empirical approach was taken to answering the above research questions. It was recognised that both questionnaires and interviews have been separately used in past research. Given that both of these tools have strengths and weaknesses, it was decided that a
sequential mixed methods approach should be employed, where a questionnaire was followed by interviews (Meurer et al., 2007). As such, 100 Arabic high school teachers in Riyadh completed questionnaires that dealt with the above research questions. These results were then tabulated to indicate: (i) the availability and utilisation of various kinds of educational technology; (ii) demographical and training differences between teachers; and (iii) normative questions about the importance of, and motives for, using educational technologies. In order to provide greater insight from a personal subjective perspective of the teachers, a small select number of teachers were interviewed about their opinions on the above topics. The results were then synthesised and reported. Finally, they were discussed in light of the above research questions, and the extent to which modern educational technology had been taken up for acknowledging the benefits of Arabic teaching. (Details of how the questionnaire and interview categories were constructed and how data was collected are discussed in Chapter 4 on Methodology.)

1.4 Significance of the study

This study is significant for several reasons. The reasons to be discussed in the following section can be summarised as follows. First, although some studies have examined the use of technology in Saudi schools, there is a very limited amount of research that focuses on how Arabic language teachers use technology in secondary schools.

Second, this study will improve understanding of the current usage of technology in Saudi Arabian schools, and specifically in the Arabic language field by revealing the current status of utilising modern technology in Arabic language classes in the secondary schools of the Riyadh district. Furthermore, this study will increase the understanding of technology within schools by identifying the teacher’s ability to utilise educational technology in the Arabic language teaching. While the truth is that some schools in Saudi Arabia have utilised technology as part of the teaching process, there is a significant desire for conducting studies and research in this area by the Ministry of Education and educational institutions improve the implementation of technology effectively and efficiently. Further, this study will
assist in identifying the extent of technology use in the teaching of Arabic language in order to document any relevant information from sources which have examined this same topic.

Third, in most developed countries, computerised curricula are used to improve the teaching process. Nowadays, some developing countries such as Saudi Arabia and Qatar attempt to introduce computers into their curricula in order to keep pace with their western counterparts. Since Saudi Arabia is considered one of the developing countries in the world, it aspires to resolve its educational issues to improve its educational system. Thus, it has started to use technology in the educational field.

Finally, this study can provide the Education Ministry (EM) in Saudi Arabia with an insight on the utilisation of modern educational technology in secondary schools of Riyadh and provide an understanding of the teacher’s perception, obstacles and factors that influence the integration of modern educational technology in Arabic language teaching and lead to further research in the utilisation of educational technology in teaching the Arabic language.

1.5 Thesis structure

This thesis takes a constructivist viewpoint to be an appropriate pedagogical philosophy for high school teaching and learning. Constructivism means that students are able to construct their own knowledge by self-centred, self-directed learning in accordance with their own needs and interests. It has been argued that the progressive development of modern educational technology can be further utilised productively under the guidance of a constructivist philosophy. Taking advantage of modern educational technology in new constructivist ways cannot occur if technology is not available and/or cannot, or will not, be utilised by teachers. This thesis is thus motivated to answer the following questions: Are there barriers to the full utilisation of modern educational technology? To what extent do those barriers formulate responses to them in the future? (Ültanır, 2012).
The structure of the thesis is as follows. In Chapter 2, the context of the educational background to this study is provided. It outlines the Saudi education system, and shows that the Saudi government is interested in further advancing the available educational technology in Saudi Arabian high schools, however, at present there is not sufficient information about what is available and used.

Chapter 3 provides a literature review of the theory of constructivism and then an overview of the current state of pedagogy in Saudi Arabia. Use and availability of old and modern technology in the education systems of a range of countries are detailed in the next section. Following this, some obstacles associated with use and availability of educational technology in education were identified in the literature. These problems included the lack of teacher training, lack of basic infrastructure and lack of technical support. Next, the benefits of modern educational technology identified in the literature are outlined. Finally, the literature on the use of modern technology in teaching the Arabic language in Saudi Arabia in reviewed.

Chapter 4 details the design of the study, research methodologies used, and rationale for the methods chosen. It includes a description of the research instruments and data collection and analysis techniques. The first, second and third sections outline the research paradigms, overview of quantitative and qualitative methodologies, and summary of the procedure used. The fourth section outlines the questionnaire instrument’s development, the sampling technique used, the population and the sample size, data collection procedure, and data analysis. It also discusses the validity and reliability of the questionnaire method. This is followed by an outline of the design of the interview procedure, the sampling technique, and the data collection and analysis. The final section considers ethical issues of research.

Chapter 5 presents findings of the questionnaire which including the personal characteristics of the teachers, their skills relating to educational technology, the availability to the teachers of educational technology and software programs, the use of the educational technology and software programs and access to a computer by the teachers. The answers to questions relating to the purpose and reasons for using educational technology are also reported.
Chapter 6 presents the interview findings. The fourteen interview questions asked were divided into four main themes that were informed by the thesis’ research questions. The first two themes were about the availability and the utilisation of educational technologies. These replicated the themes that were the focus of the questionnaire. They were asked interview questions about availability and utilisation to double-check the responses to the questionnaire and to give the interviewees the opportunity to contribute additional information on these themes that may have been missing or overlooked or dealt with too briefly in the questionnaire. The other two themes were about differences in use of educational technology over time and opinions about the worth and motives for using educational technology. These two themes were asked about even though they were touched upon in the questionnaire because they require the elaboration in order to give completely accurate answer, which is not fully possible with a structured questionnaire.

Chapter 7 presents a discussion of the main findings relating to the study questions and the literature in the field. Chapter 8 concludes with a summary of the thesis and some final reflections.
CHAPTER 2: BACKGROUND

2.1 Context

This section provides an overview of the educational context of the current study. It provides a detailed information about the most recent major development in Saudi secondary education system such as the establishment of the Ministry of Education’s Computer Information Center and its role in the improvement of the availability and use of modern educational technology in Saudi Arabian high schools. It also provides an overview of the gradual development of the educational system in Saudi Arabia and Middle Eastern countries, explaining all aspects of education and discusses the structure of public education and smart schools in the Kingdom of Saudi Arabia. Moreover, it presents the efforts of the Kingdom of Saudi Arabia in the information technology field and integrating it in the educational sector. Further, the information about this context helped to identify the needs of this study in this specific context, and in shaping the study aims, design and methods, such as, school stage and sample. The remainder of Chapter 2 provides an overview of limited use and availability of modern educational technology. Although modern educational technology is available to some extent, it is not evenly distributed across educational strata (from elementary school to university). Also, of the modern technology that is available, it is not utilised to its fullest extent.

2.1.1 Saudi Ministry of Education initiatives

Saudi Arabia has attempted to develop its infrastructure for each sector of the economy and society. The Ministry of Education in Saudi Arabia has some projects to incorporate technology with education to change attitudes of teaching and education such as the King Abdullah bin Abdul Aziz Computer Awareness Project, the Project of Computer-based Labs, and the Project of Modern Technology Centre. Another example is the Transfer School library to Teaching Resources Project (Ohali, 2005). The most important and largest initiative, however, has been the
founding of the Computer and Information Center (CIC) in 1996 (Ministry of Education & Saudi Arabi, 2004).

The CIC, under the supervision of the Office of the Minister of Education, began life as a body intending to provide basic knowledge of computers to teachers. Nowadays, it has extended its scope to provide a wide range of informational services on a large scale to assist all educational institutions. In 2003 the CIC introduced Informational Technology Systems Management processes and methods to improve efficiency (Ministry of Education & Saudi Arabi, 2004). Further, a full-fledged Service Desk has set up by the CIC so that it can now serve as a single point of contact for all stakeholders by which people can submit requests for IT connected services and to fix problems arising out of the use of computer hardware and software.
A number of other initiatives intended to improve educational services throughout Saudi Arabia have also been implemented by the CIC. These initiatives include the following. First, in order to enable access to all information in its central database, the CIC has established a state-of-the-art wide-area network that connects all educational directorates and teachers colleges to the Ministry of education’s Head Office in Riyadh.
In 2005, the CIC developed a Conferencing of Video Project which all directorates can participate in enabling teachers and educational managers from the Ministry of Education to hold virtual meetings (Ministry of Education & Saudi Arabi, 2004). Video Conferencing facilities have been added to the Ministry for Girl’s Education and the offices of deputy ministers, and the CIC headquarters have been built to supervised system.

Also, various software applications have designed and promoted by the CIC to assist in the management of the Ministry’s financial and human resources. Furthermore, access to these software applications and their respective databases has also been given to all the education directorates and Education Ministry offices across the whole country. This has enabled real-time access to the Ministry’s financial and human resource databases. Other software applications have also been added which give administrators, researchers and other authorised educational staff immediate web-enabled access to existing and new software applications provided by CIC, as well as information about educational requirements and standards and syllabus content changes by the Ministry.

Finally, an especially dedicated agency has been established under the auspices of the CIC to account for and administer the use and performance of information and communication technology in all Saudi schools. Its responsibilities include the following:

- The deployment of IT laboratories for boys and girls:
  - For all secondary school more than 3,000 laboratories (51,000 personal computers) (Ministry of Education & Saudi Arabi, 2004).
  - 2,300 laboratories have been built for elementary and intermediate schools and 39,100 personal computers have been installed (Ministry of Education & Saudi Arabi, 2004).
  - 2,000 Learning Resources Centers have been established with 12,000 personal computers (Ministry of Education & Saudi Arabi, 2004).
  - A wireless network (LAN) pilot project in selected schools has been implemented with the support of major computing companies 3com, Cisco, Hewlett-Packard and some local providers.
• Partnering with major IT companies has also been established in order to provide the following:
  - Teacher training for 30,000 teachers in basic computer skills (Ministry of Education & Saudi Arabi, 2004).
  - An e-learning pilot project proving educational and assessment software.
  - IT consultancy services to schools.
  - Teacher training for 6,000 teachers over four years for computer-based modern technology (Ministry of Education & Saudi Arabi, 2004).
  - (MCSA) Microsoft Certified Systems Engineer training for 1,000 teachers over three years (Ministry of Education & Saudi Arabi, 2004).

In conclusion, educational technology is one of many sectors in Saudi Arabia that has been promoted by the Ministry of Education. The Saudi government has directed a substantial amount of money from its education budget to the development of modern computer infrastructure associated communication services between schools and the education bureaucracy.

2.1.2 Educational system of Saudi Arabia

Islamic philosophy is essential in order to understand the educational system in Saudi Arabia where Islamic teachings are fundamental to and emphasised in all aspects of education in Saudi Arabia. Islam accords high status to those who possess knowledge. As the Qur’an says ‘Are those who know equal with those who know not? But only men of understanding will pay heed’ (Az-Zumar 9:75) (Quran, 2012). It is a basic Islamic imperative that every Muslim should seek knowledge. It is reported that Prophet Mohammed said ‘Seeking knowledge is a requirement for all Muslims’. This command is not gender specific. That said, traditional Muslim scholars have commanded the separation of males from females in the teaching context. In Saudi Arabia, this takes the institutional form of separate schools for males and females. According to the Policy of Education in Saudi Arabia, Item 155: ‘Co-education is restricted in every education stage with the exception of nurseries and kindergarten’ (Ministry of Education & Saudi Arabi, 2004, p. 29). This study only focuses on male students (as opposed to both male and female students) because
there were various administrative and cultural obstacles which made it difficult for male researchers to gain easy access to female-run schools.

During Saudi Arabia’s history, the Kings of Saudi Arabia put their efforts into developing education. In 1924 the founder of Saudi Arabia, King Abdul-Aziz, established the first fully-fledged educational system in the country under the Educational Directorate. In many cities and towns throughout the country, public and vocational schools were opened for male students by the Directorate of Education (Ministry of Education, 1991-1992). In 1926, the Directorate of Education became the Ministry of Education which took over responsibility for schools for males. The Ministry of Education opened educational offices charged with administering the educational affairs in each of the five provinces of the country.

In 1959, the first schooling system for females was established by King Saud who issued a royal decree stressing the significance of providing education for women in the country. This reform was controversial at the time. To ensure support, female education was put under the administration of religious leaders according to the norms of Saudi society. Initially, education was restricted to the teaching of housewifery and childcare, and was conducted exclusively by female teachers. In the 1960s, the religious authorities established the General Presidency of Girls Education (GPGE). Mirroring the Ministry of Education, the GPGE assigned an Educational Office in each province to monitor and supervise female schooling.

In 1975, the Ministry of Higher Education was established to provide the country with university graduates and academics to assist in the intellectual, scientific and economic development of the country (Alssalloom, 1987). Following this change, colleges were established for males and females. In 1977, King Saud University, Saudi Arabia’s first university, was established. After that, several higher education institutions and universities were established.

In 1980, the government established the General Organisation for Technical Education and Vocational Training (GOTEVT) to cater for students who required vocational and technical education for employment.
By 2013, there were 38 universities and colleges in Saudi Arabia (Ministry of Education, 2013). The latest development has been launch in 2009 of King Abdullah University of Science and Technology, dubbed ‘the Arab MIT’ (Massachusetts Institute of Technology). This university has the world’s second largest endowment (after Harvard), is Saudi Arabia’s first mixed-gender university, has recruited academics from across the world, and gives instruction in English (Slackman, 2009).

**Structure of public education**

To understand the focus of the thesis some information about the structure of the Saudi educational system is required.

The vast majority of Saudi youth attends schools at elementary, intermediate and secondary stage (Table 2.1). The schools are centrally controlled by the state, voluntarily attended, free, and gender-segregated. Table 2.1 shows the number of female and male students passing and attending the three stages in public schools in the school year of 2006 (Kingdom of Saudi Arabia Ministry of Higher Education Saudi Arabian Cultural Mission Washington, 2006).

‘Elementary’ education consists of the first six years of schooling. Instruction in the basics of Arabic grammar, history and geography starts in the fourth grade. The next three years are designated the ‘intermediate’ level. Students obtain a more comprehensive instruction in the Arabic language (with emphasis on basic knowledge of grammar, reading and writing), mathematics, and Islamic religion, science (chemistry, biology and physics). ‘Secondary’ education consists of the last three years of high school. At this stage, the school prepares students for a professional career or academic college stage. The second and third years separate students between science and humanities majors, but all students must study the Arabic language in depth and in detail (Alssalloom, 1987).
Table 2.1  Number of female and male students passing and attending the three stages in school (2006)

<table>
<thead>
<tr>
<th>Level</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary Education</td>
<td>1,242,959</td>
<td>1,084,239</td>
<td>2,327,252</td>
</tr>
<tr>
<td>Intermediate Education</td>
<td>614,211</td>
<td>548,483</td>
<td>1,162,694</td>
</tr>
<tr>
<td>Secondary Education</td>
<td>453,038</td>
<td>463,526</td>
<td>916,564</td>
</tr>
<tr>
<td>Higher Education</td>
<td>236,996</td>
<td>334,817</td>
<td>571,813</td>
</tr>
<tr>
<td>Total</td>
<td>2,547,204</td>
<td>2,431,119</td>
<td>4,978,323</td>
</tr>
</tbody>
</table>

The focus of this thesis is on ‘secondary’ high school education in the Arabic language. This level of education is focused upon because the students are most aware of the variety of types of educational technology and about innovations in technology more generally. Also, because students at this level are studying Arabic more intensively, a greater variety of different types of educational technology may be used by teachers in order to expand their knowledge and experience of the nuances in the use of Arabic.

2.1.3 Smart schools in the Kingdom of Saudi Arabia

Saudi Arabia has sought to develop education since its inception, however, the idea of supporting education by utilising technological innovations came about after the beginning of the advent of modern technology—especially personal computers in the and the enhanced connectivity of personal computers via the internet in the late 1990s. Specifically, the idea of using such technological innovations in education gained institutional support in 2004 with the establishment of the King Abdullah National Educational Project in 2004. In order to assess the effectiveness of the project has only been piloted on a small selection of schools (Ministry of Education & Saudi Arabi, 2004). The aim of the project has been to provide modern educational technology that replaces the existing outdated technology, for example, internet-accessible computers replacing audio cassettes and videos. The fact that the project has been piloted indicates that the Saudi government is interested in improving the quality of education in Saudi Arabia, particularly in secondary
schools, by researching ways to utilise modern educational technology in schools in the future. The project, however, is still in its infancy and as yet, it is unclear how successful it can be and how difficult it will be to implement. It will be difficult to implement because there are number of questions which need to be answered before one can judge the project its future implementation. First, there is a question as to what educational technology is currently available to secondary school teachers. There is little data about this currently. Before it can be determined how large this modernisation project will have to be, it is necessary to first establish what the present level of educational technologies are. This thesis addresses this point.

Second, there is the question of whether replacing old technology with modern educational technology will really be beneficial to the learning process, especially as it relates to the teaching of the Arabic language. Answering this question requires some theoretical justification, which this thesis does by appealing to constructivist pedagogy. Third, there is the question of whether secondary school teachers have sufficient training and would be willing to embrace modern technology in their own teaching practices. Teachers are asked about these topics in this thesis.

**National Educational Project**

For Saudi Arabia, Information Technology (IT) is a strategic choice for creating sustainable development and qualifying generations to come to face the current challenges. His Royal Highness Prince Abdullah, Minister of Education has emphasised the importance of technology assimilation, integration, and use, which gave rise to this national project (Tatweer Project of King Abdullah bin Abdul-Aziz) and created the motivation to make best use of everyone’s effort and integrate various efforts towards an effective information technology development strategy (Al-Faheed, 2008). The project of King Abdullah bin Abdul-Aziz specifically targeted public education at its various levels for the purpose of developing in students the skills they need in their future careers, the professional development of teachers by providing the skills of integrating technology in their teaching, and making available the IT environment that meets the needs of both students and teachers (Ministry of Education & Saudi Arabi, 2004).
Upon completion of the project, the goal of one personal computer (PC) per 10 students will be accomplished, school buildings will be connected to the national network, and Local Area Networks LANs will be developed for individual schools. This project includes four implementation phases: i) study, investigation, and experimentation phase; ii) implementation, monitoring development, and readjustment phase at which stage 50% of students will have access to information technology; iii) connection of schools networks phase; and iv) the final phase is to update and keep up to date with technological developments in the field.

**National Project Phases**

**Phase 1: Study, investigation and experimentation**

This phase includes the following simultaneous steps starting from design specifications of the national telecommunication network, designing components of the information and service network. Then, describing the school’s local area networks (LANs), the network server and PC’s in schools, and the general network locations. Further step will be identifying both targeted users and information contents to be uploaded to the network, and finally describing the database needed for the network-connected applications and negotiating corporate partners.

**Phase 2: Services provided by the national project**

The network to be developed under the national project will enable school administrators to oversee teachers in the field regarding textbook content delivery, which could save teachers’ time and effort. In addition, issues related to content such as goal and intervention can be explained to students. Parents, on the other hand, can learn about the curriculum being delivered to their students.

Online curricula will be uploaded as multimedia to ensure data is disseminated to learners consistently no matter how far apart they may be geographically.

Multimedia facilities are effective in surmounting the problem of crowded classes. Moreover, the network will provide the possibility of links with websites that present multimedia-based curricula supported with audio-video capabilities and live interaction with learners with the possibility of introducing partial and integrated material besides other educational programs suitable for various age levels (Allen, 1998).

The project network will link students and teachers with educational websites as well as other links that provide comprehensive data about curricula and learning resources, with example associating content with live situations. Other links include websites specifically designed for gifted students and related learning resources with connection with live situations, information of interest for parents, curriculum enrichment, etc.
The project network will have links with data banks that generate questions related to various subjects at different levels. To ensure different question each time of browsing, data banks will have a random selection mechanism. In addition, there is the capability of spontaneous identification and reporting of weaknesses and strengths among students. Connectivity with educational encyclopaedias such as information encyclopaedia, thesaurus, online dictionaries, online research and international references will be secured (Murad, 1995a).

The project provides the link between educational websites and educational policies and goals sought out by Saudi Arabia, and to that end, basic conditions and specifications have been developed.

The project network will be of a major advantage for students studying abroad and their parents as through the links provided, they can easily access educational institutes in which their children are studying and can put in their queries about curriculum, updates, and instruction early of the time. The project network also provides curriculum, information, and counselling to students with special needs, their parents and special teachers.

Online conferencing will be allowed for all teachers, student, parents, supervisors, school principals and administrators.

**Phase 3: Targeted Groups by the National Project**

There are a number of groups targeted by this initiative, they include:

**Parents** – The project seeks to empower parents to make best use of the project network in terms of identifying their children’s academic performance, retrieving data and instructions from their respective schools and sharing experiences with other parents thereby enabling them to get answers to the questions they might have.

**Students** – Under the project network, students are able to browse educational websites that include curriculum, online textbooks, learning with information technology in classroom and at home study, retrieve data, information, instructions from schools, teachers, and peers. The network provides the capability of answering questions and queries.

**School administrators and educators** – Educators and educational administrators can disseminate their information, instructions and data to interested parties including school districts, teachers, schools, students and parents as well as receive feedback from the field.

**Teachers** – The project empowers all teachers to browse educational websites and online textbooks, post information, content, and data to students and their parents. They can also receive information and data disseminated by school administrators, students, and parents.

**Headmasters, educational supervisors and professors** – School headmasters, educational supervisors, and administrators will find the network very beneficial in generating information, data and instructions to concerned parties that are in
Attractiveness of information technology development

In addition to the potential benefits of IT, the government of Saudi Arabia has become aware of, and attracted by, some of the benefits of the development of IT. The growing IT industry has proved to be lucrative worldwide. Indeed, the income generated by IT and its related technical solutions sector parallels that generated by the industry sector, which has been a source of substantial economic growth for many developing countries. Governments, including Saudi Arabia, have thus become increasingly interested in investing in the IT sector in the hope of developing their own national capacities. To do this, however, requires new investments in education, especially in the area of computer science, including throughout the school system (Ministry of Education, 2013).

Thus, concerned with quality education, the government of Saudi Arabia has established various technical colleges, and a strong scientific foundation that promotes positive interaction with knowledge-based industries without losing its existing industrial competitiveness, cultural originality, and its unique value system (Ministry of Education, 2013). The development of links between science and technology research with knowledge-based industries has been underpinned by developing human resources. The qualitative improvement in the future labour force of Saudi Arabia has required a much greater emphasis on quality education, IT and communication infrastructure, establishing specialised colleges, and integrating technology in education at advanced levels.

The Ministry of Education in Saudi Arabia had promoted the educational process through the establishment of a special department in the Ministry that is designed to deal with the integration of educational technology into the school system. The overall objective of the special department is to achieve qualitative improvements in the teaching and learning processes through the integration of educational technology.
to support educational development efforts in public education and the provision of various educational materials and necessary digital standards specifications (M. o. Education, 2013).

The Educational Technology Department contributed to training sessions and developing practical skills for educators, teachers and educational professionals in the field of educational technology (M. o. Education, 2013).

The tasks of the Educational Technology Department included supervising and following up educational technology centres in the ministry, analysing problems that faced educational technology in schools, identifying periodical needs of educational technology, participating in the design of educational materials and software and following up operations on how to use and benefit from them. Finally, the department is operated by qualified teachers who are able to utilise modern educational technologies (M. o. Education, 2013).

2.1.4 Pedagogy in Middle Eastern countries

Education has passed through several phases of development in Muslim countries, however, by the 11th century the educational system had largely ceased evolving (Kassem, Zeinab, & Liz, 2006).

This partly explains the difficulties associated with implementing change, such as technological innovation in the education system in Muslim countries.

Education originated from what is know as the *halqa* stage. With respect to the study of Islamic sciences, the language used in the texts was Arabic. This was true across the Muslim world from Saudi Arabia to Indonesia. In particular, the majority pupils in these countries attended lessons in different branches of Islamic, learning simply by joining the study circle (or *halqa*) of a scholar. Later, children’s elementary education evolved to include an additional component – the *katātīb* – where children were taught to write, read and recite the *Quran*. The *katātīb* was augmented with more advanced disciplines such as grammar. This type of education was called the *majlis*, in which instruction were given by a teacher to a group of students with
varying degrees of knowledge (Kassem et al., 2006). The *madrasa* was introduced later. This was a new type of institution that emerged in the 11th century. The *madrasa* resembled formal schooling as we know it today, that is, a designated building, specialist teachers and a standardised curriculum.

However, from today’s vantage point, this system contained two weaknesses: (i) there was no specific curriculum for learning the Arabic language in the *majlis* or the *madrasa* (Kassem et al., 2006); and (ii) like many institutions in the Muslim world, although the curriculum was considered stable, it became entrenched to such an extent that it was not amenable to changing circumstances. Not only did the content become ossified, but the method of delivery came to be sanctified (Khalifah, 2004). This became a cultural barrier to change in education in the face of technological developments because it seemed to threaten a venerable, time-honoured approach to study.

The Arabian Peninsula was particularly affected by the development of civilisation, ultimately becoming the Kingdom of Saudi Arabia. King Abdullah Aziz embarked on a modernisation program that included education. By 1944, substantial education reforms had been instituted, including formal teaching of the Arabic language. This entailed a set curriculum (Ministry of Education, 2013).

In Saudi Arabia, Arabic language education is divided into a number of subjects: grammar, literature, expression, reading, writing, dictation and rhetoric. In general, students are taught the same curriculum of the Arabic language from first grade in elementary school to the third or final grade in secondary school. Each grade has special subjects which are taught to students. Thus, students start to learn literature, reading and writing in the first three grades, followed by the rest of the curriculum in addition to these two approaches from the fourth grade until the final grade in secondary school. All subjects are taught in a slightly different manner. The Saudi Arabian curriculum is based on meeting specific targets and set goals. Saudi Arabian education focuses on three main goals in teaching the Arabic language. The first is
developing and improving linguistic ability to help enrich the Arabic language of students. This assists in recognising the beauty of Arabic phrases and words. The second goal is to develop and improve reading skills to assist with improving student knowledge and confidence so they can express themselves fluently verbally and in the written language. Lastly, the third is to perfect the language (Alshaya, 2012).

To fully understand the depth of the learning involved, Section 3.3 will explore how the seven components of Arabic learning are taught. This is followed by a brief discussion of two key teaching methods used in reading: (i) deductive; and (ii) inductive. These two methods will reveal the extent to which Arabic language teaching is still traditional, unlike constructivism, which has a focus on student-centred learning and a more integrated approach to learning (Kassem et al., 2006; The Ministry of Education, 2005). The failure to a focus on student-centred learning in teaching Arabic language is due to many factors which cannot be detailed here. Chief among them however, is due to the heavy weight of tradition on the educational process (which has its origins in religious education). One of the central features of traditional teaching of Arabic language is that historically it has been firmly based on a kind of face-to-face teaching that resembles a personal master-apprentice relationship. This is very much a teacher-focused approach to education. This traditional approach is not easily eroded, but is possible with a changing intellectual and technological environment. The fact that there is limited availability and use of modern educational technology is thus a contributing factor to the failure to give space to student-centred learning in the teaching of Arabic. Thus the limited availability and use of modern technology in Saudi Arabia and other countries is a topic requiring further investigation which will discuss in the next section.

2.1.5 Limited use of technology

It will be established that the use of technology for educational purposes, especially modern technology, is limited in many Arabic-language countries.
Examining educational technology in Saudi Arabia, it has been found by a number of authors that this technology is utilised to a limited extent for limited purposes over a considerable period of time stretching from the 1990s to present day. The authors have also pointed out that technology has only been used in education gradually and relatively slightly during that period (Al-Asmari, 2005; Wazzrh, 1998). Writing in the late 1990s, Wazzrh (1998) found that the use of educational technologies in technical colleges was low. Some seven years later, Al-Asmari (2005) found that teachers were using the internet, but only for personal purposes rather than for instructional purposes in Saudi Arabia’s colleges.

With respect to schools in Saudi Arabia, the change over time in the use of educational technology was no better than for the colleges. A number of researchers have found that within the timeframe of 10 years, no improvement of the use of technology had been made for schools in Hail, Jazan and Makkah (Al-Zahrani, 2010; Alodani, 2009; Aqeel, 2003; Barakati, 2000). Barakati (2000) found that the level of technology use was poor in secondary schools of Makkah and Aqeel (2003) found similar results for secondary schools of Jazan. With respect to some specific subjects, Al-Zahrani (2010) found technology usage in science laboratories at secondary schools at Makkah to be relatively low, and Alodani (2009) found there was limited use made of technology in teaching mathematics in elementary schools in Jazan city. Further, Al-Zahrani and Alodani found that using educational technology in teaching was very low. Researchers found that use of technology was limited in Hail, Jazan and Makkah in Saudi Arabia. However, although these results are informative, they do not deal with Riyadh. This is an unfortunate oversight because Riyadh is Saudi Arabia’s most populous city; therefore any study which excludes it is likely to have skewed results. This thesis will contribute to filling that gap by focusing on Riyadh.

For modern educational technology (ranging from data projectors to internet access), as opposed to educational technology in general, a number of researchers similarly found a lack of utilisation in Saudi Arabia. These studies ranged over a number of Saudi cities such as Jeddah, Yanbu, Hail and Taif (A Al-Ghamdi, 2003; AlShahrani,
Al-Ghamdi (2003) argued that the lack of use of modern technology used in Jeddah could be attributed to a lack of serious funding by governments. Thubiani’s study (2007) revealed that the usage levels of modern technology were low in Yanbu for the internet, hand-held video cameras and data projectors in secondary schools. Alshahrani (2011) also found that teachers of Islamic studies in Taif were using old technology (such as whiteboards), and not modern technology in elementary schools. Finally, Rana et al. (2011) similarly found that modern technology was not being used to the full extent possible in Hail secondary schools.

With respect to the capital city of Saudi Arabia, Riyadh, similar results were found (Abuhamid, 2006; Moisher, 1999). The common finding, over a significant period of time, first discovered by Moisher (1999) indicated that socio-economic disparities played a part in the use of technology in education: poorer public schools’ use of modern technology was substantially less than the (relatively few) well-funded private schools. Interestingly, some seven years later, Abuhamid (2006) also found that there was still very limited use of modern educational technology in the Education Institutes in Riyadh.

Although these results are interesting in that they point to there being a lack of utilisation of modern technology in teaching a variety of subjects in Saudi Arabia, ranging from Islamic studies to mathematics. However, the paucity of studies investigating the use of educational technology in the teaching of Arabic language is evident. This is quite surprising because Arabic language lies at the centre of educational life and culture in Saudi Arabia. Since it is the central vehicle via which all other subjexts are taught, one would have expected it to be most extensively researched.

**Other countries**

In other countries such as Jordan, Malaysia and Australia, the results are a little different, with Arab Gulf countries generally lagging behind. Moosa (2003) found that the use of educational technology, both old and modern, in the Arab Gulf countries being very low, has largely remained true.
Jordan is one of the most studied Arab-speaking countries vis-à-vis the use of educational technology due to the notable advancement in educational technology utilisation there. Al-Zaidiyeen, Leong Lai, and Fong Soon (2010) found that although teachers held positive attitudes towards the use of modern technology in schools of Jordan, modern technology was not comprehensively used for strictly educational purposes. This view is supported by Al-Ruz and Qablan (2011) who reported that although Jordanian schools are equipped with several modern technological resources, these resources were predominantly used for handling schools’ administrative work and for communicating with teachers, students, and parents. Few teachers and students utilised their modern technologies resources for teaching and learning.

This is not to say there has been no increase in the up-take of modern educational technology at all. In some non-Arab countries progress has been made, although the up-take of modern technology in a variety of educational contexts is still less than optimal. For example, Hassanzadeh, Gholami, Allahyar, and Noordin (2012) found that teachers of English in schools of Malaysia lack levels of modern technology usage for specialised software applications such as authoring, graphics and simulations. In Australia, Van Rooy (2012) argued that experienced teachers of secondary schools were somewhat reticent to incorporate modern technology into their programs unless they felt it increased the quality of student learning. Ainley, Eveleigh, Freeman, and O’Malley (2010), however, found a fairly high usage of modern technology resources by Australian teachers of science and mathematics (e.g., laboratory equipment, smart boards and interactive whiteboards).

Most of the countries examined here, other than Australia, are relatively poor and therefore it is understandable that the use of modern educational technology is not particularly high (that is, lags behind OECD countries such as Australia). The use of modern technology requires not just high levels of infrastructure spending, but also education and training in a systematic, national-wide way. On the other hand, Saudi Arabia is in a much better economic position to provide funding for modern technology throughout its secondary school system compared to these other countries such as Malaysia and Jordan. As such, one would anticipate that Saudi Arabia would
be able to afford educational technology that is superior to what has been suggested in the academic literature. Despite this economic capacity, Saudi Arabia would seem to have fared little better in terms of the adoption of modern educational technology compared to a number of other poorer countries.

To sum up the findings in the literature about the usage of educational technology, it is clear that in the past and the present, there appears to be relatively low usage of modern educational technology in Saudi Arabia and Middle Eastern countries more generally. For some non-Arab countries, usage of modern technology has been (and is) somewhat higher. The differential usage of modern educational technology between Saudi Arabia and non-Arab countries suggests that the relatively low usage in Saudi Arabia is due to factors that originate in Saudi Arabia itself. This serves as a further justification for the specific focus on Saudi Arabia alone, and its most populous city of Riyadh.

Given the suggestion that modern technology usage is quite limited according to previous studies, especially in the case of Middle Eastern countries, it is appropriate now to turn to the question of what dilemma stand in the way of this usage. The following sub-section deal with this dilemma which is lack of availability of educational technologies.

**2.1.6 Limited availability of modern educational technology**

It should be acknowledged that because some types of modern educational technologies, such as handheld video cameras and data projectors, are not available, it does not mean that this constitutes an obstacle to the use of that technology. If the type of educational technology is not desired or deemed valuable, then its lack of availability hardly counts against its non-use. That said, the existing literature does clearly suggest that the limited availability of modern technology in educational institutions is a serious barrier to the use of technology in education – both in other Arabic countries (Al-Senaidi, Lin, & Poirot, 2009; Alghazo, 2006) and Saudi Arabia (Qiade, 2007; Thubiani, 2007). For example, Ghadeer (2012) indicated that the limited availability of smart boards, computers and internet services affected their use in secondary schools of Saudi Arabia.
Lack of availability of educational technology in Saudi Arabia

The early studies of the availability of educational technology in Saudi Arabia were either city or discipline specific. At the end of 2000s, the verdicts of researchers were not positive. For example, in both cases, older technology (such as blackboards) and newer technology (such as audio-visual equipment) was absent. Anqari’s (1999) findings were replicated for the city of Makkah by Barakati (2000) who also found a lack of educational technology in teaching mathematics. Seven years later, Qiade (2007) was able to report modest improvements in Makkah for English teaching, finding that cassette recorders and audio tapes were now available in intermediate schools, but that sophisticated technologies such as instructional films were not.

In the early and late 2000s, researchers began conducting surveys of the availability of educational technology across Saudi Arabia as a whole (AlShahrani, 2011; Alshamrani, 2002; Oyaid, 2009; Thubiani, 2007). The negative findings of the earlier, more specific studies were supported. Alshamrani (2002) found that overhead projectors, computers and related multimedia educational programs were not available for the teaching of Arabic. Thubiani (2007) and Alshahrani (2011) also found a lack of modern technology (including computers, the internet, handheld video cameras and data projectors) in Saudi schools. Further, internet access in schools was either limited or non-existent (Oyaid, 2009).

