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NOTE: Please download the following to view phonemic scripts.

- Download Phonmap Fonts v3.0

"Phonological and Orthographic Knowledge:
An Arab-Emirati Perspective".

ABSTRACT

This paper analyses the misspellings of a group of first year male Arab-Emirati college students from the phonological and orthographical point of view. Based on a list of 80 words, the problems inherent in their spelling are triangulated using three methods of testing – a word dictation test (WD), a reading aloud test (RA) and a multiple choice test (MC). Through an analysis of the corpus gathered, the misspellings may result from four broad categories of challenge – first language phonological interference, the differing English-Arabic scriptal structure, the irregularity of the English orthographical system and the dual route theory of lexical access. In particular the paper looks at the effects of vowel substitution and consonant errors. The paper then discusses the pedagogical implications of the findings.

CHAPTER 1

INTRODUCTION

All languages can be analysed at each of the four basic levels: text, sentence, word and sound (Thornbury, 1999:1). These are the forms that language takes with the sound system being the source. '**Phonological knowledge**' which develops with the consciousness of sounds and sound combinations of a language (including segmental and supra segmental features of utterances), facilitates listening comprehension and pronunciation skills. Segmental features are phonemic sound symbols while supra segmental features include stress, rhythm and intonation. By being able to discriminate between these contrastive sounds, students will in due course be able to process this awareness to '**orthographical knowledge**' which is the ability to spell correctly. Simultaneously, being able to identify and distinguish words not only expands a learner's lexical understanding, it also helps develop the perception of grammatical morphemes and consequently enables a learner to read and write in a wider context. Therefore phonological and

orthographic knowledge would appear to be the building blocks which incorporate all levels of language acquisition. This subsequently facilitates literacy as a critical survival skill in a rapidly developing 'high tech' age. Yet any cursory glance through educational journals will depict difficulties with reading and writing as a major hindrance for countless people around the world even in native English speaking countries.

Second language learners are typically aware of the extent to which limitations in their phonological and orthographical knowledge impede their ability to read and write in the target language, "since lexical items carry the basic information load to meaning which they wish to comprehend and express" (Read, 2004:146). Instead of looking at the symptoms of illiteracy and blaming the learners for this misfortune, we ought to target the causes of this malady. According to Furness, (1990:13), psychologists say that the ability to spell depends upon the senses while linguists say that one can learn to spell by becoming acquainted with phonemes and graphemes, and with the structure of language.

Though teachers recognise the salience of spelling and have often debated the look-say or phonics method, adversely no progressive follow up is exercised at a later stage in the language curriculum. This is due to greater relevance being given to the recent trend of communicative task based activities and the acquisition of grammar (Doughty & Williams, 1998). Spelling as an essential principle of a language appears to be overlooked by most EFL/ESL syllabi which either advocate communicative competence or integrated skills such as reading, writing, speaking and listening as their major focus. Once introduced at the elementary level, spelling is assumed to have been mastered and not reviewed at later grades. It appears to follow that those who have not mastered it then keep making the same repeated spelling mistakes year after year without sufficient remedies by teachers who have other teaching priorities to fulfill. Yet when spelling is discussed, teachers frequently raise the questions as 'How much to correct?' and 'How many marks should be deducted for poor spelling?' (Shemesh & Waller, 2000:1). As a result of this uncertainty, this predicament is evident and encountered by educators across the globe.

Nonetheless core research done in this area to unveil the challenges faced by L2 learners in particular, has been inadequate (Randall, 1998, Koda, 1996). In order to fill this gap from the Emirati perspective, this research was therefore initiated. The rationale for undertaking this investigation is therefore to rekindle awareness of the significance of spelling through the challenges faced by Arabic spellers in English and subsequently better inform the teaching of spelling at regional schools and institutions. Through the following research questions involving four major dimensions, the reasons why Arab speakers make phonological and orthographical errors in English were analysed:

1. Does the first language phonological system cause interference in reading and spelling in English?
2. Does the differing Arabic scriptal structure cause problems when using English Roman letters to spell words?
3. Does the irregularity of the English orthographical system cause difficulty in spelling?
4. Does the cognitive dual route theory of lexical access work the same way in Arabic as it does in English?

The challenges facing Arabic speakers' spelling in English.

1.1 Arabic Phonological Challenges in English

During a recent graduation day at the college, a final year Emirati student had the privilege to be the Master of Ceremony. In his flawless speech and pronunciation which was very close to standard English, a very evident mispronunciation was detected. When he introduced the director of the college, 'Bill' /βɪl/ Vega to come up on stage to present the awards, he actually said *Bell* /βεl/ Vega. Comments shared by local colleagues revealed that Arab speakers also often refer to the ex-president of the United States as *Bell* Clinton. The causes of such mispronunciations may be the result of incorrect transfer of phonemes to graphemes. These inaccurate associations thus develop particular spelling errors which are common amongst the Arab-Emirati students.

Arabic is a consonantal written language and therefore Smith (1987:143) points out that while virtually all English vowels may cause problems in Arabic, some vowel phonemes do not have equivalents or near equivalents in spoken Arabic and are therefore perceived and articulated with great difficulty. The example underscored by Smith as the most problematic is the confusion between the vowel phonemes /ɪ/ and /ɛ/ (*bit* for 'bet') which is the reverse for the same phonemes identified above (*Bell* for 'Bill'). Knowing that Arabs are more prone to using the phoneme /ɪ/ instead of /ɛ/ according to Smith (1987), it seems unusual that a word like 'Bill' with the phoneme /ɪ/ which should not be problematic, is actually substituted to *Bell* with the phoneme /ɛ/ instead. Therefore the phonemes /ɪ/ to /ɛ/ and /ɛ/ to /ɪ/ cause confusion both ways.

Though monosyllabic words (word consisting of a single syllable or a unit of rhythm) were assumed to be uncomplicated, strikingly words in this category like 'Bill' are the ones which most Arabic students seem to have problems with phonologically as well as orthographically in terms of vowel confusion compared to many other polysyllabic or less transparent words. Based on a series of experiments involving Arabic speakers, Ryan (1997) discovered that they have such severe problems in recognizing vowels that it amounts to what Haynes (1984) called 'vowel blindness'. It is arguable however that it may not be so much a case of 'vowel blindness' but rather a matter of vowel confusion and the inability to discriminate between vowels. As seen with 'Bell' for Bill, the problem is a matter of **vowel substitution**.

Another noticeable phonological feature of challenge is that which may cause a **vowel addition** especially in words with consonant clusters (eg: *sepeak* for 'speak'). A vowel addition such as this is termed as **epenthesis**. Epenthesis refers to the intrusive sound placed between two other sounds to facilitate a 'difficult' articulation (Jenkins, 2000:34). This is due to the fact that some initial two or three segment clusters such as 'pr', 'pl', 'gr', 'gl', 'thr', 'thw', 'spr', 'skr', 'str', 'spl' (Smith, 1997:144) are not part of the Arabic **phonotactics** and therefore in such cases there is a tendency among Arabic speakers to insert short

vowels to assist pronunciation and these may carry over into the spelling of such words in written English.

Finally, vowels are sometimes neutralised making short words like 'red' sound almost like *rd* /ρΩδ/ with a decolouring effect and can be termed as **vowel reduction**. According to Smith (1987:143), while syllables are stressed, short vowels in Arabic are glossed over and not clearly articulated, therefore a dull, staccato 'jabber' effect is produced. Kaye (1987:177) explains that the classical /i/ and /u/ for instance both merge into /Ω/ while /a/ can usually be regarded as the most stable and conservative of the three short vowels. He adds that though there are only two diphthongs in Arabic /aw/ and /ay/, in most colloquial dialects, they have been monothongised. Whether the same occurrence is transferred in English was anticipated in this study.

The above mentioned problems with vowel substitution, addition and reduction by Arabic speakers in English imply that Arabic and English phonological systems are very different. Phonologically, the range of sounds used in both languages varies considerably. Arabic consists of 32 consonants as compared to 24 in English. As for vowels, though there are only 8 in Arabic (3 short, 3 long and 2 diphthongs), it is the long vowels that give meaning to words and are therefore important while short vowel sounds are usually less significant and therefore susceptible to confusion (Smith, 1987:143). Kaye (1987:176) supports the view that in modern Arabic dialects the short vowels are more susceptible to change than the long ones. It was therefore hypothesized that Arabic speakers in this study would have problems with short vowels and diphthongs in English. With all the phonological differences, the students' first language would seem to interfere with the orthographical knowledge in the second language. However, some linguists have claimed that that mother tongue interference is not an important factor and that learners of a given foreign language tend to follow the same kind of 'route' through its difficulties regardless of their first language (Smith, 1987:x). Although this may be true in the area of grammar, it can be argued as contradictory in terms of phonology. Grammar can be understood and learnt by rules. However, acquiring phonemes of a contrastive second language

like English would seem to involve interference or transfer from a learner's first language dependence. Thus arose the need to query this reservation.

1.2 <u>The Scriptal Interference</u>

Arabic is a Semitic language and its characteristic feature is its basis of mainly **triliteral** (three lettered) **consonantal roots**. "Variations in shade of meaning are obtained first by varying the vowelling of the simple root, and secondly by the addition of prefixes, suffixes and infixes." (Haywood & Nahmad, 1965:1). While English orthography includes prefixes and suffixes, it never includes infixes (eg: *pre*plan*ned*). Though Arabic speakers are known to employ epenthesis in their speech, it was considered a legitimate root to explore if they transfer the same as infixes in their written English. Secondly, Modern Standard Arabic nouns are inflected for case determination, gender and number indicated by short vowel suffixes /u/, /i/ and /a/ (Kaye, 1987:183). Knowing that Arab speakers are familiar with orthographic forms that include affixes, it was thought to be worth while to experiment if they were able to identify the same in their English word dictation.

The Arabic writing system is a simple, systematic, virtually phonetic letter-sound alphabetical system with 28 basic letters. "It is a system of consonants and long vowels while short vowels are represented only by additional **diacritics** or not at all." (Abu Rabia & Sigel, 1995:4). Diacritics is the use of dots above and below letters in groups of one to three to indicate vowels (Kaye, 1987:179). Short vowels are not part of the alphabet and are rule governed according to the meaning, inflection and function of a sentence (Abu Rabia, 1998:106). While short vowels in Arabic provide specific meanings and pronunciations to beginning readers, literary Arabic texts are not vowelised and therefore these short vowels must be deduced by the reader (Abu-Rabia, Share & Mansour, 2003:425). Therefore it can be argued that the predictability of the symbol-sound correspondence only prevails if the text is vowelised. However in English though all vowels, short and long are written and represented by actual letters, Arabic students still appear to have problems in discriminating between them both in reading and when asked to spell. Therefore it seemed noteworthy to investigate if

the range of vowel errors mentioned earlier was more a phonological (pronunciation) issue or an orthographical (spelling) one. If it was a phonological matter, then to what extent did it reflect in their spellings? This needed to be further investigated for this study.

Many linguists and scholars commonly label Arabic as having a "too perfect, algebraic-looking grammar i.e. root and pattern morphology" (Kaye, 1987:171). For instance, the root K-T-B which is to do with 'writing' can come in ten commonly used forms of the verb (some examples: yiktib=he writes, kitaab=book, maktab=office). "Word families in Arabic are made up of sets of words which all share a common set of three consonants, but vary in the way vowels are placed within this consonantal framework" (Ryan, 1996). Similarly Arabic speakers assume words like 'red, read, raid and ride' to be related and belonging to the same word family though they are semantically unrelated. While these words have similar consonant structures they are not always semantically related because it is the vowel differences that give rise to new lexical meanings in English.

Additionally it has been noted that when Arabs spell their most common name in English, it is done with a variety of spellings (eg: Mohamed, Mohammed, Mohamad, Muhamed, Mahammad, Mahmud) where the placement of written vowels do not make a difference to some of them. Evidently the "tri-consonantal root requires a specific cognitive process which Arabic-speaking readers continue to make use of even when reading (and spelling as in their name) in English" (Ryan, 1997:191). This transliteration differences could perhaps be a matter of preference while maintaining the tri-consonantal root which consists of M-H-D.

Usually, Arabic texts are presented without vowels (deep orthography) to skilled readers therefore great reliance is placed on context. Arabic is orthographically homographic whereby one word carries several different meanings (Abu Rabia, 1998:105). Reading is thus "highly context dependent because without vowels, there is no strategy to identify words that are visually identical and carry several different meanings" (Abu Rabia, 1995:6). Therefore it was motivating to test this theory and examine if Arabic students do use context reference when reading or spelling in English. However given that the students in this study lack English

proficiency, it was expected that they may use a bottom up processing and not rely as much on context.

While phonological assembly is central for reading and orthographical knowledge to all alphabetic systems, in Arabic in addition to that, it is also important for readers to acquire more knowledge about the Arabic syntax and vocabulary to enable them to use context and vowels perhaps as 'holistic automaticity' in reading instead of 'autonomous automatic word recognition' (Abu Rabia, 1998:107). Although the Arabic writing system may seem simple from the phonological aspect, it is nevertheless a cognitively demanding operation to be skilled and literate in the language. Furthermore certain spelling irregularities do also exist in Arabic although not as much as in English. According to Ryan (1996) "some Arabs produce lexical errors in English which are only rarely produced by speakers of other L1s". Knowing the sophistication and the complexity of the Arabic language, it is puzzling to note that Arab speakers have great difficulty in pronunciation and spelling in English.