The lack of educational technology does not indicate that improvements have not been made; in fact, its usage has increased recently in social life and economic transactions. For example, people in Saudi Arabia are now accustomed to using technology in their daily lives through social networking sites such as Facebook or Twitter. Therefore, they are convinced about the usefulness of using educational technology in education (Ozgen & Bindak, 2012).

Overall, investigations of the availability of educational technology in Saudi Arabia over the last four years have revealed slight improvements, but they have not kept pace with the rate of technological innovation (Al-Maini, 2009; Ali, 2013; Rana et al., 2011). For example, Al-Maini (2009) noted that modern technology equipment was often unavailable in teaching English as a foreign language in schools. Rana, et
al. (2011) and Ali (2013) found that the availability of technology and resources was not guaranteed in Saudi schools. Ali (2013) further noted that government education administration had not focused its attention on the importance of providing support for schools to upgrade technology. The next section will discuss the lack of availability of educational technology in Middle Eastern countries.

**Lack of availability of educational technology in Middle Eastern countries**

Studies in the early 2000s suggested slight improvements in Middle Eastern countries, but still a lag in the availability of modern educational technology relative to its development. For example, Moosa (2003) reported a lack of internet networking between modern technology devices in schools throughout the Arab Gulf region. In 2002, the Turkish Ministry of National Education (cited in Turan, 2010) indicated a lack of educational technologies.

In the mid to late 2000s, again studies found there to be improvements in the availability of educational technology in selected Middle Eastern countries, but again, the improvements were slow and relatively slight. For example, Al-Senaidi et al. (2009) reported little improvement in the availability of equipment in Oman, and even resistance on the part of some teachers to the introduction of modern technology. In the United Arab Emirates, it was found that school teachers did not as yet make much use of it in their teaching – in large part because classrooms were not equipped to access the internet (Alghazo, 2006). A recent study of educational technology in United Arab Emirates indicated that despite the country’s substantial rate of development, much modern educational technology and software is effectively unavailable to teachers because it is not tailored to Arab-speakers (Al-Awidi & Ismail, 2013). Samak (2010) has suggested that of all the Arab countries, Jordan stands out as a success. This success is attributed in large part to the Jordanian Ministry of Education’s efforts in ensuring that a high percentage of schools are equipped with modern computer laboratories and Internet services. Further, Samak notes that high levels of computer competency in English language teachers had greatly facilitated the rapid integration of modern technology by teachers into their classrooms.
Most of the countries examined here are relatively poor and therefore it is understandable that the level of educational technology made available in schools by their governments is not particularly high (that is, lags behind OECD countries). However, given that Saudi Arabia is relatively more wealthy (due to its oil reserves) than these other countries such as Oman and Jordan, one would expect it to have been able to afford superior educational technology. For example, the launch of King Abdulaziz City for Science and Technology is expected to create an optimum environment in Saudi Arabia that supports technological innovations and improves the integration of technology in all fields in the kingdom (Technology, 2012). Shirazi, Gholami, and Añón Higón (2009) identified an increase in the economic wealth of Saudi Arabia on enhancements that support technology infrastructure. However, as the findings for Saudi Arabia noted in the previous section indicate, it is not obvious that these attempted reforms have borne much fruit at this point in time. Indeed, from the literature one gains the impression that in terms of educational technology, Saudi Arabia is little better than some much poorer countries.

2.2 Conclusion

Chapter 2 has provided the educational context in which this thesis operates. It has illustrated the state of the pedagogy in Middle Eastern countries and the development of educational quality in a region undergoing economic change. According to the existing literature, the availability and usage of modern technology is quite limited. With respect to Saudi Arabia in particular, however, the existing literature’s findings may be increasingly out-dated because of the post-2005 Saudi government projects devoted to improvements in education. In particular, the most recent major development in Saudi secondary education is the establishment of the Ministry of Education’s Computer Information Center, which demonstrates the willingness of the Saudi government to improve the availability and use of modern educational technology in Saudi Arabian high schools. It is thus possible that some improvements in the availability of educational technology are likely to be increasingly felt as such projects come on line. What is required, however, is more information about the state of affairs with respect to the availability and use of educational technologies in the teaching of the Arabic language. This being so, the
current study is certainly justified in order to obtain a more up-to-date picture of the state of play in the availability and use of modern educational technology in Riyadh, Saudi Arabia. In Chapter 3, the existing literature relating to the availability and use of educational technologies in Saudi Arabia and other countries is surveyed.
CHAPTER 3:
LITERATURE REVIEW

3.1 Introduction

The availability, use and development of technology have expanded enormously over the last 25 years (Hassanzadeh et al., 2012). No aspect of life has been untouched by technological innovation, including the field of educational practice (Alkmishi., n.d.; Alochter & Alhudaib, 2006; Altopchi, 1986; Kassem et al., 2006; Mehmadi, 2012). Researchers from various countries have mentioned great interest in investigating educational technology in terms of availability, utilisation, and obstacles to its use at various school levels. Similarly, the up-take and effect of potential changes in educational technology are also a matter of concern for researchers in the Arabic-speaking world due to their beliefs that education development is the main way for developing all aspects of life. One cannot, however, a priori extrapolate from the findings for the advanced post-industrial Western countries to the rest of the world. Different levels of economic development, different cultural values, and different degrees of resourcing/funding for some less developed countries means that the level of educational technology available and the use of that technology may be quite different. Thus, it is required that the situations for different regions and individual countries be examined. This is especially so when it comes to culturally specific subjects such as language teaching.

Therefore, Chapter 3 will trace and discuss relevant literature relating to the theory of constructivism, the availability and use of old and modern technology in the education systems of a range of countries, focusing on the Arab Gulf countries in particular. ‘Old technologies’ refers to the first generation of technology, including overhead projectors, blackboards, videos and audio cassettes. ‘Modern technologies’ refer to the second generation of technology, such as computers, the internet, handheld video cameras and data projectors that can be used by both the teacher and the student in education. Specific reference will be made to the learning of the Arabic language in Saudi Arabia (Jerry, 2010).
The review of the literature in this chapter will reveal that a number of issues are especially relevant to teaching and learning language in Arab countries: there are a number of barriers to the up-take of modern educational technology in education. These barriers include: (i) a lack of teacher training; (ii) a lack of government resourcing for that training; and (iii) cultural inertia. This means that teachers sometimes resist the introduction of modern technology because they fear that it will replace them.

In the remainder of this chapter, literature relating to the following topics will be outlined and examined. First, an overview of the current state of pedagogy for Arabic language is provided, which serves to frame the concerns about the state of education in Saudi Arabia and the importance of the state of technology (old and modern) used, which is discussed in the next section. Following this, the basic obstacles associated with exploiting advances in educational technology are examined. These problems – the lack of technical support, lack of basic infrastructure, the lack of teacher training, and underlying causes of these obstacles, are reviewed. Next, the benefits of modern educational technology identified in the literature are outlined. Finally, the challenges and resistance to the introduction and use of modern technology in the teaching of the Arabic language is examined.

### 3.2 Constructivist learning theory

The availability and use of educational technology, old and especially modern, in secondary schools constitutes an important development in the education landscape, especially in Saudi Arabia. The use of educational technology in teaching Arabic language in Saudi Arabian secondary schools creates an interactive environment which allows students to participate in the educational process. The kinds of learning environments that can be created by the introduction of modern technology (such as personal computers and mobile digital devices) are best understood as *opportunities* by constructivist learning theory. Constructivist learning theory is now well established in the educational literature. As early as 1991, Pfundt (1991) recorded 2,500 constructivist-inspired publications. As will be discussed below, constructivism has a non-objectivist philosophical basis and uses a student-centred
teaching practice. In short, constructivist learning theory posits that students’ knowledge is actively constructed by a student who is actively engaged with his or her environment, rather than passively accepting information (Lerman, 1989). Since knowledge is experientially developed according to the students own needs and motivations, the physical and technological environment which the student interacts with can have a significant effect on that development. In particular, if the technological environment conforms to their interests and expectations, and does helps them to interact with each other in order to engage in cooperative learning with others, then it is likely to generate students’ knowledge more effectively.

### 3.2.1 Constructivism versus Objectivism

It is argued here that the theory of constructivism is a useful one for thinking about the beneficial effects of introducing modern technology into the educational process. In its simplest expression, constructivism is a theory of learning which says that children themselves acquire concepts and experiences through cooperation, interaction and discussions with other students in order to construct their own knowledge of the world (Angela, 2011).

Glasersfeld (1989) contrasts constructivism with ‘objectivism’, which he regards as the traditional epistemology in the history of education. Objectivism is the position that ‘knowledge’ is of the mind-independent reality and this knowledge can be established as universally true. The mind operates as a kind of mirror of the external world or as an accurate recorder of its operations. In this view, learning is about ensuring that there is the transmission of true knowledge to students. Since it is usually assumed that true knowledge is discovered by scientists and scholars, the role of the teacher is to transmit this knowledge to students. This presumes that students do not actively participate in discovering knowledge that is ‘true’ from their own perspective (D. Jonassen, 1991).

By contrast, constructivism holds that objectivism is false because there is no such thing as unmediated access to the mind-independent world. In other words, there is no such thing as the ‘God’s eye view’ of the world available to human beings. People are always situated in particular circumstances, and have unique experiences of the
world. They develop their own concepts that enable them to navigate the world according to their own particular needs. Thus, what we call ‘objective reality’ is actually our own personal construction that is mediated by the particular social circumstances, including prior beliefs and values, in which we have our experiences. These concepts evolve over time depending on the stimulation people receive, and depending on how the environment in which they operate changes (Glasersfeld, 1989). Glasersfeld (1989) believes this is what is really meant by ‘knowledge of reality’ for all people in all walks of life – including children. (D. H. Jonassen, Howland, Moore, & Marra, 2003) and Y. Karagiorgi and L. Symeou (2005) supported this interpretation of the philosophical foundations of constructivism.

It has been argued that a constructivist view of knowledge has important implications for education. Sejzi and Aris (2012) state that the most important insight coming from constructivism is that learning is an active process for students because they are the ones who ultimately construct knowledge for themselves. A learning environment in which students are not allowed to actively participate is one in which students will not really learn anything because they will not have generated and internalised knowledge for themselves. Thus for ‘genuine’ learning to occur, students must be allowed to engage in the knowledge development process via discussions, activities where they do things by themselves and for themselves, and where they are encouraged to reflect on their own discoveries and interpretations. Angela (2011) and Schroeder and Spannagel (2006) similarly argue that ‘genuinely active’ learning is based on students actively connecting and integrating new information into their previously acquired experiences in a manner that makes it meaningful to them. Angela (2011) also notes the importance that constructivism places on the social dimension of learning. Angela (2011, pp. 185-189) argues that a constructivist learning process is crucially based on cooperation, collaboration and understanding between students. This is because effective communication of shared and conflicting concepts between learners is one of the key means of developing the range of ideas which students can use to interpret the world. This social element to learning is based on the work of Vygotskii (1978) who emphasised the cultural and social influences on cognitive development.
The role of teachers, according to constructivism, changes dramatically. The teachers should not be ‘dictators’ or ‘transmitters’ of knowledge who impose a rigid structure and set of content-based goals on students. Instead, teachers should be ‘facilitators’ of students’ own intellectual development. Their role is to establish the environment in which students are able to construct their own knowledge at their own pace and in accordance with their own perceived evolving needs (Amoman & Mammeri, 2013).

The constructivist approach is also said to have the virtue of being ‘student-centred’ because it is premised on students having a strong degree of control over the direction of the content of learning according to their needs and understandings. The ‘student-centred’ approach, which was developed by psychologist Carl Rogers (1983), enables students to ‘own’ and internalise knowledge rather than having something ‘alien’ or uninteresting imposed on them: ‘[the student] knows whether it [an activity] is meeting her need, whether it leads toward what she wants to know, whether it illuminates the dark area of ignorance she is experiencing. The locus of evaluation, we might say, resides definitely in the learner’ (Rogers, 1983, p. 20). A further benefit of this approach is, according to Rogers, that it gives a sense of self-worth and self-esteem to students which provides a powerful motivator to student curiosity and thus autonomous learning: ‘…students who are in real contact with problems that are relevant to them wish to learn, want to grow, seek to discover, endeavour to master, desire to create, move toward self-discipline’ (Rogers, 1983: 127).

Constructivism has also implications for student performance evaluation. Rather than the traditional method of ‘summative’ evaluation, usually in the form of time-limited written testing at the end of a learning period (e.g. a year or semester), constructivism is closely associated with a ‘formative’ evaluation process. Formative evaluation is itself part of the learning process because it provides progressive feedback to the student which is itself an ‘input’ into the student’s learning process. Furthermore, because constructivism philosophically rejects the notion of absolute objective truth, students are not judged on whether they give absolute ‘right/true’ or ‘wrong/false’ answers to test questions. Instead, the teacher may assess students on the extent of the progressive evolution of their knowledge and interpretations over the course of a
learning period. They may be assessed, for example, on their engagement with others and the incorporation of new ideas, on the expansion of their capacity to critically reflect on their pre-existing notions, and on changes in their interactions with others in respectful and inclusive ways (Angela, 2011).

In summary, as Angela (2011) puts it, constructivism has the following implications for educational practice. It entails ‘active learning’ on the part of students where students actively participate in the construction of their own knowledge, interpretations and understandings on their own terms. It is based on practical, student-specific experiences which they can ‘relate to’ their own lives. It is based on cooperative interactive activities with other students where shared experiences can be reflected upon. It favours ‘formative evaluation’ where students can receive progressive feedback on the development of their experience and which focuses on intellectual growth in reflective, interpretative and critical faculties rather than ‘summative testing’ of set content.

With respect to Arabic language learning, this kind of approach can be beneficial because the learning of a language is a continuous process. If students are given the opportunity to engage in formative evaluation tasks throughout a semester or year, they maintain practical contact with the subject matter. Further, since constructivism is student-centred and focused on practical problem solving, it also is particularly suitable to the teaching of Arabic because language learning is an inherently social activity, and develops out the need to solve the practical problems associated with communication. With respect to the introduction of modern technology into the learning process, constructivism also facilitates such innovation because modern technology can often be used in ways which are student-centred, practically orientated and are conducive to formative evaluation on a continuous basis.

3.2.2 Educational technology and constructivist

As noted already, advocates of constructivism have been quite hostile to ‘traditional’ approaches to education that are premised on ‘objectivism’, are teacher-focused and do not include students as ‘active learners’. According to Gillani (2010, pp. 5-6), this attitude did not change with the initial use of computers in classrooms because they
were usually used to merely augment the traditional approach. Computers were initially used, for example, for ‘summative evaluation’ and for ‘drill-based’ learning. However, with the growth of the internet as a repository of multifaceted content and as a new means of instructional delivery, constructivists are now more inclined to embrace the use of modern technology.

According to Angela (2011), the use of the ‘new media’ can be used to shift the focus to student-centred learning by using the internet as a source of content and new experiences rather than the teacher in the classroom. The teacher becomes the facilitator and guide to searching, sorting and evaluating many kinds of information available on the web (Shdeifat & Ershaid, 2007). Furthermore, the emotional-motivational aspect to student-centred learning can also be facilitated by use of social networking websites. As Bowers-Campbell (2008, p. 80) points out:

... teachers build students’ self-confidence when they care about them as individuals; thus, a teacher’s Facebook profile may function as a pedagogical tool for communication interest and concern in student learning in an arena where students are the ‘experts’.

Also, by giving legitimacy to the use of the internet (which students are already utilising heavily anyway), this lends legitimacy to the main means by which students’ acquire content outside the classroom and thereby tends to place the responsibility on them for thinking critically about the material they utilise for assessable assignments and projects.

Meanwhile, others emphasise the potential of the internet to generate new opportunities for educative social interactions. In fact, according to Bowers-Campbell (2008) children are already engaged in near-constant communication with each other via the internet, especially through social networking sites:

Social networking sites, virtual online locations where users create profiles to connect to other users, already engage incredible numbers of adolescents.
(Bowers-Campbell, 2008, p. 79)
As Sherman and Kurshan (2005) point out, this provides an excellent opportunity for collaborative learning:

*One increasingly common technology-based strategy is to create online communities of students and adults who collaborate on specific problems.*
(Sherman & Kurshan, 2005 p. 12)

Sherman and Kurshan argue that such online communities can broaden and deepen the experiences that students have of others living in different locations and in different cultural contexts. This also helps students to locate their own experiences and interpretations of the problems and solutions to the specific circumstances they operate in by providing them with information and perspectives they would not otherwise have access to (Koch, 2013; Kop & Hill, 2008).

To give just one specific example of a constructivist approach to teaching-learning that utilises modern educational technologies, Mai Neo, Neo, and Xiao-Lian (2007) report on a course on multimedia skill development they instituted at a Malaysian university. Students, in teams, were required to develop an interactive multimedia package for a government agency. This project replaced the traditional classroom/tutorial-based approach to the course. Students were required to work together to complete their projects and in the process learn about multimedia computing. The researchers argued that this project was inherently ‘engaged’ because the students had to utilise the knowledge they had already acquired in their previous studies, develop new knowledge, and plan and organise resources in order to complete this practically orientated project. They found that students were highly motivated by the project and worked autonomously to solve problems as they arose, thereby internalizing new knowledge easily and quickly:

*By designing an authentic learning environment where students had an active interest in the outcome of the task at hand, they were more apt to pay attention to the information presented, and in doing so, enhanced their understanding of multimedia as well as their topic, making them more likely to become lifelong learners ... This learning environment also encouraged and supported collaborative peer learning, where the teacher acted as a facilitator and consultant, guiding students in solving their problems.* (Mai Neo et al., 2007, 470-489)
To sum up, constructivist learning theory makes for an innovative and useful basis for thinking about pedagogy in general, and for the application of modern technology – especially computer and internet based technology – to existing educational environments. Insofar as technology can be harnessed to create a student-centred environment in which ‘active’ learners who can engage in activities that they can relate to in practice, and which facilitates social interactions as a means of gaining access to new information and experiences, then constructivism suggests that modern technologies contain opportunities for qualitatively superior learning outcomes.

The above applies just as well to the teaching of Arabic. The provision and use of modern technologies in teaching the Arabic language such as data projectors, computers and the internet create many educational opportunities and methods for shifting the learning focus from teachers to students. Modern educational technology under the guidance of a constructivist framework of pedagogy could thus be used to reform the teaching of the Arabic language in a way that is more student-centred, socially and practically orientated, and focused on active (as opposed to passive) learning. Thus, students become more interactive participants in the educational process.

The traditional pedagogy assumed in Saudi Arabia for the teaching of the Arabic language is at odds with constructivism, and so is less able to take advantage of the benefits that come with the introduction of modern technology into the learning environment. In order to show that this is the case, the next section will discuss the current traditional pedagogy employed in Arabic language teaching in Saudi Arabia.

### 3.3 Current Arabic pedagogy

This section will trace and discuss relevant literature on current Arabic pedagogy for teaching the Arabic language in Arabic countries and particularly Saudi Arabia. This provides a means of understanding the current status quo, how it is different from the constructivist philosophy of education, and how it is not very amenable to the introduction and use of modern educational technologies. To understand the status quo, it is necessary to provide a brief account of the historical background to
pedagogy in Arab countries, as well as the current Arabic language curriculum in Saudi Arabia.

3.3.1 Teaching Arabic grammar

The Arabic language is divided into seven subjects in secondary school. One of these subjects is grammar. The Saudi Ministry of Education requires that grammar be taught from fourth grade in elementary school until students’ final year of secondary school.

In which follows, an overview of the stages, goals and epistemology of Arabic grammar pedagogy are outlined. Khalifah (2004) listed five stages of explaining a lesson in grammar. The first stage involves the teacher reviewing the previous lessons and helping the students remember new skills. The second step is explaining the rule of grammar, where the teacher writes an example on the blackboard and underlines words related to a text. This assists students to associate new words. The third step involves the teacher holding open discussions where examples are given. The fourth step entails a formal exposition of the general rules of grammar and the kinds of judgment that need to be made in applying those rules. The final step is where the teacher displays a new text to students and asks them to identify the words that match the grammatical rule. The teacher can also ask the students to configure sentences which apply to the grammatical base. This mode of instruction in grammar, with ever-greater levels of difficulty, is conducted from the fourth grade in elementary school until the third grade in secondary school (Alshaya, 2012).

As to the goals of Arabic grammar pedagogy, there are four goals in the upper elementary stages (fourth, fifth and sixth grades). One of these goals is developing students’ oral reading accuracy and fluency with modelling and controlling phonics and punctuation. The second aim is to develop students’ comprehension of the meanings of words, and the third aim is to teach students how to use the vocabulary they have acquired in new ways. The final goal is to apply all language branches handwriting, composition, dictation and grammar in reading comprehension (Alhaidari, 2006).
In epistemological terms, there are two basic pedagogical styles used in Saudi Arabia; they are the deductive method and the inductive method.

The deductive method is one of the oldest methods that some teachers still utilise in teaching grammar. The teacher explains the lesson and moves from general to specific grammar, from general principles to results, and from general to partial facts. To enable more clarification, the teacher starts to explain the lesson or the grammatical rules and provides examples for clarification. In the final step, the teacher performs applications using similar examples (Da'da, 2009). An advantage of this method is that the teacher can give information directly to large numbers of students in the group at one time. Students may then replicate the lessons on their own by following the logic of the procedures outlined. The main flaw of this approach, however, is that students essentially remain passive recipients of knowledge; they do not actively participate in the educational process and so may not truly absorb and understand what they are being taught.

The inductive method is delivering the information and facts to the minds of learners by means of examples that revolve around the use of language in actual situations (Da'da, 2009). Through repetition of similar examples, students habitually form rules of grammatical application. The inductive method has some advantages and limitations. The advantage of the inductive method is that it begins with concrete examples that students are immediately familiar with, rather than beginning with abstract rules. Further, the inductive method encourages students to come to internalise the general rules of grammar for themselves by contemplation of the commonalities of the examples. The disadvantage of the inductive method is that, first, it entirely relies on the teacher giving examples which are hopefully appropriate; and secondly, it does not guarantee that all students will come to the same understanding of the general rules of grammar from the examples given (Da'da, 2009).

Recent technological development in Saudi society has raised the questions: What types of educational technologies are necessary? How can they effectively be integrated into the educational process, especially in Arabic language curriculum?
Integrating modern educational technologies, such as computers, laptops and mobile devices, addresses the issue of choosing a suitable educational philosophy such as constructivist learning theory. Certainly, there are clear differences between constructivism and the two traditional approaches: (i) deductivism; and (ii) inductivism. Where deductivism is teacher-focused, constructivism is highly student-focused. For deductivism, learning occurs by students making logical connections between concrete speech acts based on rules that have been ‘handed down’ by the teacher. For constructivism, students learn by collaborative and cooperative interaction in ‘real world’ social situations that enable them to solve problems. With respect to inductivism, there are greater similarities with constructivism. Chiefly, both of these approaches crucially involve experiential learning on the part of students; students gradually build up their understanding of a situation by concrete experience and analogy-making to new situations. However, there are still clear differences between the two approaches. For inductivism, students are explicitly directed by the teacher as to what concrete examples should be the focus of their attention so that the process of inductive reasoning is tightly controlled. For constructivism on the other hand the selection of concrete examples and the inductive and analogical connections made between them is not directed by the teacher, but rather is more closely directed by the interests and needs of the students themselves.

Since it has been argued that constructivism is more compatible with the effective use of modern educational technology (M. Neo, 2005; Mai Neo et al., 2007), the availability and use of both modern and old technology is thus a topic requiring further investigation. The next section will address the different types of technology which are available.

### 3.4 Old and modern technology

The literature that discusses the use and availability of technology identifies what may be regarded as two types of technology – what may be called ‘old’ and ‘modern’ technologies. ‘Old technologies’ refers to the first generation of technology, including overhead projectors, blackboards, videos and audio cassettes. ‘Modern
technologies’ refer to the second generation of technology, such as computers, the internet, handheld video cameras and data projectors (Jerry, 2010).

An important point that emerges from literature is that major barriers to integrating modern educational technologies are mainly concerned with the issue of modern technology uptake and the lack of availability and use of these modern technologies in educational institutions.

In the case of Saudi Arabia, the above generalisation has been found to roughly hold true: modern technologies for teaching and learning are indeed available for use (Abuhamid, 2006; Qiade, 2007; Zaylai, 2009), however, the ‘old’ technologies are normally better supplied and are far more extensively utilised (AlShahrani, 2011). A number of researchers have independently found that the supply of a variety of teaching technologies, both modern and old, is generally sufficient across the country, although there are some variations between major cities (Abuhamid, 2006; Al-Asmari, 2005; Alshamrani, 2002; Qiade, 2007; Thubiani, 2007). For example, (Alshamrani, 2002) found that the most readily available language lab audio, modern equipment (whiteboard), and audio tapes in the institutes. However, despite city-wide variations, the use of the modern technology was nonetheless low relative to the availability – in other words, modern technology was in fact usually available to some degree or other, but was not being used to full capacity, as the older technologies were apparently still being favoured by teachers (Al-Zahrani, 2010; Alodani, 2009; Barakati, 2000).

Also, there appears to be some discipline-specific variations in availability of newer technology in Saudi Arabia and USA. For example, in the case of Islamic studies, AlShahrani (2011) found that only old forms of technology (chiefly, whiteboards) were used and available to teachers and students. In the case of mathematics, Thubiani (2007) found that despite both old and modern technologies being available in elementary and high schools, the provision and usage of modern technologies in mathematics was particularly low. This conforms to the findings of an earlier study by Moisher (1999), who also found that educational technologies used in elementary schools in mathematics were predominantly old technologies (namely, textbooks,
chalk and blackboards). In contrast, researchers argued that technology was available, but teachers did not use it in the university. Rana et al. (2011) and Y. Yang (2005) found that technology was available and used in teaching English as a second language.

This indicates that despite the very rapid changes in modern technology that occurred over the eight year period between these studies, almost nothing much changed with respect to the practice of mathematics teaching in that period.

In the case of Arab language classes, Saleh (2010) found that technology was available and used in teaching the Arabic language curriculum in primary schools. Alshamrani (2002) found that modern technologies such as personal computers and associated multimedia software were least available. Alshamrani also found that the most readily available and used technology in Arabic teaching were language laboratories, whiteboards and audiotapes. However, they are considered ‘old’ teaching technologies. Zaylai (2009) noted that computer laboratories were available and used in secondary schools, particularly in teaching grammar. By contrast, within the English language instruction, Qiade (2007) found that although some old educational technologies (cassette recorders and audio tapes, transparencies and instructional films) were still being used, modern technologies were now increasingly available to teachers and gradually being taken up in intermediate schools. In general, Al-Mansour and Al-Shorman (2012) showed that technology was available and used in teaching English. Hassanzadeh et al. (2012) pointed out that modern technology utilisation software applications such as presentation, internet, E-mail and word processing in second language teaching in Malaysia were widely used. The most recent study by Saqlain and Mahmood (2013) found that modern technology, especially computers and data projectors, were available and use in the Northern Border University of Saudi Arabia. Furthermore, Abuhamid (2006) observed that education institutions dealing with children with intellectual disabilities used educational technologies including both old technologies such as photos, paintings, educational posters, samples, educational toys, blocks, jigsaws, installations, blackboards, video cameras and overhead projectors and modern technologies (data shows, projectors, computers and computer programs). Finally,
Al-Asmari (2005) suggested that the fairly slow up-take by English language teachers was largely due to a lack of knowledge about how to utilise the modern technologies in pedagogical practice. For example, although teachers used the internet for personal purposes (sending emails and such), Al-Asmari reported that they wanted more specialist internet training for their professional development as educators.

Looking briefly at some other Arab Gulf countries, there are some similarities to Saudi Arabia. In his overview of the Arab Gulf countries, Moosa (2003) found that although personal computers had been provided to schools by Ministries of Education, no networks had been established between schools. In the case of Oman, the evidence is mixed. Rikabi (1999) claimed that Omani teachers predominantly used old technologies such as overheads, audio cassettes, radio and TV, whereas Al Khawaldi (2000) claimed that teachers also have access to and use personal computers, printers and learning software programs.

In summary, with some exceptions, the generalisation that although modern technologies are available (or could be made available) for teaching in Arabic countries, and especially in Saudi Arabia, these technologies have not been taken up and fully used in education. The question then arises as to why this is the case. Hindrances related to the use of both old and modern technology in schools will be examined in a later section.

### 3.5 Obstacles that affect the use of technology

As mentioned in the previous section, the use of technology in educational contexts, especially modern technology, is relatively limited in Saudi Arabia (A Al-Ghamdi, 2003; AlShahrani, 2011; Rana et al., 2011; Thubiani, 2007) and the Middle East (Al-Zaidiyeen et al., 2010). If the benefits of the use of modern technology are to be optimised, then it is necessary to find ways of increasing that usage. However, in order to do that, it is necessary to eliminate whatever barriers may exist to the adoption of said technology. In order to develop strategies to fulfil this objective, it is thus essential to identify what are those barriers. This section and its concomitant
sub-sections are devoted to this latter task. Then it is mentioned that a number of obstacles to the up-take of modern technology have been identified in the literature. These obstacles are: a lack of teacher training in modern technology; a lack of coordination/synchronisation of the different types of technology available; a lack of technical support in schools; and a lack of basic infrastructure due to under-funding of education generally. These problems are particularly prevalent in the Middle East, but also can be found to a lesser degree in Western countries (Emman, 2001).

3.5.3 Lack of coordination of types of technology

First obstacle to the use of technology especially modern technology, is a technical one relating to the coordination or synchronisation of different types of technology. Some modern technology can not be optimally utilised unless they are coupled with other complementary types of technology. For example, an iPad has limited value without a wireless network, and a data projector has limited value without a computer networked to it. Ainley et al. (2010) found, although Australia is a moderately high user of technology, Australia still lags behind a number of Asian countries in this regard because it unintentionally isolates its online communication network from classroom teaching. This is because personal computers are traditionally located in computer laboratories, whereas in countries like Japan students possess laptops or tablets in all of their classes (Lewis, 2002). This problem, such as a lack of computer networking, also exists in Arab Gulf countries, including Saudi Arabia, and so may constitute another barrier to the use of particular types of modern technologies by teachers. For example, Shaabi (2010) noted a lack of modern technology planning and the lack of a link between research and practice in modern technology implementation in tertiary institutions in Saudi Arabia. Moosa (2003) also found that there were no networks among schools and technologies of the Ministry.

3.5.4 Lack of teacher training in the use of technology

Another obstacle to the use of technology in education in Saudi Arabia and Arabic countries is the lack of teacher-training. Study discussed below are important because study focused on effects which impact on use of technology in teaching
English language which is similar to teaching situation of Arabic language (Al-Asmari, 2005). A lack of teacher training is obviously an important factor affecting the use of modern technology in an educational context because some forms of modern technology are so complex as to require special instructions in order for the average person to understand how to utilise them for specialised purposes. This is especially so for new computer and software technology (such as iPads and new applications).

In the late 2000s, studies found that no improvement about use educational technology in education such level of use of developed countries either in Arabic Gulf or Malaysia. Researchers have found that training was an obstacle to the use of technology. In the Gulf region, Moosa (2003) found that insufficient state resources had been devoted to training teachers to use computers in the classroom. Al-Asmari (2005) found that EFL teachers wanted to have more internet training since they had rarely utilised the internet in Saudi Arabia. Also in Saudi Arabia, Ali (2013) indicated that training on the use of educational technologies in vocational training centres was lacking. In Malaysia, Hassanzadeh et al. (2012) observed that teachers required training in an extensive series of computer technology skills in order to fully utilise modern technology in education.

The mere availability of technology was not effective in altering pedagogical practices without focusing on training teachers to use new educational technology. This is partly because modern technology can perform many more functions and is more complex than old educational technology. Nonetheless, integrating educational technologies into the taught curriculum can motivate teachers to use constructivist teaching strategies (David, 1991; Howard, McGee, & Purcell, 2000). For example, Howard (2000) found that by integrating educational technologies into the classroom, constructivist teaching strategies tended to better motivate and activate the students. Howard found that training a specific group of teachers in both constructivist teaching strategies and technical skills resulted in a significant development of constructivism-based education. This suggests that teacher training should not be focused only on hardware and software utilities, but also on how to integrate them in the educational process simultaneously.
In sum, it may be suggested that skills and knowledge for teachers are required to cope with the modern technologies especially in the effective implementation of modern technology in learning and teaching. In addition this training needs to be related to teachers in terms of content and timing, thus allowing them to obtain improvement using technology as it becomes available in schools (Al-Asmari, 2005; Ali, 2013; Hassanzadeh et al., 2012; Moosa, 2003).

3.5.5 Lack of technical support

Another important obstacle to adoption and use of modern technology is the availability of technicians who would be able to maintain, service, and solve mechanical or software failures for educators and students. This problem was found to be pronounced in the Gulf region by Moosa (2003), who found that governments generally failed to employ computer technicians to deal with hardware and software problems that would arise. In Turkey, Yildirim (2007) found that there was a lack of timely technical support for teachers using modern technology and for training about the ways in which modern technology can be effectively used in classrooms. Agnew (2011) found that one of the biggest obstacles for West Virginia in USA was lack of technical support to maintain existing technology in public schools.

3.5.6 Lack of basic infrastructure

In the past in some developing countries, the significant barrier to the development and use of more advanced technology in an educational context was the serious under-funding of public educational services (including physical infrastructure and teacher salaries). In Saudi Arabia, A. Al-Ghamdi (2003) discovered obstacles such as: school buildings were often originally designed for a different purpose, sometimes had insufficient rooms, and had difficulty in acquiring more rooms because of high rents.

These results are interesting in that they point to there being a lack of teacher-training, technical support and basic infrastructure of the use of technology in Saudi Arabia and other countries. It is not entirely clear why this is the case, but it is worth noting that most of the countries listed here were suffering from a lack of economic
development. This lack of development may be reflected in the expenditure on educational resources and services, including training, technical support and basic infrastructure for high schools. In recent times (post-2005), Saudi Arabia has devoted an increasing proportion of its government budget to the education sector in an attempt to combat some of these obstacles to development (Ministry of Education & Saudi Arabi, 2004). However, it should be borne in mind that an increase in government spending on education is coming off a relatively low base so that in absolute terms, Saudi Arabia’s education expenditure is still relatively modest by OECD standards.

3.5.7 Summary

In summary, with some qualifications, the current literature on educational technology in Saudi Arabia and in other Arab Gulf states suggests the following generalisations. First, despite modern educational technology being available to a limited extent, old technologies are predominantly used by teachers. Second, there are four basic barriers to the utilisation of modern educational technology, particularly, but not only, in the Middle East. These barriers include: (i) a lack of teacher training in modern technology; (ii) a lack of coordination/synchronisation of the different types of technology available; (iii) a lack of technical support in schools; and (iv) insufficient resources devoted to the necessary physical infrastructure to utilise modern technology. This is indeed unfortunate because technological innovations are now occurring at an extremely rapid rate. If societies are to take advantage of these innovations, then funding and intellectual preparation will be necessary.

Removing the barriers to the use of modern educational technology in teaching the Arabic language is significant because, as will be argued below, modern educational technology may be regarded as being beneficial to the learning processes. The next section will discuss the benefits of educational technology in teaching the Arabic language.
3.6 Benefits of educational technology

Of all the technological innovations which occurred in the 20th century, the single most significant one, both generally and for education, was the computer (Mowery, 1999). The computer is now considered a core feature of modern education, thus it is an important educational technology. Computers have now become ever-more pervasive, especially after the advent of the internet (Oyaid, 2009). It is argued that personal computers and software have great potential as educational technologies in the classroom. One educational philosophy that coheres well with this claim is constructivism. For example, Mai Neo et al. (2007) have argued that by engaging in hypermedia and multimedia projects, students are able to participate more fully in the learning process and engage in collaborative learning to a greater extent. Ghzawi notes that the use of technology will vary depending on the underlying educational philosophy adhered to (M, 2000). Constructivism holds a superior form of learning is one which transforms students into active learners who draw upon their own experiences and concepts in socially interactive environment to generate new knowledge. On this approach, the teacher functions as a facilitator rather than a transmitter of knowledge (Karl R & Dexter, 2007; Savery & Duffy, 1995).

Researchers, such as Sing (1999) and M. Neo (2005), argue that in an increasingly technologically advanced world where computers are ‘natural’ to children and young adults, modern technology is particularly well suited to the constructivist approach to education. This is because modern technology can be used by the students themselves to operate collaboratively in order to perform tasks, and develop their own methods of solving problems through dialogue and inquiry (such as by internet forums and discussion boards) thereby improving their social skills, critical thinking skills and knowledge (M. Neo, 2005). Further, Neo reports that such an approach enhances students’ spirit of independence and assists them to transition being from passive listeners to active respondents beyond their immediate tasks.

It has further been argued that the use of modern technology also has a number of educational benefits generally (Alkmishi., n.d.; Alochter & Alhudaib, 2006; Altopchi, 1986; Kassem et al., 2006). These include: (i) the provision of access to
previously unavailable new sources of information, especially via the internet; (ii)
greater equity in the learning process because it increases the diversity of educational
methods available to cater for individual differences among the students; (iii)
increased motivation on the part of students who are able to maintain their attention
and curiosity longer in classes when engaged in modern technologically interactive
activities (such as online educational games); (iv) provision of the opportunity for
greater cooperative interaction between students in ways that widen their
interpersonal experiences; and (v) exposure to some forms of technology such as
computers, also provide the basis for skills-acquisition that is useful outside the
school context, such as home and the workplace.

From these studies, it could be inferred that modern technology can be beneficially
applied to teaching the Arabic language. All of these benefits are suggestive of the
importance of modern educational technology to the overall learning process.
Additional significance should be accorded to modern educational technology in
Saudi Arabia because of a growing technological-gap. The up-take of modern
technology – particularly computer-based technology such as laptops, tablets, and
mobile devices – has been quite rapid in Saudi civil society (Purcell, Heaps,
Buchanan, & Friedrich, 2013). The speedy adoption of such technology has created a
technology-gap between the home and the school life of students (and of teachers).
At home, students live in a hi-tech world of instant communication, where masses of
information are available via the internet, from satellite television and online shows.
At school, however, they work in a relatively low-tech environment of whiteboards.
The use of a computer in school is a fairly infrequent luxury. One of the problems
that arise from this technological-gap is that students begin to perceive the school
environment as being out-of-date and of low quality. As a result they can become
less motivated to learn when they perceive the school as being unwilling or unable to
cater for the students’ technologically based needs (Alshumaim & Alhassan, 2010).
If students start regarding the school environment as a place of backwardness and a
place in which nothing new can be learned, then schools and the classes therein,
including Arabic, may start to face a crisis of legitimacy in the eyes of today’s
students, and thus the nation’s future leaders. For this reason, the availability and
productive use of modern educational technology in schools is a highly significant question for Saudi Arabia.

This provides justification for devoting resources to remove barriers to the introduction of modern technology into the teaching of Arabic in Saudi Arabia. However, there are challenges that are currently faced by Saudi Arabia’s educational system due to the arrival of modern technologies, such as sticking to old educational technologies and fear of trial of modern technologies, as well as the utilisation of modern technologies in an old fashion way (Sert & Sağlam, 2012).

3.7 Modern technology: New challenges in Arabic teaching

With the translation of initially English-based software and devices into Arabic, modern technologies came to be increasingly used in the teaching of the Arabic language in Saudi classrooms. Thus today, modern technology is very significant in teaching the Arabic language in Saudi Arabia. Further, using old technology such as video and audio cassettes is no longer meaningful because students have become accustomed to using modern technology in their homes, such as computers and iPads. They want to see this development available in schools as well (Purcell et al., 2013). This section discusses some of the challenges faced by the introduction of modern technologies into the educational arena in Saudi Arabia.

The introduction of modern technology in education has a number of advantages in teaching the Arabic language in Saudi Arabia. Firstly, modern technology provides a way of solving the problem of large numbers of students in the classroom by placing educational content on special websites which enable students to learn from any location at any time (Mehmadi, 2012). Although this shift to online content is still in its infancy, some teachers have begun adding online content to already existing Arabic courses through the well-established Blackboard platform (Kassem et al., 2006).

The second advantage is that the introduction of modern technology has tended to reorientate the focus of educational practices from being teacher-centred to being
student-centred. By using modern technology, especially in the form of online
delivery, educationalists have to think anew about how to utilise learning data made
available by websites, and how to organise online language resources and
technologies necessary for the learning of contemporary Arabic language (Kassem et
al., 2006). Educationalists thus increasingly have to think about the way content can
be used productively from the perspective of students as end-users (Kassem et al.,
2006). For example, the Ministry of Education in Jordan has adopted a strategy of
implementing blended learning in the delivery of educational technologies within the
classroom (The Ministry of Education, 2005). This strategy requires that teachers
should use a complementary combination of online materials and face-to-face
teaching to deliver information to students easily and conveniently. Thus, the student
increasingly becomes the focus of the process of learning. Likewise, the student can
be transformed from a passive recipient of information to an active respondent and
creator and producer of knowledge and capable of interacting depending on the types
of blended learning techniques used (Compton & Jones, 1998).

Finally, modern technology assists teachers of Arabic to save time in a number of
ways whilst still transmitting information to students effectively. With respect to in-
class activities, when explaining the use of grammatical rules in Arabic, the use of
modern equipment for displaying text is far superior (in terms of teachers’ time and
effort) than by hand-writing on a blackboard. With respect to out-of-class activities,
by using online networks, multimedia software, search engines, and electronic
libraries, the teacher is able to deliver information in exceedingly short periods of
time (and sometimes with less effort) in a manner that is of greater interest to young
learners (Dajani & Wahba, 2001). Thus the introduction of modern technology into
the teaching the Arabic language in Saudi Arabia is beneficial. As such, the use of
technology in schools is potentially a very significant issue of concern to educational
policy makers. This is confirmed by the fact that the Ministry of Education in Saudi
Arabia has expressed the need for the Saudi educational system to keep pace with
technological advances occurring around the world. The Ministry of Education has
begun the process of improving educational technology designs which are based on
the use of modern technology (The Ministry of Education, 2007). Many researchers
support this policy position of the Ministry of Education, and have made suggestions
about how to improve of using modern technology for Arabic speaking countries (Kassem et al., 2006; Mehmadi, 2012).

Perhaps the most obvious and basic difficulty associated with using software and the internet in an Arabic language context is the pervasive use of English. Software and software instructions use English; computer keyboards typically use Latin lettering and the QWERTY form; and the *lingua franca* of the internet is English. This creates difficulties to the use of modern technology in an Arabic language educational context.

Kassem et al. (2006) argue that this obstacle can be overcome with some effort such as software of Arabic language. They assert that teachers from Arab countries can and should use an Arabic keyboard for computers, and use Arabic word processors and other software. Such software has now been developed. For example, since Microsoft Office 2003 has a suite of applications of Arabic, both teachers and students can use their skills of Arabic writing to create both content (Kassem et al., 2006). Kassem et al. also suggest that emailing in Arabic should be encouraged, as should the development of Arabic language internet websites. They argue that these changes would facilitate and support the usage of modern technology in classrooms in the Arab world because it would enable Arab students to participate in language environments with which they would be comfortable and familiar (Kassem et al., 2006). This coheres with constructivist educational theory which takes a student-centred approach to learning. According to the theory, when a learning environment better suits the needs and motivations of students, they are better able to generate knowledge for themselves, rather than having an external, incompatible agent (such as a teacher in an unfamiliar or unappealing environment) imposing themselves upon the student. Since personal computers and mobile digital technology can be operated by students themselves in a manner which enables them to freely explore questions generated by themselves, this can enable genuine student-centred learning to occur. This does not deny a role for teachers. According to the theory, teachers should function as facilitators and guides to the process of exploration by students, but not as authoritarian claimants to knowledge. Indeed, the establishment of educational sites by Arabic language teachers themselves can be used to put educational content
within those sites so that students can refer to these sites to get the information (Sejzi & Aris, 2012).

In conclusion, it is reasonable to say that on balance, the introduction of modern technology into the education process, particularly for the learning and teaching of Arabic, would be more beneficial to Arabic students in the 21st century than continuing with the traditional methods. The caveat to the introduction of that modern technology is that it needs to be modified (especially in the case of software) and developed (especially in the case of websites) to be more accessible to Arabic speaking students and teachers.

### 3.8 Conclusion

This chapter has reviewed the theory of constructivism and use of educational technology, especially with respect to the Arab Gulf countries and Saudi Arabia in particular. The review has been directed by questions about the extent of the availability and use of both old and modern technology in an educational context, and how that may inform research about the availability and use of educational technology in the teaching of the Arabic language in the Saudi Arabian education system. Arising from this review, there are four points relating to this thesis.

‘Old’ educational technologies (such as blackboards and books) are widely available from elementary to tertiary education, however, more ‘modern’ educational technology, (such as computers and software), is far less evenly distributed. Modern technology is available to fair extent at the tertiary level, but is progressively less available at lower levels.

Second, it has been found that just because technology (particularly modern technology) is available, it does not follow that it is actually used effectively (or at all). Again, the degree of usage is stratified. Modern educational technology is most used at the tertiary level, but not to maximum capacity. Where it is available, it is progressively less used at secondary and then elementary levels of education.
The third point relate to the barriers to the usage of educational technology identified in the literature. The major barrier to usage is the lack of training for teachers in the best use of newly introduced technologies, such as how to best integrate software programs into classroom activities both online and offline. It has also been suggested that different types of modern technology are not fully utilised because they have not been tailored to be compatible. For example, computers in schools cannot be maximally exploited when the available software is not written in the language of the country where it would be used. Further, it has been posited archers that the underlying cause of a lack of both availability and use of modern educational technology is the lack of funding for teacher training and infrastructure development.

Finally, it has been argued that there are net benefits to be had by the introduction and use of modern technologies into education, including Arabic language education. The arguments for these benefits are backed by new theories of learning, especially constructivism, which conceptualise the students as learning optimally when they are active respondents in the construction and internalisation of their own knowledge in contexts which they can directly relate to.

It is important to note that the investigation of the above problems of availability and use of different types of educational technology have not been examined to the same extent in KSA as in other countries. There are relatively few studies of the use of educational technology in Arabic language teaching for major cities in Saudi Arabia. This is an area requiring additional up-to-date investigation if Saudi Arabia is to have evidence to support technological changes in its education system in order to take advantage of the latest innovations. Thus, in the chapters that follow, both the availability and use of different types of educational technology for Arabic language teaching in Saudi Arabia in secondary schools are closely examined. The effect of specific demographic factors was studied as well, such as age, formal qualification, years in service and training level of the participants.
4.1 Introduction

The purpose of this thesis is to investigate the extent of, and barriers to use and availability of educational technology for teaching Arabic in secondary schools in Riyadh. Both quantitative and qualitative approaches were utilised in order to take advantage of the strengths of both. The quantitative approach took the form of a questionnaire in which respondents answered questions about the availability, extent and use of educational technology as well as demographic factors such as qualifications and years of experience. The qualitative approach took the form of face-to-face and Skype interviews. All respondents were male Arabic speakers and the questionnaires and interviews were conducted in Arabic over a six month period 2011.

Some background information about me may help to elucidate the approach I have taken in what follows. I am 35-year-old male who recently graduated with a Masters degree in the field of educational technology. I am a secondary school teacher in the Ministry of Education in Riyadh, Saudi Arabia, with 12 years’ professional teaching experience. My first year of teaching was a significant formative experience in my life. My first class at a state school was held in the school’s kitchen due to the lack of classrooms available. Some students sat on the floor because there were insufficient tables and chairs. The students themselves were mostly from poor families, therefore, they were personally ill-equipped for classes. This lack of basic facilities, both at school and for the students at home, was a powerful lesson for me because it became clear that my students were very disadvantaged compared to other students who had many resources at their disposal. It was also apparent to me that the education of my students could have been substantially improved if the same resources were available to them. As the years progressed and as technology developed, the situation became increasingly obvious. I observed that some students fell further behind as the technology became more advanced, but was not distributed across all state schools. At that time, I felt that further research into educational technology was a key to
better understanding the needs of students in the future. Therefore, I completed a Masters degree in educational technology, followed by research for a PhD degree in the field of educational technology utilisation in teaching Arabic language in secondary schools of Riyadh.

It is through my personal experience of the inequities in the availability and usage of educational technology in Riyadh schools that convinced me that it was necessary to survey those teachers who had first-hand experiential knowledge of the use of educational technology, and to then interview them in order to gain insight into their motivation for using (or not using) modern educational technology in the teaching of Arabic in school. Thus, as stated, my investigation of educational technology utilisation used quantitative and qualitative methodologies. The quantitative approach took the form of a questionnaire administered to 100 Arabic language teachers from 40 secondary schools in Riyadh in which respondents answered questions about the availability, extent and use of educational technology, as well as demographic factors. The qualitative approach took the form of face-to-face and Skype interviews with eight teachers who had previously completed the questionnaire.

Quantitative data collection from the questionnaire was followed by data coding and performing a descriptive analysis by SPSS software using frequencies and percentages to obtain generalisable results. Qualitative data analysis included repeated readings for the interviewed teachers, statements to gain familiarity with the responses, followed by coding and categorising the data to draw themes about the research questions. The final steps were to summarise and refer them to the research questions.

The main purpose of Chapter 4 is to detail the design of the study, research methodologies and rationale for the methods chosen. It includes a description of the research instruments, data collection and analysis techniques. The first, second and third section outlines the research paradigms with an overview of quantitative and qualitative methodologies and a summary of the procedure. The fourth section outlines the questionnaire instrument’s development, the sampling technique used,
the population and the sample size, data collection procedure, and data analysis. It also discusses the validity and reliability of the questionnaire method. The final section considers ethical issues.

4.2 Research paradigms

There are many ways in which to conduct research. The most basic division is between quantitative and qualitative methods. The preference for each of these types of methods is heavily influenced by the philosophical paradigm that a researcher follows (B. Johnson & Christense, 2010). For example, the paradigm of positivism tends to emphasise quantitative analysis because it is presumed that objective measurements of observable behavioural variables are more value-free and unbiased. Using induction of numerical observations over a wide range is deemed to be the best way in which to test a deductively valid theory or hypothesis. The hermeneutic paradigm by contrast, argues that quantitative analysis fails to come to grips with the inherent meanings and subjective beliefs of people which are important to understanding their behaviour (Tashakkori, 1998). This approach denies that there can be a truly objective or value-free analysis of a situation because the essence of human thought and action is subjective and driven by values. As such, the hermeneutic approach favours qualitative analysis, which often includes such techniques as interviews, interacting with subjects in their ‘natural’ day-to-day activities, and exegetical analysis of primary source documents (L. Cohen, Manion, & Morrison, 2000; Oyaid, 2009; Tashakkori, 1998).

There is however, another approach which seeks a middle way between positivism and the hermeneutic paradigm. This approach is known as pragmatism, and allows for a mix of methods – both quantitative and qualitative – to be used (Creswell, 2009; R. B. Johnson & Onwuegbuzie, 2004; Tashakkori, 1998). This thesis will use a pragmatic paradigm as its underlying foundation and so will use a mixed methods approach. The reason why the pragmatic approach allows mixed methods where the other paradigms of positivism and hermeneutics do not is because pragmatism’s core tenet is that a belief or action is justified or warranted if it achieves the stated or desired outcome – that is, if it turns out to be useful.
Quantitative or qualitative may be used if they generate information that is useful for investigating a topic (Creswell, 2009; R. B. Johnson & Onwuegbuzie, 2004; Tashakkori, 1998). Both will be helpful in this study due to the variation of information that will be collected that aid in better understanding the topic and related aspects of the problem.

This study applied a sequential mixed-method design occurring into two phases starting with collecting and analysing quantitative data and then this phase was followed by collection and analysis of qualitative data. The quantitative aspect of this study is to collect objective numerical data about the availability and use of educational technology in teaching the Arabic language used over a wide range of secondary schools in Riyadh. This was done by means of a questionnaire. The qualitative aspect of this study was to collect subjective statements and responses of a small sample of teachers via interviews. The interviews provide the basis for a more in-depth examination of the thoughts, feelings and beliefs of the teachers, however, are not as wide in scope as the quantitative information from the questionnaires because the interviews were conducted with a relatively small number of subjects.

One may say that the quantitative technique provided empirical breadth whereas the qualitative technique provided depth (B. Johnson & Christense, 2010). One can gain a better understanding of the issues relating to the availability and use of educational technology in Arabic language secondary school classes by combining the results of these two techniques because they generate very different types of information. The results provide justification for the combinational method if the results of both types of techniques give rise to similar or compatible results.

In order to maximise the potential impact of the combinational justification of methods, it was decided that the questionnaire questions and the interview questions would be formulated separately and conducted separately. That is, the questionnaire responses did not inform the construction of the interview questions, and vice versa. If the questionnaire responses had informed the construction of the interview questions, then one could say that the former influenced the latter so that the
interviews would be potentially skewed so as to artificially reinforce the questionnaire results. To eliminate this potential source of circularity, each technique was kept separate, although it would mean that it increased the chance of the results from each technique being ‘mixed’ or contradictory or unrelated to each other (Williams, 2003).

4.3 Overview of quantitative and qualitative methodologies

The following section outlines the quantitative and qualitative approaches to empirical investigation, pointing out some strengths and weaknesses of each. After that, the precise techniques utilised in this study are explained.

4.3.1 Quantitative techniques

The systematic empirical investigation of measurable phenomena and properties (‘variables’) as well as relationships between them (‘correlations’) is referred to as quantitative research in the social sciences. Quantitative research can take two forms: one is theory-driven, and the other is prior to theory development. In the first type, a theory or hypothesis has already been developed by some means or other. It then gives direction to investigators as to what to look for empirically. In this case, the theory effectively ‘selects’ the specific kinds of phenomena to examine, and the ‘proxy’ variables to be observed, and gives ‘meaning’ to the observations when they are made. Thus selected facts serve as ‘tests’ of a theory which directs the act of observation. The other quantitative approach does not start with a formal theory, but may instead start with some general intuitions or beliefs about the subject matter, but not in a manner that pre-establishes the kinds of observations that will be searched for, examined and interpreted. This approach instead simply examines a wide range of phenomena related to a certain topic of interest and then seeks out patterns in the observations by induction. The observations made by this approach are not pre-selected, nor are any of them ignored (contrary to the theory-directed approach). Rather than being a theory-testing approach, this approach may be described as an ‘empirical discovery approach’ which can be used for theory construction. It is this latter approach to quantitative investigation that has been used in this thesis (Williams, 2003).
One of the main virtues of this empirical discovery approach is that it seeks to be as objective as possible. That is, it seeks to avoid as much as possible the subjective evaluations and judgments of the investigator entering into the collection and evaluation of data. First, this approach seeks to obtain measurable results – that is, to observe precise quantitative sizes of variables (Hunter & Erin, 2008). Second, in contrast to the theory-directed approach, it does not pre-select the data that is to ‘count’ or that is pre-judged to be ‘relevant’ or ‘interesting’. Because the theory-directed approach does make these judgments, it can be charged with covertly adding an undue degree of subjectivity and bias into their studies so that supposedly objective ‘facts’ themselves become ‘theory laden’ (Feyerabend, 1988).

The particular quantitative technique chosen in this study was a questionnaire. Since the respondents in this study were secondary school teachers scattered over 40 schools in Riyadh, it was impractical to use any other technique. For example, direct observations of teachers’ resources and practices would have been too time-consuming and expensive, and may have influenced the behaviour of teachers who were being observed. The only other technique available was questionnaires in which teachers could write down their responses to specific questions in a systematic, pre-defined manner (Abramson & Abramson, 2010). These responses could either be binary (such as ‘yes’ or ‘no’) or continuous over a range of possible responses (such as ‘strong agree’ to ‘strongly disagree’). These responses could then be counted and aggregated. Simple statistical manipulations could then be performed on the aggregates, such as averaging and finding standard deviations (however statistical significance could not be established given the sample size). Given that the same size was relative to the sample population one third of all teachers teaching Arabic in Riyadh, it is reasonable to say that the patterns that emerged were not artifacts of a random process, that is, the responses to the questionnaires were a fair indication of the state of affairs facing all Arabic language teachers in Riyadh at least.

### 4.3.2 Qualitative techniques

‘Qualitative techniques’ covers many different types of approaches to empirical investigation. These include: interviews, observational notes and records, documents
written by subjects, audiovisual recordings as well as cultural artifacts of all kinds (Punch, 2009). Qualitative researchers generally explore human subjects – their thoughts, beliefs, feelings and practices – in their natural settings as they naturally occur. As noted above, quantitative techniques are usually favoured by researchers who follow a hermeneutic tradition which says that the ‘meaning’ of human actions and practices can only be fully understood subjectively, that is, by coming to know how the human subjects themselves interpret their own actions. This rendered the phenomena of interest inherently ‘subjective’. It also requires that the investigator must find some way of acquiring that ‘inside knowledge’ of the human subjects in order to understand it (L. Cohen et al., 2000; Oyaid, 2009; Tashakkori, 1998).

There are a number of techniques for trying to achieve this goal, but they can be reduced to two basic types. One method, which was championed especially in anthropology, was ‘participatory observation’ in which researchers would live with their subjects so as to gradually internalise the meanings of the phenomena under investigation. This may be called an ‘insider method’ because the investigator effectively seeks to understand a community ‘from the inside’ by participating in it to some degree or other (Bernard, 1998).

The other method may be called an ‘outsider method’ because the investigator formally maintains their distance from the community that is being investigated. They do not seek to ‘live within’ the community but instead engages in interviews so that subjects have the opportunity to explain in their own words their ideas, thoughts and feelings (Punch, 2005, p. 54). The manner in which the interviews are conducted is of course important because a ‘badly’ conducted interview can elicit false or misleading responses from interviewees. Interviews should be conducted in a sensitive, non-confrontational and non-judgmental manner. In this way the question would not restrict or artificially close-off important information that the interviewee may have been otherwise willing to contribute (Rubin, 2005).

This study uses this second ‘outsider approach’ to qualitative investigation. This is primarily because an ‘insider approach’ is the most highly resource intensive – taking many months, sometimes even years of immersion in a community under
investigation. The ‘outsider approach’ is simply less resource and time intensive and thus more practicable. Furthermore, it is arguable that the main reason for using an ‘insider approach’ – that a community or culture is highly ‘alien’ to the researcher’s own background and so requires ‘immersion’ – does not apply in the case of this particular study. This is because the background of secondary school Arabic teachers in Riyadh was little different to the interviewer.

4.4 Summary of the procedure

The data collection phase of this thesis was broken up into two main phases. In the first phase a questionnaire was administered to a large sample of the target group: male secondary school Arabic language teachers in the city of Riyadh. In the first semester of 2011, a pilot questionnaire was conducted with 10 teachers. The feedback from this pilot was used to construct the final questionnaire. This was administered in the second semester of 2011. The sample cohort was a randomly selected group of 300 Arabic teachers in 40 schools in Riyadh.

The questionnaire was self-administered (that is, each teacher who was given a questionnaire filled it out on his own without direct supervision) and anonymous (that is, each teacher who filled out a questionnaire was not required at any stage to record their identity for the researcher). It asked set questions about demographics, availability and usage of educational technology, and the purpose of and the reasons for using educational technology. There were 100 teacher responses to the questionnaire over a three week period. The data from the questionnaire were coded and tabulated. The results were presented as raw quantities, frequencies, proportions (percentages), averages.

The second phase of the empirical investigation was to conduct interviews with selected teachers. All the teachers who completed the questionnaire were asked if they were willing to participate in an interview. Of 21 teachers who expressed interest, only eight finally agreed to be interviewed separately and confidentially. The questions for the interview allowed respondents to give variant responses. The interviews were conducted by Skype and face-to-face. The interviews lasted
approximately 40-60 minutes. The interviews were recorded and transcribed, and the answers were coded thematically in order to draw out patterns, similarities and differences in the interviews. These results could then be presented in tabular and diagrammatic form.

4.5 Questionnaire

4.5.1 Purpose of the questionnaire

Questionnaires provide generalisable results and can be implemented with a larger population than an interview. Moreover, a questionnaire assists in fulfilling the purpose of this study by providing factual information about the goals, practices, beliefs, and attitudes of teachers (L. Cohen et al., 2000 p. 22).

The type of questionnaire used in this study was a written structured questionnaire. That is, there were set questions with a pre-specified array of possible responses to choose from; the questions were printed on paper and respondents recorded their answers on the questionnaire paper.

Printed structured questionnaires have some advantages over other quantitative types of data gathering techniques. Chief among these is that printed structured questionnaires are relatively inexpensive and not highly labour intensive compared to telephone-based and face-to-face verbal questionnaires. Printed questionnaires can be left with respondents over a period of time, enabling them to answer the questions at their leisure. Thus it is not necessary for the researchers or administrators of the questionnaires to be present. The structured questions and pre-set possible responses ensures there is consistency across different respondents ensuring standardised responses that are easy to code and tabulate. Insofar as it is possible, the structured questionnaire method eliminates subjective influences on the researcher that may alter their questioning of respondents if it were a verbal questionnaire. It also adds objectivity to the study by ensuring every respondent faces exactly the same questions, word-ordering and possible answer-options. This eliminates the potentially confounding effect of different respondents being asked different types of questions depending on the interaction between the respondent and the researcher.
4.5.2 Design

The kind of questionnaire used in this study was, as noted, a structured, self-administered questionnaire based on previous pre-existing examples used in the field (Great Britain, Skills, & Technology, 2002; Hayward, Alty, Pearson, & Martin, 2002b; Hayward, Alty, Pearson, & Martin, 2002a; Tearle, 2005).

The questionnaire was divided into sections which covered a variety of topics. The first section was comprised of demographic questions to collect data about the qualifications, training and number of years in service of the respondents. The second section was comprised of ‘closed’ questions where respondents were required to make choices of response from pre-existing options. These took the form of either multiple choice responses or Likert scale responses. Within each section there were some ‘quasi-closed’ questions where the respondent had some freedom to write responses to specifically directed questions (such as ‘List the 3 ways that you use education technology …’). In this questionnaire, the term ‘technology’ refers to the use of technologies in education such as computer lab networks, overhead projectors, digital cameras, desktop/laptops, scanners, projectors, electronic whiteboards, internet, data projectors, camera, video camera, iPad, iPod, floppy discs, TV monitor, DVD player, CD player, printers, slides projector, audio cassette, MP3 player, video cassette recorder (VCR), radio. In this section, questions were developed to elicit data to aid in establishing teachers’ understanding of availability and use of technology in terms of implementation, reasons for usage educational technology in teaching and methods of use educational technology. In addition, this section supplied data about computer ownership in all schools and skills of teachers of use educational technology. Attention was paid to the framing of the questionnaire. The sequence of the sections was founded on the study’s research questions which were considered logical, and in line with Cohen and Manion’s (2000 p.257) belief that the sequence of questionnaires should progress from ‘objective facts to subjective attitudes and opinions through justifications’.

Since the questionnaire drew heavily on a number of questionnaires that were published in English, the questionnaire developed for the present study was initially
written in English. However, because the study’s respondents were native Arabic
speakers, to ensure that there was no miscommunication, the questionnaire was
translated and double-checked by professional Arabic translators. The resultant
answers from questionnaire in Arabic were similarly translated with care back into
English. Given that most of the possible answers were completely closed, the
complexities and potential difficulties of translation could be avoided.

4.5.3 Sampling

Quantitative studies normally utilise much larger sample sizes than qualitative
studies, which are typically inherently labour intensive (Fraenkel & Wallen, 2006).
As Barbour (2001, p. 1115) suggests, this is because ‘rather than aspiring to
statistical generalisability or representativeness, qualitative research usually aims to
reflect the diversity within a given population’. For the present study, 300 Arabic
teachers in 40 secondary schools in the Riyadh Educational District of Saudi Arabia
during the second semester of the academic year of 2011 were sent questionnaires.
This is approximately equal to the number of secondary school Arabic teachers in
Riyadh. Neither the schools nor the teachers were selected or targeted according to
some demographic characteristic, and no information about the potential respondents
was collected before distribution of the questionnaires (Cohen, Manion & Morrison
2000; Fraenkel & Wallen, 2006).

The response rate for this study was 33%. This is a good response rate, but is
unusually high for Saudi Arabia in particular because a similar study faced a serious
problem with the non-return of questionnaire responses (Oyaid, 2009). The reason
for the high response rate for this study was due to the personal approach taken to the
collection of questionnaires. In other empirical studies, questionnaires are generally
distributed and collected by mail. In this study, however, the researcher hand-
delivered the questionnaires to each of the high school teachers in Riyadh, and
informed the teachers and principals of secondary schools that he would collect them
from a questionnaire collection box at the school manager office within a few weeks.
This kind of personal delivery approach seems to have generated a greater response
on the part of the teachers than a more impersonal method such as by mail or the internet.

4.5.4 Data collection

Five steps were involved in the generation and collection of raw data from the questionnaires.

1. The Ministry of Education in Saudi Arabia was provided with a sample of the questionnaire and provided authorisation to Riyadh’s local Education Authority to cooperate in the administration of the questionnaire. Then, this letter was taken to the Department of Learning and Education in Riyadh which authorised the distribution of the questionnaire with Approval No. 55/610 to secondary schools of Riyadh Educational, during the second semester of the academic year (2011). The Department of Learning and Education in Riyadh then sent this authorisation to the seven Education Supervisor Centres in Riyadh, which in turn sought approval from each secondary school in Riyadh to participate in the study. All secondary schools agreed to cooperate with the administration of the questionnaire, the information collection and with interviews.

An application to conduct research was submitted to the University of Western Sydney (UWS) Ethics Committee for approval using the National Ethics Application Form (NEAF) which received Approval No. (HREC) H8949.

2. The Department of Learning and Education in Riyadh provided the contact details of secondary schools in Riyadh Educational District in the Kingdom of Saudi Arabia during the second semester of the academic year (2011). The address and phone numbers of all 40 of the secondary schools were provided by the Department Learning and Education in Riyadh.

3. After calculating that each of the 40 schools had, on average, five to seven Arabic language teachers, 300 questionnaires were printed for the
participating schools. Thereafter, the researcher visited each school and held meetings with the Arabic language teachers to inform them about the study that was being conducted. The teachers were informed about: the sampling process, ethical considerations (including confidentiality of responses), the administration of the questionnaire, inclusion and exclusion criteria for answers to the questionnaire responses, and the collection procedure.

4. The questionnaires were distributed by the researcher to either the principal of the school to then give to some the Arabic language teachers or to the Arabic language teachers themselves in each school. A total of 300 questionnaires were distributed. All teachers were informed that their questionnaires, if they chose to complete them, were deposited into a box located in the school principal’s office over the period of three weeks. Thereafter, the contents of the box were collected by the researcher.

5. Some teachers filled out the questionnaire immediately on receipt of it. It took between 10 to 15 minutes for these respondents to fill out the questionnaire. Their questionnaires were immediately deposited in the box in the principal’s office. Other teachers took the questionnaire away with them to complete at a later date by themselves. These teachers deposited their questionnaires in the box in the principals’ offices at some point during the three week period after receipt. And finally a third group of teachers took the questionnaire away with them but only partially filled in the answers. When the researcher returned at the end of the three week period, these teachers asked for assistance in completing the questionnaire (usually asking for clarification of the meaning of particular words). After these teachers had completed their answers, they submitted their questionnaires. In total, 100 questionnaires (of a total of 300 distributed) were deposited into the collection boxes.

4.5.5 Data analysis

The questions comprising the questionnaire were grouped into sections representing the main themes of the research: (i) personal characteristics of the teachers including their skills relating to educational technology; (ii) availability to the teachers of
educational technology and software programs; (iii) use of the educational technology and software programs and access to computer by the teachers; and (iv) subjective opinions of the teachers relating to the purpose and reasons of using educational technology.

The Statistical Package for Social Science (SPSS) software was used to perform all percentages and frequencies required for analysing closed questions, coding the variables, and data cleaning.

Descriptive analysis was used to reveal the sample’s characteristics and to answer specific research questions. Descriptive analysis included aggregations, frequencies, proportions, and averages. The variables were either cardinal or ordinal. For example, the number of years teaching for each respondent was a cardinal variable, whereas questions about dis/agreement with a proposition elicited ordinal variables which were used a Likert scale and calculated from responses.

4.5.6 Questionnaire validity and reliability

One of the priorities was that the questionnaire data was valid. Validity here means that the ostensible questions actually make sense to respondents and that the questions are internally consistent and unambiguous. For example, respondents should not be confused about the meaning of a key word, or interpret key terms in logically inconsistent ways throughout the questionnaire. Reliability refers to interpersonal consistency or stability of the meanings of the statements in the questionnaire instrument. For example, the same questions should be interpreted in the same way by different people (from a similar cultural background at least) and therefore elicit similar types of responses (Cartwright, 1986).

Testing the validity and reliability of a questionnaire is notoriously difficult and can only be done in an indirect or circumstantial manner. Nonetheless, there is some evidence that the questionnaire that was used in this study was indeed valid and reliable. First, the questionnaire in this study drew upon other questionnaires that had already been used in other similar studies in KSA. There was no suggestion in the literature that the other questionnaires already available were invalid. Since the
present questionnaire drew upon those other studies, one may tentatively infer that this study is not invalid either. Second, a final draft of the questionnaire was submitted for review to five Saudi academics from the field of education who were expert in both English and Arabic. These academics, after making various minor corrections, approved of the questionnaire, declaring that it was unambiguous and internally coherent in its meanings. Third, questionnaire (in Arabic) was then tested on a small sample of five secondary school teachers who were fluent in Arabic to check whether they interpreted each of the questions in a similar. Each these teachers completed the questionnaire independently and in isolation from the others. Although each made suggestions for deleting some overlapping questions and changing some words, they all gave consistent responses to the questions. This suggests that the questionnaire was semantically stable across different respondents and therefore was reliable.

4.5.7 Strengths and limitations

There were some strengths and limitations of using a questionnaire. The strengths were as follows. The chief benefit of using a written questionnaire was that it provided a relatively inexpensive method of garnering a large amount of data from a relatively large number of people in a relatively short period of time. Second, once it had been established that the questionnaire used was likely to be valid and reliable, one could then infer that the data generated would have certain objective properties: that is, it would record the reactions of people to exactly the same questions, would potentially capture the respondents honest reactions because of anonymity, and would not be contaminated by the personal interpretations of the researcher.