In recent years, reading in a foreign language has been a focus for research. Nevertheless "much of this activity has centered on the relatively higher-order skills of discourse organization and the interpretation of text…yet for many of the world's learners, the problem is not so much that of understanding at the text level (global level) as processing at the word level (local level)" (Randall, 1998:133). Ryan explains that it is precisely at the level of word form that difficulties arise for Arabic speakers and therefore the context does not always help very much (Ryan, 1997:188). Moreover, because they have a radically different scriptal system, reading and writing even at the word level in the Roman script must be a particularly acute task.

After Latin, Arabic is the second most widely written script used by different languages (Kaye, 1987:179). The normal Arabic orthography is a cursive system, running from right to left with no upper and lower case distinction. In English however, even in lower case, distinctions are made between different types of font for the same letter for example **a** and *a*, **g** and *g*. Likewise fonts which change to

cursive as in *skyscraper* appear as a severe misrepresentation of the true form for many Arabs. In addition, certain letters like p and v do not exist in Classical Arabic phonology and script. Therefore not only do Arabic speakers have to "learn an entirely new alphabet system for English they also have to master its rather unconventional spelling patterns" (Smith, 1997:146).

1.3 <u>Irregularities in English Spelling</u>

Spelling in English has been described by various authors as 'notorious', 'inconsistent', 'an awesome mess', 'irrational' and even 'inhuman' (Pei, 1965). "The English alphabet consists of 26 letters used singly or in combinations to write approximately 44 sounds in English speech" (Shemesh & Waller, 2000:3). Because there are too many sounds and too few letters, spelling is problematic even for those at an advanced level. Because sounds are not spelled the same way, Furness (1990: 25) describes English spelling as unphonetic.

According to Brown (forthcoming), spelling in English is probably the most complex spelling system among all languages of the world that use an alphabetic system due to the many-to-one and one-to-many correspondences between letters and sounds which consequently give rise to many homophones (words pronounced the same but spelt differently eg: stare and stair), homographs (words spelt the same but pronounced differently eg: tear) and homonyms (words spelt and pronounced the same but with different meanings eg: bark).

Looking at irregularities, the word 'through' doesn't rhyme with 'bough', 'cough' or 'dough', but it does rhyme with 'to', 'two' and 'too' (Downing, 1990:iii). "Silent letters, inconsistent doubling of consonant letters and the largely unpredictable representation of unstressed schwa" (Brown, forthcoming) are all contributory factors that confirm English spelling to be highly complex. An additional problem is the way native English speakers (British, American and Australian) pronounce words differently which may well interfere with the spellings of those words (eg: caught, route and schedule) for a second language student. Moreover learning rules like *i* before *e* except after *c* (eg: believe,

receive) is not always the case (eg: vacancies) because there are always exceptions and therefore not as helpful. Therefore, because spelling is not a matter of logic, sounding out words or learning rules, it is simply a matter of visual memory and word recognition as suggested by Downing (1990:iv).

1.4 <u>The Dual Route Theory</u>

The dual route theory is a cognitive paradigm which indicates how the brain accesses words. In the **lexical route**, words are processed **orthographically** through visual whole word recognition using the top down approach. In the **non-lexical route**, words are processed **phonologically** or through phonographic analysis which is the transfer of graphemes to phonemes or letter-sound associations using the bottom up approach.

Koda draws the attention that (1996:451), "different writing systems contrastingly do require qualitatively different processing procedures". Randall (1997:2) validates this notion with the reason that the "dual route theory may be quite specific to English given the orthographic complexity of the language, and may not be relevant to reading in other languages which have more regular letter-sound correspondences". In English, besides breaking down phonemes of a given word (eg: bit), one is also required to read through whole words using onset and rhyme (eg: bite). The fact that Arabic is a consonantal written system and requires its readers to supply suitable vowels when reading, it was believed that Arabic speakers in this study would engage in a phonological route when mapping script to sound and transferring sound to print. This phonological encoding is evident when Arabic speakers usually learn by rote or read aloud rather than silently. "In the L2 context, it has been widely recognized that L1 skills are transferred to L2 processing even when L1 and L2 are typologically unrelated" (Koda, 1996:451). It was of interest to investigate what route the Arabic speakers in the study utilise in English from a position where they have not achieved the level of automaticity in L2.

1.5 <u>Other areas of anticipated focus:</u>

      <u>Rhoticity, Paragoge, and Diglossia – Inter and Intra Language Variety</u>

The aim of this study was to discover the key characteristic difficulties of learners who speak Arabic as their mother tongue and to understand how, where and why these difficulties arise in their English phonology and orthography. The typical **interlanguage** variety produced by Arabs in this study is described in terms of how they deviate from a standard British variety of English. While the majority of L1 English speakers are not sensitive to their own intra-speaker variations, they are quick to notice the inter-speaker variations of L2 speakers therefore interpreting them as a negative connotation against the norm and do not appreciate the significance of variability particularly in pronunciation (Jenkins, 2000:27). Consequently this assumption may seem to limit the study.

For instance, Arabs speakers have been noted as deviating segmentally in their speech articulation through the use of **rhoticity** and **paragoge**. Mesolectal Arabic English is an energetic rhotic dialect whereby /r/ pronounced after vowels and consonants are more strongly articulated than in English (eg: bear). Wherever there is an /r/ sound in pronunciation, rhotic speakers have no problem in remembering to use an 'r' letter in spelling (Brown, forthcoming). Whether the obvious rhoticity aided in the correct orthography of a word that embedded the grapheme 'r' was anticipated in this study.

Paragoge involves the addition of a sound to the end of a word. Some Arabs employ paragoge principally at the end of a word that ends with a consonant (eg: well-ah Ahmed said-ah that-ah he will-ah come late) in speech rather than in a single word pronunciation. However as long as such phonological variations do not present an obstacle to intelligibility, then it should be accepted as a regional variation of Arabic-English. Nevertheless, paragoge in the form of orthographically written variations (misspellings) would appear to cause more negative judgements and was an aspect considered likely to feature in the data.

After discussing the interlanguage variety, it seems worth discussing the **intralanguage** variety that exists as an interesting and rare phenomenon evident

in Arabic, called **diglossia**. "Diglossia involves a situation in which two varieties of the same language live side by side, each performing a different function", as defined by Kaye (1987:181). He explains that one of the variations which is used in formal situations is the 'high' Arabic, also known as Modern Standard Arabic (or Modern Classical Arabic) learned officially through education in school while the second variation is the comparatively 'low' Arabic used as an informal colloquial language which native speakers acquire as a mother tongue. Bearing in mind that Arabs speak a different language from the language they use to read and write, we could perhaps regard English as a third language for them. As Ryan (1997:185) confirms, for Arabic-speaking learners, "English may effectively be their L3 learned at school but not practised very extensively since then" and they are therefore often perceived as having problems.

With the challenges brought to light thus far, the second chapter will review previous studies on this topic from the L2 standpoint. The third chapter will outline the methodology and instrumentations implemented for this investigation followed by a presentation and analysis of the data gathered in the fourth chapter. Finally, the fifth chapter will include a discussion, conclusions and recommendations based on the research conducted.

CHAPTER 2

A review of previous studies on the English spelling of Arabic speakers

This chapter reviews a range of literature relevant to research studies on the English spelling of Arabic speakers. The predominant focus includes how other researchers obtained their data, their choice of control groups and the methods they opted to implement their investigations. These aspects were analysed in terms of research practicality, validity and reliability.

Due to Arabic being a consonantally written language, the study on English spelling of Arabic speakers has been of particular interest to some researchers while looking at literature reviews from a historical perspective (Haynes 1965, Henning 1973, Haggan 1991, Ryan & Meara 1996, Randall 1997, 2005). Moreover, as a result of its phonological transparency of letter sound correspondence and the uniqueness of its scriptal system, Arabic orthography presents itself as a language that requires distinct processing procedures. Because of these characteristics, researchers can avail themselves of an interesting opportunity for studies principally in the area of vowels which appear to be superficially nonexistent in Arabic.

Through one of their investigations, Ryan & Meara, (1991:534) presented a paper entitled "A case of the invisible vowels: Arabic speakers reading English words" to show that Arabic speakers rely heavily on consonants when attempting to recognize English words. Their task involved 100 frequent 10-letter words in English. Each word appeared on a computer screen for approximately 1 second and then blanked out for approximately 2 seconds. The word then reappeared either spelled correctly or in an altered form in which the vowel was removed. The subjects' task was to decide whether the two presentations were identical by responding either a YES or a NO key on the keyboard. Ryan & Meara (1991) hypothesized that the Arabic speaking subjects would find their experimental task more difficult than the non-Arabic speaking learners of English or the native speakers. As they envisaged, the results demonstrated that Arabic speakers play down the importance of vowels in words with similar consonantal structures

compared to their controls. While looking at the radically different scores between the Arabic and the other two groups, it was vital to closely examine the background and proficiency levels of the subjects tested in this study.

The first group comprised Middle Eastern Arabic speaking male students at the University College of Swansea. The second which was the 'non-Arabic' control group, consisted of students who were 'speakers of European languages' at the same college. However, it was not mentioned which European countries the non-Arabic subjects were from. Though their level of proficiency was stated as comparable to that of the Arabic speakers, it was not made clear what proficiency was measured; spelling accuracy or language competence or academic skills? Nevertheless, it is important to consider that the European speakers would obviously have more exposure to the English language due to being in Europe as well as being familiar with the Roman script.

Because European languages share similar scripts to English, they are 'orthographically related' unlike Arabic which is 'orthographically distant' from English (Muljani, Koda & Moates, 1998). Therefore according to Koda (1989), related orthographic backgrounds would enhance the facilitation and mastery of similar languages. Contrastingly however, Oller & Ziahosseiny (1970) found that English spelling difficulties may be particularly evident where the native language uses a similar script to English. They argue that L2 learners from a non-Roman writing system are required to make fewer subtle distinctions than those whose native language uses another Roman writing system (Haggan, 1991:46). Although views on this issue appear to be conflicting, it is nonetheless believed that along with related orthography, the geographic proximity and parallel culture, contact with the English language would seem to be advantageous for European speakers.

Another possible problem in Ryan & Meara's (1991) research is that subjects in the third 'non-Arabic' control group which consisted of 'native speakers' were actually 'teachers' from the Center for Applied Language Studies at the same college. Haggan (1991:61) affirms that the level of proficiency which could be derived from factors such as age, intelligence and interest specialisation would

affect spelling errors and subsequently needs to be considered and controlled in experiments. It may have therefore been more relevant to have tested native speakers of the same year group as the other students in the study, rather than English language teachers who could be expected to achieve a higher score in such a comparative experiment. First language speakers may well be poor spellers at times and could have perhaps indicated different results in this investigation.

An interesting dimension to point out here is a research overview by Scott Foresman & Co (1995) which cites that vowels in English, rather than consonants, have generally been known to be common causes of misspellings. Shemsesh & Waller (2000:4) likewise found spelling errors resulted from poor phoneme awareness especially with vowel sounds in first language speakers. Similarly, Cook (2001:4) found that the diverse letter correspondences for unstressed schwa created large problems for L1 users. All these findings suggest that vowels in English are common causes of misspellings even for native speakers. Bearing this in mind, misspellings in English cannot be associated to a specific group, or measured to be more in one group than another as indicated by Ryan & Meara (1996) in their introduction, "some Arabs produce lexical errors in English which are rarely produced by speakers of other L1s". Again in this study, Ryan & Meara (1991:531) remarked that errors produced by Arabic speakers "seem to be more dramatic and outlandish than the errors ordinarily produced by Spanish speakers, say, or German speakers".

In any case, Ryan & Meara's research (1991) produced favourable statistical results to compliment their hypothesis. They compare their findings with that of Henning (1973) and in particular Haynes (1984) who pioneered the term 'vowel blindness' in order to support their findings that Arabic speakers' face a handicap in vowel recognition in words where they have been deleted.

Variables such as control groups with different profiles can possibly influence the outcome of investigations and therefore it would be considered fit to reduce them as much as possible. In trying to research spelling errors, it would seem more appropriate to focus on the types of spelling errors made primarily within a

particular language group or region and analyse the reasons why they are made using current theories. Along with this, it is essential to have a strong underlying background of the L2 under examination for the researcher to fall back on in order to make valid interpretations of the data. In this way, misspellings can be qualitatively examined followed by possible prescriptive pedagogic implications, rather than simply demonstrating a certain problem or measuring quantitative scores with other language groups. Applicable studies which deal with the core spelling problems from the cognitive viewpoint with a thorough knowledge of the L2 phonology have been embarked upon by Randall (1997, 2005) and Brown (forthcoming) in Malaysia and Singapore. This scheme is precisely what underpins the research presented in this paper by approaching the spelling errors made by Arabic-Emirati speakers in English.

Though Randall (1997, 2005) also engaged in a comparative group study, his comparisons were based on three different language groups (Malay, Chinese and Tamil) but within the same geographic location, Malaysia. While English orthography may be unrelated or distant from the subjects' first language writing systems, they were nevertheless all geographically related and share a similar cultural setting. In addition, they were of equal age, similar level of English language proficiency and under the same umbrella of schooling system. Therefore such a study was not only interesting in terms of its findings, but also justified in terms of comparisons. While maintaining their respective mother tongues and sharing an identical nationality background, Malaysians do exemplify a unique scenario for such cross language comparative ESL investigations.