Nevertheless, there were some limitations to the use of a questionnaire. These included the following. Although the pilot study suggested that a questionnaire was valid and reliable, it was still the case that some teachers had some difficulty understanding some of the questions. This was known because a few teachers requested assistance to understand some questions when visiting the schools to collect the questionnaire. This suggests the possibility that other teachers who did not seek assistance nonetheless may have misunderstood some of the questions and so
filled out some questions incorrectly. Second, principals at a few schools reported to the researcher that some teachers who completed the questionnaire became somewhat agitated at the length of the questionnaire (nine pages) as they progressed though the questions. This suggests the possibility that the quality of the responses to the questions may have deteriorated towards the end of the questionnaire. It is unknown however, how many or at what stage (if at all) a diminution of quality occurred. Finally, a constant problem for structured questionnaires such as this one is that respondents may become frustrated at the standardised nature of the range of possible responses that can be given. Sometimes the options available are perceived to not adequately capture the kind of answer the respondent wants to give (Williams, 2003).

4.6 Interviews

4.6.1 Purpose of the interviews

The goal of the second phase (the interview phase) of the data gathering process was to provide insight into the experiences, impressions and opinions of Arabic language teachers in secondary schools in Riyadh in Saudi Arabia. In this way, information about the teachers could be gathered that could not be gleaned from the questionnaire.

An interview is considered as a useful strategy in qualitative research for collecting data from human respondents, since it is a conversation in the form of questions and answers, or statements and responses, between the interviewer and the interviewee. Interviews are a favourite methodological tool in qualitative research because they give direct access to subjects, and enable researchers to gather information about conscious interpretations of actions by subjects (Denzin, 1998; Munroe-Chandler, 2005). An interview supplies some opportunities for discussion and clarification where questionnaires are silent or provide no room for extended responses to complex issues (M. Hammersley, Atkinson Paul, 1995; Reinharz, 1992). An interview also allows the interviewee to express his point of view freely and it also provides comparable, reliable qualitative data (D. Cohen & Crabtree, 2006). The purpose of the interviews was thus to elicit information about the utilisation and
availability of technology in teaching the Arabic language in secondary schools in Riyadh in Saudi Arabia that was not necessarily being expressed in the questionnaires and to confirm (or confound) what was being expressed in questionnaire responses.

4.6.2 Design

This study used a structured interview technique. In the structured interview there were four pre-established themes and interviewees are asked 14 pre-established questions that were distributed between the themes. Thus the list of questions remained the same from interviewee to interviewee, and the precise wording of the questions asked did not vary depending on how an individual interviewee reacts to previous questions. This ensured that there was consistency in the treatment of each respondent (Heberlein & Baumgartner, 1978).

The four themes governing the questions asked in interviews were derived from the study’s research questions – namely, questions about the availability of the technology in teaching, how teachers utilised the technology in teaching the Arabic language in secondary schools, as well as what their training in modern educational technology was, how they obtained their training, as well as their opinions on the value of modern educational technology, and their reasons or motives for using it.

Two strategies were used in order to conduct the interviews. One was to use a face-to-face interview between the researcher and individual teachers in the teachers’ workplaces. The other was an e-interview (that is, an interview conducted by Skype). E-interviews avoid travel costs and are not constrained or as easily interrupted as face-to-face interviews (Lee, 2000).

4.6.3 Sampling

Respondents to the questionnaire were given the opportunity of nominating themselves as being willing to be interviewed. From 100 questionnaires, 21 teachers indicated that they would be willing to participate in interviews. However, after following up these potential interviewees, only eight of them were in fact willing to
participate in interviews. (Reasons given for not participating in the interviews by those 13 who refused ranged from having too many other commitments to being ’shy’.) Eight teachers were interviewed for this study. The teachers fell within the age range of 24 to 52 years. Three interviewees were aged between 24 and 30, four were aged between 31 and 40, and one was aged between 41 and 52. Four interviewees possessed undergraduate degrees and one attained a college degree. The remaining three possessed postgraduate qualifications: one a Masters degree and the other two PhDs.

4.6.4 Interview procedure

A number of steps were taken before the interviews themselves were conducted. First, a sheet of initial information and a consent form was distributed to each interviewee – either directly at their place of work or by mail. All the respondents received a signed letter explaining the aim of the interview and assuring them that their responses would remain confidential. Second, the topics to be covered were introduced to respondents. This was for two reasons. The first reason was to remove any anxiety on the part of interviewees regarding the interview. In order to feel comfortable about the interview it was important that the interviewees knew exactly what the topics would be – especially that there would be no embarrassing personal questions or controversial political questions. The second reason was that it permitted the interviewees to reflect upon the topics before being formally asked about them. In this way the interviewees could give thoughtful, informed and accurate responses to the questions.

Six of the interviews were conducted face-to-face such as Fahad, Khalid, Mazen, Abdullah, Rakan and Saad. These face-to-face interviews took one of two forms. Six were conducted directly at interviewees’ schools or at coffee shops nearby. A high quality digital recorder was used to record the interview for later analysis. The rest of the respondents were conducted ‘virtually’ face-to-face by using Skype communication software, when the interviewee was in their home – namely, Abdurahman and Mishary. This was because these interviewees felt embarrassed about talking to anyone face to face, especially, if they did not have a relationship
with him such as foreign people. The interview was digitally recorded for later analysis. Each face-to-face interview (no matter what type) took approximately 40 to 60 minutes to complete. Some interviewees became excited and wanted to talk in-depth and express their views on or criticisms of the school situation and their personal experiences despite this information on topics unrelated to the research study. Interviewees, however, were not far away from the topics of interview during their interviews.

4.6.5 Data analysis of interviews

The data analysis stage transforms the raw data gained from the data collection tools into meaningful information if the procedures are appropriate for answering the questions of research. Next section summarises the data analysis process for the interviews.

![Figure 4.1 Abstract relationship between Theme, Category and Code](image)

Miles and Huberman (1994b) identified the main stages of analysis for qualitative data as data reduction, data display, verification and drawing of conclusion. For the analysis of qualitative data gathered via interviews, certain steps were followed. First the data (in the form of printed transcripts) was to read and re-read to gain familiarity with it. In the second step, the data were coded and categorised, using the themes derived from the research questions. Finally, data was summarised and related back
to the research questions (Denscombe, 2007; Miles & Huberman, 1994a; K. Punch, 2005).

The aim of coding is to break down and deconstruct the data to create a sense of codes and after that to synthesise and reconstruct the data to consider the links, differences and similarities (Barney, Glaser; Anselm, & Strauss, 1967). The codes for the interviews were developed in the light of literature reviewed and also in light of reviewing the raw data. They were grouped into categories which were derived directly from the interview questions themselves. These questions were in turn grouped according to four general themes associated with the research questions. Analytically, the relationship between a theme (A), categories falling under the theme (a, b …) and coding of the characteristics of each category (i, ii …) can be represented as follows:

The four general themes of the interviews are expressed in each of the four ‘general’ question-topics. The categories related to the ‘particular’ questions falling under the ‘general’ question-topics. As such, the themes are categories did not emerge organically from the interviews themselves. Rather, they were imposed upon the interviewees’ responses by the structured nature of the interview itself. The themes and categories are summarised in Table 4.1.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>[A] Availability of technology</td>
<td>[Aa] Types of technology available</td>
</tr>
<tr>
<td></td>
<td>[Ab] Quantities of technology available</td>
</tr>
<tr>
<td>[B] Utilisation of technology</td>
<td>[Ba] Reason for using technology</td>
</tr>
<tr>
<td></td>
<td>[Bb] Advantages of using technology</td>
</tr>
<tr>
<td></td>
<td>[Bc] Functions served by technology</td>
</tr>
<tr>
<td></td>
<td>[Bd] Factors affecting use of technology</td>
</tr>
<tr>
<td>[C] Change over time of technology</td>
<td>[Ca] Past/present differences</td>
</tr>
<tr>
<td></td>
<td>[Cb] Past/present evaluation</td>
</tr>
</tbody>
</table>
On the other hand, the coding of the specific responses to the particular questions had to be induced from an analysis of the raw data (the interview transcripts). To give an example of the coding on characteristics of a category, one may examine the codes under the theme of utilisation from Table 4.2.

Table 4.2 Coding under utilisation

<table>
<thead>
<tr>
<th>Categories of ‘Utilisation of technology’</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Ba]Reason for using technology</td>
<td>[Ba.i]Educational reason</td>
</tr>
<tr>
<td></td>
<td>[Ba.ii]Technological reason</td>
</tr>
<tr>
<td></td>
<td>[Ba.iii]Efficiency reason</td>
</tr>
<tr>
<td></td>
<td>[Bb.ii]Advantage for students</td>
</tr>
<tr>
<td></td>
<td>[Bb.iii]Advantage for technology</td>
</tr>
<tr>
<td>[Bc]Functions served by technology</td>
<td>[Bc.i]Giving examples</td>
</tr>
<tr>
<td></td>
<td>[Bc.ii]Giving explanations</td>
</tr>
<tr>
<td></td>
<td>[Bc.iii]Adding information</td>
</tr>
<tr>
<td></td>
<td>[Bc.iv]Performing marking</td>
</tr>
<tr>
<td></td>
<td>[Bc.v]Giving feedback</td>
</tr>
<tr>
<td>[Bd]Factors affecting use of technology</td>
<td>[Bd.i]Type technology</td>
</tr>
<tr>
<td></td>
<td>[Bd.ii]Professional development</td>
</tr>
<tr>
<td></td>
<td>[Bd.iii]Financial constraints</td>
</tr>
</tbody>
</table>
4.6.6 Pre-application testing of tools

The validity and reliability of interviews can be a contentious matter because interviews are often infused with the subjective interpretations of questions by interviewees. Nonetheless, some tests of the validity and reliability of interview methods can be conducted. Validity and reliability here means that interview questions are inter-subjectively stable. According to Hammersley, it is defined as ‘the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions’ (1992, p. 67). The validity and reliability of interview methods was checked in two ways. First, the initial pre-set questions of the structured interview were checked in a pre-interview phase by asking two high school teachers the pre-set questions. These two teachers were asked whether they understood the questions, or whether they thought the wording was ambiguous, unclear or nonsensical. Both pre-test teachers found the questions to be unambiguous and intelligible and not liable to be misinterpreted by a person of average intelligence. Second, validity and reliability was established by checking whether the interviewees gave the same types of responses to given questions. It was found that none of the eight interviewees gave anomalous or strange answers to questions. This suggested that the interview questions were inter-subjectively stable. This was further supported by the fact that a relatively limited number of similar themes emerged out of the interviews (Silverman, 2001).

4.6.7 Strengths and limitations

There were a number of benefits associated with using the interview method. These included the following. First, it allowed teachers to use their own words to describe what was important and meaningful to them. This gave them a sense of empowerment that is often missing from structured questionnaires. The interview approach also had a less formal tone to it, which enabled the interviewees to feel more relaxed and less guarded about their answers. Second, in the interview context, if interviewees were not sure about the meaning of a question, they were free to ask for clarification, which was not possible with other methods of eliciting information from people (such as structured questionnaires). Similarly, the interview method enabled the interviewer to clarify the meanings of terms if he felt that the
interviewees were unintentionally misconstruing terms he was using. Third, one of the chief benefits of the interview was that it enables interviewees to elaborate on what they mean or think or believe about any give topic that was brought up. This is a clear advantage over the questionnaire approach which does not allow respondents to explain why they give a particular answer or choose a particular set option on a questionnaire.

Nonetheless, the interviewing method does harbour some well-known limitations. First, interview responses can be susceptible to the vagaries of the interpersonal dynamics, personality differences, and moods of the interviewees and interviewer. These factors can undermine the validity and reliability of the interview questions.

4.7 Ethics clearance and consideration

The research methods used were checked to ensure that they complied with the standards advised by the University of Western Sydney, as any action regarded as unethical could have endangered the study’s reliability and consistency. Furthermore, people of Saudi are not familiar with research (social science) to the same extent as people in Western countries, thus the research had to be conducted in stages to assure people that the research was genuinely for an academic purpose. Before the empirical work commenced, the participating teachers were clearly informed about the purposes and aims of the research, and their permission was sought to obtain access to the teachers of school. For respondents who wanting to know more about the nature of the study, detailed information and full explanations were given. A great effort was made in order to ensure the process of data collection went smoothly. The respondents were informed about the purposes and objectives of the research twice:

The first time was verbally and the second time was in the form of written information which was part of the invitation for all respondents to participate in the interview.

The letter’s contents assured teachers and reminded them of the importance of answering questions honestly to ensure the research’s validity, sought their approval
for recording the interviews, their identity was withheld and explained their right to withdraw from the research at any time. All people involved in the research complied with University of Western Sydney’s ethical requirements, and all data collected from teachers were handled confidentially and were used for research purposes only. An information sheet was attached to give respondents a full description of the research purpose and process including information about the questionnaire and interview. Subjects were ensured that no direct or indirect harm ensued if anyone chose not to participate in the research. Anonymity was assured as well, with the demographic details included in the questionnaire to be used for research purposes only, and coded for analysis. Contact details of the researcher for further enquiries and concerns were provided with the information and consent forms, questionnaire and interview. A copy of NEAF, information sheet about the study and the research package including questionnaire and interview were attached later.

The Saudi Arabian government ask for authoritative approval from all researchers who do research in Saudi Arabia. This approval was required from the Ministry of Education. Permission was also obtained from the Educational Research Department, Director for the Education Technologies Management by Research Conducting (Approval No. 32818317) and Assistant Director in Riyadh City (Approval No. 55/610) to undertake the research in schools. School principals received an information and consent letter from the Educational Research Department requesting them to distribute the questionnaire. An application to conduct research was submitted to the University of Western Sydney (UWS) Ethics Committee for approval using the National Ethics Application Form (NEAF) and approved by the Committee by Research (Approval No. (HREC) H8949). Chapter 5 is the first of two chapters to present the research findings derived from data generated from the questionnaire.
Chapter 5: Questionnaire Findings

5.1 Introduction

Chapter 5 presents the findings derived from the questionnaire that was administered across forty secondary schools in Riyadh, Saudi Arabia, in the second half of 2011. The questionnaires were filled out by teachers of the Arabic language. Of 300 questionnaires distributed, 100 were returned by teachers, processed and analysed.

The questions in the questionnaire cover a number of areas (Appendix 1). These were: (i) demographic information about the teachers including their skills relating to educational technology; (ii) the availability of educational technology and software programs to the teachers; (iii) the use of educational technology, software programs and access to a computer by the teachers; and (iv) open-ended questions about the purpose and reasons of using educational technology.

The data that is presented in Chapter 5 takes a number of forms: simple quantities (such as age or number of respondents), percentages, and averages, including averages of ordinal Likert scale responses to questions. The chapter presents these data in both tabular and graphical form, and comments briefly on each set of responses.

5.2 Teacher characteristics

The first set of questions was the demographic data of the Arabic language teachers. These included; (i) age of teachers; (ii) number of teaching years; (iii) highest qualification of teachers; (iv) teachers’ skills in using educational technology possessed; and (v) methods used by teachers to gain skills in using educational technology.
5.2.1 Age of teachers

Age is often assumed to be a related factor for educational technology utilisation in the teaching process (Oyaid, 2009). Participants in this study ranged from 24 to 52 years old, which represented the age group of the teaching profession in the Kingdom of Saudi Arabia (T. N. C. o. Education, 2012) that covers Arabic language teachers. The chosen age range had covered generations who are familiar of both old and modern technologies in the educational process.

<table>
<thead>
<tr>
<th>Age of Teachers</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-30</td>
<td>25</td>
</tr>
<tr>
<td>31-37</td>
<td>29</td>
</tr>
<tr>
<td>38-44</td>
<td>18</td>
</tr>
<tr>
<td>45-52</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
</tr>
<tr>
<td>Missing</td>
<td>6</td>
</tr>
</tbody>
</table>

The data in Table 5.1 shows the number and the frequency of teachers falling into the various age groups. As is evident from the table, there is a wide dispersal of teachers across the range of ages. However, as is illustrated in Figure 5.1, a pattern can nonetheless be discerned: as the cohort increases in age, there are fewer teachers.

Teachers between the ages of 24 and 30 made up 36% of the total group of respondents. 29% of the teachers fell within the next age range from 31 to 37, whereas only 18% of respondents were between 38 and 44 years old. Finally, the oldest sub-group aged was between 45 and 52, they made up only 11% of the entire participants.
5.2.2 Number of years teaching

If the respondents are divided into three groups those teaching less than seven years, those teaching between eight and 14 years, and those teaching more than 15 years – one can clearly see that the majority of teachers responding to the questionnaire have been teaching for 8-14 years (Table 4.2).

Table 5.2 Number of teaching years

<table>
<thead>
<tr>
<th>Number of Teaching Years</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 7</td>
<td>34</td>
</tr>
<tr>
<td>8-14</td>
<td>40</td>
</tr>
<tr>
<td>≥ 15</td>
<td>26</td>
</tr>
</tbody>
</table>

The data in Table 5.2 shows that most of the teachers who completed the questionnaire could be classified as experienced teachers. The largest sub-group of teachers was those who had been working for a period of between eight to 14 years (40%). Teachers working for more than 15 years comprised 26% of respondents and
could be classified as ‘veterans’. Less experienced teachers who had been working for seven years or less made up 34% of the respondents.

### 5.2.3 Qualifications of teachers

The question about teachers’ qualifications related to the highest degree that they had attained. The qualifications were given a binary classification i) postgraduate, which included Masters Degrees and Doctorates, and ii) ‘undergraduate degrees or less’, which includes both Bachelors degrees and Diplomas. (No teacher of Arabic in a secondary school has anything less than a Diploma.).

Qualification findings showed that teachers of Arabic language in secondary schools in Riyadh holding undergraduate qualifications represented by a Bachelors Degree or less (Diploma) constitute the majority of the sample with 74% of respondents indicating that this was their highest level of qualification. The remaining minority indicated that they held a postgraduate qualification such as a Masters Degree or a Doctorate, making up a 26% of all respondents. Overall these results suggested that teachers of Arabic were qualified in their field. These results were somewhat at variance with the findings of Oyaid (2009). Oyaid found that 94% of Riyadh secondary school teachers held a university degree or diploma, whereas only 6% had obtained a postgraduate qualification. A possible reason for this difference might be that the present study was focused on Arabic language teachers who may exhibit, more than other high school teachers, a greater orientation toward continuing education over time.

### 5.2.4 Teachers’ skills for the use of educational technology

The respondents were asked about their skills in the use of educational technology. This question might give an indication of the teachers’ Arabic language capacity to deal with and utilise educational technology in the classroom even if it is not currently available, although it should be noted that these are subjective self-evaluations of skills by the teachers themselves that would reflect the ability of using educational technology, not an objective measure of their abilities in real-world situations.
Table 5.3  Teachers’ skills for the use of educational technology

<table>
<thead>
<tr>
<th>Teachers’ Skills</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-existent</td>
<td>3</td>
</tr>
<tr>
<td>Beginner</td>
<td>11</td>
</tr>
<tr>
<td>Intermediate level</td>
<td>44</td>
</tr>
<tr>
<td>Advanced level</td>
<td>35</td>
</tr>
<tr>
<td>Expert</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 5.3 shows that teachers who perceived themselves as possessing no skills in the use of educational technology made up only 3% of respondents. Teachers who believed themselves to be ‘beginners’ made up 11% of respondents. Meanwhile, teachers who judged themselves as possessing intermediate and advanced level skills made up 44% and 35% of respondents respectively. A very small cohort (6%) of teachers assessed themselves to be ‘experts’ in the use of educational technology. The majority of the teachers (85%) self evaluated their skills as intermediate level, advanced level and expert.

5.2.5 Methods of acquiring skills in the use of educational technology

The questionnaire also asked the teachers about how they acquired the skills that they perceived they possessed in using educational technology. The question was a pertinent one because, as indicated in response to the previous question, the vast majority of teachers (85%) claimed to possess either intermediate, advanced or expert skills in this regard. Figure 5.2 shows the breakdown of the various sources of teachers’ skills acquisition.

The most common method for gaining skills in using educational technology was related to formal training. Thirty-one percent of respondents stated that they learned their skills by attending the Saudi Ministry of Education training courses, whereas another 10% said they attended in-school training courses, and yet another 10% said that they attended private training courses. In total this made up 51% of teachers relying on some kind of formal training to acquire the skills necessary to utilise
educational technology. The remaining respondents utilised what may be called ‘informal’ methods of learning technological skills – namely, personal ‘trial and error’ (17%) and learned by personal assistance from a work colleague, family member or friend (13%), similar to acquiring skills by other means which got 13% as well.

![Figure 5.2 Methods of acquiring skills](image)

### 5.2.6 Summary

From the above results, a profile of the majority of respondents emerges. With respect to age, most of the teachers are young, with 65% of them being younger than 38 years old. The majority of respondents are also fairly experienced in teaching because three quarters of them have more than seven years experience in the teaching profession. They are highly educated. All have some kind of qualification from a Diploma upwards and a quarter of them have a postgraduate degree (Masters or Doctorate).
When it comes to subjective judgements of their skills in using educational technology, the majority classified themselves as possessing either intermediate, advanced or expert skills, with only a small number claiming to be beginners or completely ignorant. The teachers acquired their skills via formal education of some kind.

In short, it would appear that the respondents in this study are young, experienced teachers who have a good grasp of the skills required to utilise educational technology – skills which they have acquired mostly by formal avenues.

5.3 Availability of technology

The next section of the questionnaire asked the respondents two sets of questions. The first set of questions was about the availability of types of technology. The second set of questions was about the availability of computer software programs in their schools. For the first set of questions, about the availability of types of educational technology, the findings have been divided into two sub-groups: that of ‘modern’ and that of ‘old’ technology. All the questions took the form of binary responses – that is, respondents could only check of ‘yes’ or ‘no’ to whether any given item listed was available for use in their school.

5.3.1 Availability of educational technology

The availability of various types of technology to teachers included modern and old technology that could be used either inside or outside the classroom. Table 5.4 and 5.5 reveal that there was considerable variation in the range of both old and modern technologies available in secondary schools in Riyadh. Table 5.4 shows the percentage of available modern technologies where the most commonly available modern technologies were found to be computers in the school (88%), printers (81%), computer laboratories (71%), and data projectors in computer laboratories (64%). while modern technologies such as data projectors in the classroom, interactive whiteboards, digital projectors and MP3 players, were 53, 53, 52 and 51% respectively.
### Table 5.4  Availability of modern educational technology

<table>
<thead>
<tr>
<th>Modern Technologies</th>
<th>Yes %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer in the school</td>
<td>88</td>
</tr>
<tr>
<td>Printers</td>
<td>81</td>
</tr>
<tr>
<td>Data projector in a computer lab</td>
<td>64</td>
</tr>
<tr>
<td>Computer for students in a lab</td>
<td>61</td>
</tr>
<tr>
<td>Data projector in the classroom</td>
<td>53</td>
</tr>
<tr>
<td>Interactive whiteboard</td>
<td>53</td>
</tr>
<tr>
<td>Digital projector</td>
<td>52</td>
</tr>
<tr>
<td>MP3 player</td>
<td>51</td>
</tr>
<tr>
<td>Digital camera (photo)</td>
<td>49</td>
</tr>
<tr>
<td>DVD player</td>
<td>48</td>
</tr>
<tr>
<td>Computer in the classroom</td>
<td>44</td>
</tr>
<tr>
<td>Laptop computer in the classroom for teaching</td>
<td>44</td>
</tr>
<tr>
<td>Computer classroom for teaching.</td>
<td>44</td>
</tr>
<tr>
<td>Digital camera with video capability</td>
<td>44</td>
</tr>
<tr>
<td>Portable computer units</td>
<td>38</td>
</tr>
<tr>
<td>Scanner</td>
<td>28</td>
</tr>
<tr>
<td>Computer connected to the internet for teaching</td>
<td>21</td>
</tr>
<tr>
<td>Audio-visual laboratory</td>
<td>18</td>
</tr>
<tr>
<td>Computer for student use in the classroom</td>
<td>10</td>
</tr>
<tr>
<td>iPad</td>
<td>9</td>
</tr>
<tr>
<td>iPod</td>
<td>8</td>
</tr>
</tbody>
</table>

The less common available modern technologies included Digital camera, DVD player, computer in the classroom, laptop computer in the classroom for teaching, computer classroom for teaching, digital camera with video capability, portable computer units and audio-visual laboratory were ranging between 18% and 49%. Finally, the lowest availability percentage of modern technology was for iPad and iPod which got 9% and 8% respectively.
Table 5.5  Availability of old educational technology

<table>
<thead>
<tr>
<th>Old Technologies</th>
<th>Yes %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floppy discs</td>
<td>66</td>
</tr>
<tr>
<td>CD player</td>
<td>59</td>
</tr>
<tr>
<td>Overhead projector</td>
<td>58</td>
</tr>
<tr>
<td>TV monitor</td>
<td>57</td>
</tr>
<tr>
<td>Slides projector</td>
<td>55</td>
</tr>
<tr>
<td>Audio cassette</td>
<td>51</td>
</tr>
<tr>
<td>Video camera</td>
<td>49</td>
</tr>
<tr>
<td>Camera</td>
<td>49</td>
</tr>
<tr>
<td>Radio</td>
<td>48</td>
</tr>
<tr>
<td>Video cassette recorder (VCR)</td>
<td>41</td>
</tr>
</tbody>
</table>

Table 5.5 showed the percentage of the availability of old education technology which was ranging from 66% to 41%. Floppy discs, CD players, and Overhead projectors were available in a percentage of (66%), (59%) and (58%), respectively, while TV monitor was (57%), slides projectors (55%), audio cassettes (51%), video camera (49%), camera (49%), radio (48%) and finally the video cassette recorder (41%).

5.3.2 Availability of software programs

88% of respondents indicated that computers were available at their secondary schools in Riyadh. For this reason, it is useful to know about the complementary product to computers – namely, software programs that render computers particularly useful. These software programs and their availability count are listed in Table 5.6. The results indicate that a range of software programs are available in schools, but not to the same extent as the hardware on which they depend.
Table 5.6 shows that most software programs available in secondary schools in Riyadh are produced by Microsoft. For example, MS PowerPoint (76%), MS Word (70%) and MS Excel (60%) all featured prominently. ‘Word processing’ (other than Microsoft Word) and emailing software were available according to 55% and 60% of respondents respectively. Software related to pictorial representations was the least available type of software program. For example, digital video production, flash animations, and animated cartoon presentations were not available to approximately 90% of the respondents.

One may observe that there are different levels of availability for different Microsoft programs. This is unusual because these three programs – PowerPoint, Word and
Excel – are normally packaged together. Objectively speaking, if a computer has MS PowerPoint, then it also has MS Word and MS Excel available too. This variation can be explained by recalling that these are the results of a questionnaire in which respondents are giving their subjective reactions and reporting their subjective beliefs about availability. It is possible that the respondents were unaware of the suite of programs available to them on their computers.

### 5.3.3 Summary

From the above results, one can conclude that computers, printers and computer laboratories were widely available in Riyadh’s secondary schools. 70% to 90% of respondents reported that these types of technology were available to them for educational purposes. There is a greater range of modern educational technology compared to older technology available in schools. Also, the proportion of available modern technology in schools is greater than the availability of older technology. Therefore, it can be noted that the Ministry of Education has focused more on providing newer educational technology than older educational technology.

One may also deduce that the computers that are available can in fact be utilised because the responses indicated that various kinds of programs were available. However, it should be noted that the most available type of software programs were text-based and there was a relative lack of visual or image-based software such as digital video production.

### 5.4 Using technology

The next question to be investigated was the extent to which Arabic language teachers utilised the various types of educational technology available to them for educational activities. In order to measure the extent of use, a Likert scale for responses was utilised. The scale ranged from 1 to 5, where 1-1.99 indicated ‘low’ 2-2.99 indicated ‘intermediate’ use, 3-4 indicated ‘high’ use and 4-5 indicated ‘very high’. The results are subjective in the sense that respondents define the meanings of terms such as ‘low’ and ‘high’ for themselves. Nonetheless, discernible patterns emerged from the averages of the Likert scores. Tables 5.7, 5.8, 5.9 and 5.10 are
divided into four groups which are directly related to Arabic language teaching, not
directly related to Arabic language teaching, administrative activities and
development of new material for Arabic language lessons.

Table 5.7 shows the learning activities directly related to Arabic language teaching. The score were ranging from 1.27 to 3.07 using iPod and iPad in the classroom, using students own computer, and doing Arabic lessons in audio-visual laboratory were described as low due to the score they got which were 1.27, 1.35 and 1.54, the intermediate category according to the used scale included several activities, such as using the TV in the classroom (2.18).

**Table 5.7 Directly related to Arabic language teaching**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using iPod or iPad in the classroom.</td>
<td>1.27</td>
</tr>
<tr>
<td>Use students own computer in the classroom.</td>
<td>1.35</td>
</tr>
<tr>
<td>Doing Arabic lesson in audio-visual laboratory.</td>
<td>1.54</td>
</tr>
<tr>
<td>Use the TV in the classroom.</td>
<td>2.18</td>
</tr>
<tr>
<td>Use MP3 or audio cassette to listen to Arabic subject.</td>
<td>2.32</td>
</tr>
<tr>
<td>Use digital projector in the classroom.</td>
<td>2.33</td>
</tr>
<tr>
<td>Use DVD or CD player in Arabic subject.</td>
<td>2.34</td>
</tr>
<tr>
<td>Use portable computer units in the lesson.</td>
<td>2.47</td>
</tr>
<tr>
<td>Explaining subject of Arabic in the computer lab.</td>
<td>2.60</td>
</tr>
<tr>
<td>Use interactive whiteboard to explain subject.</td>
<td>2.71</td>
</tr>
<tr>
<td>Use digital projector in a computer lab.</td>
<td>2.71</td>
</tr>
<tr>
<td>Use laboratory students to interact in the lesson.</td>
<td>2.72</td>
</tr>
<tr>
<td>Use overhead projector to add more information for student.</td>
<td>2.72</td>
</tr>
<tr>
<td>Use the data show to explain subjects.</td>
<td>2.74</td>
</tr>
<tr>
<td>Use teacher laptop in the classroom to gain information.</td>
<td>2.77</td>
</tr>
<tr>
<td>Use slides to show student example of subject.</td>
<td>2.79</td>
</tr>
<tr>
<td>Use photos to add more information about subject.</td>
<td>2.79</td>
</tr>
<tr>
<td>Specialist subject program (e.g. Arabic language).</td>
<td>2.80</td>
</tr>
<tr>
<td>Use photocopies in the lessons.</td>
<td>3.07</td>
</tr>
</tbody>
</table>
Finally, specialist subject program e.g. the Arabic language (2.80). On the other hand, using photocopies in the lessons got a high score of (3.07).

Table 5.8 shows the scores of the activities that are not directly related to Arabic language teaching. These scores were ranging from low to high according to the used scale. Low scores activities included for example, adding knowledge by use of a digital camera that got 1.57 score, while high scores activities included using a computer to deliver instruction to your classroom and using computer in many places such as computer laboratories and home, with a score of 3.30 and 3.55, respectively.

Table 5.8  Not directly related to Arabic language teaching

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding knowledge by use of a digital camera.</td>
<td>1.57</td>
</tr>
<tr>
<td>Use radio in the school.</td>
<td>2.09</td>
</tr>
<tr>
<td>Use games show review; to encourage students to recall information in a</td>
<td>2.27</td>
</tr>
<tr>
<td>competitive environment.</td>
<td></td>
</tr>
<tr>
<td>Graphics/drawing packages.</td>
<td>2.40</td>
</tr>
<tr>
<td>Use digital projector.</td>
<td>2.41</td>
</tr>
<tr>
<td>Internet sites.</td>
<td>2.44</td>
</tr>
<tr>
<td>Watching video cassette recorder to increase knowledge.</td>
<td>2.47</td>
</tr>
<tr>
<td>Use email for professional purposes.</td>
<td>2.52</td>
</tr>
<tr>
<td>Use overhead projector to add more information for student.</td>
<td>2.72</td>
</tr>
<tr>
<td>Word processing.</td>
<td>2.85</td>
</tr>
<tr>
<td>Use technology when you are teaching a classroom such as computer and</td>
<td>3.10</td>
</tr>
<tr>
<td>overhead projector.</td>
<td></td>
</tr>
<tr>
<td>Access the Internet for retrieving information (e.g. research, information,</td>
<td>3.26</td>
</tr>
<tr>
<td>ideas).</td>
<td></td>
</tr>
<tr>
<td>Use a computer to deliver instruction to your classroom.</td>
<td>3.30</td>
</tr>
<tr>
<td>Use computer in many places such as computer laboratories and home.</td>
<td>3.55</td>
</tr>
</tbody>
</table>

Table 5.9 describes the administrative activities and their scores, which were ranging from low to high scores. For instance, scanning homework and sending it to students.
Got a low score of 1.48 while preparing their work for their classroom was in the high score category of a 3.58 score.

**Table 5.9 Administrative activities**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scanning homework and sending it to students.</td>
<td>1.48</td>
</tr>
<tr>
<td>Keeping work on floppy discs.</td>
<td>2.91</td>
</tr>
<tr>
<td>Using the technology such as word and XL for administration purposes (e.g. record keeping, reports).</td>
<td>3.08</td>
</tr>
<tr>
<td>Use technology for preparing lessons, such as worksheets.</td>
<td>3.24</td>
</tr>
<tr>
<td>Preparing their work for their classroom.</td>
<td>3.58</td>
</tr>
</tbody>
</table>

Table 5.10 listed the scores of the development of new material for the Arabic language lessons. Developing Arabic lessons by designing informative flash animations and developing Arabic lessons by designing informative digital video productions were low score activities which were 1.18 and 1.21 respectively. Intermediate score activities included creating models resembling the original, using technology and encourage and motivate students to do so, with a 2.44 score.