As in this study, Haggan (1991) too ventured an investigation on spelling errors in native Arabic speakers. However her comparisons were between remedial students and fourth year students majoring in English at the University of Kuwait. Her efforts were to discover whether exposure to English made a difference in the spelling of advanced students as compared to the remedial group. Though a useful comparison, the error classification system she adopted in her study triggered some queries. The students' errors were classified according to the system consisting of eight categories described by Bebout (1985). These categories were then subcategorized (up to 20 in some cases) thus cataloguing a

detailed error type distribution exposing frequencies and percentages of 405 unlisted spelling errors. Such an itemized taxonomy though extensive, did not serve to critically analyse the core problems of spelling errors encountered by Arabic speakers. Breaking down error types into categories rather than knowing what those words were seems like an anomaly. With such a broad based mechanical investigation, only two general observations were attained. Errors arose firstly from not knowing the spelling rules and secondly due to incorrect pronunciation, both of which are controversial questions in terms of language teaching. More specific pedagogical implications could have been useful for language teachers and course book writers or perhaps the researcher did not intend to take the study further. As a matter of fact, it is significant to raise at this point the fact that not many educators or researchers get to the level of detailed analysis of target word errors and 'why' they possibly occur. This could perhaps be reasoned with the lack of L2 knowledge to make scholarly and subjective comparisons in terms of phonology, orthography and scriptal system differences.

While attempting to observe Haggan's (1991) results from her 'idiosyncratic coding practice', it was prominently discovered that vowels were the most frequent cause of errors. The highest percentages of vowel errors were categorized under "other vowels" (Haggan, 1991:54) which does not provide the reader with a proper insight of the significance of such a detailed sub-categorization. Furthermore, one of the features of this sub-classification cast a doubt on its validity. This feature actually comprised of counts of errors the researcher presumed was due to incorrect pronunciations. Haggan (1991:55) then concludes that, "if spelling is to be improved, an assault must also be launched against inaccurate pronunciation". Firstly, pronunciation can be viewed as a form of dialectal variety and does not necessarily indicate a consequence which would involve misspellings. Secondly, due to lack of phonographic (phoneme to grapheme associations) transparency in English spelling, one cannot always pronounce words the same way as they are spelt. Finally and imperatively, quantitative assessments on something as questionable as pronunciation can be highly disputable without evidence of any reading aloud tested for accurate findings. Therefore while identifying spelling errors from the Emirati perspective,

the study in this paper also includes a reading aloud test as a form of verification to see if mispronunciations do get transferred to their orthography.

While reviewing Haggan's (1991) categorization, it is important to bring to attention the method that she opted to gather her corpus. Though she used a mechanical approach for data analysis, she actually opted to acquire her corpus using a naturalistic approach whereby spelling errors were collated from an end-of-semester examination which involved spontaneous writing. Bebout (1985) on the other hand collected errors from responses to an elicitation task requiring Spanish speaking EFL learners and native English speakers to freely select and fill in the blanks in given sentences. What seems more constructive is to have an objective list of target words for experimentation followed by a subjective approach of multi-level analysis as approached by Randall (1998, 2005). In this way, the set of words are constant while a variety of reasons can be attributed from the wide range of responses obtained from those target words. For this reason, a procedure similar to Randall's was replicated in this study.

A striking highlight from the results gathered by Haggan (1991:54) revealed that the fourth year Arab students did far worse than their remedial counterparts in "other consonants" and "errors involving schwa". Such unusual results are likely to stem from the naturalistic approach she adopted in her corpus collection. The raw scores from her study revealed more errors from the fourth year students (207) compared to the remedial (198). This could be attributed to two main reasons. First, there were three times more subjects in the advanced group than the remedial group. Secondly, the advanced group was required to write full scale essays while the remedial group was expected to only write a short paragraph. With added variables as such in her study, it is difficult to encapsulate true results that were intended to be achieved. Though involving two Arab groups (advanced and remedial) for comparisons to investigate the effect of English exposure on spelling seemed like a rational approach, her choice of data collection using the naturalistic approach is viewed as a drawback. Firstly, using a naturalistic approach would cause remedial students to refrain from using words they do not know how to spell. Secondly, it would seem of limited use to consider analyzing spelling errors if they were rare or uncommon words. Thirdly, if there were a

range of words discovered as having recurrent spelling errors, it would still not indicate to the researcher if other students in the investigation also made similar or different mistakes.

Therefore using an experimental list of frequently used target words instead of a naturalistic approach for spelling research is perceived as a coherent methodology for both measurable as well as qualitative analysis. In their study, Muljani et al (1998:104) had their participants engage in a task with four sets of material whereby the words were either 'high or low frequency' and were either 'congruent or incongruent' (based on syllable patterns). They found that high-frequency words and words with congruent spelling patterns were recognised faster than low frequency words and incongruent words, regardless of L1 orthographic background. Therefore, for my study, 80 frequently used target words were selected from Paul Nation's first thousand vocabulary list. To make it more sophisticated, the list was further broken down to orthographic transparency. This entailed two groups of words; 'phon' words which are phonographically transparent in terms of spelling and 'rhyme' words which are phonographically not transparent and may be orthographically irregular. Such a classification is a reproduction of Randall's work (1998, 2005). A taxonomy such as Randall's is practical and provides not only insights into target word errors but also pedagogical inferences as to how words are accessed, which is an important part of this study.

Based on the dual route theory, English L1 users utilise both a non-lexical route (phonological assembly process) and a lexical route (orthographic whole word images of visual logogens) to word recognition and production (Randall, 2005:2-3). According to the Orthographic Depth Hypothesis (ODH), in shallow orthographies (phonologically regular), a phonological code is prelexically assembled through intraword analysis whereas in deep orthographies (phonologically opaque), it is lexically obtained through retrievals from the mental lexicon (Koda, 1996:453). Cook (2001:3) claims that English is fairly 'shallow' and involves primarily assembling phonology from a word's component letters (using mainly phonetic elements) while some words that are 'deep' involve using a lexical 'visual-orthographic' store (using orthographic elements).

However, considering the fact that the correspondences between letters and sounds (vice versa) are far from straightforward in English, it may therefore be generally viewed as orthographically 'deep'. Ryan (1997) likewise views English as 'orthographically irregular' because not all words can be decoded as phonemic units. It would be of value to compare Arabic orthography in terms of how words are lexically accessed in order to reveal implications on which route(s) to prescribe Arabic speakers when reading and spelling in English.

Having examined the relevant literature in terms of the pros and cons of various approaches adopted by different researchers, my study will look out for spelling errors in Arabic speakers of English applying the technique believed to be the most robust which is to be discussed in the next chapter. Along with the underlying knowledge of Arabic phonology and orthography, this investigation attempts to unveil an accurate analysis from the data and to impart suitable recommendations for English spelling to Arab-Emiratis.

CHAPTER 3

METHODOLOGY

3.1 Subjects

The group for this study consisted of 15 native Emirati male students from an English medium government technology college in the United Arab Emirates. They were first-year (second semester) Diploma students with Business as their major and attended 10 hours of core English a week. However all the students came from local public school backgrounds where the language of instruction was in Arabic and English was taught as a foreign language without much emphasis. Therefore all of them spoke Arabic as their first language of literacy. Although almost all were average academic achievers, their English proficiency (written more than spoken) was limited. Many also spoke moderate levels of Farsi and Hindi. Their age ranged between 18 and 23 years.

3.2 Approach

Although adopting a **naturalistic approach** by selecting spelling errors at random from students' spontaneous writing without the use of dictionaries was a possible option, avoidance strategies that students could employ was anticipated. According to Brown (forthcoming), "an obvious way to reduce the number of spelling errors is to write less" and secondly, "to avoid misspelling a word you are not sure of is not to use that word but choose a synonym" or even rephrasing. For instance, if a student is unsure of how many 'l's are in the word 'excellent' or if it ends with ent/ant, they can easily substitute it with the regular phrase *very good*. Therefore a true indication of spelling errors made may not have been viable. Thirdly, if an essay was assigned on a particular subject, the students' word choice would have been limited within that perimeter. As an illustration, a topic like "Traffic in Dubai" would constrain the usage and range of possible lexis (eg: car, time, road, busy). Fourthly, in handwritten essays, the disadvantage is that the handwriting or spaces between words may be unclear. Brown (forthcoming) explains that describing errors in handwritten essays is not always possible

especially when trying to differentiate if they are 'slips' (matter of performance) or 'errors' (matters of competence).

Subsequently an **experimental approach** rather than a naturalistic approach was applied for this study. The comprehensive list of 80 target words was thus based on words building around phonemes that do not have equivalents or near equivalents in Arabic and therefore have been perceived and articulated with difficulty. As suggested by Smith (1987:143-4) the following vowel and consonant phonemes may cause problems to Arab speakers of English. Vowels that cause the 'most' common confusion are put in brackets.

vowels		consonants	
(ε)	εΩ	π	ϖ
▱	⟍Ω	ǀ	ρ
(Ω)	(Ω←)		
℘	⌐⟍		
(⌐⊃)	α⟍		
±⊃	←Ω		
α←Ω	α⟍Ω		

Contrastingly, vowels like /⟍/ and /ε⟍/ which do have equivalents in Arabic are also often confused in English. Some examples are demonstrated below. As seen, diphthongs and monothongs are often failed to be differentiated between each other.

Hid /⟍/ for 'head' /ε/
Raid /ε⟍/ for 'red' /ε/
Got /▱/ for 'goat' /Ω←/
Cot /▱/ for 'caught' /⌐⊃/
Hope /Ω←/ for 'hop' /▱/

As for consonants, Smith (1987) proposes that /π/ and /β/ are allophonic for Arabic speakers and tend to be used rather randomly in English. Likewise /ϖ/ and /φ/ are also allophonic but are usually both pronounced as /φ/. He adds that the phoneme /l/ is usually pronounced as /v/, /vʔ/ or even /vκ/ while the /ρ/ in Arabic is a voiced flap, very unlike RP/ρ/. RP is an abbreviation of 'Received Pronunciation' which is the prestige accent of British English (Roach, 1983:4). Smith's assumptions were used as a rationale for this experimental approach in order to validate the issues concerned from the phonological and orthographical outlook.

3.3 Target words

For this experiment, the corpus was collated based on a list of 80 words (see Appendix 1). The majority of the target words were selected from Nation's (2001) 1000 vocabulary list frequently used at the college, though a handful of other commonly used words were also added. The primary interest was in the students' knowledge of the known words rather than their ability to operate non-lexical units. Therefore the tested words were those that the students should have encountered. Nevertheless in the word dictation test, students were asked to indicate in a column if the tested word was 'unknown' to them in terms of meaning. Words like 'bear, fever, torn and wild' were found to be unknown to a small number of students.

Some of words from the list were morphologically inflected employing a range of regular and irregular past tense forms where the spelling rules in each case differed such as in 'ask**ed**, ca**ught**, cr**ied**, plan**ned**, tir**ed** and w**ould**'. Other inflections included words using comparisons (eg: bett**er**, few**er**, high**er**, low**er**), verbs with -s (eg: cook**s**, speak**s**), the present continuous (eg: swimm**ing**) and past participles (eg: t**orn**). Other than that, all other target words were fairly standard while exemplifying both phonological and orthographic criteria. The range of lexis within this list was aimed to identify spelling problems involving vowel substitution, addition, deletion, reduction as well as initial and final clusters, some consonant diagraphs and morphological inflections.

In a recent study, Randall's (2005) analysis of word errors was grouped according to two categories, orthographical transparency and syllable structure. The orthographical transparency included either 'rhyme' words or 'phon' words. In his study, rhyme words were those which were orthographically less transparent (eg: hope) while phon words were orthographically more transparent (eg: hop). The other category that defined errors was the effect of syllable structure. The syllable structure focused on words with increasing complexity in particular the presence of consonant clusters in the onset and coda while also focusing on final clusters with or without morphological inflections (eg: CVC, CCVC, CVCC, CCVCC +/- inflection). This investigation epitomizes Randall's (1998, 2005) categorisation of orthographical transparency and attempts to view the effects of morphological inflection.

3.4 Tests

Three sets of measures were developed for this study to assist in triangulation: a word dictation (WD) test, a reading aloud (RA) test and a multiple choice (MC) test. Similar testings have been originated by Coltheart (1982) and Masterson (1983) which were initially designed as screening tests for native English speaking dyslexics. Ryan and Meara (1996) have further exemplified related experimental techniques with more focus on homophone discrimination for EFL learners. The table below explains the variables and constants between the instruments initiated for this pilot research.

	Word Dictation (WD)	**Reading Aloud (RA)**	**Multiple Choice (MC)**
System	Phonographical	Phonological	Orthographical
Conversion	Phoneme-Grapheme	Grapheme-Phoneme	Phoneme-Grapheme
	Sound (aural)-Letters	Letters-Sound (oral)	Sound (silent)-Letters
Skill	Listening & Writing	Reading &Pronouncing	Silent Reading & Selecting
	Receptive & Productive	Receptive &Productive	Receptive & Productive
Stimuli	Aural	Visual	Visual
Approach	Encode	Decode	Discriminate
Process	Top down & Bottom up	Bottom up	Bottom up

The word dictation was a phonographical encoding test using listening skills to transfer the aural phonemes of the target word to written graphemes. Using listening as a receptive skill with a given sentence context to produce a written spelling can be considered either a top down or a bottom up process. If students apply the sentence context to spell the target word, it would be top down processing however if they do not, they would be considered working bottom up.

The reading aloud was a phonological decoding test using reading skills to transfer visual graphemes of the target word to oral phonemes. Using reading as a receptive skill to pronounce the target word was viewed as a bottom up approach since it did not have a sentence context.

The multiple choice test was a lexical test to identify whether students could discriminate the correct orthography from a choice of four given words within a sentence context different from the word dictation test. Here silent reading instead of reading aloud was engaged in transferring phonemes to graphemes. This demanded a cognitive bottom up approach to be able to visually single out the correct target word from choices that included near homophones in some cases.