Microsoft software programs used for administrative purposes also scored ‘high’ in use by the teachers who responded. On the other hand, the use of educational technology in a wide range of other teaching activities had ‘low’ mean scores. For example, developing Arabic lessons by designing informative flash animations scored only 1.18 out of a possible 5; developing Arabic lessons by designing informative digital video productions scored 1.21 (Table 5.10); using an iPod or iPad/tablet in the classroom scored only 1.27, and using the students their own computer in the class scored 1.35 (Table 5.7). It should be noted however, as shown in Tables 5.7, 5.8, 5.9 and 5.10, the software programs required to conduct these types of activities were reported to be generally not available. This would explain why these activities are not widely engaged in.
Table 5.10  Development of new material for Arabic language lessons

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing Arabic lessons by designing informative flash animations.</td>
<td>1.18</td>
</tr>
<tr>
<td>Developing Arabic lessons by designing informative digital video</td>
<td>1.21</td>
</tr>
<tr>
<td>productions.</td>
<td></td>
</tr>
<tr>
<td>Creating/using Arabic animated cartoon presentations that demonstrate</td>
<td>1.39</td>
</tr>
<tr>
<td>real world interaction by using specific programs.</td>
<td></td>
</tr>
<tr>
<td>Use digital camera to create a video clip of some scenes such as based</td>
<td>1.40</td>
</tr>
<tr>
<td>on of subject, use digital camera with video capability in the Arabic</td>
<td></td>
</tr>
<tr>
<td>subject.</td>
<td></td>
</tr>
<tr>
<td>Create an interactive Arabic test by using interactive learning modules</td>
<td>1.48</td>
</tr>
<tr>
<td>to improve students’ conception in their Arabic subjects.</td>
<td></td>
</tr>
<tr>
<td>Developing Arabic lessons by designing informative web pages.</td>
<td>1.58</td>
</tr>
<tr>
<td>Developing Arabic lessons by designing informative power point.</td>
<td></td>
</tr>
<tr>
<td>Create an interactive Arabic quiz by using interactive learning modules</td>
<td>1.58</td>
</tr>
<tr>
<td>to improve students’ conception in their Arabic subjects.</td>
<td></td>
</tr>
<tr>
<td>Create web-quests (e.g. live web conferences) providing lessons relevant</td>
<td>1.65</td>
</tr>
<tr>
<td>to Arabic subjects for all quest, or build the internet into a lesson.</td>
<td></td>
</tr>
<tr>
<td>Create models resembling the original, using technology and encourage</td>
<td>2.44</td>
</tr>
<tr>
<td>and motivate students to do so.</td>
<td></td>
</tr>
</tbody>
</table>

5.4.1 Use of computers and software

Given the importance of computers and the software programs which operate on them, it was pertinent to ask the Arabic language secondary school teachers about not just the availability of computer and software resources, but the utilisation of those resources. This section reports the findings from four questions asked in this regard. The first question asked what types of software programs are actually used by teachers for teaching purposes. The second and third questions ask about whether teachers have regular access to the use of a computer at home and at school respectively. Finally, the fourth question asks respondents about how useful it to have access to the use of a computer at school.

With respect to the first question, respondents were presented with a list of software programs to choose from. They responded by indicating if they used each type of
software in their teaching (if they did not use a certain type of software then they did not respond to this item).

From the information supplied in Table 5.11, the information about type of software programs respondents used for teaching shows that MS PowerPoint was by far the most used software program with 68% of respondents indicating that they used it. This far outstripped any other kind of software program. The next most commonly used type of software program used for educational purposes was email (23%), Internet sites (21%) and the use of MS Word (18%). Less than a quarter of respondents used these types of software. Other types of software were used even less than that.

<table>
<thead>
<tr>
<th>Software Programs</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS PowerPoint</td>
<td>68%</td>
</tr>
<tr>
<td>Email</td>
<td>23%</td>
</tr>
<tr>
<td>Internet sites</td>
<td>21%</td>
</tr>
<tr>
<td>MS Word</td>
<td>18%</td>
</tr>
<tr>
<td>Your own website</td>
<td>15%</td>
</tr>
<tr>
<td>Specialist subject program e.g. the Arabic language</td>
<td>11%</td>
</tr>
<tr>
<td>Graphics/drawing packages</td>
<td>9%</td>
</tr>
</tbody>
</table>

The second question asked was ‘Do you have regular access to a personal computer for yourself at home?’ Responses of the secondary school Arabic teachers to this question were highly positive. 79% of the respondents answered that they did have access to a personal home computer. Only 5% stated that they had no access to a personal computer at home. 16% did not provide a response. The next question, ‘Do you have regular access to a personal computer for yourself at school?’ revealed a different pattern of responses. Only a minority of respondents (17%) indicated that they did have access to a personal computer for themselves in their workplace. 65% of teachers indicated that they did not have access to a computer for their own
personal use. 18% did not provide response. There was a disparity between the availability and use of personal computers ‘at home’ versus ‘at school’ for Arabic language teachers.

The final question in this section of the questionnaire was a subjective evaluation on the part of the respondents about the usefulness of having access to a personal computer for oneself at school. Since the vast majority of the teachers sampled appear to not actually have access a personal computer at work, the question was effectively hypothetical in nature: ‘How useful is it (or would it be) to have access to a personal computer at school?’ The overwhelming majority of respondents (73%) indicated that they believed it would be ‘very useful’ to have access to a personal computer at school. A further 15% believed it would be ‘somewhat useful’. Only 12% of Arabic language teachers claimed that it would be ‘not very useful’ to have access to a personal computer at work.

These responses have to be seen in the context of the questions that follow about the access to computers. The responses to the second two questions reveal that 79% of teachers use a computer at home but only 17% of teachers have access to a computer in their schools. This suggests that their use of the software programs indicated is largely limited to using them in the home context because of a lack of access to personal computers in their workplaces. It is also fairly clear that the teachers do not regard this as a satisfactory state of affairs because their responses to the final question about the worth of having access to a computer at school is highly positive – almost 73% of the respondents said that having a computer at school would be useful.

5.4.2 Summary

This section has reported on the results of teachers responses to questions about the use of educational technology. Special attention has been given to computer-based technology. First, respondents were asked about activities that involved the use of technology in some way. These activities were grouped into four types: directly related to Arabic lessons, not directly related to Arabic lessons, administrative tasks, and innovations for use in Arabic lessons. It was found that technology was most
commonly used for administrative purposes related to their work. This was followed by the use of technology (especially computers) for education purposes but not directly related to Arabic language. Next, the use of technology and especially modern technology by teachers for direct use in the teaching of Arabic was the next most popular category. Finally, tasks requiring the use of creative abilities of the teachers had the lowest scores. This suggests that educational technology is being used for specifically educational purposes, but is being done in a largely derivative fashion – that is, in a way that involves little innovation on the part of teachers. It is not clear as to why there is a lack of innovative use of educational technology by Arabic language teachers, but it may be due to a lack of training in potential capacities of the available technology or a lack of role models upon which to draw. It may also be that some kinds of technology – especially computer-based technology – are not available in a way that would facilitate creative work in this regard.

This view may be supported by finding that although most teachers questioned had good access to personal computers for their own use, they did not have that same level of access in their workplaces. Thus it may be the case that there is little scope for individual experimentation and creativity in the teaching context in part because personal computers necessary for such experimentation are not widely available in school.

5.5 Perceived function of and reasons for using educational technology

The final two questions were about how teachers perceived educational technology. One question asked about the perceived purpose of educational technology. The other asked about teachers’ personal motivations or reasons for taking up educational technology.

5.5.1 Purpose of educational technology

The first question asked what teachers see the function or purpose of educational technology as being. This helped to gain an understanding of how teachers imagined the place of educational technology in their wider pedagogical practices: was it
central, or was it peripheral to their work? The responses are presented in Table 5.12. With respect to this question, respondents were presented with a list with purpose(s) of educational technology utilisation to choose from.

The most common purpose or function for educational technology identified by the teachers was as tools to reinforce the existing curriculum. In other words, 45% of respondents viewed educational technology as an additional facilitator of the existing content and as an addendum to the main existing methods of conveying information to students. Thirty-six percent of respondents saw educational technology as playing a greater role than that: they saw it as a means of supplementing the existing curriculum by being a source of additional information, and as offering different means of delivery (chiefly audio-visual) to the existing methods.

Table 5.12 Perceived purpose of educational technology

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>A reinforcement of the curriculum and theories evidentiary, e.g. practical applications and for conveying information in a different way.</td>
<td>45%</td>
</tr>
<tr>
<td>A supplement to the curriculum, i.e. video, pictures, sound, etc.</td>
<td>36%</td>
</tr>
<tr>
<td>A part of the curriculum.</td>
<td>24%</td>
</tr>
<tr>
<td>A method of continuous teacher-student communication.</td>
<td>23%</td>
</tr>
<tr>
<td>A method of student-student communication.</td>
<td>16%</td>
</tr>
</tbody>
</table>

Only 24% of the respondents saw educational technology as fully integrated into – as part of – their curriculum. As to educational technology’s role as a facilitator or means of communication (such as email and social media on the internet), it would appear that the vast majority of respondents did not see educational technology as serving this purpose. Only 23% saw it as providing a means of teacher-to-student communication, and only 16% saw it as a means of student-to-student communication. This last result is curious because it would appear to be the case that social media via the internet and mobile phone is in fact becoming the predominant means by which students communicate with each other.
5.5.2 Motivation for using educational technology

Arabic language teachers were asked about their personal reasons for using educational technology in their teaching. The responses revealed the subjective motivations underlying the use of educational technology (assuming it is available to teachers). Respondents were required to score their motivations according to pre-set options (including an ‘other’ option) using a Likert scale that ranged from 1 = ‘unimportant’ to 10 = ‘very important’.

Table 5.13 Reasons for using educational technology

<table>
<thead>
<tr>
<th>Reason</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method for improving and developing teaching.</td>
<td>4.53</td>
<td>2.712</td>
</tr>
<tr>
<td>Effective method to convey information.</td>
<td>4.72</td>
<td>2.58</td>
</tr>
<tr>
<td>Professional way of teaching.</td>
<td>4.85</td>
<td>2.557</td>
</tr>
<tr>
<td>To keep abreast of advancement in educational technology.</td>
<td>4.89</td>
<td>2.591</td>
</tr>
<tr>
<td>To catch up with developed nations.</td>
<td>4.91</td>
<td>2.931</td>
</tr>
<tr>
<td>Change of class routine to maintain interest.</td>
<td>5.12</td>
<td>2.496</td>
</tr>
<tr>
<td>To avoid technological illiteracy with respect to educational technology.</td>
<td>5.71</td>
<td>2.681</td>
</tr>
<tr>
<td>Make use of available equipment.</td>
<td>5.91</td>
<td>2.209</td>
</tr>
<tr>
<td>Pressures to change from students, peers, and parents.</td>
<td>6.9</td>
<td>3.022</td>
</tr>
<tr>
<td>Other reasons.</td>
<td>7.55</td>
<td>3.296</td>
</tr>
</tbody>
</table>

From Table 5.13, there were a range of other reasons for using educational technology not listed in the table of options. This was indicated by the fact that the highest score was ‘other reasons’. Nonetheless, of the options available, from which teachers could respond, the reason with the next highest average Likert score of 6.9 was about external pressures from peers, students and parents to introduce and use modern technology in teaching practices. A motivation for taking up educational technology that may be psychologically similar in that it involves a kind of peer
pressure is: avoiding being judged as a technological illiterate. This similarly scored fairly highly with an average Likert score of 5.71. A different kind of motivation that scored middle was simply the desire to make use of the technology that was available in their schools. This reason scored an average of 5.91. As to motives that were strictly pedagogical in nature, these did not score so high, but they did not rank as completely ‘unimportant’. These motives included using educational technology as a means of improving and developing their teaching (scored 4.53) and seeing educational technology as an effective method to convey information to students (scored 4.72).

5.5.3 Summary

With regard to the personal perceptions of the Arabic language teachers who responded to the questionnaire, the most prominent results were the following. The most common perception of the function of educational technology was that it was a means of supplementing the existing curriculum in terms of content and methods of delivery rather than being integral to it.

As to the motivation for using educational technology, it was found that the main reason for adoption was external pressure upon teachers from peers, students and parents, rather than being due to perceived intrinsic pedagogical value of the technology.

5.6 Conclusion

Chapter 5 presented the questionnaire findings of 100 Arabic language teachers’ in secondary schools in Riyadh. It presents the data related to (i) the key demographics of the Arabic language teachers who responded, (ii) the availability of educational technology, (iii) the use of educational technology, and (iv) the perceived purpose of and the motivation for adopting modern educational technology.

With respect to selected demographics, an interesting profile of Arabic language teachers emerged: the average respondent was relatively young (aged 24-30), fairly experienced, and credentialed. This profile alone would suggest that Arabic language
teachers would be better placed than average to utilise modern technology in educational practices: both relative youth and education being markers of technological sophistication. This inference was supported by the finding about the perceived skills of the respondents.

Most Arabic teachers claimed to possess at least ‘intermediate’ skills when it came to the use of modern educational technology. These teachers also seemed to be highly motivated to obtain these skills because it was found that they actively sought to improve their own skills by either taking advantage of publicly funded training courses or funded their own training privately.

The primary stumbling block to the utilisation of these skills seems to have been the problem of the availability of modern educational technology in schools. Although it was found that computers, printers, and computer laboratories were widely available in secondary schools in Riyadh, a closer examination of the data revealed that this finding could be misleading if taken to be an indicator of accessibility of modern technology for actual use in classrooms.

This sceptical conclusion is supported by other findings from the questionnaire. When asked about how educational technology was actually used in schools, most teachers reported it to be used mainly as a means of preparing material for the classroom – not for extensive use in the classroom itself. The fact that educational technology, especially computer-related technology, was not reported as being extensively used immediately in classroom instruction could be explained from another finding: although most teachers had access to personal computers at home, few of them had easy access to their own personal computer at school. The vast majority of respondents indicated however, that it would be beneficial if they had access to personal computers at school. This may result in greater innovation in the development of the use of educational technology, which was reported to be relatively low compared to other uses (such as use in lessons and administration highest usage here).
Nonetheless, one must be careful about drawing firm conclusions about the motivation for teachers wanting personal computers in the workplace. This is revealed in the final section of the questionnaire which asked about Arabic language teachers’ reasons for utilising whatever educational technology was available. The majority of respondents saw the purpose of educational technology as one that would only reinforce or assist in the delivery of the existing curriculum, rather than affecting its content. Further, it would appear the motivation predominantly came from external pressure on teachers from parents, students and peers rather than being a pro-active motive on the part of teachers themselves (Table 5.10). Chapter 6 embarks on analysing the interview findings with Arabic secondary schools teachers in the Riyadh governorate.
CHAPTER 6:
FINDINGS OF THE INTERVIEWS

6.1 Introduction

Chapter 6 presents the results of eight structured interviews with Arabic teachers in secondary schools of Riyadh governorate (Heberlein & Baumgartner, 1978). The aim is to understand respondents’ perceptions and use of educational technology when teaching the Arabic language in secondary schools in Riyadh. Pre-set closed questions were used in the interviews. The purpose of the questions was to gain more data about the utilisation and availability of educational technology. The eight respondents’ profiles which contained their demographic data including their qualifications and ages form the basis from which to understand the interviewees’ perceptions about the use and availability of educational technology. These perceptions are important because they assist in better understanding the current status of educational technology utilisation by teachers of the Arabic language in secondary schools in Riyadh.

6.2 Respondents and their characteristics

Structured interviews were conducted with eight of 100 male participants in order to gain information regarding the utilisation and availability of educational technology in secondary schools of Riyadh Governorate. Their names are: Saud, Abdullah, Rakan, Khalid, Mazan, Mishary, Fahad and Abdulrahman. These eight participants reflect the socio-economic diversity of Riyadh’s educational environment. Variation in the socio-economically status of the interviewees is important for this study because such status tends to embody differences in social, cultural, and economical factors related to the technology utilisation by teachers (Kemker, 2007). Regarding the regional presentation, Saud and Abdullah were working in the poor areas of Janadriah and Alencim respectively, which are characterised by low access to technology. These areas can be contrasted with the rich urban areas with high access to information and communications technology such as Alalia and Ghadeer where Rakan and Khalid worked. The differential status of these two groups was also
reflected in the status of the school buildings: whereas Saud and Abdullah were working in rented school buildings, Rakan and Khalid were working in government owned buildings. The other interviewees, Mazan, Mishary, Fahad and Abdulrahman were also teaching in government owned buildings in middle-income areas. For example, Mazen was working in the Al Rayan suburb, Mishary was working in the Alrodh area and Fahad and Abdulrahman were working in the suburb of Yarmouk. This variation in school building status is important for the study since it directly reflects the infrastructure status and could limit the governmental support for many schools, since a part of its designed budget is distracted for building leasehold. Across the eight teachers, all taught different grades in secondary school, and had different levels of experience and qualifications in teaching (see Table 6.1).

### Table 6.1 Characteristics of the teachers (pseudonyms used)

<table>
<thead>
<tr>
<th>Name</th>
<th>Age range</th>
<th>School</th>
<th>Teaching Level</th>
<th>Qualification</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fahad</td>
<td>24-30</td>
<td>Tariq ibn Ziyad</td>
<td>1-2-3</td>
<td>Undergraduate degree</td>
<td>8</td>
</tr>
<tr>
<td>Khalid</td>
<td>24-30</td>
<td>Othman bin Affan</td>
<td>1</td>
<td>Master degree</td>
<td>6</td>
</tr>
<tr>
<td>Mazen</td>
<td>24-30</td>
<td>Omar ibn Al khattab</td>
<td>1-2</td>
<td>PhD</td>
<td>7</td>
</tr>
<tr>
<td>Abdullah</td>
<td>31-40</td>
<td>King Abdullah</td>
<td>1-3</td>
<td>Undergraduate degree</td>
<td>10</td>
</tr>
<tr>
<td>Rakan</td>
<td>31-40</td>
<td>Saad bin waqas</td>
<td>1-2</td>
<td>PhD</td>
<td>16</td>
</tr>
<tr>
<td>Mishary</td>
<td>31-40</td>
<td>Omar ibn Abdul-Aziz</td>
<td>3</td>
<td>Undergraduate degree</td>
<td>13</td>
</tr>
<tr>
<td>Abdulrahman</td>
<td>31-40</td>
<td>King Khalid</td>
<td>2</td>
<td>Undergraduate degree</td>
<td>14</td>
</tr>
<tr>
<td>Saad</td>
<td>41-52</td>
<td>Almutanabi</td>
<td>3</td>
<td>College degree</td>
<td>15</td>
</tr>
</tbody>
</table>

As Table 6.1 shows, the age of respondents ranged between 24 and 52. Seven out of eight were under 41 and three of the eight respondents had postgraduate qualifications. Four respondents had undergraduate qualifications and one respondent had college qualification which is two years diploma.
6.3 Interview findings

The interview analysis aims to provide a more in-depth view of some of the topics asked about in the questionnaire because they give opportunities for discussion and clarification of themes where the questionnaire does not give space for extended responses.

Miles and Huberman (1994a) identified that four steps of analysing qualitative data collected through the interview were followed. Firstly, sentences were translated from the Arabic language to English. The second step was printing the transcripts, reading and re-reading them in order to gain familiarity with them. (Bhattacharya, 2007) stated that the use of coding to data management was the third step. This is where the researcher breaks down large chunks of data in manageable sizes by assigning a label that is cognitively relevant for the study. Data was coded and categorised by using themes derived from the research questions. Lastly, the fourth step was to summarise the data and relate them back to the research questions (Denscombe, 2007; Miles & Huberman, 1994b; K. Punch, 2005).

To assist with reading Section 6.4, headings are designed to be consistent with the study’s research questions, whereas subheadings convey the overall themes of the tables and the figures. The title of each table or figure is the sub-question asked in the interview. The tables and figures present the data which emerged from the interviews.

6.4 What educational technology is available in your school?

This question aimed to find out types of educational technology available in the schools. To find this out, two sub-questions were asked.

The first question was:
6.4.1 What educational technologies are available in the school?

Figure 6.1 represents respondents’ answers about the availability of educational technology in secondary schools in Riyadh. Four categories of educational technology were identified in the data: (i) electronic technologies; (ii) audio visual technologies; (iii) digital technologies; and (iv) other. These categories were further subcategorised into the types of technologies associated with each category (Figure 6.1).
Figure 6.1  Availability of educational technology in secondary schools in Riyadh
All respondents mentioned the availability of the electronic technologies of
computers, electronic whiteboards and data projectors. Also, all respondents
mentioned audio visual technologies available were overhead projectors, TVs, audio
cassettes, radios, and video players – although only three mentioned the audio visual
technology of DVD players. The digital technologies referred to by interviewees were MP3 players (3 mentions) and cameras (4 mentions). Finally, in the category of ‘other’ technologies, printers were the only type mentioned by interviewees, although it was referred to by all eight interviewees.

Most of the interviewees noted that it was modern types of educational technology that were available to them. Indeed, it was only DVD players, MP3 players and digital cameras that were not mentioned as being available by all of the interviewees. This would suggest that from the perspective of the interviewees, the availability of modern educational technology was not a serious problem for them. In fact, the educational disadvantage from not having DVD players and digital cameras in a school might be fairly insignificant because DVD players are becoming increasingly obsolete and because digital cameras would play a relevantly limited role in the teaching of language.

The second question was:

**6.4.2 What is the location of computers for students in the school?**

Interviewees were asked this question in order to know the availability in the school of computers.

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>8</td>
</tr>
<tr>
<td>Classroom</td>
<td>5</td>
</tr>
</tbody>
</table>

All respondents said that they had access to computers in the laboratory, but only five said that their classrooms had computers. One teacher said:

I do my Arabic lessons in different places such as the classroom and the laboratory because these are the places where the school provides computer for each student. I
personally like to explain the lesson in the classroom more than laboratory, because when I want to explain the subject in the laboratory, students have to move from the classroom to there, thus it was too messy for them and they were not familiar with laboratory. They sometime forget some material regarding the subject, so they have back to classroom to bring it. It can upset the mood of the class, which means less learning can get done (Khalid).

Computers in the laboratory were greater in number than computers in the classroom. Nevertheless, it seems clear from the interviews that having computers in laboratories in not an ideal state of affairs. Moving between rooms can be disruptive to the students’ learning, and since the laboratory is effectively a new environment, students are not as comfortable or familiar with it. It would seem that it be more advantageous to the learning environment to have computers in the classrooms. It should be noted however, when comparing this result with the questionnaire results, that having a computer in the classroom is very different from each student having a computer in their classroom. The location of a computer may not be as important of the number of computers available in a classroom, as discussed in Section 7.2.

6.5 How have teachers of the Arabic language used educational technology in secondary school in Riyadh?

The interviewees were asked this question to obtain information about their reasons for using educational technology in teaching. To find this out, five sub-questions were asked.

The first question was:

6.5.1 Which kind of educational technology do you use in the classroom?

This question was asked to determine what was actually used in the classroom in comparison to what was available in the school.
Figure 6.2 shows the types of educational technology used by teachers in the classroom. From the responses of the participants, the educational technology used was categorised into ‘old’ technologies and ‘modern’ technologies. *Old* technologies were overhead projectors, audio cassettes, radios and TVs. *Modern* technologies were computers, internet, data projectors, DVD players and electronic whiteboards. Of all the different types of educational technology (both old and modern), there were only three that were used by all interviewees. One of them was ‘old’ technology – namely, overhead projectors. The other two were ‘modern’ technology: they were data projectors and electronic whiteboards. It is worth noting that overhead projectors, data projectors and electronic whiteboards categories have some important features in common. First, they are all ‘inherently public’ (or non-exclusive), which means that they present material to all students in a class simultaneously (Inc, 2010; Journal, 2011). Second, they can be used by the teacher in the classroom (Alihula & Alihula, 2012). Expressed differently, none of the other types of technology possess both of these characteristics, so that all the other kinds of technology either cannot be accessed by all students simultaneously (such as a computer or the internet) thus rendering the technology inefficient when time is limited, or would render the teacher passive (as with TV or radio).
All interviewees in this study (Saud, Abdurahman, Khalid, Abdullah, Mishary, Maza, Fahad and Rakan) used data projectors, electronic whiteboards and overhead projectors, which are technologies used by the teacher (Reedy, 2008). Rakan commented:
When I want to explain the subjects in the classroom, I use many technologies suitable for lessons such as camera, TV, radio, audio cassette, data projectors, computer, CD, internet and DVD player.

The overhead projector as an old technology was mentioned in the interviews by all respondents. This type of technology is well known for the teachers due to the teachers’ familiarity with it, its usefulness in providing information to a class quickly and clearly, and also due to its ease-of-use. As Rakan stated:

*The overhead projectors are useful to me because they save time and because I don’t have to write a lot of material on the whiteboard. I can also write the material clearly and neatly before the class then I can just project it in class. The process is very simple and easy. Overhead projectors are one of the old technologies which had been used in teaching the Arabic language for a long time ago. That’s why they are commonly used.*

Of the modern technologies, data projectors and electronic whiteboards were the most common since teachers of Arabic language preferred to use these techniques in line with the level of technological sophisticated reached by their students in their personal lives. Five respondents, Khalid, Abdullah, Mishary, Maza and Rakan said they used CDs and computers, although students were not given free rein to use these technologies as they saw fit. Their behaviour was always regulated by teachers, indicating that teachers were fully aware that this technology could just as easily be a distraction as a tool of teaching. As the interviewee Rakan said:

*When students used the computer to study the Arabic language, some students neglected the lesson to play with other programs such as paint program during the lesson. However, they were under the supervision of the teacher of the Arabic language, thus they could not open any website or program which had not been approved by me.*

This could be significant because it may reveal that whenever available technology is up-to-date, it will be used by teachers, as explained by the other respondents. Three respondents, Abdullah, Fahad and Rakan said that they used a video camera to record students’ speech in order to identify certain types of the grammar in the lesson. Fahad stated:
I have used technology to explain the lessons by using the camera in order to record some sentences of the students which specialised in explaining the topic of the lesson with my comments on each sentence by correcting the grammar for students.

This again indicates that the teachers were not afraid to engage in new, non-traditional forms of language instruction if the technology is available to them. Two respondents, Rakan and Mazan, said that they used Internet in their teaching practices, which they used to gather new resources which they could use in lessons. Given that teachers are not strictly required to gather new language resources because prescribed textbooks, this behaviour suggests that if the technology is available teachers will utilise it despite it not being mandatory to do so.

Furthermore, audio cassettes, radios and DVD players were less interesting for the interviewees. This data is interesting because it suggests that these items of technology are not common. Khalid, stated:

*I hesitated when using specific educational technologies audio cassettes, radios and DVD players that they are useless now since they are replaced by other more efficient technologies.*

It is possible that this is because although this technology is relatively sophisticated compared to, say, whiteboards, in the information age which are likely to be classified as ‘out of date’. For example, although DVDs are recent inventions and technologically sophisticated in recent years, they have been superseded by USB technology, thus have severely declined in usage (Bingimlas, 2012).

Finally, these findings suggest that although teachers are willing to embrace modern technology in the classroom, they have not been willing to embrace the notion of autonomous student learning. It would seem that at least some interviewees were not comfortable giving up their control of the classroom and allowing students to direct their own learning process (Hillman, 2014). For example, the interviewee Saud pointed out:
When I use educational technology in teaching students the Arabic language, I do not trust the students to be able to learn on their own through the use of technology. Because students have a lack of confidence in receiving the learning on their own.

The second question was:

6.5.2 Why are you using educational technology in your teaching?

Figure 6.3 presents participant responses about the reasons for using educational technology in teaching the Arabic language. From the interviews, it became clear that teachers used educational technology in their teaching for several reasons. The respondents were asked to choose three different reasons for using educational technology in their teaching in secondary schools in Riyadh: (i) educational; (ii) communication; and (iii) efficiency.

First, there were educational reasons to use technology. A number of respondents believed that the most significant reason for using educational technology in schools was that they assisted:

The students [to] understand the topic faster than traditional methods. Further, when I used educational technology such as computer and mobile devices, they helped me to get knowledge any time and from any place inside the schools or outside and they assisted me to response to questions of students. (Abdullah)

Three respondents confirmed that there are four other educational reasons for using educational technology. These included encouraging researching and reading; assisting inventive, cooperative education; and improving skills.

One respondent also mentioned that an educational reason behind using educational technology was to foster independent learning in students. Khalid, pointed out:

Computers provide an independent educational environment for students and teachers. When the students are exposed to new information, the internet especially enables students to explore that information by themselves in more detail and in ways that are interesting to them. In this way, the students can become much more interested in the topic than before.
Next, two respondents offered communication reasons for using educational technology, which included sending tasks to students by email and professional learning. Mazan said:
When computers were introduced into our school, it gave me greater freedom to interact with my students on a daily basis. I could send them homework at short notice. I could send students’ their test results to their home email as soon as their exams had been marked.

Finally, three respondents, Mazan, Abdullah and Rakan, mentioned that there were efficiency-based reasons for using educational technology, which included saving time and effort in class and for preparing lessons. Abdurahman believed that:

The students can gain information at the same time and the teachers can waste less effort and time. For example, I can prepare a lesson about grammar using PowerPoint software which uses a lot of standard sentences and rules. These would normally have to be hand written on the blackboard over and over again for each class. But with PowerPoint, I don’t have to write them out repeatedly. This leaves more time in the class for discussion about the grammatical rules so that students can learn them more effectively.

In sum, these data indicate that there are three reasons for using educational technologies in the classroom by teachers of the Arabic language including educational,; (ii) communication; and (iii) efficiency. However, the educational reason was the most common, suggesting that modern educational technology was more than an ancillary to the administration of teaching. As per Research Question 6, these interviews suggest that the teachers placed a fairly high degree of importance on the use of modern educational technologies in particular – and did not highly value older technology. Regarding Research Question 7, some of the interview responses also suggested that the immediate motives of teachers were to improve the educational experience of their students, even though it sometimes gave rise to difficulties (such as class disruption, or misuse of the equipment by students).

The third question was:

6.5.3 What are the advantages of the introduction of educational technology in teaching the Arabic language?

Participant responses to this question covered three categories: (i) teachers; (ii) students; and (iii) technology.
Figure 6.4 presents data about what the respondents see as the advantages of introducing educational technology in teaching the Arabic language. The first advantage was related to teaching, the second for students and the third one for advantages related to technological advancement.
There were strong advantages expressed about introducing educational technology in teaching the Arabic language. Eight respondents, Rakan, Khalid, Mazan, Abdurahman, Abdullah, Mishary, Fahad and Saud, suggested technology would assist with controlling the classroom which helps students to focus on the topic. Rakan said that:

> When students used the computer to study a topic of Arabic, some students neglected the lesson in order to play with other programs, such as the paint program during the lesson. However, since they were under the supervision of the teacher, at least they could not open any website or program which was not recommended by the teacher. Because access to programs on the computer was quite limited and under my control, it means it is easier for me to control the students’ behaviour too.

Two teachers argued that technology was helping solve problems of monitoring students’ learning behaviour. Rakan stated:

> When I explain a topic to students using modern technology, I am confident that everyone gets the same knowledge at the same time. For example, when I put information in a video on YouTube I can check how many students watch and re-watch that video. I can also check who makes comments on the video.

Two teachers also stated that the technology gave them confidence largely because it enabled them to have pre-prepared material to show to students. Khalid stated:

> I like to use presentation software like PowerPoint because I can type up my lessons in a complete way where nothing it missing or forgotten from the lesson. This is better than just talking – like giving a speech – because sometimes I forget some of the topic material and I lose confidence. But using the presentation software I don’t lose confidence.

All respondents mentioned that technology was advantageous because it facilitated the supply of knowledge for students. Abdurahman believed:

> I noticed that the use of educational technology in teaching, especially during the teaching of literature that students want to look for more information on the name of the poet and personal life. Thus, technology helped students to get additional information about the lesson.
Five respondents, Khaild, Mazan, Fahad, Rakan and Abdullah believed that technology was appropriate for each student and four of them said, Khaild, Mishary, Rakan and Abdullah that educational technology would assist the education of students. Abdullah said:

> When I explained the lesson by educational technology, especially computer software like PowerPoint or a video from the internet, I see in the faces of the student’s attention to the topic of lesson. They are also more enthusiastic to interact with me and their participation in the lesson. When this happens I feel relieved about using the new technology.

Respondents mentioned some technological advantages about introducing educational technology in teaching. Three respondents, Saud, Abdurahman and Khalid believed that technology was helping to create new methods of teaching, but only one respondent suggested that technology was life-changing. Saud stated:

> I began teaching students by the traditional way which has been used in the classroom, but as new technology has emerged at home and at school, my teaching methods have had to change to keep pace with the times. I believe that new teaching methods can change the whole way education happens. New technology like the internet and mobile hand-devices could break down the barrier between home and school. Maybe in the future students will do a lot of their learning at home. Maybe the teachers will not go to classrooms in the future – instead they would just go to their computers to communicate with students and to have lessons with them.

Modern technology has many functions relative to old technology. For this reason, it would appear that modern technology contains more advantages in use than old technology. These advantages tend to cluster around the advantages to students in particular. Mishary stated:

> When explaining the lessons using modern educational technology in the classroom, students were more interactive and participated more in the learning process which indicated their understanding for the topics was improving.
Again, this suggests that the interviewees tended to see modern educational technology as being predominantly serving the interests of students by providing new tools for learning. Rakan said:

*Using the internet and email has been beneficial to my students because they could communicate with me by email and I could also answer them more quickly.*

The fourth question was:

**6.5.4 How are you currently using educational technology in your teaching?**

This question was asked to determine the current teachers’ usage of educational technology and examine the change in the purpose of educational technologies usage. The assumption was that using educational technology in teaching would influence the methods of teaching the teachers used in the classroom.

Figure 6.5 shows the educational purposes that Arabic language teachers assigned to the technology they used. Five categories of function or purpose were identified in the data. These were: (i) providing examples; (ii) explaining subject content; (iii) adding information; (iv) recording marks of students; and (v) providing feedback.

With regard to the function of *providing examples* to students in the classroom, the following types of technology were noted as being used: electronic whiteboards (mentioned four times), overhead projectors (mentioned four times) and computers (mentioned twice). For the function of *explaining content* to students, computers, overhead projectors, data projectors and CDs were all mentioned seven times. With regard to the educational function of adding extra information into the curriculum, the following type of technology was use: computers, data projectors and electronic whiteboard (stated five times). Further, the computer was identified three times as being used to ‘provide feedback’ function. Mazan stated:

*I used the computer to get feedback from students by introducing review questions in grammar lessons and allow the students to solve the questions*
The program installed on the computer allows the students to know if the answer is correct or not by the visual sign of Right or Wrong that appears on the screen.
It can be noticed that a variety of different types of technology are used both to satisfy a single function and across a variety of functions. The variation in usage reflects the variety in the types of technology that are now available for use, and indicates that different types of technology can be used in multiple ways – that is, one type of technology (say, computers or data projectors) is not naturally restricted to satisfying a particular educational function. These technologies are thus flexible in their use. The only exception to this observation is Microsoft Excel software, which was mentioned by five respondents as only serving the function of recording students’ marks, but not related to the subject content or feedback purposes, neither for adding information for the curriculum. Khalid said:

*I use computer, whiteboard and data projectors to add information and to get feedback from students, I also use program of MS EXCEL to record names and marks.*

Clearly a range of functions were satisfied by a variety of types of modern technology. It is noteworthy that for the interviewees, the most common functions cited were educational in nature –more than being administrative – namely, delivering set subject content and providing additional information. Again, this suggests that the interviewees conceive of modern educational technology as not merely adjunct administrative tools, but as being integral to the teaching process, especially as it relates to the delivery of substantive material for students to learn. Mishary stated:

*I don’t just use computers to keep attendance records and grades. I use computers to explain the lesson of Arabic language in the classroom. I use it with data projections to give presentations, to show students video clips from the internet, and to show them writing styles that are different on the internet.*

The fifth question was:
6.5.5 What factors affect utilising educational technology in teaching the Arabic language?

This question was asked to determine if the teachers face any obstacles when using educational technology in the school.

Figure 6.6 presents factors which effect the utilising of educational technology in teaching the Arabic language in secondary schools in Riyadh. There were several factors affecting the utilising of educational technology in teaching. Three categories of factors affecting the use of educational technology were identified in the data i) professional development; ii) computer hardware and software; and iii) financial.