In order to avoid the improvement of performance due to meeting the words more than once, a gap of one week was allocated between the 3 tests. In this way the results were more reliable and valid for analysis. Each of the 3 tests took one day but the complete procedure was spread over a 3 week period.

A. WORD DICTATION

In week 1, the word dictation test was administered to the participants. The pronunciation of English used by the teacher could be described as fluent and educated though not native-like in terms of RP accent. Using this instrument, subjects were asked to encode the lexis from a sentence context (see Appendix 2). This approach of the study was included in the battery and replicated as conducted in Malaysia and Singapore by Randall (1997, 2005). His process suggested that the stimulus words be read to the students followed by a sentence context and then

by a second reading of the stimulus word (1997:4). This enabled students to hear the target word three times. A three second pause in between the context and the second reading of the stimulus before the student was asked to write what they heard was suggested and followed. This pause facilitated students to make connections with the target word within the sentence context provided. Example: "**wild**. There are many **wild** and dangerous animals in the jungle. (pause) **wild**." A written sentence context was not provided as a supplement in order to confirm if students used their listening (rather than reading) skills effectively. Moreover a written sentence context was to be provided for the multiple choice test.

In the answer sheet provided (Appendix 3), there were three columns. The first was for students to write their responses. The second was for them to put a tick if they 'did not know the spelling' of the target word in which case the response would be blank or they may have decided to still make an attempt. Finally the third column was there for them to put a tick if they 'did not know the meaning' of the target word. Only a handful of words were unknown to a small number of students as mentioned earlier.

One of the major challenges in this test was to read the students' illegible handwriting; especially of the vowels *a, e, o* and *u*. However the inability to write the correct letters provided some insight on an area of possible difficulty in English spelling for Arabs who are insecure with the Roman alphabet system. The unreadable words were however counterchecked with the individual students for confirmation of the spelling. The results of this test were not returned to the students as the target words were to be subsequently used in the following two tests.

Categorisation for Analysis

As previously indicated, Randall's (1997, 2005) mode of categorization was used to differentiate orthographic transparency of the target words. Words were therefore either transparent or not transparent. Transparent words were categorized as 'phon' words while non-transparent words were categorized as 'rhyme' words. This level of transparency was based on how frequent or regular

the grapheme represented the normal base sound of the word. For example a small word like 'put' is not transparent but 'cat' is. Finally within this list, some target words also contained a morpheme suffix. Therefore errors in this test were analysed in term of phonological and orthographical difficulties and verified to see if they were phon words, rhyme words or those that were morphologically inflected.

B. <u>READING ALOUD</u>

According to Haggan (1991:45), it was found that mispronunciation was one of the strong contributory factors underlying English spelling errors in Arabic students. This could be attributable to the fact that spelling in Arabic is regular in the sense that words are spelt as they are pronounced, whereas English spelling is not. Therefore in week 2, the reading aloud test was conducted on an individual basis to assess students' phonological awareness. The subjects were required to read the same target words but without a sentence context because the focus of this test was to appraise their ability to associate grapheme units with accurate pronunciation. Many such reading tests like the ACER (Australian Council for Educational Research) have been valuable proficiency-check tools for screening tests or for suggesting the right level of guided readers to students. However, the aim of the reading aloud for this study was to examine the types of articulation errors made by the Arabic learners. Therefore the reading of each student was recorded on tape to encapsulate the phoneme errors produced (audio cassette included). These recordings later assisted in deciphering if what they pronounced were actually transferred and reflected in their spellings.

This process was achieved by withdrawing each individual student in turn from the rest of the class into a study room where the recording took place as he read. One of the difficulties was to justify the length of time appropriate for each student to perform the reading. Most students however seemed to rush rather than require more time to read. It was therefore a demanding task to be quick and efficient in recording and categorizing the errors that they made. At times when the words articulated were not clearly heard, the students were asked to repeat. In such cases, students consistently changed the pronunciation of the target word

assuming that they had mispronounced the first time. As a result, it had to be clarified that the word was not heard accurately. Words mispronounced were not corrected for the students until all the data was gathered for the research to be completed.

Categorisation for Analysis

This was undoubtedly the most time-consuming and challenging of the three tests in terms of data collection, categorization and analysis. Though students' pronunciation was broadly comprehensible based on general acceptance of free variation or Arabic-English variety, the RA target word errors were assessed and based upon RP. All errors made by students' in the reading aloud test were transcribed in phonetic script followed by respective codes to analyse the type of errors made with specific emphasis on 'vowels'. Additional categories included 'epenthesis', 'rhoticity' and 'other' (see Appendix 4 for answer sheet). Because the majority of the errors emerged as vowel substitution, a further itemisation was considered worthwhile. Under the umbrella of V (vowel substitution) were 4 subcategories of substitutions. The following classification system was developed to analyse aspects of phonology.

V=vowel substitution (S1, S2, S3, S4)

S1= monothong to diphthong (or vice versa)

S2= vowel reduction

S3= vowel quality change

S4= vowel length change

E= epenthesis (vowel addition)

R= rhoticity

O= other (consonant error, near homophone, letter order, root word recognition, false whole word recognition, etc.)

Before going on to explain the above codes, it is vital to shed light on some fundamental terms. A monothong is a pure vowel that does not change in quality during a syllable. Monothongs can be either short or long. For example $/ \Lambda /$ as in

'sit' is a short monothong while /ɪ⊃/ as in 'seat' is a long monothong. "Diphthong is a sequence of two vowel sounds produced in a single syllable with one sound dominant. One of the vowels, called the nucleus, is longer and more intense whereas the other vowel, called the glide, is shorter and weaker." (Calvert, 1992:18). Examples of words that contain diphthongs are /ε)/ as in 'say', /α)/ as in 'eye', /⌐)/ as in 'boy', /)Ω/ as in 'near', /Ω←/ as in 'go', /α←/ as in 'now', /εΩ/ as in 'hair' and /←Ω/ as in 'pure'. The chart below exemplifies the variety of vowels in English.

Short Monothongs	Long Monothongs	Diphthongs
）	ɪ⊃	ε）
℘	□⊃	α）
□	⌐⊃	⌐）
←	ʊ⊃	）Ω
Ω	±⊃	Ω←
ε		α←
—		εΩ
		←Ω

Therefore, **S1** is a condition when a monothong word is diphthongized or vice versa (eg: 'led' is read as *laid*). **S2** is a condition when a vowel is reduced (eg: 'job' is read almost like *jb* /δ│Ωβ/). **S3** is a condition when a vowel quality changes. This can occur within short/long or across monothongs or within diphthongs. A vowel quality change within a monothong would occur if 'get' is read as *git* or *geet*. A vowel quality change within a diphthong would occur if 'care' is read as *cure*. **S4** is a condition when a vowel length changes. This occurs when a short monothong is changed to a long monothong or vice versa (eg: 'hid' is read as *heed*).

E refers to epenthesis and is a condition when a vowel has been added between initial or final consonant clusters (eg: 'skin' is read as *sekin* or 'curl' is read as *cural*) or at the beginning of a word (eg: 'stop' is read as *istop*). **R** refers to rhoticity whereby the 'r' in a word that need not be stressed is strongly articulated (eg: the final 'r' in rive*r*). The final code **O** refers to other situations whereby the mispronunciation could be due to a variety of reasons including a consonant error (eg: 'cap' is read as *cab*), or a near homophone (eg: 'hat' is read as *hate*) or a confusion with the letter order (eg: 'plus' is read as *pulls*) or a root word recognition (eg: 'thought' is read as *think*) or a false whole word recognition (eg: 'different' is read as *difficult*).

C. <u>MULTIPLE CHOICE</u>

In week 3, the students performed a multiple choice test decoding the correct written orthography of the target words through visual processing using semantic knowledge. "In Arabic language reading is highly context-dependent for skilled readers because they read texts without vowels and there is no strategy to identify words that are visually identical and carry several different meanings, except for the context information" (Rabia & Sigel, 1995:6). Though it has been established in the literature that poor readers rely more on reading the context than skilled readers in a Latin alphabetic orthography (Bruck, 1990; Stanovich, 1980) it was however assumed that since students in this experiment were L2 learners who are not proficient with the Roman scriptal system, they may read word for word (bottom up) rather than use context as a source for external guide. Nevertheless the sentences within which each target word was embedded were intended to provide meaning and subsequently to aid in the correct spelling of the words concerned for the benefit of all readers.

This test was designed on a WebCT program for students to complete online. Each test had a jumbled order of questions to prevent students from easily cheating. The sentence contexts for this test were redesigned and therefore different from the word dictation sentences in order to avoid student recollection of meaning and therefore possible identification of orthography (refer to

Appendix 5 for the complete test). Each question had a choice of four options to select one as the correct spelling. Most of these options (or distractors) were derived from the students' errors in the WD test. In questions where appropriate, this test also included a choice of near homophone options for students to discriminate and recognise the right spelling as seen in the example below.

Example:
```
 3. A _____ is a big animal with thick fur.

a. pair
b. bair
c. baer
d. bear
```

Results of the multiple choice test were not intended to be categorised. It was an additional source of data collection to verify where possible the errors gathered from the WD and RA tests. One of the challenges was the making of a set of flawless questions with mindful choices for the instrument. At first it was thought that students may well guess without knowing the correct answers. However, the students were fully stimulated and engaged in the test. The time given to administer this test was an hour. Ryan & Meara (1996) have expressed the view that such a test is much the strongest candidate as a quick diagnostic instrument for all learners besides being easier to administer and easier to score than other tests. This view is supported in terms of easy administration in addition to being a time saver. Though it is also easy to obtain scores, these results would seem to merely indicate symptoms rather than justify the grass root causes of the spelling problems since the responses are simply picked from a selection of choices.

3.5 <u>Analysis Technique</u>

By administering the 3 customised tests and establishing their respective error categorisations, results gathered were analysed through a **qualitative** study in order to deduce the actual types of errors made by students and the possible causes behind them. The 'type' of error refers to the different ways in which words are misspelt. Evaluating students' distinctive spelling errors was believed

to be of more worth and value than merely computing their token errors alone. The 'token' refers to the number of times the misspellings were made. Nevertheless in cases where a particular misspelling appeared to be persistent, tokens were computed in order to visualise and discuss reasons for its frequency. In order to correlate students' performance as well as the target word results with the tests, statistics from Kendall's W were obtained while percentages were also worked out to get a general overview of the three tests. These **quantitative** figures provided a backdrop for qualitative analysis of the experiment conducted. This then leads to the next chapter for a comprehensive analysis of the data gathered.
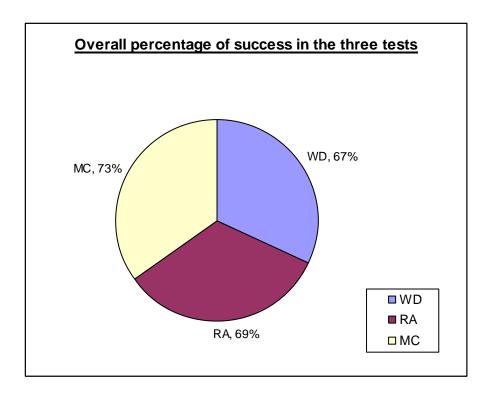
CHAPTER 4

RESULTS AND ANALYSIS

In this chapter, the results obtained from the investigation will be presented and analysed in order to validate the hypothesis of spelling challenges faced by Arabic speakers in English. First a general overview of the results will be presented through graphic and statistical correlations. This will demonstrate how the **students' performance** correlated in each of the three different tests. It will also identify correlation of the **target word results** in the study. In addition, the three different **instruments** (WD, RA and MC) will be assessed in terms of their effectiveness. All these results will then provide a framework for taking the analysis to the next level where the misspellings will be examined in terms of **vowel** and **consonant** errors. These errors will be evaluated from the **phonological** and **orthographical** perspectives in order to provide answers for the research questions. The phonological interference from the first language, scriptal differences, irregularity of the English orthography and the way words are accessed by Arabic speakers are issues that will be rationalised through retrieving their spelling errors in English. This analysis will finally provide some conclusive evidence to understand the problems inherent in English spelling from the Arab-Emirati perspective. (Note: an audio cassette is included for the students' RA reference and a CD is also attached to review the raw data gathered of all target word errors made in the RA, WD and MC).

A. GENERAL OVERVIEW

In order to find out if students performed equally across the three different tests (WD, RA and MC), a statistical comparison was made. Kendall's W=0.408, p<0.01 produced a highly significant result which showed that the instruments measured students in the same way. A student who did well in one test likewise also did well in other tests. Results obtained from the raw data revealed that students did better in the MC, followed by the RA and the WD as exemplified in the pie chart (Figure 1).
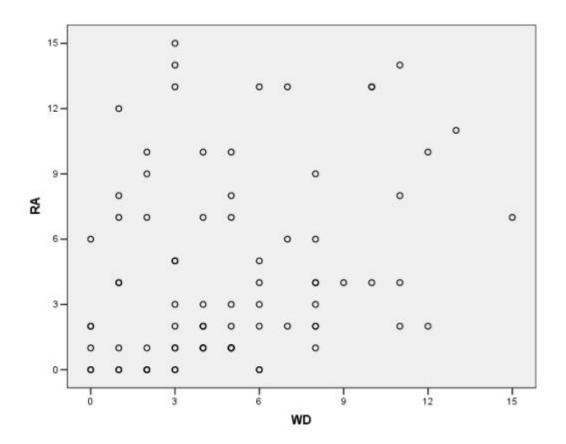
Figure 1

Overall percentage of success in the three tests

MC, 73%   WD, 67%

RA, 69%

Legend: WD, RA, MC

Concordances between the target words across the three tests showed very significant but low correlation (KW=0.044, p<0.01). This illustrates that the target words tested in one instrument did not necessarily produce similar results in the other two instruments. Therefore though the instruments measured students' performance consistently, they did not always measure the target word results the same way. Subsequently bivariance correlations of the target words between two tests (WD and RA, WD and MC, RA and MC) was conducted for a closer analysis. This was done to achieve some understanding of why the concordance was not higher while also reflecting on the applicability of the instruments employed.
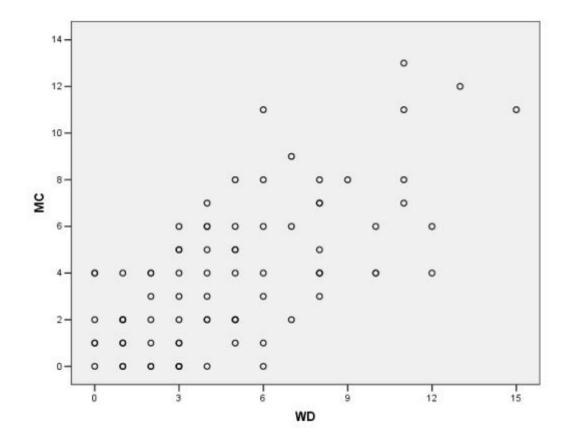
Referring to Figure 2 below, the bivariate correlation of the target word results between the WD and RA appears to be scattered. The weak correlation suggests that the way the words were spelt was different from the way they were read or pronounced. However, overall results (Figure 1) showed that students did better in their reading (RA) than in their spelling (WD). This indicates that though students may not know how to spell certain words, they do generally recognize them and are able to read them aloud fairly well. Moreover, the RA target words were assessed based upon RP. If their pronunciations were evaluated according to Arabic-English variety, their scores would have been still higher than they are.

Figure 2 Bivariate correlation of target word results between the WD and the RA
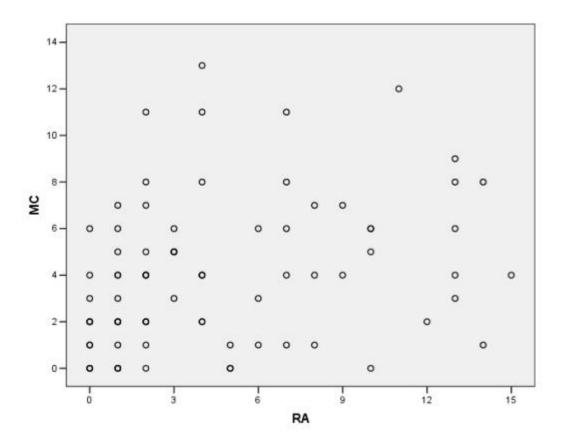
Looking at another perspective of bivariate correlation, the results of the target words between the WD and MC were in fact quite consistent (Figure 3). Incorrect responses obtained from the WD test were used as distractors in the choices for the MC test. Therefore, students' actual errors from the WD were amongst the options of available answers in the MC to test if they continued to select them as correct. The steady correlation in Figure 3 indicates that students in many instances could not identify the accurate spelling of the target word and continued to select the distractors from a choice of errors.

Figure 3 Bivariate correlation of target word results between the WD and the MC

Finally a bivariate correlation was also conducted between the target words in the RA and MC (Figure 4). There did not seem as much target word correlation between the two tests compared to the WD and MC as previously discussed. The RA was not viewed as a clear-cut or straight forward measure to evaluate target words in comparison to the WD and MC tests. While some responses in the RA were obviously incorrect, it was problematic considering if the target words were pronounced with RP accuracy. The MC on the other hand could not reveal conscious individual attempts at spelling due to heavy dependence on the choice of distractors provided. Moreover some responses may well have been educated guesses. Basically, the RA and MC are both different ways of testing the same words, one being more subjective while the other very objective. Target words tested through the WD however did not cause such problems or doubts and therefore its results appear to be more synchronised with the statistics obtained.

Figure 4 Bivariate correlation of target word results between the RA and the MC

Another way of looking at correlation is to compare the successful responses across the 'actual' target words (Table 5). Target words that have had a full success rate in one test have not always achieved likewise in the other two tests. However with further cross referencing of the core data, it has been noted that 'boy, father and week' are the target words that have had successful scores and correlation across 'all' the three tests with only one or two errors in the third test which prevented it from reaching 100%.

Table 5 <u>100% successful target words</u>

Word Dictation	Reading Aloud	Multiple Choice
about	**boy**	**boy**
father	buy	cut
food	fly	**father**
lower	food	first
stand	**week**	problem
week		show
		they
		think
		watch
		would

From the raw data gathered, errors of each target word were worked out as percentages. In Table 6, percentages of the most frequent target word errors in each of the three tests are presented. Words in bold, are errors that appear in at least two of the three tests. From the top ten target word errors, the WD seems to have the most errors followed by the RA and the MC.

Table 6 <u>Top 10 target word (phon/rhyme word) errors</u>

WD	P/R	Errors		RA	P/R	Errors		MC	P/R	Errors
caught	R	87%		early	R	100%		**crowd**	R	87%
rule	R	80%		**escape**	R	93%		**caught**	R	80%
tired	R	80%		bear	R	87%		**cried**	R	73%
cried	R	73%		**dollar**	P	87%		planned	P	73%
crowd	R	73%		**fever**	R	87%		torn	R	73%
escape	R	73%		tour	R	87%		bear	R	60%
hop	P	73%		**caught**	R	73%		bit	P	53%
dollar	P	67%		better	P	67%		**escape**	R	53%
fever	R	67%		first	R	67%		paid	R	53%
son	R	67%		**tired**	R	67%		these	R	53%

The target word 'caught' had errors across all three tests. This is likely due to the fact that 'caught' is not an orthographically transparent word in terms of the vowel 'a' as well as final 'ght' in which case the spelling does not follow the pronunciation of the word. Though 'caught' was at the higher end of error rate for the WD and MC, it was noted to be at the lower end of the error list for the RA. This suggests that Arabic speakers may not be able to spell or distinguish the correct spelling as well as they can attempt to pronounce it.

Interestingly, the target word 'fever' which was one of the few 'unknown' words in terms of meaning, did not appear in the top ten error list for the MC test which indicates that students presumably recognised the word when they saw it in print to fit the context.

Referring to Graph 7, the errors have been noted in 'rhyme' words (orthographically not as transparent) rather than in 'phon' words (orthographically more transparent), except for in the MC test.

Graph 7 Errors in 'rhyme' words and 'phon' words in the three tests

MEAN ERROR

Legend: Rhyme words, Phon words

(Bar chart showing mean error values for WD, RA, and MC tests comparing Rhyme words and Phon words)

It is understandable that 'rhyme' words being less transparent were more difficult to encode and decode as reflected in the WD and RA respectively. However more errors in 'phon' words in the MC indicate that students did not use a phonological route to identify the correct orthography in this test. Apparently the subjects lacked in knowledge of graphophonic relationship and were thus better at visually identifying 'rhyme' words as wholes regardless of the words being less transparent in their orthography.

B. <u>TYPES OF ERRORS</u>

In this section, we will move on to a deeper level of analysis whereby the types of errors will be examined. The misspellings extracted from the tests will contain errors that are caused by vowels, consonants, scriptal problems and other related reasons. These errors will be analysed in terms of possible first language phonological interference, irregularity in English orthography, scriptal differences, and other challenges assumed to be faced by Arabic speakers in this research study.

VOWEL ERRORS

I. <u>Vowel blindness</u>

Ryan (1997:189) implies that 'vowel blindness' (Haynes, 1984) is a condition in Arabic speakers which "may be due to a lack of awareness of the function vowels perform in English". However having problems in recognising vowels in words where they had been deleted in their experiment does not seem a reasonable explanation for such a condition. Not being able to recognise vowels is not equivalent to showing a lack of its awareness either. In this study, significant findings were discovered in their WD to show evidence that Arabic speakers did in fact use and recognise the significance of vowels in written English. However in terms of the RA, Arabic speakers were sometimes found to be insensitive to the application of simple vowels especially in small words like 'red', therefore reducing it to an extent that it sounded almost like *rd*.

In the WD, though the usage of vowels was consistent in the words spelt, the choice of vowels was not always correct. Therefore they did not experience a visual handicap in terms of vowel function but vowel choice. We can be almost sure that vowels are stored in the Arabic speakers' lexicon if we look at the spellings of their **near homophones** errors (eg: *bay* for 'buy', *pot* for 'put' see Table 8; Appendix 6) or vowels used in **misplaced order** (eg: *baer* for 'bear', *cear* for 'care' see Table 9; Appendix 7) or even if we look at **complete**

misspellings (eg: *roal* for 'rule', *fiawar* for 'fewer') where vowels have been used but incorrectly.

Apparently, students in the study faced confusion in distinguishing between the wide range of vowels that exist in English followed by instances of its orthographic irregularity, which are two obvious differences from their first language. Moreover, vowel blindness may be a scriptal problem in Arabic as they are unable to write them in classical Arabic, however it is not a problem in their Arabic reading or spoken Arabic. Contrastingly, the function vowels perform in English appeared to be more of a mispronunciation problem as indicated in their RA rather than in their written spelling or WD.

II. <u>Vowel substitution</u>

Although in terms of quantity, English vowels exceed in number and in variety (22 vowels against 8 in Arabic), the frequency and use of vowels in Arabic is extremely significant in their spoken language (though not in their written). Because the Arabic language does not have many clusters, they are in fact inclined to function with vowels. Almost half of the spoken Arabic language consists of vowels and that suggests more use of vowels in Arabic than in English. Nevertheless, the use of vowels was substantial in their written English as will be revealed from the data gathered and therefore vowels have not been ignored. As mentioned earlier, the most evident confusion faced by Arabic speakers occurred as vowel substitution in many different forms and these will be illustrated in this section.

a) <u>Vowel reduction / quality change</u>

As initially predicted, the Bill/*Bell* substitution of vowels was exemplified in this study. The first two columns in Table 10 indicate target word examples and their spelling errors respectively. The third column displays the actual RP phoneme for the target word followed by the phoneme error made by students during the RA. The last column indicates the grapheme they employed for the associated phoneme error in the WD.

Table 10 <u>Vowel reduction and quality change</u>

Target Word Examples	Spelling Error	RP Phoneme	RA (phoneme) Error	WD (grapheme) Error
red, head, better	rad, had, batter	/ɛ/	/ʌ/	'a'
bit, fill	bet, fell	/ʌ/	/ɛ/	'e'

What was discovered in the RA test is that in short 3-4 letter words (eg: 'red' and 'head'), students tended to reduce the vowel phoneme /ɛ/ to the extent that one almost could not hear it at all. However in the WD test, the vowel reduction was not evident. Generally the grapheme 'a' was used to represent the phoneme /e/. The vowel reduction in pronunciation appeared to be more obvious in words that end with grapheme 'd'. Therefore words like 'bed, fed, led, wed' would be useful for further investigation. A longer word with phoneme /ɛ/ like 'better' seemed to be confused with phoneme /ʌ/ in the RA however the grapheme 'a' continued to be represented.

On the other hand, a word with phoneme /ʌ/ was confused with phoneme /ɛ/ (eg: 'bit' being read as *bet*). Knowing that phoneme /ɛ/ does not have a near equivalent in Arabic, it is understandable for this phoneme to be replaced with another like /ʌ/ which does exist in Arabic and therefore analysed as contrastive at first instance. Unusually however, this confusion appeared to be both ways and therefore cannot be viewed as contrastive. Another oddness observed was that phoneme /ʌ/ was often represented with grapheme 'e' but was not used to represent the actual phoneme /e/.

b) <u>Short vowels to long vowels / quality change</u>

It seems quite evident in this study that students were inclined to transform a short vowel to its parallel or near parallel long vowel both in the RA and WD. The third column of Table 11 displays the actual RP short vowel phoneme for the target word followed by its transformation into a long vowel phoneme adopted in

the RA. The last column indicates the grapheme(s) they employed to represent the long phoneme in the WD.

Table 11 <u>Short vowels to long vowels / quality change</u>

Target Word Examples	Spelling Error	RP Phoneme	RA (phoneme) Error	WD (grapheme) Error
brother cut month must son trust	brather cat manth mast san trast	/ ℘ /	/□ɔ/	'a'
fever fewer	fevar fiawar	/Ω/ (final)	/□ɔ/	'ar' 'ar'
watch	wotich	/□/	/⌐ɔ/	'o'
put would	pot wuld	/←/	/ʊɔ/	'o' 'u'

Smith (1997:143) states that short vowels in Arabic have very little significance and are thus glossed over while long vowels and consonants are emphasised as they provide meaning. Therefore, what seemed to happen was that the short vowels in English were subconsciously lengthened in order to overtone word meaning. This precise feature was exhibited in their English pronunciation and spelling. A word like 'trust' for example is a frequently used word and an orthographically transparent word to spell. However students have elongated its short vowel as detected in their RA articulation and subsequently transferred it to a corresponding grapheme in their spelling as evident in Table 11.

c) **Diphthong to Monothong / vice versa**

Although Arabic has only two diphthongs /aw/ and /ay/, in most colloquial dialects, they have been monothongised (Kaye, 1987:177). In this study however,

Arabic speakers have been noted to do that as well as change monothongs to diphthongs.