All respondents mentioned that important factors of professional development that affected the utilising of educational technology in teaching were less training. Khalid stated:

_When Ministry of education has introduced new devices, I was feel want more training to deal with them._

Two respondents also clarified that there were two factors of affected the utilising of educational technology such as no ability, Saud stated:

_When I try to use specific types of technology, I feel I need a little direction regarding operating and use of these educational technologies._

And no confidence, for instance Fahad stated:

_When I use educational technology in the school, I afraid to get trouble with using old programs._

All respondents believed that significant factors of computer hardware and software that affected the utilising of educational technology in teaching were no maintenance and no materials of computer. Fahad stated:
When I use educational technology in the school, I am afraid to get trouble with using old program such as slowly program or technology stop working.

Three interviewees, Saud, Abdurahman and Khalid stated that there were three factors affecting the utilisation of educational technology including old program, and insufficient technological equipment in the classroom environment. Abdulrahman stated:

The lack of enough devices in the school and the rare maintenance actions are barriers for using educational technology. For example, I was going to use a computer to explain Arabic language grammar lesson, but unfortunately I could not find a mouse for the computer. I asked the director of the school to provide it with a mouse but he told me that we have to follow a routine procedure by asking the ministry of education to support us with computer accessories which will take about a month or more to be done.
Eight respondents stated that there was more than one factor that affected the utilisation of educational technology (namely, less training, no maintenance, no materials of computers and no subsidizing). Abdullah stated:

*The insufficient training and computer materials as well as the subsidizing issues are major obstacles towards the utilisation of educational technology in the teaching process.*
It is worth noting here that the reported factors affecting the utilisation of educational technology are largely negative in nature. That is, these factors constitute barriers to utilisation for teachers. Furthermore, all eight respondents identified some manifestation of each of the three categories (professional development, computer hardware/software, and financial) as being a negative factor. This suggests that insofar as there is a reticence on the part of the respondents to use modern technology, the barriers to use are largely external in nature – that is, as being in the environment, rather than being due to personal reservations or objections.

All of these negative factors can ultimately be traced back to government since they are the major source of funding, training activities through the Ministry of Education and logistic support for the school in term of technological equipment providing. A lack of funding for training accounts for a lack of professional development. The same goes for computer hardware/software. With the development of greater support from the Ministry of Education via such initiatives as the King Abdullah Tatweer Project, it is hoped that if this project will be applied effectively, these external barriers will be overcome in the future. Mazan stated:

*If the King Abdullah Tatweer project- which was meant by equipping the schools and educational process elements was applied in the school effectively, it would raise the level of educational technology utilisation in the teaching process.*

### 6.6 What are the differences between educational technology now and in the past?

This question aimed to find out what the differences between of technologies, usage technologies and incentives to use technologies were now, and in the past. To find this out, three sub-questions were asked.

The first question was:
6.6.1 What are the differences between educational technology used in the present and in the past? Which is better, the present or the past? Why?

Table 6.3 illustrates data about the differences between educational technology used in the past and present. From the above table demonstrated three categories: (i) technologies; (ii) methods of teaching; and (iii) reasons to use technology. These categories were divided to two subcategories: present and in the past.

<table>
<thead>
<tr>
<th>Analyses</th>
<th>Past</th>
<th>Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies</td>
<td>Blackboard</td>
<td>8 Data projectors, TV computer, overhead and internet</td>
</tr>
<tr>
<td></td>
<td>Radio</td>
<td>4</td>
</tr>
<tr>
<td>Teaching methods</td>
<td>Few users</td>
<td>3 Online learning</td>
</tr>
<tr>
<td></td>
<td>Less ability</td>
<td>2 Many users</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Many methods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Website of education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cooperative education</td>
</tr>
<tr>
<td>Reasons to use technology</td>
<td>Understanding subject</td>
<td>3 Spending less time and less effort</td>
</tr>
<tr>
<td></td>
<td>Teacher spending time and effort</td>
<td>2 Connection between students</td>
</tr>
<tr>
<td></td>
<td>Students learning by their self</td>
<td>1 Understanding subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Computer explaining subject</td>
</tr>
</tbody>
</table>

In the past, the blackboard and radio were the only technologies that were used. Four respondents stated that they currently used many technologies, including data projectors, TVs, computers, data projectors and the internet. They stated that these educational technologies which were currently being utilising were sophisticated to those in the past. Moreover, teachers believed that there were differences between the methods of teaching now compared to the past due to technological innovations. Abdullah said that:

*I am a teacher who used traditional and technological methods to explain the lessons to students. I found that the latter is a favourite for me and for my students. This is because the traditional way does not has variety methods of*
Finally, the respondents identified many reasons behind using educational technology, but there was a high degree of constancy in the types of reasons identified for using technology, whether it was in the present or the past. These compatible reasons included: the use of technology for students to understand the subject, as well as spending less time and effort in preparation and face-to-face teaching. Mishary said:

_When I explain the lessons, using the black board takes time in writing and explaining which is both exhausting and very time consuming. But when using modern technology such as electronic documents shown using the data projector, it significantly reduced the number of steps involved in teaching and so saved time and effort._

However, there were some changes over time in the reasons for using technology. In the present, the respondents identified making connections between students as a reason for utilising technology (especially computers), but this reason did not exist in the past.

In sum, respondents reported that over time there had been an increase in the abundance of technological tools available for use in the classroom. Concomitantly, there was an increase in the methods of teaching that emerged with the technological innovations. Abdurahman believed:

_The availability of data projector had motivated me to change the teaching method and shift from traditional lesson procedure to projecting a coloured slide that simplifies the concept._

This suggests that technological change can have a direct impact on the methods used. Further, there has been some change in the reasons for using the latest technology (whether in the past or the present) that is related to technological innovation itself. As noted, the reason of ‘making connections between students’ only emerged with the internet since internet service provides several networking tools such as social networking websites. Technological change has not impacted on
the reasons for using technology to a great extent. The motives of ‘saving time and effort’ and providing ‘understanding of the subject matter’ to students seem to be steadfast. It is plausible to say that these two motives are likely to be present in the future as well.

The second question was:

**6.6.2 When did you start using educational technology in your teaching and what was your opinion of it at the period?**

Table 6.4 shows data about how long ago the interviewed teachers of Arabic language started using educational technology in secondary schools in Riyadh. It also shows what their opinions were about the educational technology when they started using it. The respondents have been divided into two groups based on the lengths of their experience. The reason for this division is because there may be differences in opinions about the use of technology in different periods.

**Table 6.4 Period using educational technology in teaching and opinion**

<table>
<thead>
<tr>
<th>Started using educational technology</th>
<th>Period of experience</th>
<th>Opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>6, 7, 8, 10</td>
<td></td>
<td>Usefulness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developing ability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increasing knowledge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students like modern technology</td>
</tr>
<tr>
<td>13, 14, 15, 16</td>
<td></td>
<td>Usefulness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developing ability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increasing knowledge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students like modern technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students same education opportunities</td>
</tr>
</tbody>
</table>

Four of the teachers had used educational technology for a period of between six to 10 years, and the other four had between 13 and 16 years experience of use. As the table indicates there were a variety of reasons that teachers identified for taking up the use of educational technology.
Two respondents, Mazan and Abdurahman, from the first group (6-10 years experience) thought that using educational technology had many benefits, such as usefulness, developing ability. One respondents from the first group believed that using educational technology benefited students by providing an avenue via which they could increase their knowledge. Also this respondent indicated that students liked modern technology, which may have served as a motivator for the students to learn more. Two members of the second group (13-16 years experience) thought that using educational technology enabled students to develop their abilities. One member of the second group noticed different benefits. For instance, they said that an attraction of modern technology was it provided students with the same education opportunities, and that students liked to perform learning-tasks on computers. Fahad stated:

I have explained lessons in Arabic by PowerPoint in order to add more information about a particular base in the lesson so that all students receive the same knowledge in the classroom. Further, the students have recorded a video clip to illustrate this rule which the students really liked. They wanted to participate in the activity next time to explain the new rule in the next lesson.

The view being expressed here about equality of educational opportunities fits with the constructivist approach to education. Because constructivism is a student-centred approach, it presupposes that each student is of equal worth. Constructivism also presumes that learning in a social activity that occurs when students interact with each other (Angela, 2011). Rakan is suggesting here that modern educational technology is actually facilitating these goals of student-centred and social learning.

From the previous responses, one can make a number of inferences. First, the data indicates that teachers have been interested in and have been seeking to use new kinds of educational technology as they emerge over quite a long period of time (up to 16 years). Second, it indicates that there is not one overriding reason for using educational technology. Each age group refers to a number of reasons for taking up modern educational technology, and five reasons are identified altogether. Finally, there is only slight variation over time in the reasons for taking up modern
educational technologies. Indeed, all the reasons are the same between the two groups except that for the more experienced group, equality of educational opportunity was cited by one respondent, but this was not a reason identified by the less experienced group.

The third question was:

6.6.3 What incentives are there to use educational technology in your teaching?

Figure 6.7 shows data about the incentives behind the use of educational technology in teaching. Teachers commented on the incentives of use of educational technology. A wide variety of different incentives for using educational technology were expressed by all eight interviewees. This data indicated there were three categories of incentives use educational technology in teaching: i) skill; ii) interest; and iii) pedagogical innovation.

It was found that there were four respondents, Rakan, Mazan, Mishary and Khalid, who confirmed that forgetting books was one incentive behind using modern educational technology in teaching. Three respondents also suggested that learning by websites constituted a new and innovative style of educational technology which they were in favour of and thus provided them with an incentive to use it. Next, three respondents believed that since modern educational technology facilitated the garnering and discovery of new knowledge by students, this was an incentive to use modern educational technology in teaching. For example, Mazan reported:

*I think using modern educational technology like computers and the internet in the school is the best manner to explain subject. It gives students more freedom and it makes lessons more interesting when they bring new examples from the internet by using educational websites into class for discussion.*
Another interviewee also thought that modern technology provided the best manner to explain subject, but also went further by suggesting that it was also an excellent way of moving away from traditional teaching methods which he deemed to be both boring and requiring an undue amount of time and effort. Mazan said:
Modern educational technology changed my teaching method from traditional to technology dependent that gave significant benefits including saving time and effort done by the teacher to complete an educational task and achieve an educational goal that save time and effort.

Finally, three respondents, Saud, Abdullah and Fahad indicated that their incentive to use modern educational technology was that it increased their experience of technology and thus improved their skill set. Fahad stated:

*Using modern educational technology had developed my abilities such as when I used the video clips for many grammar lessons, every time I felt that I find new things could be added to the lesson using the computer and video creating software and the quality of the video is improving more each time.*

What became clear in general terms about the answers given by the teachers when asked about incentives is that they were actively looking for a change in the way of that they taught their subject. They not only expressed a number of reasons why they wished to take up modern educational technology. A few of them also expressed their open dislike for or disagreement with the traditional methods of teaching which tend to be associated with old types of technology from the past. It should be noted, however, that those holding such views were in the few of the interviewees. This may suggest that some teachers wish to retain something from the traditional methods of teaching Arabic, but would nonetheless like to augment it with modern technology in order to improve their skill set, to increase student interest in their subject and because it has a variety of pedagogical advantages. Saud stated:

*I began teaching students by the traditional way which has been used in the classroom, but as new technology has emerged at home and at school, my teaching methods have had to change to keep pace with the times. I believe that new teaching methods can change the whole way education happens.*

In summary, in answer to the thematic question of what the differences are between educational technology now and in the past, the general answer is that the technology in itself has changed substantially both in kind and in variety, and that this has been associated with an increase in the variety of educational practices utilised in the
classroom. However, the reasons and the incentives of using new technology were that they emerge relatively stable.

6.7 What is the best way to use educational technology in teaching the Arabic language?

This question aimed to find out method of using educational technology in the school. To find this out, four sub-questions are asked.

The first question was:

6.7.1 How often do you use educational technology in your personal life?

Figure 6.8 presents data about which educational technology had teachers often used in their life. Teachers of Arabic used many educational technology in their life for could be grouped into three categories: (i) information; (ii) social network; and (iii) organisation.

A number of teachers of Arabic language used educational technology for themselves in order to obtain information by researching and reading the internet. Further, all respondents stated that they used social networking for sending messages to each other. Three of them also used educational technology for personal purposes such as sending, chatting and interacting with friends on Facebook. Abdullah stated:

*I used educational technology such as computer and mobile devices, it helped me to get knowledge any time and from any place inside the schools or outside and it assisted me to response to questions of students.*

Fahad also pointed out:

*I use my computer many times every day to do some tasks such as reading newspaper, chatting by email or Facebook. Furthermore, I am really like to open my Facebook to see any new information special benefits knowledge which I can email it to my students.*
Finally, with respect to organisation, three teachers of Arabic used educational technology for organizing their photos. Two respondents utilised educational technology for other goals like storing contact numbers, designing pictures, and putting names. It is clear from this data that there were a variety of different purposes for using technology but the main purposes were related to education.
The second question was:

**6.7.2 In what subject/s of Arabic language do you use educational technology?**

<table>
<thead>
<tr>
<th>Table 6.5</th>
<th>Subjects of the Arabic language</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Subjects</td>
</tr>
<tr>
<td>Grammar</td>
<td>8</td>
</tr>
<tr>
<td>Literature</td>
<td>6</td>
</tr>
<tr>
<td>Writing</td>
<td>5</td>
</tr>
<tr>
<td>Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>Reading</td>
<td>1</td>
</tr>
<tr>
<td>Expression</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 6.5 has data about subjects of Arabic which teachers of Arabic language explained by educational technology in secondary schools in Riyadh such as grammar, literature, writing, rhetoric, reading and expression.

Overwhelmingly, the group of teachers of Arabic language interviewed used educational technology to explain grammar to their students. Mishary stated:

*Educational technology helped me to explain many of the materials, especially the grammar that were strain me to write examples on the blackboard and comment on them, but then I relied on technology in teaching the Arabic language.*

Six respondents Abdurahman, Khalid, Mishary, Mazan, Fahad and Rakan said that using educational technology was to explain literature. Five confirmed Khalid, Abdullah, Mishary, Mazan and Rakan that they used educational technology in teaching writing; and only three mentioned that the teaching of rhetoric was assisted by using educational technology.
The teaching of expression and reading were identified only once each. Although it is not stated by the interviewees as to why they utilised educational technology to different degrees in different subjects, one may speculate that for subjects that require a great deal of attention and effort on the part of the teacher, they tend to use educational technology more frequently. Arabic grammar is by far the most difficult subject intellectually for students to deal with. It is also one of the least intrinsically interesting subjects for students. Teachers may have used educational technology extensively in teaching this subject because they felt that they needed to use every tool that possibly could in order to convey the material and retain students’ interest. To a slightly lesser extent, the teaching of Arabic literature is also intellectually taxing on students. Again teachers may feel that it is necessary to use a variety of technological tools in order to enable students to grasp the content of the subject. Rakan said:

Arabic literature is complex, so teaching it is hard. Teaching Arabic poetry is extra difficult because it combines complex grammar and a lot of metaphorical speech. I find that if I show students lots of different ways of reading a listening to the text, they can understand it more quickly and deeply. I use reading out loud, silent reading, pictorial examples of metaphors and examples of different styles of recitations of famous versions from the internet. The new technology allows me to add to the list of things I can try with students.

The third question was:

6.7.3 Which educational technology does not have any benefit?

Table 6.6 illustrates data about educational technology participants thought was not useful in teaching the Arabic language in secondary schools in Riyadh. There were four mentioned: radio, TV, record cassette and MP3.

All of the respondents believed that radio and TV were not useful technologies in teaching. Also, three teachers said that MP3s were not useful technologies and two teachers considered cassette recorders to not be useful technology. One could infer from these responses that the remaining interviewees regarded cassette recorders and MP3s positively or took a neutral stance towards them.
### Table 6.6  Non-beneficial educational technology

<table>
<thead>
<tr>
<th>Non-beneficial Technologies</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio</td>
<td>8</td>
</tr>
<tr>
<td>TV</td>
<td>8</td>
</tr>
<tr>
<td>Cassette Recorder</td>
<td>2</td>
</tr>
<tr>
<td>MP3</td>
<td>3</td>
</tr>
</tbody>
</table>

The fourth question was:

**6.7.4 How can teachers use this educational technology without ignoring the traditional methods?**

Here the ‘traditional methods’ referred to using standard textbooks in the classroom where a typical lesson would involve the teacher reading from or explaining a section of the textbook and then all students in the class reading and doing written exercises from teacher-prescribed pages of the textbook.

Figure 6.9 shows that interviewees divided responses to the question into two categories: answers relating to students’ practices and those relating to teachers’ practices.

![Figure 6.9 Usage of educational technology without ignoring traditional methods](image-url)
All these responses are about how educational technology can be complementary with the traditional approach of using textbooks in the classroom. The various responses were about what kinds of tasks involved the combination of educational technology and the use of the traditional methods.

Two interviewees believed that students could combine educational technology with use of the textbook to engage in researching activities, whereas there was one response each for the complementary of the textbook and educational technology for the students to provide feedback on their learning and to check their homework. Mishary stated:

*When I explain the lesson in the classroom for students, I ask the students to do some exercises on some training questions that cover the topic of lesson in the school book.*

When it came to how educational technology could be rendered complementary to the textbook for teachers, four respondents mentioned that they could be profitability combined in the practice of reading up on their subject. A further three responses were that educational technology and the textbook could be complementary when it came to adding information to classroom lessons. Abdurahman believed:

*Educational technology was an effective method to add specific information for students such as searching for writing methods. For example gathering information about right methods of writing a text and arranging ideas.*

### 6.8 Summary

In conclusion, according to the interviewees, it has been found that a variety of educational technologies were widely available in secondary schools in Riyadh. These data indicate that some of the interviewees noted that most kinds of technology available were modern. Indeed, it was only DVD players, MP3 players and digital cameras that were not mentioned as being available by all of the interviewees. These results were in conformity with the questionnaire data on availability. Although modern technology appears to have been prevalent, computers in particular were mainly to be found in the communal laboratories, rather than there
being individual personal computers at students’ desks. Interview findings, in conjunction with the collection of quantitative data, have shown the extent of availability of educational technologies in secondary schools of Riyadh.

As to the issue of the use of technology, it is clear from the interviews that of the ‘old’, the overhead projector and the TV were the most common. Of the ‘modern’ technology, computers, electronic whiteboards and data projectors were the most common. Interview findings regarding teachers utilising modern educational technology have shown that there is a clear effect of technology use at home on their level of usage at schools. Teachers also showed their willingness to incorporate modern technology, such as the internet, in their teaching practices due to their positive views on the importance of modern educational technology in schools.

Teachers reported several reasons for using educational technology. The most common reason offered for using modern technology was educational, especially in delivering or explaining content and providing additional information, especially in Arabic grammar and literature. This suggests that interviewees conceived modern technology as a genuine means of facilitating pedagogical practices for Arabic in the classroom.

When asked about the benefits of using educational technologies in schools, they unanimously identified the advantages of: (i) controlling the classroom as an advantage for teachers; and (ii) providing student education as an advantage for students. Such unanimity suggests that the technology rated as highly important to them, and was also a motivating factor in their use of these technologies.

The purpose of using educational technology in teaching was to increase subject content and add information tasks while administrative tasks were a less motivating purpose to integrate educational technology in the teaching process, as answered by teachers in the questionnaire.

The factors reported as affecting the utilisation of educational technology amounted to external barriers – such as a lack of training for teachers. Thus, teachers did not
seem to be intrinsically opposed to the introduction of modern technology, but rather felt that they could not adequately use such technology without more outside (i.e. state) support. In general, available educational technologies, the purpose of their utilisation, factors affecting their utilisation and the advantages of integrating them in the teaching process are all affecting their utilisation and the extent to which they are utilised in teaching and learning processes. It could be determined from teachers’ responses that there are substantial changes in technology regarding the abundance and variation that consequently increased the utilisation of educational technology in the classroom.

The interviewees stated that modern educational technologies were superior to the old technology of the past and offered numerous reasons for adopting the new educational technology. That said, the incentives identified for using technology – such as understanding the subject, and spending less time and effort in preparation – were fairly stable over time and were all education-related. It was also the case that when asked about the use of modern technology in their personal lives the interviewees mostly indicated that they used such technology for educational reasons such as researching and reading. Teachers’ responses indicated that obtaining information was the main reason for using technology in their personal lives, as well as their belief of its efficiency when related to Arabic language teaching.

Finally, when asked about how educational technology would be combined with traditional (textbook-based learning), half the interviewees responded most commonly by singling out essential teaching related practices (namely, reading for the subject and contributing additional information to lessons). In Chapter 7, these results and the results from the questionnaire will be discussed.
CHAPTER 7:
DISCUSSION

7.1 Introduction

As a result of the increasing pace of advances in technology and thus subsequent developments in associated educational technology used in schools in recent years, Arabic language teachers in Saudi Arabia are now being encouraged to use technology in their teaching on a routine basis. This thesis has sought to obtain deeper insight into the availability and usage of educational technology and the factors affecting its use in Saudi secondary schools. In particular, this study has empirically examined what educational technologies are available and used by secondary school Arabic language teachers in Riyadh. Such a focus is important because this cohort that has not been examined before vis-à-vis the factors affecting the utilisation of educational technology. Chapters 5 and 6 presented the findings of the data generated from the questionnaires and interviews distributed to a sample of teachers in secondary schools in Riyadh, Saudi Arabia. The data gathered from the teachers provided a picture of the usage of technology and factors affecting the utilisation of educational technology in Saudi secondary schools.

A number of key findings have arisen from the results that are interesting. First, although it turned out that modern educational technology was available to Arabic secondary school teachers to a greater extent than old educational technology, the latest technology such as individual personal computers and mobile devices were not readily available in schools. Second, when it comes to utilisation, teachers use modern technology in their private lives to a far greater extent than in their classrooms. Third, teachers’ motives for using modern technology in classrooms had the common thread of being ‘external’ in nature, meaning that external pressures were driving teachers’ willingness to take on modern educational technology in classrooms. And fourth, the major reasons that modern educational technology is not utilised fully in schools are all ‘negative’ in nature – that is, there are barriers which prevent utilisation, rather than there being opposition to its use.
7.2 Key finding [A]: Use of the latest modern technology at home and at school

The findings about use of educational technology at home or in Riyadh’s high schools, as seen in the results of the questionnaire (Section 5.4) indicated that use of the latest modern technology at school was low, especially when it comes to individual computers and mobile devices that are connected to the internet by Wi-Fi. On the other hand, the interview results indicated use of modern technology at home, such as computers, mobile devices and the internet, was high (Sections 5.4-6.7): teachers of Arabic language extensively used mobile devices and personal computers in their everyday private lives for obtaining information, reading and social networking with family and friends (such as chatting and swapping photos). However, they did not use this same technology in the classroom to facilitate the learning of the Arabic language. Instead, insofar as modern technology was extensively used at school, it was to serve administrative purposes such as keeping attendance records. This finding may seem to be puzzling because it suggests that Arabic language teachers are quite knowledgeable and capable, in the use of modern technology that could be used in the classroom, but that they mostly use it outside, not inside, the classroom.

The key finding is compatible with previous studies which found there was low usage of technology in schools whereas there was high usage of educational technology at home. For example, Alodani (2009) and Barakati (2000) reported a low usage of modern technology in the classroom. However, both of these studies focused on the teaching of mathematics and so may reflect problems with the availability of modern technology in that discipline in particular rather than being representative of a broader trend. Al-Zahrani (2010) also found that there was a low level of availability and use of modern technology in teaching, however, this study focused on the discipline of science in particular. Finally, Alshahrani (2011) indicated in his study that old technology predominated over modern technology in the field of Islamic studies, but this may reflect a certain tradition within this field that is unrelated to the teaching of Arabic. In a distinctive recent study, (Alharbi, 2013) found out in her study that there was an increase of usage of computers at
home compared to schools in Saudi Arabia. In another study conducted by (Alshumaim & Alhassan, 2010), about the current availability and usage of ICT among secondary school teachers in Saudi Arabia, they found that there is a noticeable superiority in usage of computers at home by the teachers over using them at school. Further, they found that the usage of computers at home was not a significant factor for teachers’ usage of technology at school.

Teacher’s utilisation of modern technologies (such as software programs like Microsoft Excel) for administrative purposes could be attributed to the fact that administrative tasks do not require much training and skills on the part of teachers. Moreover, they prefer to save time on administrative efforts, which would be a motivation for them to use technology at school.

Turning now to the use by teachers of modern technology in their private lives, there are a couple of related reasons for this use. One is that the kinds of modern technology now used in the home to a very large extent tend to revolve around the internet (Purcell et al., 2013) and are largely for simple communication such as chatting with friends and family and swapping photos. Again, the technology associated with these tasks is fairly simple and easy to learn to use. They require no intensive training and can be taught to oneself or demonstrated by a family member (even a child). Further, since such tools tend to enhance family communication and friendships, or are simply fun (such as online games), they are naturally popular and are now a normal part of many people’s every-day lives.

When it comes to the use of modern technology at school, however, findings show that it is not used to any great extent. The most obvious reason for this is related to the previous key finding: the most modern forms of technology, especially personal individual computers and digital mobile devices, are not widely available in schools. Obviously, if these technologies are not available, then they cannot be used.

However, it could be argued that a lack of official governmental supply of modern technology in the schools does not stop teachers (and students) from bringing and using their own technology from home. Even if this was true – and no evidence of
that was found – it would appear that the kinds of social-media-based technology that are used at home do not seem to have a great deal of usefulness in the classroom for pedagogical purposes. Facebook, Twitter and WhatsApp, for example, do not appear to be very suitable to formally teaching Arabic to a classroom of students. Hence, even though teachers may use these kinds of modern technology at home, they do not see them as valuable in the classroom. It may be arguable that with some new teacher-training they could use these kinds of technology in the classroom, but it is also true that they seem to be unaware of how to use other forms of modern technology (such as various educational applications which can be downloaded onto mobile devices) in a classroom context. This is understandable because until recently there were no resources devoted to teacher training specifically for the newest kinds of technology that could be used in classrooms. Indeed, as the questionnaire results regarding teacher training and skill sources indicate, there is a clear shortage of training sources for teachers in the use of educational technologies. These results showed weakness in the training sessions provided by schools (Section 5.2). Further, the interview results also indicated that lack of training is an obstacle to educational technology utilisation according to the responses of the Arabic language teachers (Section 6.5). In short, such modern technology is not being used by teachers in the school context because such use requires specific specialist pedagogical training that has not yet been provided in a widespread way.

From this discovery it can be concluded that the addition of modern educational technology to the school environment will not by itself transform or improve the teaching practices in the classroom. Therefore, any government program which seeks to improve the quality of education in Saudi schools cannot do so by merely improving the availability of modern educational technology, such as computers, mobile devices and the internet, in classrooms. In addition to these changes it would also be necessary to provide the appropriate training to teachers so that they would be able to use the modern educational technology in a way that is productive of learning in the classroom. This requires more than just knowledge of how the technology works. That is something that teachers know already through their own personal experience at home. What they require instead is specialised training and
education in how to use new technology in a way that facilitates the learning experiences of students.

This specialised training in turn would require greater knowledge and familiarity with the constructivist approach to education because this approach fits best with the most modern kinds of educational technology. Teachers need to learn about how students can learn from each other by engaging in collaborative work. They also need to learn about how students can learn about the content of a subject by engaging in self-directed discovery of information. Teachers also need to know that students can better internalise content if they approach it according to their own personal interests and needs (the original meaning of ‘student-centred learning’). This can be done, for example, via teamwork search projects on the internet, and by collaboratively developing blogs and wiki pages. Student collaboration can also be fostered by the emergence of mobile devices where students can maintain constant contact with each other. Unfortunately, without teachers’ having specialised knowledge of how to construct, monitor and facilitate the learning process via such online environments and tools, the availability of such modern educational technology will not be of much pedagogical benefit to Saudi schools.

In short, in order for Saudi Arabia to gain the greatest advantage from the latest educational technology that has been developed so far (such as the mobile social media technologies), the Saudi government would need to achieve three necessary goals. First, it must provide the educational technologies themselves. Second, training must be provided to teachers so that they will be able to utilise these tools in an effective manner in the classroom that improves learning outcomes for students and third, this training must be done in an equal way for all schools across Saudi Arabia, otherwise it would only be selectively successful.

In conclusion, modern technology, such as personal computers and mobile devices, has been used at home by Arabic language teachers to a greater extent than at school. Several modern technologies such as social-media-based technologies are not yet integrated in the educational process, and are unlikely to be integrated until there is sufficient pedagogical training for teachers in the utilisation of these technologies.
7.3 Key finding [B]: ‘External’ motives for using modern technology

The second key finding is that Arabic language teachers were willing to use modern educational technology (Sections 5.4 to 6.5) and regarded integration of modern educational technology into the curriculum as important (Section 5.5), however, the motivation for the desire to use modern technology was ‘extrinsic’ to the teachers themselves. That is, there was not an internal drive on the part of teachers to utilise modern technology in the classroom. Instead it was pressure from outside that provided the motive.

The motives for wanting to use modern educational technology were particularly revealed in the questionnaire results, which identified a number of distinct reasons for Arabic language teachers using modern educational technology in the teaching process (Section 5.5). These were: (i) to improve and develop teaching; (ii) to catch up with developed nations; (iii) to keep abreast of innovations in educational technology; (iv) to maintain students’ interest; (v) to avoid technological illiteracy; and (vi) pressures to change from students, peers and parents.

What motives (1)-(3) appear to have in common is that they are based on the measurement of local Saudi teaching against an external standard of some kind, such as whether Saudi Arabic teachers are keeping pace with other nations technologically, meeting the professional standards that are usually coming from overseas, or whether they are keeping pace with technological innovations sourced from outside Saudi Arabia. These motives therefore indicate that Saudi Arabia language teachers are aware of changes (both in technology and in terms of pedagogical standards and practices) outside the country and regard them as being an important indicator of the quality of education within Saudi Arabia. Such an awareness on the part of Saudi teachers is likely to be due in part to technological developments in globalised communication itself (especially via the internet, but also international travel), where Saudi teachers have access to information about what is happening in other centres of learning around the world to a greater extent than ever before (Salem, 2008). It is clear, however, that the Saudi teachers are appealing to an external standard by which to judge their own practices, and also indicated is a desire
to keep pace with external standard. Because the standard is external to the Saudi educational system, it could be characterised as an ‘extrinsic’ motive.

Motive (4) – maintaining the interest of students in the classroom – suggests that teachers regarded as important the need to maintain students’ interest by appealing to content available on computers and the internet, and by appearing to be up-to-date (Reiners, Renner, & Schreiber, 2005). It also indicates that they may now regard modern technology as an integral means of teaching because it appeals to the everyday experiences of their students who have grown up in the internet age. Importantly, however, it shows that the teachers are motivated here by the ‘external’ factor of the students’ own interests. Teachers are thus compelled to take up new technology because students’ expectations of what is regarded as ‘interesting’ has changed and teachers need to take that into account.

The remaining two motives for using modern educational technology, (5) and (6), can be characterised as being related to social pressure. Motive (5) – avoiding technological illiteracy of teachers with respect to education – indicates a kind of pressure on individual teachers that they should not appear to be ignorant of the technological innovations that are occurring globally, in society and also in the school system. It could be that a manifest unwillingness to utilise modern technology in the classroom could be interpreted by others as evidence of backwardness and an unwillingness to embrace progress. To avoid what amounts to social shaming, teachers may therefore be motivated to take up modern technology in the classroom (Al-Oteawi, 2002).

Related to motive (6) for using modern educational technology was ‘pressure to change [on teachers] from students, peers and parents’. The fact that pressure on teachers to use modern educational technology turning out to be the strongest motivator indicates that the strongest motive for adopting modern technology in educational practices does not come from individual teachers themselves or their own personal concern with pedagogical issues, but from external social forces around them. That is, it may be that teachers take up modern technology in the classroom predominantly because they are pushed to do so by their own students and
their parents who demand such innovations. Presumably, the students and parents are able to demand such changes of teachers because they themselves have access to and perceive there to be benefits in modern technology. If this is true, it would suggest that the pervasive adoption of modern technology within society at large and particularly within the home changed the expectations of students and their parents, such that they expect the same levels of technology to be used in the classroom as are available and used in the home (Anon., 2008).

In sum, the reasons identified for taking up the latest modern technology in the classroom by teachers appears to be driven by ‘external’ factors such as meeting perceived international standards, maintaining students’ interest and social pressure from other stakeholders, rather than being due to some kind of ‘internal’ concern for improving education itself or for the educational welfare of students. Internal and external factors effect finding could be a reason for concern for the Ministry of Education if these motives are the dominant ones among teachers, because it means that if these external motives were to be removed, then the teachers may not be motivated to utilise modern educational technology in the classroom. If that is true, the Ministry of Education would be wasting resources if it did nothing more than make such technology available whilst ignoring the motivational factors affecting its use. If so, education for teachers about the beneficial effects of modern technology, along with practical demonstrations of how it could be used in classrooms, would be necessary in order for expenditure on the technology itself to be worthwhile.

Although the above motives may not be regarded as ideal or the kind of ‘pure’ and selfless motives one might like to see in teachers, it does at least indicate that the Arabic language teachers were very willing to integrate modern technology into their classroom practices. The question now is why these modern technologies are not being fully utilised in schools.
7.4 **Key finding [C]: Obstacles to utilisation of educational technology**

The final key finding of the research is that, insofar as modern educational technology is not utilised to its full capacity (despite being available), it is for ‘negative’ reasons. That is, the lack of use is not because teachers and students are opposed to the introduction of modern educational technology into the classroom, but rather is because there are certain barriers or obstacles preventing full utilisation by willing stakeholders. There are a number of obstacles to the use or implementation of modern educational technology. They are the following: there is a lack of teacher training in the use of technology; a lack of availability of the most modern types of technology; lack of coordination of different types of technology; lack of infrastructure and lack of technical support. These obstacles, especially when they operate together, can effectively shut down the use of modern technologies despite their being available within schools. It is thus important to realise that availability is not the only – or even the main – concern when it comes to the future utilisation of modern educational technology.

The first factor, as already referred to in the previous section, is the lack of teacher training with respect to the practical and pedagogical use of modern educational technology in the classroom. Insufficient training of teachers limits the extent to which already available educational technologies can be used in the classroom environment. A lack of teacher training is now a familiar barrier, therefore, it will not be discussed further.

The second major obstacle to the use of the most modern educational technology is that personal computers and digital mobile devices (such as iPads and iPods) were not available to students *on an individual basis* in classrooms. A lack of the availability of personal computers and digital mobile devices is an interesting finding because it provides greater insight than previous studies. Some previous studies, such as (Abuhamid, 2006; Al-Asmari, 2005; Saqlain & Mahmood, 2013), have found that various kinds of modern technology, including desktop computers, are available in Saudi Arabian schools. These results may give the impression that the Saudi school system has completely modernised itself, which hides the fact that when it comes to
the most modern technology – especially personalized technology for individual
students – no significant gains have been made. Although having access to a
computer in schools is preferable to not having access, it is questionable whether
there is much benefit to students in having just one computer available to a whole
class. Results of the present study show that personal computers and mobile devices
are less available in the schools (Sections 5.3-6.5). With, for example, only one
computer available in the classroom, either each student could only access the
computer for a very short period of time, or the computer would be controlled
exclusively by the teacher with the students serving only as observers. A lack of
student access to classroom computers would not constitute an ideal case of
interactive, engaged learning for them (Sicilia, 2005). Without access to individual
computers, including mobile computer devices of their own, students may not be
likely to be able to enjoy all the benefits of such modern technology (Borthwick &
Pierson, 2008).