A classical example of phoneme substitution which involved a change from a diphthong to a long vowel monothong is seen in Table 12. Arabic speakers showed a tendency to use the long vowel /ɔ/ in situations where they could not figure out the correct vowel pronunciation (also seen Table 11). This inclination was apparently transferred to their spelling but was at first not clearly understood because vowels in English spelling can be read in different ways especially if they are new words which students have created. Such long pronunciations caused an addition of the grapheme 'a' in their spelling. This type of error was very frequently noted in the students' WD.

Table 12 <u>Diphthong to Monothong (long vowels)</u>

Target Word Examples	Spelling Error	Actual Phoneme	RA (phoneme) Error	WD (grapheme) Error
buy cried fire higher tired wild	bay craied faier haier taierd waild	/ʌΩ/	/ɔ/	add 'a'

Table 13 <u>Monothongs (long vowels) to Diphthongs</u>

Target Word Examples	Spelling Error	Actual Phoneme	RA (phoneme) Error	WD (grapheme) Error
early first her	arlly fairst har	/±ɔ/	/εΩ/	delete 'e' add 'a' substitute 'a'

A very obvious and unusual pronunciation which was marked in almost all the subjects was in the variety of target words with phoneme /±ɔ/. Spelling errors of those words in the WD involved a range of vowels but were at first glance not understood (refer to column 2, Table 13). However after further investigation of the actual phoneme replacement in the RA test, it was then clear that students were changing the diphthong to a long vowel monothong in both their articulation and spelling likewise.

III. Orthographic vowel errors with final 'e'

As we have gathered from the results thus far, phonological complication hinders correct spelling and contributes to the misspellings of Arabic students. We will now look at evidence of vowel errors which are also attributable to the orthographic irregularity and spelling rules in English.

If we look at Table 14, the list of target words end with the final grapheme 'e'. Yet not all the mid phoneme sounds of those words are the same. Because the phonemes are different in each case, different spelling rules exist for each respective category. For example one of the most common rules suggest that "when we hear 'a' saying its name in the middle of a sound of a one-syllable word followed by a single consonant sound, our first choice is to write 'a-e'" (Shemesh & Waller, 2000:117) which is the normal application of the 'magic-e' rule. This may be relevant for the target word 'race' but there are always exceptions for such rules. For example, the target word 'care' adopts the 'a-e' rule but we do not hear 'a' saying its name. Similarly, the target word 'escape' also employs the 'a-e' rule, but does not conform to the same conditions because it is not a one-syllable word. Therefore there is no true consistency in the general application of spelling rules.

When we look at the misspellings below, the tendency of errors seemed to be predominantly the deletion of the final grapheme 'e'. What is also common about the target words is that they all contain either a long vowel or a diphthong as their nucleus. The errors imply that Arabic students have difficulty in words with such

phonemes where they appear to be shortening them and subsequently cannot apply the appropriate spelling rules like the 'magic-e' to start with.

At times it cannot be understood why a final 'e' exists in one word but not another. For example, though target words 'these' and 'week' both have the same vowel phoneme /ɪɔ/, 'these' is spelt with a final 'e' while 'week' is not. Surely many teachers themselves would not be able to explain many of such uncertainties though they would definitely know the spellings instinctively. Therefore it must be all the more perplexing for students learning English as a second language. In any case, some students were noted to delete the final 'e' in the target word 'these' but no errors at all were made in the target word 'week'. It is suggested that for some students the final 'e' may seem irrelevant because it is a silent letter.

Table 14 <u>Errors involving deletion of final grapheme 'e'</u>

TARGET WORD	MID RP PHONEME	TOTAL ERRORS	%	ERRORS [>1 token count]
care	/ɛΩ/	8	53%	car, cair, cear, ceer, cear, carrer, cer, carr
change	/ɛ\/	5	33%	chang [4], chaing
escape	/ɛ\/	8	53%	escap [2], skap, askiap, ascat, skaep, skipt, skip
here	/\Ω/	6	40%	hear [2], heir [2], hir, her
hope	/Ω←/	4	27%	hop [3], hoob
police	/ɪɔ/	3	20%	polic [2], ploice
race	/ɛ\/	3	20%	ras, reac, rac
rule	/ʊɔ/	10	67%	roul [2], roull, ron, roal, row, roll, roall, roul, rowl
these	/ɪɔ/	5	33%	theis [2], this [2], thees
voice	/⌐\/	5	33%	vois [2] voise [2], voes

In the target word 'hope' for instance, the final 'e' was often deleted, thus changing it to *hop*. Like 'hope', most words with the phoneme /Ω←/ normally

follow with a final silent 'e' (eg: bone, globe, home, toe). However, it can be argued that words like 'although', 'sew', 'grow' and 'boat' do not have a final 'e' though they all consist of the same phonemic sound /Ω←/. This confirms the poor sound-letter correspondence in English orthography. Smith (1997) indicated that the phoneme /Ω←/ may be a problem for Arabic speakers. Remarkably, though the target word 'hope' was discovered to be a common error in this study, there appeared to be no major problems in the reading or spellings of other words with a similar phoneme /Ω←/ as in 'lower, show and over'.

What is interesting is that while 'hope' was often interpreted as *hop* in the RA and WD, the target word 'hop' was construed as *hope*. By adding a final grapheme 'e' where it does not exist, again indicates that students do not realise that the final 'e' can change the pronunciation of the entire word. However such significance is not relevant to all words. Secondly the addition of grapheme 'e' at the end of a word could also be viewed as a paragoge problem (to be discussed later). Therefore the reasons for this error could be attributed to either the lack or confusion of orthographic knowledge in English or even first language phonological interference.

The target word 'escape' was an example which triggered many errors in the WD and RA whereby the initial and final vowel grapheme 'e' was consistently deleted. The syllabic analysis of the word which should be es-cape was actually changed to e-scape followed by the omission of the initial vowel as they would normally drop it in the local Arabic dialect. Thirdly, just as in 'hope' the final silent grapheme 'e' in 'escape' was also found to be deleted in both its pronunciation and spelling thus confirming that students have difficulty with the use of final-e.

In the section before this, we noticed how vowels were consistently substituted in the RA and WD from the phonological perspective. Based on the orthographic perspective in this section, we have seen that Arabic students were inclined to add a vowel at the end of a word where it should not be (eg: *hope* instead of 'hop'), but more often deleted the final vowel 'e' where it ought to be (eg: *hop* instead of

'hope'), or sometimes even deleted them from both the initial and final word (eg: *scap* instead of 'escape'). Therefore vowel addition and particularly final-e deletion is another dimension analysed from the results. The next section will now bring to light the spelling errors with a focus on consonants.

CONSONANT ERRORS

I. Consonant replacements

a) Replacement of graphemes p/b

Because the phoneme /p/ does not exist in Arabic, graphemes /p/ and /b/ were randomly used in English by Arabic speakers as suggested by Smith (1987). In this study however the results of such an error were lower than expected. The confusion noted between the two graphemes is obvious in Table 15. The errors found were equal between the initial and final positions of the target words.

Table 15 Replacement of graphemes p/b

TARGET WORD	ERROR	TYPE	POSITION
bear	**p**air	b → p	initial
bring	*pring*	b → p	initial
put	**b**ot	p → b	initial
paid	*baid*	p → b	initial
pro**b**lem	pro**p**lam	b → p	middle
ho**p**	hu**b**	b → p	final
ho**p**e	hoo**b**	b → p	final
shar**p**	*sharb*	b → p	final
shee**p**	*sheeb*	b → p	final

If we take a look at the errors in italics, we will notice that other graphemes of the target words were in fact well maintained. Though the phoneme /b/ does exist in Arabic, some students in the study continued to replace it with grapheme /p/ as a

form of overgeneralisation or overcompensation for what they do not have. The error replacement is however more evident from /p/ to /b/ rather than /b/ to /p/. Therefore this indicates that the lack of phoneme /p/ in Arabic evidently leads to the inability of some students to transfer it to the accurate grapheme in English.

b) <u>Replacement of graphemes f/v and j/g</u>

Because the phoneme /v/ does not exist in Arabic, Smith (1997) suggested that Arabic speakers may encounter problems with it and replace it with phoneme /f/. However the opposite confusion was discovered in one incidence where 'fewer' was spelt as 'viewour'. Therefore phonemes /f/ and /v/ appear to be allophonic and interchangeable for some Arabic speakers.

Table 16 <u>Replacement of graphemes j/g</u>

TARGET WORD	ERROR
join	goyn goun
jug	guk gug joke judge
think	thing

Another analysis encountered from the study was the uncertainty in the use of grapheme /j/ which was confused with /g/ illustrated in Table 16. Smith (1997:144) indicates that Arabic has only one letter in the /ʝ/ - /δ∫/ area which can be pronounced as either /g/ or /j/ depending on the geographical region while those dialects which do not have /g/, confuse it with /k/. Examples such as these and the f/v replacement confusion can be attributed to first language phonological interference.

II. Consonant digraph replacements

a) Consonant digraph sh/ch

Another obvious error identified was the confusion with initial consonant digraphs 'sh' to 'ch' as seen below. However the target word 'ca**sh**' with final 'sh' did not produce any errors at all. Though the phoneme digraph 'sh' exists in Arabic it appears to be confused with 'ch' which is found only in a few Arabic dialects. After exposure to English, it is quite probable that 'sh' and 'ch' have become allophonic in speech for some Arabic speakers and subsequently transferred to their spellings as visible in Table 17.

Table 17 Consonant digraph sh/ch

TARGET WORD	ERROR
sharp	**ch**arp **ch**arck
ship	**ch**ep
sheep	**ch**ep

b) Consonant digraph ch/tch

Additionally confusion in the orthographic use of consonant digraphs 'ch' and 'tch' was observed as highlighted in Table 18. Looking at these consonant errors, we can deduce that Arabic students were not familiar with English spelling rules whereby long vowels are usually followed by the use of 'ch' (eg: teach) while short vowels are usually followed by 'tch' (eg: fetch). However, words with short vowels like 'rich', 'which' and 'much' are still followed by 'ch' not 'tch' and therefore can cause ambiguity. A spelling rule therefore cannot be generalised. Because such rules do not apply in all cases, English spelling has been termed as 'irregular'. If spelling in English was 'regular', they would be spelt as they are pronounced. If we look at words that end with 'tch', the grapheme 't' is very much a silent letter and therefore does not correspond to a sound. Therefore although incorrect in terms of English spelling, it seems to make sense for 'watch' to be spelt as 'wach'. Besides grapheme 't', there were other target words in this

study with silent letter consonants that appeared to cause misspellings – 'higher' was spelt as *hiyer* ('gh' being silent), 'would' was spelt as *wood* ('l' being silent)

Table 18 <u>Consonant digraph ch/tch</u>

TARGET WORD	ERROR	ERROR REASON
mu**ch**	match	Near homophone
	macth	Misordering of letters
	matsh	ch/sh replacement
wa**tch**	wach	Silent /t/
	wotich	Epentheis
	wacth	Misordering of letters

Examining other errors with 'tch' from the table above, *match* was written instead of 'much' as a near homophone. This implies that some students did not use the sentence context to acquire meaning of the word intended to be spelt. We can also observe that Arabic students experience scriptal problems as another cause for misspellings when they misorder graphemes from right to left as they normally do in their first language (*wacth* instead of 'wa**tch**'). Another error detected from this consonant digraph has been the addition of vowel 'i' in 'watch', making it *wotich*. This problem is identified as an epenthesis and will be covered in a later section.

III. **Orthographic errors with consonant doubling**

Double consonants are two of the same consonant letters in a row. Consonant doubling in English spelling is an inconsistent process. Moreover the sounds of words containing these double letters do not usually give a clue to how they are spelled. Single and double consonants seem to be pronounced the same way. As a result many errors are caused in words where consonants are doubled. Phonemic doubling of consonants in Arabic however is a regular process and therefore does not require an attempt to be learnt. This awareness also seems to be reflected in their word dictation test of this study as exemplified in Table 19 (with one exception).

Table 19 <u>Consonant doubling maintenance</u>

TARGET WORD	CONSONANT DOUBLING MAINTENANCE
be**tt**er	always maintained
swi**mm**ing	always maintained
do**ll**ar	mostly maintained
fi**ll**	mostly maintained
pla**nn**ed	never maintained

In the target word 'swimming' (present continuous), the consonant doubling was always maintained regardless of the fact that the doubling was not part of the root word. This is probably due to the fact that 'swimming' is a word students often sight at the gym, recreation centres and at the college, therefore they may have learnt it through whole word recognition. Therefore how frequently a word is visualised assists in the orthographic representation of the word. Following that, despite its word length, the ability to spell a word is dependent on its frequency of exposure.

The target word 'fill' in comparison is a much smaller word, yet the consonant doubling though mostly maintained was not always maintained as in 'swimming'. Like 'swimming', 'fill' is also a 'phon' word and therefore orthographically transparent to spell. However 'fill' is different because the consonant doubling of 'l' in not a suffix. Instead it demands doubling to maintain its vowel quality. Therefore consonant doubling serves different functions in English spelling rules.

If we consider an orthographically transparent word like 'planned' however, all the respondents got the root word and final '-ed' or '-d' correct but missed out on the consonant doubling and wrote only one 'n'. Therefore when analysing the spelling of this target word from the orthographical perspective, it is a transparent and frequently used word. From the phonological perspective, the final sound /d/ was consistently maintained in the students' responses. However from the morphological perspective, students were not aware of the rule that in verbs ending with VC, the consonant has to be doubled when they are changed to past

tense. Therefore from the grammatical perspective, although the past tense was always maintained the consonant doubling was never maintained.

In Randall's (2005) investigation on the same target word ('planned') in Malaysia, almost all students were found to omit the final morpheme thus producing only the root word ('plan'), regardless of the sentence context being provided. Arabic students however did not seem to have problems spelling inflected words. This is probably because they come from a linguistic background that focuses heavily on consonants and therefore hear the final consonants better than the Malaysians who on the other hand have a tendency to delete them. The fact that Arabic students may have used the sentence context provided is highly questionable because they did not seem to have used it in other instances in this study.

Although consonant doubling in Arabic is phonemic, doubled consonants in root words is not common. Strangely however, some students have been noted to double the consonants in the final/middle of some target words such as those seen below.

Table 20 <u>Consonant doubling errors</u>

TARGET WORD	ERROR
bit	be**tt**
care	ca**rr**
crowd	c**rr**oud
early	ar**lly**

This could be the result of overusing the concept of consonant doubling where it does not apply. Or perhaps they may be subconsciously trying to maintain the vowel quality of the target words by doubling the consonants as in the target word 'fill'.

SCRIPTAL ERRORS

Thus far, we have analysed spelling difficulties covering vowel and consonant errors by looking at the phonological and orthographic perspectives. Some of these misspellings have also indicated scriptal problems but in this section we shall look at this aspect in more depth. The Arabic scriptal system is clearly very different from the English. Due to structural differences in these two languages, it was hypothesised that spelling in the Roman script would cause interference for Arabic students.

The WD test results showed fascinating evidence and influence of first language scriptal interference. Because Arabic orthography runs from right to left, Arabic speakers misordered letter positions when writing spelling in the reverse direction in English. It was assumed that the RA would cause misreadings of the target words. However, results showed that the scriptal challenge was marked in the students' writing (spellings). In spite of preserving all the letters of the original target words, the order of the letters were incorrect and therefore errors produced looked like anagrams. Incorrect responses mostly maintained the correct positioning of the first and last letter with the arrangements of letters in the middle, jumbled. This trend was seen in words like 'girl' which was written as *gril* or 'police' which was written as *ploice*. Other words like 'cried' and 'fire' however have the final letters mispositioned as *cride* and *fier* respectively. However initial letters were not found to be mispositioned. Examples of such errors are shown in Table 9 (see Appendix 7).

OTHER ERRORS

a) Epenthesis

Epenthesis is a spoken phenomenon in which an invasive sound is inserted between two other sounds to facilitate pronunciation. This occurrence is often evident in Arabic-English speech and was an aspect anticipated in their spelling in this investigation. As presumed, due to epenthesis, a variety of spelling errors which involved a vowel addition between two consonants was revealed as seen in

Table 21. Almost all the target words had close to perfect spellings other than the addition of epenthesis. The epenthesis was noted in mainly final clusters except for in *bering* and *firend* where they were found in initial clusters. (Note: the error in *firend* could also be interpreted as misposition of letters). Due to the fact that "the range of consonant clusters occurring in English is much wider than in Arabic" (Smith, 1997:144), many such clusters are not part of the Arabic phonotactics. Therefore, Arabic students attempted to break words into syllables and inserted a vowel (usually grapheme 'e' and occasionally 'a', 'i' 'o' and 'u') in the syllable where it does not exist. This approach may be useful for reading and pronunciation in Arabic but the same technique is transferred into their written orthography of English. Nonetheless not all of the clusters were problematic for them. For example, Smith (1997:144) suggested that initial two segment clusters such as 'pr', 'sp' and 'st' do not occur in Arabic and may therefore cause confusion. However when tested in target words such as '**pr**oblem', '**sp**eaks', '**st**and' and tru**st**, the insertion of an epenthesis was not revealed in these clusters.

Table 21 Epenthesis in WD

TARGET WORD	ERROR [>1 token count]
asked	ask**et**
bring	b**e**ring
cooks	cook**es**
crowd	crow**ed** [4] craw**od** [2] crao**ud** [2]
friend	f**i**rend; frin**ed**
girl	gir**al**
join	joy**en**; join**ed**
plant	plan**et**
speaks	spek**es**
torn	tor**en**; tow**en**

Table 22 Epenthesis in RA

TARGET WORD	ERROR [> 1 token count]
asked	□⊃σκ＼δ [5]
first	φ±⊃ρ＼στ
planned	πλ—ν＼δ [5] πλ—ν＼τ
sharp	♣□⊃ρΩπ [2]

A point to be brought to attention is that the variety of epenthesis employed in the WD was more than twice than in the RA. A possible reason why students have been noted to use more epenthesis in their spelling is because they are consciously breaking down the words into phonemes as they attempt to write the graphemes, and therefore the insertion (Table 21), whereas the RA seems to be a little more naturally productive process.

However in the RA, though the use of epenthesis was obvious only in a few words, they were nonetheless quite frequent especially in target words 'asked' and 'planned' as shown in Table 22. The similarity between these two words is that they both have a past tense morpheme 'ed'. Therefore it is apparent that Arabic students had problems articulating verbs that end with a consonant +ed. Nevertheless they seemed to be generally aware of the spellings of these words as seen in the core data. However further investigation on similar words would be of use to support this small but interesting evidence.

b) Paragoge

Besides inserting a vowel between consonants, Arabic speakers of English are also generally inclined to add a vowel at the end of a word that ends with a consonant in their speech. This phenomenon is known as paragoge. Though this is frequently observed in their English conversation, evidently it did not exist in the RA probably because these were isolated words and not in context. On the contrary, it was reflected in their English spelling as indicated below.

Table 23 WD errors with paragoge

TARGET WORD	ERROR [> 1 token count]
asked	ask**e**
crowd	crowd**e**
form	form**e** [3]
join	joun**e**
jug	jug**e**; judg**e**; jok**e**
must	must**e**
paid	paid**e**

In English, the addition of a final 'e' at the end of a word like 'car' can change the entire pronunciation and meaning of the word concerned. However in other instances, the final 'e' may not have significance, as seen earlier. Due to irregularities in the use of magic 'e' in English orthography, and not having mastered the English spelling, Arabic students were at times noted to overuse the final 'e' in words as indicated in Table 23.

c) Rhoticity

Rhoticity is a type of accent in which the /r/ is pronounced after vowels. This was clearly revealed in all pronunciations which contained the grapheme 'r' (silent and not silent) in the RA test. In the target word 'bring' for example, the /r/ phoneme is clearly articulated in English. However in 'dollar', the /r/ is silent and represented as a schwa sound, /δ□λΩ/. If asked to spell this word as it would normally sound, the spelling expected would be *dolla*. Nevertheless in the RA, Arabic students were found to voice it very distinctively such as /δΩ←λ□⊃ρ/. This has subsequently aided them to include the grapheme 'r' in target words that contained it as verified in their WD test.

Table 24 <u>Rhoticity in RA</u>

TARGET WORD	Rhoticity in (RA)
bear	β∖Ωρ
care	κ□⊃ρ
early	εΩρλι⊃
father	φℊ∂Ωρ

Referring to Table 24, the target words listed contain a silent /r/. Because students did not hear the phoneme /r/ of these words during the WD, it was expected that the grapheme 'r' would likewise be deleted. However this was not the case. Because Arabic speakers always pronounced the /r/ in the words that contained it, it did not matter when they did not hear it in the WD. They still remembered to write it in their spellings.

Like rhoticity, a notable point brought to light through the subjects' pronunciation was their stress of grapheme 'g'. Though the stress of 'r' may be acceptable as a form of variety, the distinctive stress of 'g' however sounded a little unusual as in target words 'b**r**in**g**' and 'mo**r**nin**g**'. Nevertheless similar to rhoticity, the strong 'g' pronunciation was a successful reminder for students to use this consonant in their spellings.

Having observed and analysed misspellings that emerged from the data gathered, the next chapter will discuss and summarise the findings concerned from the perspectives put forward in the research questions. Finally through evidence drawn from the data, some useful pedagogical recommendations will be implicated for the spelling in English of Arab-Emiratis.

CHAPTER 5

DISCUSSION AND SUMMARY

Speculations

In this study, it was found to be rather problematic to attribute the responses to specific areas of errors. Brown (forthcoming:5) confirms that in many cases, we cannot be sure exactly why the student made the error and are thus often speculating at least to some extent or sometimes considering multiple explanations for that particular error. Therefore in such an analysis, very often alternative analyses can be offered for the same error.

In the WD test it was not always clear if students used the graphemes with the actual knowledge of their phonemic realisation. For example, 'bear' was spelt as *birld*. We cannot be certain if *birld* was the actual spelling intended to be written. Or perhaps it was. In some cases, the data in the corpus also revealed a variety of vowels employed for a particular word. An example of such random choice of vowels was found in the word 'care' which was spelt as *car, cer, cair cear, ceer, carr* or *carrer*. With such ambiguousness in the selection of vowels and not knowing if students actually proposed to read them as they were spelt, it was at times impossible to rationalise specific grounds for the errors. However, investigating consonant knowledge through the WD test was found to be a better orthographical test especially knowing that Arabic orthography consists of mainly 'written consonants'. Moreover, consonants in English have a closer sound to spelling correspondence rather than vowels.

In terms of vowel errors, the RA test was a good indicator of the choice of phonemes adopted by Arabic speakers. The oral production of the phonemes in the RA test portrayed their core errors in pronunciation. These were therefore verifications rather than speculations of the English phonology they practiced. Because one would normally learn to read before one writes, it may be realistic to suggest testing students' phonological awareness and knowledge first before

investigating their word dictation ability. Moreover Haggan (1991) suggests that the source of most mispellings is due to mispronunciations of those words. Though this was found to be generally true in this study, there were however words such as 'first' and 'early' (from the top ten error list for RA) that were found to have just a few spelling errors in the WD test. This finding indicates that causes for spelling errors cannot be solely targeted to phonology.

Phonological L1 Interference

It was apparent from the responses that phonemes that do not exist in Arabic were interchanged with their near equivalents (ex: /b/ used for /p/). Such errors can be analysed as contrastive. The effect of first language interference on the target language has recently been termed as 'cross-linguistic influence' (Brown, 2000:207). However what is mystifying is that those phonemes that do not exist in Arabic are actually produced to replace phonemes that do already exist in their language (eg: /e/ used for /i/). This sort of random use of phonemes which prevailed between p/b, v/f, ch/sh, j/g, g/k, i/e therefore cannot be diagnosed as contrastive but rather in free variation. Free variation indicates two different realisations of a particular phoneme whereby one can be substituted for the other without changing the meaning (Roach, 1983:38). With exposure to English, Arabic speakers have developed allophonic representations of such phonemes and at times overcompensate a phoneme that does not exist in their L1. Secondly, occurrences such as vowel reduction, vowel lengthening, vowel monothongisations/ dipthongisations, use of epenthesis and paragoge confirm L1 as a phonological barrier. This barrier can be viewed as an accepted variety of Arabic-English but only in terms of pronunciation. In terms of orthography, obviously spellings cannot come in varieties. Though Abbott (1979:175) states that 'An adequate pronunciation is one which facilitates accurate spelling', this was argued as not always true. Rather misspellings can also be attributed to the irregularities in the English orthography.

Orthographic irregularities

As seen in the analysis, misspellings have also been attributed to problems inherent in the English spelling system where "going from letters to sound requires different rules from going from sounds to letters" (Cook, 2001:5). Due to irregular letter-sound correspondences in English, Arabic students experienced many spelling errors.

Though the letter-sound correspondence in Arabic is more transparent in comparison to English, it can be argued that their orthography is visually and cognitively a complex process because texts are written without vowels, hence it is orthographically deep. Abu Rabia ((2003:425) illustrates that "texts are typically written in vowelised so-called shallow orthography for beginning readers and in unvowelised deep orthography for more advanced readers". Therefore it can be reasoned that Arabic speakers do have potential skills but have not had enough exposure to reach the required level of spelling automaticity in English even though vowels are always written in this system.

Data revealed better results in 'phon' words than in 'rhyme' words in the WD and RA therefore indicating that a phonological route was employed. However students performed better in 'rhyme' words in the MC indicating that an orthographical route was employed. Therefore evidence indicates the use of both phonological as well as orthographical processing depending on the type of test. However results attained were better in the MC because an orthographical route was utilised rather than in the WD and RA where a phonological route was utilised.

In the WD, using the phonological processing for spelling non-transparent rhyme words like 'caught' for instance would not seem possible. This means that students had to opt for either visual memory or spelling rules. Their frequent errors in rhyme words signalled that such lexis were not always stored as whole words in their permanent memory due to lack of exposure. Their recurrent errors in rhyme words also provided evidence that students could not adopt spelling rules. This is because spelling rules in English cannot be generalised either.

The 'gh' grapheme as in 'laugh' for example, produces the /f/ sound, while the same grapheme in 'high' is silent. Further, if it is grapheme 'ght' as in 'caught' it produces yet another sound, i.e. /t/. Because there are always exceptions to phonemic sounds in spelling rules, they are thus not reliable unless one has had enough practice and exposure to the language for words to be stored in the long term memory. "George Bernard Shaw illustrated just how ludicrous spelling can become when he pointed out that the word 'fish' can quite logically be spelled *ghoti*: 'gh' as in 'laugh', 'o' as in 'women', and 'ti' as in 'nation'" (Downing, 1990:iii).

Besides being a time consuming process, a phonographic approach to learning spelling does not appear as a reliable method to suggest for L2 learners. The alternative method is learning spelling by whole word recognition which is what is recommended. In a scientific study at Columbia University, it was found that "the spelling ability of the deaf is about twice that of the normal child" (Shemesh & Waller, 1990:80). Therefore learning by sight would seem a better proposal than learning by sound. In addition, Cook (2001:7) explains that "the visual route is then still important for users who have not mastered all the idiosyncratic words of English that have to be stored as one-off items rather than converted to sound/letter rules". Though the whole word approach (lexical route) would also require practice, it would appear to be a less confusing method. Moreover, through further exposure, aspects of English phonemic manipulation will fall in place and make more sense over time.