The third major obstacle to the use of modern educational technology is the lack of
coordination between different types of educational technology which can have a
highly detrimental effect on the use of some tools. The utilisation of a specific
technology can even be prevented if it requires the simultaneous operation of another
technology which is not present. For example, using a data projector requires a
computer device. If the latter is absent, the data projector is useless even when it is
available (Group, 2002). Another example would be that computers, if available,
would not be utilised to the fullest extent possible if there were no internet access and
mobile devices would be almost entirely useless (Singh, Sharma, & kaur, 2011).
Another example is that flash animations, animated cartoons and the like are not
usable if there is low availability of audio-visual laboratories (Sections 5.3 - 5.4).

The fourth factor affecting utilisation is the lack of infrastructure, where the
integration of modern technologies into the educational system requires well
prepared equipment and a suitable technological infrastructure environment. Optimal
utilisation involves the upgrade of equipment or new installation, which requires a
specified plan and a huge amount of money. A suitable infrastructure environment
will enhance and upgrade the access of both teachers and students to the available
technologies and consequently increase utilisation attitudes towards these technologies in the educational process and activate their role in the classroom (K. A. Bingimlas, 2009).

The final factor affecting the use of educational technology is the lack of technical support. Technical support can come in two kinds. One is technical support for hardware, where there is a physical mechanical problem with a piece of technology (such as blown fuses, or incompatible data ports, etc.). The other kind of technical support relates predominantly to the use of software (both installation and usage, such as how to navigate a new program or eliminate a ‘glitch’). Teachers are unlikely to possess the technical skills to know how to use new equipment or tools for the first time, and are unlikely to know how to solve technical problems when they arise. For that specifically trained technical staff will be required. Without such staff, these kinds of problems cannot be solved and therefore the educational technology in question cannot be utilised effectively. As is evident in the interviews with teachers, this is a serious problem (Section 6.5). This finding is also supported by literature which shows that a lack of technical support for teachers detrimentally affects their usage of technology (K. Bingimlas, 2009).

It should be noted that a related issue is that when there is a transition from older to more modern technology in schools, there is also a transition of technical support services from physical attendance of technical staff to a phone or an online consultation service. This change is not necessarily a smooth one because the latter often requires that teachers increase their own technical knowledge of newly introduced technology so that they can adequately describe the problems they face to technicians who only communicate by phone.

Being aware of the nature of the obstacles to the utilisation of modern educational technology in Saudi secondary schools is important to future implementation of modern technology for the purpose of reform and modernisation of an education system. One observation can be made about this key finding about the obstacles. In order to introduce technologically based educational reforms substantial systematic
planning is required because there are high levels of interconnectedness between the factors affecting utilisation.

The obstacle of technological coordination shows that often modern technology cannot be easily compartmentalised into parts to be used independently. Often different kinds of technology are complementary and therefore cannot be used fully without each other. It may be more useful to think of modern educational technology not as separate tools, but as a web of interconnected threads. Thus data projectors need computers, mobile devices need the internet, software needs hardware, particular software programs require other software programs, and so on. Thus, if the government is to gain the greatest benefit from the introduction of educational technology into schools in the future, it will have to be mindful of the fact that it will have to provide an integrated suite of technologies that work together in the classroom. It is possible that the suite of tools which leaves out just one thread may be made dysfunctional.

Furthermore, because modern educational technologies form a web of technologies, the functioning of each of the tools can become interdependent on the functioning of other tools. Therefore, a sophisticated technical knowledge of the entire ‘network’ of technologies is required for any one tool to work properly. This requires technical skills that cannot be possessed by teachers. Thus highly trained technical support staff will be increasingly required if modern educational technology is to be effectively utilised in schools.

Therefore, an observation to be made is that teachers will have to acquire technical skills that they previously did not possess in order to interact effectively with technical support staff, and they will also have to acquire new pedagogical knowledge about how best to utilise the most recent modern educational technology in the classroom in a way that improves student learning.

Finally, what is common to the above obstacles to the introduction of and support for the most modern forms of technology in schools is government financing. This could be thought of as an underlying obstacle. With respect to the failure to make
computers available to individual students in classrooms, this may be due to the significant financial costs associated with equipping schools with expensive technology in such an extensive fashion (Al-Fahad, 2009). Also, installation and maintenance of a large number of computers in schools is likely to be a complex administrative task. Such costs and difficulties may be a major barrier to making computers (as well as mobile modern devices such as iPads) available to each student in a school (Agnew, 2011; K. A. Bingimlas, 2009; Yildirim, 2007). In addition, the Saudi secondary education system is growing quickly. For example, the number of students in secondary schools in Saudi Arabia was 567,025 in 2007, whereas five years later the number of students was 681,085 (Ministry of Education, 2013). This means that projected financial costs just to maintain the existing school system will also be increasing steeply. If there is no political will to massively increase expenditure on top of the ‘natural’ high increases, it is easy to see why the most modern educational technology is not supplied or supported (A. Al-Ghamdi, 2003; Altawdri, 2004).

In conclusion, the barriers to educational technology utilisation point to multifaceted relationships between technologies. The problem of underutilisation cannot be solved simply. The complementary and interconnected nature of modern educational technology requires that there be substantial planning and support for introducing compatible kinds of tools, providing the appropriate technical support staff, and providing appropriate modern training to teachers on how best to exploit the use of the modern technology.

7.5 The importance of utilising personal computers and digital mobile technology

The importance of personal computers and digital mobile technology can be seen through the lens of constructivism. In brief, the pedagogy of constructivism, which entails student-centred, open-ended and collaborative learning, is (or can be) facilitated by the introduction and use of such modern technology into the classroom. Originally, advocates of constructivism argued for the utilisation of modern technology (such as computers) as a curriculum supplement only, but with the
emerging benefits of technology, constructivists are becoming interested in utilising modern technology in education on a wider extent (Gillani, 2010). A number of arguments can be made for giving individual students access to personal computers or mobile devices in the classroom. These arguments relate to: (i) equity; (ii) motivation; and (iii) learning processes and outcomes.

First, the Ministry of Education in Saudi Arabia is increasingly transferring its curriculum content online to be accessible easily, but only by internet-connected computers (A Al-Ghamdi, 2013). If only some students have access to individual computers (results of the present study show that personal computers are less available in schools; see Sections 5.3-6.5), then only some students will be able to quickly and easily access the latest developments in curriculum content and resources made available by the Ministry. Thus, limited access to individual computers has important equity implications: it would mean that some students – those at schools without access to individual internet-enabled computers – will not have the same access to the online educational resources. Given this is an inherently unjust outcome, it would be ethically preferred if all students had equal access to individual computers, or at least a greater availability of computers and devices in Riyadh’s schools, so as to have equal access to curriculum content and resources for learning Arabic.

Second, it must be recognised that personal computers and digital mobile technology are becoming ubiquitous throughout the world, especially among young people. This is even true in the developing Arab world, and is definitely true in Saudi Arabia (which is relatively wealthy by comparison to most other Arab countries). Students are thus not just familiar with modern, computer based technology, but regard it as an indispensable feature of their lives (Ozgen & Bindak, 2012). In short, students of today have a preference for the use of computer based technology in all aspects of their lives, including education. If students were to have access to computer equipment with the internet at school, then it is likely that they would be more interested and motivated to learn than would otherwise be the case (Morris, 2011). According to constructivism, in order to engage students in the learning process so that they can begin to proceed in a self-directed process of exploration, it is necessary
to relate to them in ways which they understand and find acceptable. Today, that includes the medium of digital technology. With well-motivated students, it is surmised by constructivism that key learning outcomes will be better achieved (Handley, 2008; Rasheed, 2007).

Third, there is the issue of student learning outcomes. Constructivism advocates emphasise the potential of the internet used with modern technology to generate new educational opportunities (Bowers-Campbell, 2008). From a constructivist perspective on knowledge, if students have access to personal computers and the internet for themselves, they have greater freedom to engage in self-directed study and exploration of resources and topics on their own (Shennag & Beni Domi, 2010). The freedom of computer and internet access gives students the freedom to research for their own information and interact with others beyond the classroom. In a globalised digital environment made accessible by applications such as YouTube, Facebook and Twitter, students can also now able to interact with people from different cultures and different language groups, including different dialects to their own. This can be particularly fruitful in two ways: (i) generally, the experience of people from various cultures helps to foster knowledge and tolerance of differences (including linguistic differences); and (ii) it provides students with an opportunity to see and hear different ways in which Arabic is used in any different cultural contexts, ranging from Morocco to the United States; and also enables them to hear and see how Arabic can used in a variety of different ways in those contexts. For example, the way Arabic is used in a mosque in Indonesia stands in stark contrast to how it is used in the marketplace in Cairo. The ‘use’ referred to here includes not just variations in pronunciation and intonation, but also evident and metaphorical meanings. This can be a new experience for students who are used to only hearing their own dialect of Arabic spoken. Often, it is by comparing and contrasting the usage of words in different cultural contexts that can help students to appreciate the functioning of Arabic as they themselves use it.

Part of constructivist pedagogical philosophy is the belief that by exploring new environments and new stimuli, students can begin to build for themselves an understanding of a subject. Access to the internet in the classroom gives students the
opportunity to be exposed to – and to analyse – the use of Arabic in a variety of different contexts, ranging from offices, to politics, to street-life, to advertising. This is a valuable tool in teaching the Arabic language because it provides a wide suite of material which the teacher can use to help students to discern appropriate forms of speech and writing depending on the purpose and situation. It also provides an opportunity to teach students about what ‘models’ are appropriate to use in different contexts. For example, the style of language used in a job interview and the form of a job application letter versus a personal conversation and the form of a personal letter to a friend.

Furthermore, constructivism asserts that learning occurs in a social environment, where students can generate knowledge by interaction with each other. Collaborative learning helps students to broaden their experience and participate in the learning process actively, thus students become an important element in the education process rather than passive learners (Sherman & Kurshan, 2005). Access to the internet and mobile digital technology can be used to foster collaborative work between students inside and outside the classroom. There are now various kinds of software available, such as group blogs, wiki pages, Skype, Collaborate, Facebook pages, that can enable students to engage in cooperative group work. This in itself is a valuable learning outcome, in addition to the language skills that can be developed in the course of collaborative exercises.

With respect to teachers themselves, as indicated in Section 6.5, personal computers and mobile digital technology (in addition to other modern educational technology) are important and useful to them. Teachers indicated that they were able to easily use this technology to gather examples for the classroom exercises, to explain concepts to students, and to save them time and effort in terms of their administrative duties. Related to the last of these reasons, it gave teachers (and students) greater flexibility in receiving assessments from students, who could now submit homework and ask questions via the internet of their teacher. Although such technology is not universally available in classrooms for teachers to use, if it were, then it could also have other beneficial effects on teachers. By making new educational technology ubiquitous may spark an experimental exploration of ways of teaching with
technology that we have not yet been able to imagine – after all, when the first computers were developed, nobody knew what kinds of practices they would spawn 50 years later.

In summary, results of the present study suggest that the various benefits associated with the up-take of modern educational technology are being partially touched upon in the Saudi secondary school system, however, there is considerable scope for improvement especially by the provision of personal computers and mobile devices connected to the internet. These types of technology are now pervasive in the private sphere, so if the Saudi public education system is to remain linked and engaged with wider society, it too will need to upgrade its technological capacities.

## 7.6 Conclusion

In conclusion, the results of the present study have significant implications for teaching the Arabic language by using modern technology in secondary schools in Riyadh. There were a number of key findings in the current study. First, the utilisation of modern technologies is higher at home than at school, especially when it comes to individual personal computers and digital mobile devices. Higher utilization of modern technology at home is due to the ease of access to technology at home and the entertainment services provided by the modern technology, whereas the practical educational benefits of much of the social media and entertainment software is not yet clear. This has created a gap in the utilisation of modern technology between home and school which could be filled by increasing governmental support to provide sufficient training programs for teachers to enable them to utilise that modern technology in the educational process.

The second key finding was that Arabic language teachers appear to be predominantly motivated by various external factors in their use of modern educational technology. One is the external standards supplied by other countries. Another is maintaining the interest of students and another is social pressure to remain ‘up to date’ in the eyes of students and parents. Teachers’ motivation by external factors suggests that the support for modern educational technology in
Arabic language classes is present, but is not very solid. If these external pressures are removed, it could be that teachers’ drive to use these technologies would shrink.

The final key finding is that insofar as modern technology is not being fully utilised in classrooms, the reasons for that are largely ‘negative’, which means that there are barriers preventing utilisation rather than there being any opposition on the part of teachers. For instance, there is a lack of coordination, training and technical maintenance, infrastructure and support. Insufficient utilisation of modern technology implies the need for much more support by the government to overcome these barriers and effectively integrate modern technology in the educational process, which will improve outcomes and achieve expected goals.

Moreover, the results of the present study have significant implications for teaching the Arabic language using modern technology in secondary schools in Riyadh. The study findings indicate that the utilisation of modern technologies is higher in households than schools, due to the ease of access to modern technology at home and the entertainment services provided by the modern technology which created a gap in the utilisation of technology between home and school and the gap could be filled by increasing the governmental support to provide sufficient training programs for the teachers to enable them to utilise that modern technology in the educational process. For instance, a lack of coordination, training and technical maintenance, infrastructure and support. That finding imposes the need for much more support by the government to overcome these barriers and effectively integrate modern technology in the educational process to improve outcomes and achieve the expected promising goals.

This is particularly important for the future of education in Saudi Arabia because there are a number of benefits associated with the introduction and use of modern technology in schools which are unlikely to be obtained by old technological means. To take just the example of personal computers and the internet, plentiful benefits flow from their use. By giving students access to the internet, a whole world of new information is available to them. They would be able to search for information on their own, independently of the content delivered in the classroom. Students would
be free to investigate matters for themselves, to double-check what they had learnt in the classroom about topics of Arabic language, and to explore new areas that had not been discussed by teachers of Arabic language. In short, the internet provides the students with the potential for intellectual freedom and creative independence not otherwise accessible to them. The internet also allows for greater interaction between students and with teachers outside the formal classroom environment. Students can form social networks online to exchange information, collaborate together in researching projects and forming friendship bonds that might not have occurred otherwise. It also provides teachers with the opportunity to monitor students’ progress (if a designated subject-specific website is available for teachers to use) and provide feedback to students about their assigned work. Such monitoring and feedback facilities enable the teacher to individually tailor work for students, thereby eliminating individual differences between students that would otherwise remain. Further, there are the practical benefits of the computer and the internet associated with the administration of subjects. With online material the Ministry of Education can more efficiently and effectively provide updates to the curriculum, and both teachers and students can more easily access the curriculum.

Finally, it could be concluded from the study’s key findings that introducing and integrating modern technology into Arabic language teaching would be beneficial in improving its status and learning in Saudi Arabia and other Arabic speaking countries.

In Saudi Arabia, overcoming obstacles affecting the use of modern educational technology can increase the efforts of self-development for teachers, as well as provide schools with adequate educational technologies that increase the attitudes of Arabic language teachers to utilise modern educational technology in Arabic language teaching.

Moreover, Arabic as a language is an expression tool, not only in Saudi Arabia, but in many surrounding countries that impose the integration of modern educational technology in language teaching and learning since Arabic is composed of
improvable fields such as comprehension, text manipulation, listening, reading, writing, conversation and vocabulary acquisition.

The teaching of these fields could be improved by integrating modern educational technologies such as designed software for comprehension, text editors and language computer laboratories for listening.
CHAPTER 8: CONCLUSION

8.1 Introduction

This study aimed to investigate the availability and the utilisation of various kinds of educational technology in secondary schools in Riyadh, Saudi Arabia. The study of utilisation of educational technology is equally important because if technology is available but unused it would suggest that obstacles to use play an inhibiting factor in the use of technology in Saudi schools. The study indicated that teachers were motivated by factors that utilise modern educational technologies in schools. Further, this study is relevant because there is a gap in the existing literature about the use and availability of educational technology in secondary schools in Riyadh, and in particular regarding the teaching of the Arabic language. In this respect, this study provided original findings on the state of play in this particular domain.

This study was directed by seven empirical research questions, used a sequential mixed methods approach to data collection and analysis, and derived three key findings about the availability and use of modern educational technology in secondary school Arabic classes in Riyadh. These findings showed: (i) an increased use of modern educational technologies in homes compared to their use in secondary schools; (ii) external factors motivate teachers to utilise modern educational technologies; and (iii) limited factors that could represent a barrier for the use of modern educational technology.

The major implication of this study is that although modern educational technology is available and used in the classroom of secondary schools in Riyadh, educational departments in the Ministry of Education, in coordination with secondary schools directors, need to improve user-specific personal computers and mobile computing devices (such as tablets and mobile devices), as well as introduce modern technologies. Constructivist educational theory supports the application of modern technology in the educational environment: if modern technology is more available
and used in the classroom, it is increasing learning opportunities and participation of students in the educational process (Sherman & Kurshan, 2005).

### 8.2 Summary of aims, methods and findings

This study empirically addressed seven questions:

1. To what extent are educational technologies available in teaching the Arabic language in secondary schools throughout the Riyadh Governorate?

2. Which educational technologies are utilised in teaching the Arabic language in secondary schools throughout the Riyadh Governorate?

3. To what extent are educational technologies used in teaching the Arabic language in secondary schools throughout the Riyadh Governorate?

4. What differences exist in the use of technology by teachers according to such factors as their formal qualifications, training and number of years in service?

5. What training in educational technology skills do secondary school Arabic teachers gain and how do they acquire these skills?

6. How important is the use of modern educational technologies in teaching Arabic in secondary schools throughout the Riyadh Governorate?

7. What are the motives or reasons for using educational technologies in teaching Arabic in secondary schools throughout the Riyadh Governorate?

The methodology utilised in order to answer these questions involved both quantitative and qualitative techniques. The first consisted of a questionnaire in which respondents answered questions that addressed some issues such as availability and use of educational technology. The second technique was a structured interview which contained pre-set, closed questions which enables
interviewees to express their opinions about educational technology and the current state of affairs in secondary schools in Riyadh.

In brief, the main findings were the following. Teachers are using modern technology in their private lives and are doing so to a far greater extent than in their classrooms. The low usage was due to a lack of training about how to use these technologies pedagogically. Teachers are motivated to use modern educational technology in the classroom, but their motives are not ‘internal’ in nature; rather they are driven by external demands such as external standards or expectations, as well as from students and parents. Insofar as utilisation of the most modern technology is not occurring, this is because there are a number of interrelated barriers preventing utilisation. These included the lack of teacher training in how to use newly introduced technology, a lack of technical support (both in terms of hardware and software) to schools, and a lack of coordination of different types of technology which form a web of complementary tools.

The results of this study are important because the use of modern technology with education in secondary schools has several benefits according to recent constructivist educational theory (Gilakjani, Leong Lai, & Ismail, 2013). The utilisation of personal computers (for each individual student) and the internet has numerous pedagogical benefits because, such technology allows students to access the internet means introducing a full universe of information available to them. Not only is there a benefit in terms of additional content, but there is also the benefits associated with allowing students to explore the information on their own, independent of the rest of the classroom. The latter provides the student with the freedom to investigate, to search for class related items, and to explore what had been introduced by teacher in the classroom. In short, the internet provides for students’ freedom and creative independence, and also allows a greater interaction between both students and teachers outside the classroom environment. The availability of instant online communication could help the students to establish online social networks that aim to exchange information learned both inside and outside the classroom. Furthermore, there are internet-based classroom devices now available (although not in schools in Saudi as yet) that would allow the teachers to monitor the progress of the class.
students, and provide a feedback to students about their assigned study work. Such monitoring software could allow the teachers to follow and eliminate the individual differences between the students by enabling them to individually tailor work for students.

The benefits of modern educational technology that are based on social media services include improving communication between students and teachers, as increasing creativity and catering for individual differences of students – could be experienced further if there were even more extensive utilisation of modern educational technology. The constructivist view ensures that learning is an active process instead of being a passive knowledge acquiring process which indicates that constructivism is an encouraging the process of communication between the teacher and the students and also between the students both inside and outside the school environment (Nanjappa & Grant, 2003).

8.2.1 Significance of results

This study carries significant implications regarding modern technology availability in teaching the Arabic language in secondary schools of Riyadh. Results regarding the availability of modern technology such as communal computers, printers and data projectors had shown their greater availability compared with old educational technologies. This indicates the modernisation of the educational environment in the secondary schools, at least in Riyadh region and suggests that there has been a reduction modern educational technology availability barriers to the further modernisation of the educational environment.

Modern educational technology availability barriers reduction could be explained by several factors in combination, such as the widespread use of personal computers and mobile devices at homes. This factor is magnified by the results of the demographic factors which indicate to that Arabic language teachers in Riyadh governorate tend to be relatively young which is reflected to their familiarity with these technologies. Furthermore, teachers holding higher education degrees in Arabic language teaching are more likely to be exposed to various types of modern educational technologies during their educational journey which provides a good reason to think at the current
supply of Arabic teachers are willing and capable of utilising modern technology in the classroom and willing to use them if they are available.

Results of present study showed fundamental development actions towards updating the available educational technologies in secondary schools in Riyadh which could be a result of global educational technologies advancement and pressure to change either by teachers, students, Ministry of Education or parents.

Further, the results indicate that there is a sufficient motivation among teachers to continue the utilisation of modern technology in the classroom. Several motivating factors regarding the teachers’ modern technology utilisation were adduced. They included the desire of teachers’ improvements and the development of their skills to catch up with the developed nations, to keep abreast of innovations in educational technology, to make use of available equipment, to maintain students for using more professional and effective communication methods, to avoid technological illiteracy and pressure to change from students, peers and parents. One can thus conclude from the above findings that providing more modern educational technology, and training teachers and students in the use of such technology would not be a waste of resources.

In summary, the current study’s results are significant because they reveal that what might have been a significant barrier to the up-take of modern educational technology has been eroded such as the lack of training and other external barriers. Indeed, teachers who had advanced skills in modern technology utilisation were most willing to use these educational technologies in the teaching process. While the Saudi Ministry of Education has facilitating skills acquisition among teachers by providing subsidised training in the use of modern technology, the lack of coordination, lack of training, and lack of technical maintenance, infrastructure and support are considered to be barriers and determinants that could limit the utilisation of modern educational technology in teaching Arabic language in secondary schools. To overcome these barriers the Ministry of Education are required to apply more effective plans and actions such as increasing the funds, providing suitable infrastructure and specialised technical support services for the schools. However, the presence of all the elements
would increase the likelihood of effective integration of educational technology in Arabic language classrooms in secondary schools of Riyadh which consequently will improve the teaching and learning process. Moreover, examining the use of modern educational technology in Arabic language teaching could include geographical areas inside Saudi Arabia and other Arabic language-speaking countries.

8.3 Limitations of the study

The study has a narrow scope on a number of dimensions. First, it focuses attention on the city of Riyadh and therefore ignores the other major cities in Saudi Arabia such as Jeddah and Dammam. In addition to limiting the area over which the study is this ostensibly applicable, it should be noted that Riyadh is also economically distinctive, being the wealthiest city in Saudi Arabia. Second, it is restricted to secondary schools, and so ignores primary (elementary) and tertiary education. Because primary and tertiary education is substantially different in content and practices from secondary education, it means that whatever knowledge can be gleaned from an examination of secondary schools cannot be extended to the other two. Third, it examines only boys’ secondary schools, and so has nothing to say about girls classes. It is possible that the experience in both boys’ and girls’ schools is similar, but it is also possible that they are different. Without any rigorous empirical information about differences and/or similarities, no certain inferences can be drawn about girls’ schools by studying only boys’ schools. Fourth, within the secondary school curriculum, only Arabic language teachers’ experiences were examined. However, given that it is possible or even likely that different disciplines have different pedagogical styles and thus have different technological demands placed on them, it may be that the experiences of Arabic language teachers cannot be extrapolated to teachers of other disciplines such as history or mathematics.

In short, due to these parameters, the findings are restricted to a quite specific cohort of teachers and students which brings into question whether the study can be said to have implications beyond this cohort. Given that the study does not examine cities other than Riyadh, nor look at the use and availability of educational technology for other discipline areas or for girls’ schools, it is not possible to make secure inferences.
from the study’s findings to these other domains in Saudi Arabia, or to make broad statements about Saudi Arabia in general. (It should be borne in mind, however, that the focus of this study was narrowed precisely because this particular niche had not been sufficiently investigated.) On the other hand, inferences could be made to other curricula in secondary schools in Riyadh that could lead to formulating new research questions in order to reach valid conclusions about the utilisation of modern educational technology in secondary schools in the Riyadh governorate.

8.4 Recommendations for future research

This study should provide encouragement for other researchers to carry out follow-up research in the field of educational technology.

The Ministry of Education should increase the efforts the department of education and learning to establish professional development regular programs to train teachers on utilising the modern educational technology and improve their skills and knowledge to use technology for instructional purposes. The ministry should also provide additional planning strategies by the policy makers and administrators to integrate the educational technology in the curriculum. These plans will provide teachers more knowledge about the effectiveness of technology in achieving the pedagogical goals, saving time, and would not affect their work load.

Further, the Ministry of Education should encourage the decision makers to take initiative regarding the development of the school’s educational technology infrastructure and install the required technology necessary to improve the educational process. Finally, the ministry should provide financial support and technical support for the maintenance of educational technology at each school to maintain the continuity of technology use.

Given the limitations of the present study, there are a number of other dimensions of the availability and use of educational technology at the secondary school level. It was noted that Riyadh is Saudi Arabia’s wealthiest city per capita. However, without empirical investigations, it is impossible to say what the extent of the disparities
between wealthier and poorer cities is, and how large the gap is between the average city and rural school areas. Measurement of this disparity is important for future funding decisions that are concerned with providing equitable access and opportunities to all Saudi youth across the country.

A related question is one of gender. The schools in Saudi Arabia are gender-segregated. In the present study it was not feasible to collect data on girls’ secondary schools. It would be interesting to investigate whether the availability, use and experience of modern educational technology is the same in girls’ schools in Riyadh as for boys schools, or whether there is a gender difference between them – and if so, why. Further, it would be interesting to track the evolution of the use of educational technology over time – from infants, to elementary, to secondary and then to tertiary education – on a gender comparative basis. Namely, it would be interesting to see whether or not the availability and use of educational technology diverges between boys and girls over time as they progress through their education.

Finally, it is predicted and recommended that future research into educational technology focus on what has been designated in this thesis as ‘modern’ educational technology. This is because it would appear that ‘old’ educational technology is, by and large, becoming redundant in the class room. Data projectors are replacing overhead projectors, e-documents are replacing paper documents, keyboards are replacing pen-and-paper. The most recent technological innovation is mobile computing devices that are linked to the internet – items such as iPads and mobile phones. It will be interesting to see how these devices affect the teaching-learning environment of the classroom in the future, and whether they result in an expansion of learning environments out beyond the traditional classroom, in terms of space (location), time (when studying occurs), and content (what is studied by students).

With the emergence of computers, and especially the internet, we have perhaps witnessed the most important educational technological change since the invention of the Gutenberg press. With such fast growing technological innovation, the 21st century looks as though it will be an exciting time for investigating educational infrastructure and practices. If Saudi Arabia is to reap the benefits of the waves of
innovation that are to follow in the future, further research will be required into what exactly the current state of play is across the country, starting with its largest cities such as Riyadh; and then the consequences the introduction of new forms of educational technology need to be carefully scrutinised in order to make a judicious assessment of whether such experimentation is worthwhile.
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APPENDICES

Appendix 1: Information Sheet for Teacher (English) – 9 pages
Appendix 2: Interview Questions for Teachers (English) – 2 pages
Appendix 3: Questionnaire (Arabic) – 8 pages
Appendix 4: Interview (Arabic) – 4 pages
Appendix 5: Human Research Ethics Committee (English) – 1 page
Appendix 6: Permission of Department of Learning and Education (Arabic) – 1 page
Appendix 7: Permission of Ministry of Education (Arabic) – 1 page
Appendix 8: Participant Consent Form for Questionnaire (English) – 1 page
Appendix 9: Participant Information Sheet (English) – 2 pages
Appendix 10: Participant Consent Form for Interview (English) – 1 page
Appendix 11: Letter of Permission of Survey (English) – 1 page
Appendix 1: Information Sheet for Teachers (English)

Teachers Questionnaire

Study of utilization of educational technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia

Dear Teacher

Peace be upon you and God's mercy and blessings. First of all I would like to thank you for your kindness and willingness to participate in this doctoral research study on “The utilization of technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia”. The study aims to gain a better understanding about the availability of education technology in secondary schools for teachers of Arabic language in Riyadh, Saudi Arabia and the extent of utilization of education technology by teachers of Arabic language in secondary schools in Riyadh in Saudi Arabia.

As an orientation to the questionnaire, I would like to introduce you to the topics that will be covered. The questionnaire contains four parts. The first part seeks to determine the availability of education technology in secondary schools for teachers of Arabic language in Riyadh. The second part focuses on the utilization of education technology in education for teachers of Arabic language in secondary schools in Riyadh.

This questionnaire was designed to collect information in order to identify these aspects in more detail. For this I ask you kindly, my brother, the teacher, to read the attached questions carefully and answer them objectively. The study will not benefit you directly. He is hoped that the study will inform policy. All efforts to maintain confidentiality will be made including secure storage of the data. Please return your questionnaire to the box provided in the office of the secretary. It will be collected in 1 or 2 days after you receive the questionnaire. Your participation is appreciated

Hamed Alasaadi

PhD candidate

This study has been approved by the University of Western Sydney Human Research Ethics Committee. The Approval number is HREC H8949. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel 02-4736 0083 Fax 02-4736 0013 or email humanethics@uws.edu.au. Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome. If you agree to participate in this study, you will be asked to sign the Consent Form.
Questionnaire – English Version

Section A: Background information

1. Age (years)

2. Number of years in teaching (at start of term)

3. What is your highest qualification?

4. How would you describe your education technology skills? *Tick one*
   - Non-existent level
   - Beginner
   - Intermediate level
   - Advanced level Expert

5. How did you gain skills in using education technology? *Tick all applicable*
   - Attended in-school training course.
   - Attended Ministry’s training courses.
   - Attended private training course.
   - Assisted by a colleague, family member, or friend.
   - By trial and error.
   - Other

6. What training in education technology did you receive when you studied for your teaching degree?

7. What training in education technology have you received during your years as a teacher?
Section B: Which of the following educational technologies are available in the school?

<table>
<thead>
<tr>
<th>Tools</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer</td>
<td></td>
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<tr>
<td>Computer in the classroom</td>
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<tr>
<td>Laptop computer in the classroom for teacher use</td>
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<tr>
<td>Computer for student use in the classroom</td>
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<tr>
<td>Computer lab</td>
<td></td>
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<tr>
<td>Computer classroom for teacher use</td>
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<tr>
<td>Computers for students in a lab</td>
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<tr>
<td>Computer connected to the internet for teacher use</td>
<td></td>
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<tr>
<td>Portable computer units</td>
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<tr>
<td>Data projectors in the classroom</td>
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<td></td>
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<tr>
<td>Data projectors in a computer lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camera</td>
<td></td>
<td></td>
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<tr>
<td>Video camera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital camera (photo)</td>
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<td></td>
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<tr>
<td>Digital camera with video capability</td>
<td></td>
<td></td>
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<tr>
<td>Digital projector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iPad</td>
<td></td>
<td></td>
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<tr>
<td>iPod</td>
<td></td>
<td></td>
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<tr>
<td>Floppy discs</td>
<td></td>
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<tr>
<td>Interactive whiteboard</td>
<td></td>
<td></td>
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<tr>
<td>TV monitor</td>
<td></td>
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<tr>
<td>DVD player</td>
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<td></td>
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<tr>
<td>CD player</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printers</td>
<td></td>
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<tr>
<td>Overhead projector</td>
<td></td>
<td></td>
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<tr>
<td>Scanner</td>
<td></td>
<td></td>
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<tr>
<td>Slides projector</td>
<td></td>
<td></td>
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<tr>
<td>Audio cassette, MP3 player</td>
<td></td>
<td></td>
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<tr>
<td>Laboratory of sound and vision</td>
<td></td>
<td></td>
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<tr>
<td>Video cassette recorder (VCR)</td>
<td></td>
<td></td>
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<tr>
<td>Radio</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any other tools you use:

----------------------------------------------------------------------------------
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----------------------------------------------------------------------------------
Any other programs you use:

<table>
<thead>
<tr>
<th>Availability - education technology programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools</td>
</tr>
<tr>
<td>Specialist subject program.</td>
</tr>
<tr>
<td>Model creation.</td>
</tr>
<tr>
<td>Internet.</td>
</tr>
<tr>
<td>PowerPoint.</td>
</tr>
<tr>
<td>Flash animations.</td>
</tr>
<tr>
<td>Digital video production.</td>
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<tr>
<td>web-quests</td>
</tr>
<tr>
<td>games show review.</td>
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<tr>
<td>Email.</td>
</tr>
<tr>
<td>Animated cartoon presentations.</td>
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<tr>
<td>Excel.</td>
</tr>
<tr>
<td>Word.</td>
</tr>
<tr>
<td>Interactive test.</td>
</tr>
<tr>
<td>Photoshop or other image manipulation program.</td>
</tr>
<tr>
<td>Test.</td>
</tr>
<tr>
<td>Quiz.</td>
</tr>
<tr>
<td>Word processing.</td>
</tr>
<tr>
<td>Graphics/drawing packages.</td>
</tr>
</tbody>
</table>
Section C: How often have used education technology in teaching for the following activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Extent of utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Several times a week</td>
</tr>
<tr>
<td>Use computer in many places.</td>
<td></td>
</tr>
<tr>
<td>Use a computer to deliver instruction to your classroom.</td>
<td></td>
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<tr>
<td>Use teacher laptop in the classroom to gain information.</td>
<td></td>
</tr>
<tr>
<td>Use students own computer in the classroom.</td>
<td></td>
</tr>
<tr>
<td>Explaining subject of Arabic in Computer lab.</td>
<td></td>
</tr>
<tr>
<td>Preparing teachers their work for their classroom.</td>
<td></td>
</tr>
<tr>
<td>Use lab to encourage students to interact in the lesson.</td>
<td></td>
</tr>
<tr>
<td>Access the Internet for retrieving information, (e.g. research, information, ideas etc.).</td>
<td></td>
</tr>
<tr>
<td>Use Portable computer units in the lesson.</td>
<td></td>
</tr>
<tr>
<td>Use Digital projector in the classroom.</td>
<td></td>
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<tr>
<td>Use Digital projector in a computer lab.</td>
<td></td>
</tr>
<tr>
<td>Use the data show to explain subjects.</td>
<td></td>
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<tr>
<td>Use photos to add more information about subject.</td>
<td></td>
</tr>
<tr>
<td>Adding knowledge by use of a digital camera.</td>
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<tr>
<td>Use digital camera to create a video clip of some scenes such as based on of subject.</td>
<td></td>
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<tr>
<td>Use Digital camera with video capability in the Arabic subject.</td>
<td></td>
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<tr>
<td>Use Digital projector.</td>
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<tr>
<td>Using ipod or ipad in the classroom.</td>
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<tr>
<td>Keeping work on floppy discs.</td>
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<tr>
<td>Use Interactive whiteboard to explain subject.</td>
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<tr>
<td>Use the TV in the classroom.</td>
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<tr>
<td>Use DVD or CD player in Arabic subject.</td>
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<tr>
<td>Scanning homework and sending it to students.</td>
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<tr>
<td>Use photo copies in the lessons.</td>
<td></td>
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<tr>
<td>Use overhead projector to add more information for student.</td>
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<tr>
<td>Use slides to show student example of subject.</td>
<td></td>
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<tr>
<td>Use MP3 or Audio cassette to listen to Arabic subject.</td>
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<tr>
<td>Doing Arabic lesson in Laboratory of sound and vision.</td>
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<tr>
<td>Watching Video cassette recorder to increase knowledge.</td>
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<tr>
<td>Use Radio in the school.</td>
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<tr>
<td>Create models resembling the original, using technology and encourage and motivate students to do so.</td>
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</tr>
<tr>
<td>Activity</td>
<td>Extent of utilization</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Developing Arabic lessons by designing informative web pages.</td>
<td></td>
</tr>
<tr>
<td>Developing Arabic lessons by designing informative power point.</td>
<td></td>
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<tr>
<td>Developing Arabic lessons by designing informative flash animations.</td>
<td></td>
</tr>
<tr>
<td>Developing Arabic lessons by designing informative digital video productions.</td>
<td></td>
</tr>
<tr>
<td>Use games show review; to encourage students to recall information in a competitive environment.</td>
<td></td>
</tr>
<tr>
<td>Use Email for professional purposes.</td>
<td></td>
</tr>
<tr>
<td>Creating / using Arabic animated cartoon presentations that demonstrate real world interaction by using specific programs.</td>
<td></td>
</tr>
<tr>
<td>Create web-quests (e.g. live web conferences) providing lessons relevant to Arabic subjects for all quest, or build the Internet into a lesson.</td>
<td></td>
</tr>
<tr>
<td>Using the technology such as word and XL for administration purposes (e.g. record keeping, reports, etc.).</td>
<td></td>
</tr>
<tr>
<td>Word processing.</td>
<td></td>
</tr>
<tr>
<td>Graphics/drawing packages.</td>
<td></td>
</tr>
<tr>
<td>Internet sites.</td>
<td></td>
</tr>
<tr>
<td>Specialist subject program e.g. the Arabic language.</td>
<td></td>
</tr>
<tr>
<td>Use technology when you are teaching a classroom.</td>
<td></td>
</tr>
<tr>
<td>Use technology for preparing lessons</td>
<td></td>
</tr>
<tr>
<td>Create an interactive Arabic test by using interactive learning modules to improve students’ conception in their Arabic subjects.</td>
<td></td>
</tr>
<tr>
<td>Create an interactive Arabic quiz by using interactive learning modules to improve students’ conception in their Arabic subjects.</td>
<td></td>
</tr>
</tbody>
</table>

Other use of education technology (please specify)

.................................................................................................................................
.................................................................................................................................
.................................................................................................................................

6
Section D: Teachers' use of education technology

1. Should Arabic Language teachers use education technology in their teaching?
   
   ☐ Yes
   ☐ No

   Why or why not?

2. What type of applications do you use for teaching? Tick all that applicable
   
   ☐ PowerPoint.
   ☐ Spread sheets.
   ☐ Email.
   ☐ Your own website.
   ☐ Word processing.
   ☐ Graphics/drawing packages.
   ☐ Internet sites.
   ☐ Specialist subject program e.g. the Arabic language.
   ☐ None.
   ☐ Other..................

3. I use education technology in my teaching as: Tick all that apply
   
   ☐ A supplement to the curriculum, i.e. video, pictures, sound, etc.
   ☐ A reinforcement of the curriculum, i.e. inference theories, practical application and convey information in a different way.
   ☐ As part of the curriculum.
   ☐ As a method of continuous teacher-student communication.
   ☐ As a method of student-student communication.
4. Do you have reliable access to a personal computer for yourself at home?
   □ Yes
   □ No

5. Do you have reliable access to a personal computer for yourself at school?
   □ Yes
   □ No

6. How useful is (or would it be) to have a personal computer at school?
   □ Very useful
   □ Somewhat useful
   □ Not at all useful

7. Why are you using education technology in your teaching Arabic language?
   (Number according to importance from 1-10)
   □ To keep abreast of advancement in education technology.
   □ To catch up with developed nations.
   □ Change of classroom routine to maintain interest.
   □ Make use of available equipment.
   □ Method for improving and developing teaching.
   □ Pressures to change from students, teachers, and parents.
   □ Effective method to convey information.
   □ It is the era of education technology use; the illiterate one is the one who does not know how to use education technology.
   □ Professional way of teaching.
   Other...........................................

8
8. Please list the 3 main ways that you use education technology in relation to your role as a teacher (e.g. research using the Internet, in classroom with students, word processing worksheets, working in online learning environments, writing reports, etc.)

i) ........................................................................................................................................

ii) ....................................................................................................................................... 

iii) ....................................................................................................................................... 

If you are interested in participating in a follow-up an interview, please leave your contact details.

Mobile number: Phone number: Email:

Thank you for your time
Appendix 2: Interview Questions for Teachers (English)

Teachers Interview

Study of utilization of educational technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia

Dear Teacher

Peace be upon you and God's mercy and blessings.

First of all I would like to thank you for your kindness and willingness to participate in this research study on “The utilization of education technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia”. This study aims to gain a better understanding of the availability and utilization of education technology in secondary schools in Riyadh.

The interview will last approximately 45-60 minutes and will be audio recorded. The first few minutes of the interview will be devoted to:

1. Introducing the purpose of the study and the researcher.
2. Emphasising confidentiality and data protection.
3. Obtaining your consent to participate in the study.

Prior to the interview, a letter will be forwarded to you. In this letter a list of guiding questions, will be included introducing the topics to be covered during the interview, so you have time to think about them in order to offer well thought out answers. I will also restate that participation is voluntary and informants will remain anonymous.

Full understanding of these topics is very important to achieve the aims of this research, one of which is to help guide the development of education technology utilization in education.

The researcher and his supervisors will assure total confidentiality of information elicited from all participants, including complete protection of any information gathered. The information which will be used for research purposes only, in the presentation of the research at conferences, seminars and workshops, and publication in conference proceedings and journals.

Thank you very much for your cooperation

Hamed Alasaadi

University of Western Sydney

This study has been approved by the University of Western Sydney Human Research Ethics Committee. The Approval number is HREC H8949. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel 02-4736 0083 Fax 02-4736 0013 or email humanethics@uws.edu.au. Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome. If you agree to participate in this study, you will be asked to sign the Consent Form.
Information about interviewee: Qualification (Saudi qualification names may be used):
1. Teacher College Degree
2. University Degree
3. Higher degree (M.Sc,Med,PhD)
4. School
5. Other

Part One: What education technology is available in your school?
1. What educational technologies are available in the school?
2. What is the location of computers for students in the school?

Part Two: How have Teachers of Arabic Language Used Educational Technology in Secondary School in Riyadh?
1. Which kind of educational technology do you use in the classroom?
2. Why are you using educational technology in your teaching?
3. What are the advantages of the introduction of educational technology in teaching the Arabic language?
4. How are you currently using educational technology in your teaching?
5. What factors affect utilizing educational technology in teaching the Arabic language?

Part Three: What are the Differences between Educational Technology Now and in the Past?
1. What are the differences between educational technology used in the present and in the past? Which is better, the present or the past? Why?
2. When did you start using educational technology in your teaching and what was your opinion of it at the period?
3. What incentives are there to use educational technology in your teaching?

Part Four: What is the Best Way to Use Educational Technology in Teaching the Arabic Language?
1. How often do you use educational technology in your personal life?
2. In what subject/s of Arabic language do you use educational technology?
3. Which educational technology does not have any benefit?
4. How can they use this educational technology without ignoring the traditional methods?

Thank you.
Appendix 3: Questionnaire (Arabic)

الاستبانة

استبانة المعلمين

دراسة استخدام التكنولوجيا في تدريس اللغة العربية في المدارس الثانوية في منطقة الرياض في المملكة العربية السعودية 1432-1433

ورقة معلومات السنة العربية

أخي المربية الفاضل

السلام عليكم ورحمة الله وبركاته

بادئ ذي بدء أود أن أ الفنانك على لطفك واستعدادك للمشاركة. في هذا البحث التماكر برسالة الدكتوراه بعنوان (استخدام التكنولوجيا في تدريس اللغة العربية في المدارس الثانوية في الرياض في المملكة العربية السعودية) والذي يهدف إلى التعرف على أهم أفضل عدد تواصعات التكنولوجيا في المدارس الثانوية عند معلمي اللغة العربية في الرياض في المملكة العربية السعودية ودقيقة استخدام تكنولوجيا التسجيل من قبل معلمي اللغة العربية في المدارس الثانوية في الرياض في المملكة العربية السعودية.

وكانهداً للإستبانة وما تحتويه من عناصر أود أن أقدم لكم المواضيع التي ستتطلبها الإستبانة تحوي على أربعة محاور. المحاور الأولى تتعلق بتفاوت تكنولوجيا التعليم الإلكتروني في المدارس الثانوية لمعلمي اللغة العربية في الرياض في المملكة العربية السعودية. وتهدف لمعرفة ذوذات تكنولوجيا الموجودة في المدرسة والتي يمكن لمعلم اللغة العربية أن يستخدمها في حين أن المحاور الثانية تتعلق بتفاوت استخدام تكنولوجيا التعليم عند معلمي اللغة العربية في المدارس الثانوية في الرياض في المملكة العربية السعودية أثناء أداء المحتوى المدرسي.

إن هذه الإستبانة قد صممت بدقية لجمع المعلومات المطلوبة للتعرف على هذه Gawdp بشكل أدق وأفضل. لهذا أطلب منك أخذ المعلم التكرر بقراءة الاستبانة بعناية والإجابة عليها بوضوح. علماً أن هذه الدراسة لن تكون نفواً على مبتراء. إذا ألم في أن هذه الدراسة سوف تستفسر بها مهاراتك التعليمية، وأرجو منك أن تكون الجهد سوف يحافظ عليها بسرية. سوف يتم تخصيص البيانات في مكان مأوى، وأخيراً أرجو من الأخوة المعلمين وضع الإستبانة في المندوب عند مسؤولي المدرسة، وسوف يتم جمع الإستبانات بعد يوم أو يومين من توزيعها.

وقد اعتمد تطبيق هذه الدراسة من قبل لجنة اختلاقيات البحوث في جامعة وسطن سدين، ورقم الموافقة هو:

(HREC) H8949

شكر ومقدر جهودكم المبارك

أخوه الباحث

خالد الاسمدي

0554403901

199
الاستبيان - النسخة العربية

القسم أ : معلومات أساسية

1- كم هو العمر؟

2- كم عدد سنوات الخدمة التي قضيتها في سلك التعليم؟

3- ما هي المؤهلات أو الشهادات التي حصلت عليها؟

4- كيف تصف مستوى مهارتك في استخدام تكنولوجيا التعليم الإلكترونية؟

لا أملك أي مهارة

مستوى بديهي

مستوى متوسط

مستوى مقدم

خبر

5- كيف اكتسبت مهارة استخدام تكنولوجيا التعليم؟

حضورت برنامج تدريبي مقدم من وزارة التربية والتعليم.

حضورت برنامج تدريبي داخل المدرسة.

حضورت برنامج تدريبي في معهد خاص.
8- ما هو الدور الذي قامت به من تكنولوجيا التعليم عندما كنت تتعلم في المرحلة الجامعية؟

9- ما هو الفئة التي حصلت عليها من تكنولوجيا التعليم خلال خدمتك كمعلم؟

القسم ب: ما هي التكنولوجيا التعليمية المتوفرة في المدرسة؟

<table>
<thead>
<tr>
<th>التكنولوجيا التعليمية الإلكترونية</th>
<th>نعم</th>
<th>لا</th>
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<tbody>
<tr>
<td>كمبيوتر في الفصل الدراسي</td>
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<tr>
<td>استخدام المعلم كمبيوتر محمول في الفصل الدراسي</td>
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<td></td>
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<tr>
<td>كمبيوتر الطلاب يستخدمونه في الفصل الدراسي</td>
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<td>كمبيوتر خاص بالفصل الدراسي لاستخدامات المعلم</td>
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<td>كمبيوترات الطلاب في المختبر</td>
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<tr>
<td>كمبيوتر المعلم متصلشبكة الإنترنت</td>
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<td>وحدات كمبيوتر المحمول</td>
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<td>جهاز عرض في الفصل الدراسي</td>
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<tr>
<td>كاميرا اتصال</td>
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<td>كاميرا توصير رقمية</td>
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<td>جهاز عرض رقمي</td>
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الآلات الأدوات التي تستخدم:

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<thead>
<tr>
<th>ميزات</th>
<th>تطبيقات</th>
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<tr>
<td>الأقراص المرنة</td>
<td>برنامج مخصص للمواضع</td>
</tr>
<tr>
<td>المسورة الضوئية الفاصلة</td>
<td>إنشاء ملف</td>
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<td>الاقتراح</td>
<td>النقل</td>
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<tr>
<td>جهاز في فيديو الإلقاء</td>
<td>فيديو رقمي</td>
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<tr>
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<td>برامج باريودنتات</td>
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<tr>
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<td>تحليل تخطيط PNG</td>
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<tr>
<td>مراقبة</td>
<td>ملفات الرسومات المتحركة</td>
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<tr>
<td>مراقبة الصور</td>
<td>برنامج إصدار Excel</td>
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<td>برنامج وورد Word</td>
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<td>ملفات MP3</td>
<td>اختبارات تفاعلية من خلال الإنترنت</td>
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<td>ملفات WMA</td>
<td>برنامج تسجيل فيديو</td>
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<td>راديو</td>
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الآلات الأخرى التي تستخدم:

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<td>الأقراص المرنة</td>
<td>برنامج مخصص للمواضع</td>
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<td>المسورة الضوئية الفاصلة</td>
<td>إنشاء ملف</td>
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<tr>
<td>ملفات MP3</td>
<td>اختبارات تفاعلية من خلال الإنترنت</td>
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</table>
البرامج الأخرى المستخدمة:

القسم ج: كم هي عدد المرات التي استخدمت فيها تكنولوجيا التعليم في التدريس من التطبيقات التالية:

<table>
<thead>
<tr>
<th>الشاخص</th>
<th>مدة الاستخدام</th>
<th>عدد مرات في الأسبوع</th>
<th>عدد مرات في الشهر</th>
<th>عدد مرات في السنة</th>
<th>التطبيقات</th>
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<tr>
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<td>غير مستخدم</td>
<td>غير موجود</td>
<td>غير موجود</td>
<td>غير موجود</td>
<td>استخدم الكمبيوتر لazıيم تعليمات الطلاب.</td>
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<tr>
<td>استخدام الموضوع المحمول داخل الصف</td>
<td>استخدام الكمبيوتر المحمول داخل الصف</td>
<td>استخدام كمبيوتر المحمول للحفاظ على المعلومات.</td>
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<tr>
<td>استخدام الطلاب كمبيوترهم داخل الصف</td>
<td>شرح مواضيع اللغة العربية في مختبر الحاسوب.</td>
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<td>إعداد الصفائح لبعضهم بالسلاسة بواسطة الكمبيوتر.</td>
<td>إعداد الصفائح لبعضهم بالسلاسة بواسطة الكمبيوتر.</td>
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<td>استخدام الإنترنت لإزالة المعلومات، (الانترنت والبريد الإلكتروني) واستخدام وحدات الكمبيوتر المحمول في الدروس.</td>
<td>استخدام جهاز عرض الفيديو (الجهاز) في الصف.</td>
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<td>استخدام جهاز عرض المفاتيح (الجهاز) في مختبر الكمبيوتر.</td>
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<td>إضافة معلومات عن طريق استخدام الكمبيوتر المحمول من خلال الكاميرا.</td>
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<table>
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<th>التعليقات</th>
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<tbody>
<tr>
<td>استخدام أودي أو أدي في الصنوبر، حفظ الأعمال على الأقران الرقمية.</td>
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<tr>
<td>استخدام السور الصوتية التفاعلية في ملصق الموضوع.</td>
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<tr>
<td>استخدام القيادات في الصف، استخدام DVD CD أو الأقران المدمجة في عرض مواضيع اللغة العربية.</td>
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<tr>
<td>استخدام المشاركة الصادفة للتصور الواجهة وإرسالها للطلاب.</td>
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<td>استخدام الأوراق المصورة في الدروس.</td>
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<tr>
<td>استخدام جهاز العرض الصوتي لإضافة المزيد من المعلومات للطلاب.</td>
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<tr>
<td>استخدام لوازم لعرض أمثلة على الطلاب.</td>
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<tr>
<td>استخدام الأدي أدي في الفصل، العمل لملم تشبه النماذج الأساليب، وتحديد النهاية التي تتطلب ذلك.</td>
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| تطوير دروس اللغة العربية من خلال تصميم سهولة في الالتباس لتحويلها أو تطوير دروس اللغة العربية من خلال تصميم سهولة باريوانيتها. |
| تطوير دروس اللغة العربية من خلال تصميم سهولة في الالتباس لتحويلها أو تطوير دروس اللغة العربية من خلال تصميم سهولة باريوانيتها. |
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| تطوير دروس اللغة العربية من خلال تصميم سهولة في الالتباس لتحويلها أو تطوير دروس اللغة العربية من خلال تصميم سهولة باريوانيتها. |

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</tr>
<tr>
<td>استخدام جهاز العرض الصوتي لإضافة المزيد من المعلومات للطلاب.</td>
</tr>
<tr>
<td>استخدام لوازم لعرض أمثلة على الطلاب.</td>
</tr>
<tr>
<td>استخدام الأدي أدي في الفصل، العمل لملم تشبه النماذج الأساليب، وتحديد النهاية التي تتطلب ذلك.</td>
</tr>
</tbody>
</table>

| تطوير دروس اللغة العربية من خلال تصميم سهولة في الالتباس لتحويلها أو تطوير دروس اللغة العربية من خلال تصميم سهولة باريوانيتها. |
| تطوير دروس اللغة العربية من خلال تصميم سهولة في الالتباس لتحويلها أو تطوير دروس اللغة العربية من خلال تصميم سهولة باريوانيتها. |
| تطوير دروس اللغة العربية من خلال تصميم سهولة في الالتباس لتحويلها أو تطوير دروس اللغة العربية من خلال تصميم سهولة باريوانيتها. |
| تطوير دروس اللغة العربية من خلال تصميم سهولة في الالتباس لتحويلها أو تطوير دروس اللغة العربية من خلال تصميم سهولة باريوانيتها. |
| استخدام برامج عرض للغب من أجل المراحمة والتعليم بالعمل على تذكر المهمات في بيئة تعليمية من استعمال الأدوات التي لابد أن تكون متاحة من أجل سهلة النقل والعمل السريع للطلاب والأيام. |
| --- | --- |
| استخدام وسائل إعلام كروتوية مشرفة عبرية من أجل التثبيت والعمل على النهاية. | إعداد ونشر النشاطات على الإنترنت مثل وسائل الإعلام عبرية أتمتة النشاطات، وعمرات مع المرشدين. | استخدم برامج المحو الأمثل على الإنترنت أو إعلانًا للأعمال أو كتابًا. | معاملة النشرة. |
| استخدام برامج تعليمية أو نشاطات متخصصة على سبيل المثال برامج اللغة العربية. | استخدام برامج تعليمية أو نشاطات متخصصة على سبيل المثال برامج اللغة العربية. | استخدام برامج تعليمية أو نشاطات متخصصة على سبيل المثال برامج اللغة العربية. | استخدام برامج تعليمية أو نشاطات متخصصة على سبيل المثال برامج اللغة العربية. |

يرجى تحديد استخدامات أخرى للتقنية التعليمية:

<table>
<thead>
<tr>
<th>الاسم: استخدام المحاولات للتكنولوجيا التعليمية</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. هل يستخدم معلمين اللغة العربية تكنولوجيا التعليم في تدريسهم؟</td>
</tr>
<tr>
<td>لا نعم نعم أو لا نعم</td>
</tr>
</tbody>
</table>

2. ما هي نوع التقنيات التي تستخدم في التدريس؟
- البريد الإلكتروني
- جداول البيانات
- موقع الويب الخاص بك
- معالج النصوص
- الرسومات

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205
3- يمكننا استخدام تكنولوجيا التعليم في التدريس بصفة: ضع علامة على كل ما ينطبق
- تعزيز المناهج والتعليمات الاستدلالية مثل التطبيق العملي وتقل المعلومات بطريقة مختلفة
- كجزء من النهج الدراسي
- كمكمل للمنهج، أي الفيديو والصور والصوت، الخ
- طريق التواصل المستمر بين المعلم والطالب
- طريق التواصل بين الطالب والطالب

- هل لديك كمبيوتر في المنزل؟
- هل لديك كمبيوتر في المدرسة؟

4- ما مدى فائدة وجود حاسب شخصي في المدرسة:
- غير مفيد على الإطلاق ☐
- مفيد جدًا ☐

5- لماذا نستخدم تكنولوجيا التعليم في تعليم اللغة العربية؟
- ضع الأرقام من 1-10 وفقًا للأهمية:
- مساعدة الدولة المتقدمة تكنولوجيا.
- مواجهة التطور في التكنولوجيا.
- استغلال الأجهزة المتوفرة في المدرسة.
- تغيير روتين الدراسة لزمن الفراغ.
- طريقة تطوير وتجدد طرق التدريس.
- طريقة احترافية للتدريس.
- طريقة قابلة لإعادة المعلومة.
- الآن هو عصر التكنولوجيا والامي هو الذي لا يستخدم الحاسب.
- بسبب الضغط من قبل الطلاب والأهالي والمعلمين لاستخدامه.
- أسباب أخرى.

6- ذكر ثلاثة استخدامات تكنولوجيا التعليم فيما يتعلق بدورك كمعلم مثل (بحث في الإنترنت داخل الصف مع الطلاب، كتابة أوراق العمل، استخدام برنامج التعلم الالكتروني. كتابة التقارير...........)

إذا كان لديك الاهتمام في المشاركة في المقابلة، أرجو كتابة عنوانك لكي نتمكن من الاتصال بك لاحقاً:

رقم الجوال: ☐
إيمايل: ☐
Appendix 4: Interview (Arabic)

المقابلة
مقابلة المعلمين

دراسة استخدام تكنولوجيا التعليم في تدريس اللغة العربية في المدارس الثانوية في منطقة الرياض في المملكة العربية السعودية

1423-1433
ورقة معلومات النسخة العربية

أخي المربي الفاضل

السلام عليكم ورحمة الله وبركاته

بادئ ذي بدء في هذا البحث المكلف برسالة الدكتوراه بعنوان (استخدام التكنولوجيا في تدريس اللغة العربية في المدارس الثانوية في منطقة الرياض في المملكة العربية السعودية) والذي يهدف إلى التعرف على توافر تكنولوجيا التعليم في المدارس الثانوية عند معلمي اللغة العربية في منطقة الرياض في المملكة العربية السعودية ومدى استخدام معلمي اللغة العربية لهذه التكنولوجيا في المدارس الثانوية في منطقة الرياض في المملكة العربية السعودية.

المقابلة سوف تستمر لفترة 45 إلى 60 دقيقة، وسوف يكون الكلام مسجل، وسيتم تقسيم المقابلة إلى (أربعة) أجزاء، سوف تغطي المقابلة (ثلاثة) مواضيع رئيسية للبحث. وستخصص النقاط القليلة الأولى من المقابلة إلى:

1- عرض مقدمة عن الغرض من تطبيق هذه الدراسة والتأكيد على حماية وسرية المعلومات التي سوف تعطى.

2- يؤكد الباحث والمشرفين الذين من جامعة غرب سدني للمشاركين على السرية التامة للمعلومات المستخلصة منهم، بما في ذلك حماية كاملة لجميع المعلومات التي تم جمعها، والتي سوف تستخدم لأغراض البحث فقط.

3- الحصول على موافقة المشارك للمشاركة في البحث.

وقد اعتمدت تطبيق هذه الدراسة من قبل لجنة أخلاقيات البحوث في جامعة وسترن سدني، ورقم الموافقة هو:

(HREC) H8949
- إذا كان لديك أي شكوك أو تحفظات حول السلوك الأخلاقي لهذا البحث، يمكنك الاتصال بجنة الأخلاقيات من خلال مكتب خدمات البحوث على هاتف 0247360001 أو البريد الإلكتروني humanethics@uws.edu.au

- أي قضية ترفعها سوف يتم معالجتها والتحقيق منها بسرعة، وسوف يبلغك بالنتائج. إذا كنت توافق على المشاركة في هذه الدراسة، سوف يطلب مناك التوقيع على نموذج الموافقة.

- وسوف ترسل قائمة من الأسئلة التوجيهية قبل المقابلة للتعريف بالموضوعات المراد تغطيتها خلال المقابلة. بحيث يكون لدى المشاركين الوقت للتفكير فيها من أجل تقديم إجابات مدونة. وسوف تكون معلومات المتطوعين في المشاركة غير مكشوفة الهوية. إن المعرفة الدقيقة لهذه المواضيع مهم جداً لتحقيق أهداف البحث. وواحدة من هذه الأهداف هو المساعدة في توجيه تطوير استخدام تكنولوجيا التعليم في مجال التعليم.

شكرًا ومقدر جهودكم على المساعدة

حامد الأسدي
جامعة غرب سدني
معلومات عن مؤهل المعلم الذي سوف يتم مقابلته:
1- دبلوم
2- جامعة
3- ماجستير
4- دكتوراه
5- آخر

معلومات عن عمر المعلم الذي سوف يتم مقابلته:
30-24
40-30
52-40

معلومات عن سنوات خبرة المعلم الذي سوف يتم مقابلته:
أقل من 7 سنوات
أكثر من 8 إلى 14
أكثر من 15 إلى 52

معلومات عن اسم مدرسة المعلم الذي سوف يتم مقابلته:

معلومات عن المرحلة التي درس فيها المعلم الذي سوف يتم مقابلته:
أولى ثانوي
ثاني ثانوي
ثالث ثانوي

الجزء الأول: ما هي التكنولوجيا التعليمية الموجودة في مدرستك؟
1- ما هي التكنولوجيا التعليمية المتواجدة في المدرسة؟
2- ما هو موقع أجهزة الكمبيوتر للطلاب في المدرسة؟

الجزء الثاني: كيف يستخدم معلم اللغة العربية التكنولوجيا التعليمية في المدرسة؟
1- ما هو نوع التكنولوجيا التعليمية التي تستخدمها في الفصل؟
2- لماذا تستخدم التكنولوجيا التعليمية في تدريس؟
3- ما مزايا إدخال التكنولوجيا التعليمية في تدريس اللغة العربية؟
4- كيف تستخدم حاليا التكنولوجيا التعليمية في تدريس؟
5- ما هي العوامل التي تؤثر على استخدام التكنولوجيا التعليمية في تدريس اللغة العربية؟
الجزء الثالث: ما هي الفروقات بين استخدام التكنولوجيا التعليمية الآن بين الحاضر والماضي؟
1- ما هي الفروقات بين استخدام تكنولوجيا التعليم الإلكتروني الآن بين الحاضر والماضي وما هو الأفضل في الحاضر أو الماضي؟
2- متى بدأت تستخدم التكنولوجيا التعليمية في تدريس اللغة العربية وما هو احساسك عند استخدام التكنولوجيا التعليمية؟
3- ما هي الحوافز التي تدعو لاستخدام التكنولوجيا التعليمية في تدريس اللغة العربية؟
4- ما هي أفضل طريقة لاستخدام التكنولوجيا التعليمية في تدريس اللغة العربية؟

1- كيف تستخدم غالباً تكنولوجيا التعليم في حياتك الشخصية؟
2- في أي حقل من حقول اللغة العربية تستخدم فيه التكنولوجيا التعليمية؟
3- ما هي التكنولوجيا التعليمية عديمة الفائدة في هذا الوقت؟
4- كيف يمكن استخدام التكنولوجيا التعليمية بدون نسبان الطريقة التقليدية أثناء التدريس؟
13 April 2011

Associate Professor Carol Reid,
School of Education

Dear Carol,

I wish to formally advise you that the Human Research Ethics Committee has approved your research proposal "The utilization of technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia" from 13 April 2011 until 13 August 2011 with the provision of a final report on completion.

Please quote the project number H8949 and title as indicated above on all correspondence related to this project.

Yours sincerely

[Signature]

Dr. Janette Perz
Chair, UWS Human Research Ethics Committee
Appendix 6: Permission of Department of Learning and Education (Arabic)

فوقه الله

وفقه مدير مدرسة الثانوية

السلام عليكم ورحمة الله وبركاته وبعد:

بناء على تعليمات الوزير رقم 650/05 وتاريخ 9/17/1412 هـ، بشأن تفويض إدارة التعليم العامة بإصدار خطابات السماح للباحثين بإجراء البحوث والدراسات. تقدم إلينا الباحث/ حامد بن فلاح الأسدي (38745677) طالب قبول دراسة الدكتوراه بجامعة "وسترن" باستراليا، يطلب إجراء دراسة عنوان:

"استخدام التكنولوجيا في تدريس اللغة العربية في المدارس الثانوية بمنطقة الرياض"

والتي تتطلب الدراسة تطبيق أداة البحث على عينة من المعلمين في المدارس الثانوية بمدينة الرياض.

ونظراً للاكتمال الأوراق المطلوبة نأمل تسهيل مهمة الباحث، مع ملاحظة أن الباحث يتحمل كامل المسؤولية المتعلقة بجميع جوانب البحث، ولا يعني السماح الإداري العامة للتعليم والتعليم موافقته بالإشراف على مشكلات البحث أو على الطرق والأساليب المستخدمة في دراستها وعالجتها.

والله يحفظكم ويرعىكم...
Appendix 7: Permission of Ministry of Education (Arabic)

الموضوع: بشأن الطالب/ حامد فلاح سمير الأسدي

سعادة مدير عام التربية والتعليم بمنطقة الرياض بني
السلام عليكم ورحمة الله وبركاته، وبعد:

تجدون سعادتي تقدم برفقته استبانة طالب الدكتوراه من جامعة "ويسترن" باستراليا الطالب/ حامد بن فلاح سمير الأسدي، بعنوان "استخدام التكنولوجيا في تدريس اللغة العربية في المدارس الثانوية بمنطقة الرياض"، والذي يرغب بتثبيته على معلمي اللغة العربية في المرحلة الثانوية. أمل من سعادتي توجيه تسهيل مهمته.

وقبلوا وافر التحية والتقدير،

مدير عام البحوث

د. محمد بن عبد الله الضويان
Appendix 8: Participant Consent Form for Questionnaire (English)

Participant Consent Form

Project Title: The utilization of technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia

I, ........................................., consent to participate in the research project titled [The utilization of technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia].

I acknowledge that:
I have read the participant information sheet and have been given the opportunity to discuss the information and my involvement in the project with the researcher.

The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

I consent to the [the questionnaire, contacting me about being part of a follow up interview]

I understand that my involvement is confidential and that the information gained during the study may be published but no information about me will be used in any way that reveals my identity.

I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher/s now or in the future.

Signed: ____________________________

Name: ____________________________

Date: ____________________________

Return Address: ____________________________
Appendix 9: Participant Information Sheet (English)

Project Title: utilization of technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia

Who is carrying out the study?
Hamed Alasaadi, student of PhD, school of education and Carol Reid, Dr Katina Zammit and Dr. Jorge Knijnik.

You are invited to participate in a study conducted by [Insert name, position and host School, Centre or Divisional unit].

What is the study about?
The purpose is to investigate [insert]

What does the study involve?
Methodology:
This study will use two kinds of methodologies with men who are teachers of the Arabic language in secondary schools in Riyadh, excluding women from the study. It will use both quantitative and qualitative approaches through using a questionnaire and interviews.

How much time will the study take?
four months

Will the study benefit me?
Yes

Will the study involve any discomfort for me?
No

How is this study being paid for?
The study is being sponsored by [cultural mission of Saudi Arabia which give me scholarship. ]
Will anyone else know the results? How will the results be disseminated?

All aspects of the study, including results, will be confidential and only the researchers will have access to information on participants.

Can I withdraw from the study?

Participation is entirely voluntary: you are not obliged to be involved and - if you do participate - you can withdraw at any time without giving any reason and without any consequences.

Can I tell other people about the study?

Yes, you can tell other people about the study by providing them with the chief investigator’s contact details. They can contact the chief investigator to discuss their participation in the research project and obtain an information sheet.

What if I require further information?

When you have read this information, [Hamed Alasaadi mobile number is 0422179000] will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact [Associate Professor Carol Reid Tel: 02 9772 6561, Dr Katina Zammit Tel: 02 9772 6128 and Dr. Jorge Knijnik Tel: 02 9772 6561]

What if I have a complaint?

This study has been approved by the University of Western Sydney Human Research Ethics Committee. The Approval number is [enter approval number]

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel 02-4736 0883 Fax 02-4736 0013 or email humanethics@uws.edu.au.

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

If you agree to participate in this study, you may be asked to sign the Participant Consent Form.
Appendix 10: Participant Consent Form for Interview (English)

Project Title: The utilization of technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia

I, ..................................., consent to participate in the research project titled [The utilization of technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia].

I acknowledge that:

I have read the participant information sheet [or where appropriate, 'have had read to me'] and have been given the opportunity to discuss the information and my involvement in the project with the researcher(s).

The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

I consent to the [being interviewed and the audio recording of my responses]

I understand that my involvement is confidential and that the information gained during the study may be published but no information about me will be used in any way that reveals my identity.

I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher(s) now or in the future.

Signed: ________________________________
Name: _________________________________
Date: _________________________________
Return Address: _________________________
Appendix 11: Letter of Permission of Survey (English)

School of Education
Bankstown Campus
Locked Bag 1797
Penrith South DC NSW 1797 Australia

Department of Teaching and Education – Education Development Ministry of Education
King Abdulaziz St
Riyadh, Saudi Arabia

Dear Sir

I am writing to you to request your assistance for Hamed Alasaadi, a doctoral student enrolled at the University of Western Sydney. Hamed is enrolled at the University of Western Sydney in the Centre for Educational Research/School of Education Doctor of Philosophy program. Hamed’s research topic is entitled ‘A Study of the utilization of educational technology in the teaching of the Arabic language in secondary schools in Riyadh, Saudi Arabia’. As part of this research must be undertaken in Riyadh and he requires your assistance to make contact with Arabic language teachers in secondary schools in the city of Riyadh. The data he collects will be analyzed and form the basis for his Doctor of Philosophy (PhD) thesis.

I thank you in advance for your assistance.

Yours faithfully

Katina Zammmit (Dr)
Academic Supervisor
Lecturer – English