Scriptal Problems

Though phonologically Arabic and English are both based on alphabetical scripts, their orthographical representations are in fact very dissimilar. This difference is not merely in terms of variance in the scripts (Semitic vs. Roman), but also in terms of vowel location, letter connection and identical letters in the Arabic writing system Abu Rabia (2003:428). Considering these wide ranging complexities, English appears to be a simpler system to follow. Therefore the Roman script was not found to impede students' spelling in English. Nevertheless it looks as if the right to left eye movement phenomenon in Arabic caused letters

to be written in an incorrect order in some cases, particularly in the mid target words. The orthographic misplacement of letters was mainly reflected in their WD. In the RA, students were however not found to read words from right to left.

Interestingly, according to research at Cambridge University sent through e-mail:

"It deosn't mttaer inwaht order the ltters in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltter be in the rghit pclae. The rset can be a taotl mses and you can sitll raed it wouthit a porbelm."

Apparently the human mind does not read every letter by itself but the word as a whole. This may be quite true as students were observed to read the target words fairly well in the RA. However in terms of writing the spelling, they were at times orthographically distorted through right to left letter misordering. Because students were able to read better than they could spell, perhaps we can deduce that the target words do exist in their lexicon. However because they were still in the short term memory, when retrieved for spelling, the letters were mispositioned.

<u>Dual Route Theory</u>

In Arabic, readers have to cognitively process many rules in order to extract meaning from print or read out loud accurately (Abu Rabia, 2003:425). The 'reading out loud' appears to signal the reason why the RA for this study appeared to produce reasonably good results. Reading in Arabic is a demanding practice in which readers use diverse rules of letter position and diacritics by consistently varying the vowels to attain the correct orthography of a text. This fact indicates access of a phonological route rather than an orthographical route. However it can also be argued that readers may well be using the orthographic route when they read words as whole units using context instead of vowels. In Arabic, beginners use a phonological route where the vowels are written, but as they become advanced, they presumably use an orthographical route where the vowels are not written. Similarly in English, learners initially learn to break down words phonologically but as they progress, words are read as wholes (as seen earlier) thus adopting a dual route paradigm.

However, this study gives indication that Arabic speakers have used more whole word recognition successfully than phonological decoding. A clear example is the orthographic accomplishment of the target word 'swimming'. Despite its word length and consonant doubling of grapheme /m/, 97% of the students spelled it correctly. Other whole word orthographic processing was exemplified in the target words produced as near homophones (Table 8; Appendix 6) and where all letters were preserved but in misplaced order (Table 9; Appendix 7).

The strongest evidence to prove that students used the orthographical route is their achievement in the MC test which had the highest scores of the three tests (Figure 1). Though Arabic students had difficulty in spelling some target words in the WD, they were consistently more efficient in identifying them when visualized as whole words in the MC test. This evidence indicates two important points. Firstly, listening (aural) to the target word in the WD was not as useful as reading (sight) the word choices in the MC. This means that students could detect the correct spelling from a range of words when they saw it. Secondly, the WD involved a phonographical route in attempting to encode words while the MC provided an orthographical route in visually selecting from a choice of given words. Therefore students' success in sight reading and whole word recognition manifests the adoption of an orthographic route.

Through a study, Abu Rabia (2003:437) found that poor Arabic readers rely on visual-orthographic processing in Arabic rather than use strategies through phonological route access. Because the students' level of English in this study is not advanced and because there is a tendency to transfer strategies from the first language, it may well be confirmed that Arabic speakers were transferring the same process of whole word recognition into English.

Context Reference

The findings revealed the production of many near homophones from the responses in the WD. It is therefore apparent that Arabic speakers in many cases did not use the context provided and thus worked bottom up. Ryan (1997:187) explains that if readers lack the ability to decode items at the 'word level', they

would most certainly not be able to accurately decode words at the sentence level and therefore top-down processing breaks down leaving the reader to be dependent on bottom up processing. Nevertheless, though the sentence contexts were orally dictated to students in the WD, they still did not seem to use them as effectively. Or perhaps the context was not much of a help in any case as students did not have the knowledge to encode the target word spelling to start with. However it is believed that in the MC, the written sentence context was useful as students could visually try to fit in different whole words from a choice of answers until the right one was selected like a jigsaw puzzle.

CONCLUSION

The findings suggest that first language interference was generally evident in a variety of cases in the English reading and spelling of Arabic students'. However despite the obvious variation in their English pronunciation, this inaccuracy was not always transferred to their spellings as expected. Rhoticity and consonant doubling were in fact useful first language phonological interferences that helped in their English spelling of related words. Some areas of difficulties like vowel reduction remained only as an articulation problem. Paragoge was assumed to prevail in their reading, however it was evident in their spelling instead. Similarly, the use of epenthesis, another spoken phenomenon, was more obvious in their spellings than in their reading. Nevertheless, as far as vowels are concerned, a lot of confusion and substitution between short/long vowels as well as diphthongs/monothongs was reflected in their reading and transferred to their spellings in English. One of the issues discovered is that students were not always aware of the accurate sounds that the vowels represent and therefore could not apply appropriate graphemes or spelling rules. This leads on to the next point which is the irregularity of the English spelling system.

Orthography of consonants was not a major issue because its phonemes in Arabic and English do overlap to a considerable extent. However, the inconsistency of spelling rules in English especially in terms of vowels was a major cause of misspellings in this study. Because letters do not always correspond to a particular sound and because there are always exceptions to spelling rules, English

spelling is viewed as an unreliable and complex orthographical process especially for beginners. In addition, based on the students' current level of English, they seemed to lack orthographic exposure and knowledge of the language. Therefore this was a contributing factor in the reasons for their errors or difficulties in attaining a level of automaticity in their spelling.

The scriptal differences did not pose as a major challenge except for some cases of letter misordering. The Roman script is generally a straight forward writing system and has been grasped rather well.

Students in the study appeared to have used both phonological as well as orthographical routes to access words. However, whole word recognition seemed more evident and successful in use. Because visual recognition of whole words is an uncomplicated process that does not require the application of irregular letter-sound associations or spelling rules, it is proposed as a method that would ensure Arabic students better skills and knowledge in English orthography through time and exposure. With a concentration on vowels, the following pedagogical recommendations have been put forward.

RECOMMENDATIONS

1. Train students to have the initiative to copy new words from their reading and be actively engaged in building up a word wall in class. Such displays when frequently sighted can have an intuitive effect on spelling memory.

2. Encourage students to monitor and write spellings of words they frequently misspell on flash cards. By looking at words as a unit or chunk regularly and carefully, students would eventually store them permanently in their lexicon.

3. Because silent letters cannot be heard, a useful strategy would be to coach students to utilise their visual senses to look at words that contain them (eg: vowels ending with a silent-e (schwa) such as mistak**e**; consonant doubling in past tense words such as pla**nn**ed). In addition, run minimal pair drills as an activity to compare and contrast words (eg: car-car**e**).

4. Make use of technology by operating fun spelling games on the computer. Have multiple choice word games for students to pick which one looks right (eg: frend; friend; freind). When students have sighted how a word looks like in print several times, they would be able to tell if the spelling looks right.

5. Encourage the use of picture dictionaries suitable for the students' level. This way they can visualise and match the picture to its corresponding word and recognise its spelling. For advanced students encourage the use of regular dictionaries to find words built from a particular morpheme as a central focus and use it to discover a network of words (eg: aero).

6. Suggest students to make up mnemonics as a memory aid to recall the spelling of a difficult word. This can be a funny, personalised and an effective method (eg: **P**eace **E**verywhere **A**nd **C**aring **E**verywhere = PEACE).

7. Assign students to write poems or play games using a set of near homophones (eg: both/bath), compound words (eg: foot/ball) or rhyming words (eg: bath/path) to raise awareness of spelling patterns and irregularities. A valuable and challenging task would be to have students practise building words from a base word (eg: plan/ plans/ planner/ planning/ planned/ preplanned) or extracting root words from its affixes.

8. Set up exercises for students to identify related homophones (eg: there/their/they're) in a range of written contexts to be able to differentiate spellings and construction of meanings.

9. Use audio tapes to stimulate the listening of target words in context for visual recognition of the same words on print. Besides inducing both aural and visual recognition of words, this interactive method can aid students to deduce meaning from contexts.

10. Conduct regular MC quizzes such as in this study for students to identify words with the correct vowel using written contexts (eg: He rings a ball/bell/bill/bowl/bull).

11. Edit and proof read a piece of writing with errors as a class activity to raise awareness of spelling and the need to present work which is correct.

Despite the fact that spelling is not included in most curriculums at a later stage, educators who are aware and concerned about its importance can easily integrate it not only into reading and writing skills but also into grammar and vocabulary sessions. Alternately, if the last ten minutes of an English lesson can be dedicated to spelling exercises each day, it would prove to be highly advantageous for the students. Finally, while learning spelling patterns and being involved in frequent reading and writing activities can contribute to phonological and orthographical knowledge, these may not be precise prescriptive remedies that guarantee the ability to spell and work for all. Learning to spell is a holistic developmental process, not a rote learning task or progress that can be attained through sequential order. In order to learn to apply spelling strategies, students need to learn to classify, hypothesise, generalise, look for patterns, relationships and seek to understand their meanings (Rees, 1997). Some may argue that the ability to spell is inborn. It is however believed that nurture, persistence and practice can make even a bad speller close to perfect.

APPENDICES

APPENDIX 1

WORD LIST

All words have been taken from Nation's 1000 word list except those that have been marked with a star. Original words from his list that have been changed in their tenses/inflected are put in brackets.

TARGET WORD	Transparent/Not Transparent
1. about	NT
2. asked (ask)	NT
3. bear	NT
4. better	T
5. bit	T
6. boy	NT
7. bring	T
8. brother	NT
9. buy	NT
10. care	NT
11. cash	T
12. caught (catch)	NT
13. change	NT
14. cooks *	T
15. country	NT
16. cried (cry)	NT
17. crowd	NT
18. cut	T
19. dollar	T
20. early	NT
21. escape	NT
22. father	NT
23. fever *	NT
24. fewer (few)	NT
25. fill	T
26. fire	NT
27. first	NT
28. fly	T
29. food	T
30. form	NT
31. friend	NT
32. girl	NT
33. hair	NT
34. head	NT
35. heart	NT

36. her *	NT
37. here	NT
38. higher (high)	NT
39. hop *	T
40. hope	NT
41. join	NT
42. jug *	T
43. lower (low)	NT
44. month	NT
45. morning	NT
46. much	T
47. must	T
48. night	NT
49. over	NT
50. paid *	NT
51. planned (plan)	T
52. plant	NT
53. police	NT
54. problem	NT
55. power	T
56. put	NT
57. race	NT
58. red	T
59. round	NT
60. rule	NT
61. sharp	NT
62. ship	T
63. sheep	T
64. show	NT
65. son	NT
66. speaks (speak)	NT
67. stand	T
68. swimming *	T
69. these	NT
70. they	NT
71. think	T
72. tired (tire)	NT
73. torn (tear)	NT
74. tour *	NT
75. trust *	T
76. voice	NT
77. watch	NT

78. week	T
79. wild *	NT
80. would	NT

APPENDIX 2

WORD DICTATION TEST

1. I will tell you all **about** the story I read.
2. Qassim did not know the answer, so he **asked** his teacher for help.
3. I saw a **bear** when I went to the zoo.
4. He was sad yesterday but today he is feeling **better**.
5. Can you add a little **bit** of sugar in my tea?
6. I know that **boy**, he is in my class.
7. Please **bring** your Cutting Edge when you come tomorrow.
8. He is quiet but his **brother** is very naughty.
9. My father will **buy** me a new car if I pass my exams.
10. You must take **care** of yourself especially when you are sick.
11. How much **cash** do you have? I have 500 dirhams.
12. His grandfather **caught** a big fish when he went fishing.
13. I dropped some ketchup on my clothes, now I need to **change** my dress.
14. The chef in this restaurant **cooks** very well.
15. Which **country** are you going to visit in the summer holidays?
16. She **cried** a lot when she failed her driving test.
17. There was a big **crowd** at Global Village, so I decided to return home.
18. I need a scissors to **cut** this paper.
19. Can I borrow one **dollar** from you? I don't have any change.
20. He slept late last night so he could not get up **early** this morning.
21. The chicken was trying to **escape** when the lion was chasing it.
22. My **father** is a business man, he sells gold.
23. I don't feel well, can you check if I have a **fever**?
24. Ali has 5 apples but Jameel has 3 apples **fewer** than Ali.
25. I need to **fill** some petrol in my car before we go to Hatta.
26. The house was on **fire** so I called 999.
27. **First** you need to cut the chicken into pieces, then you can fry it.
28. I wish I could **fly** like a bird but I don't have wings.
29. Try not to eat junk **food** or you will become fat.
30. New students who join the college need to fill out an application **form**.
31. My best **friend** is getting married, we are having a surprise party for her.
32. Susanna is pregnant and she hopes to have a baby **girl**.
33. What kind of **hair** do you like, straight or curly.
34. He has no hair on his **head.**
35. His **heart** is broken because his wife died.
36. Fatima is absent. Can you give **her** these papers please?
37. Kareem is not **here** now, he has gone out.
38. My teacher is happy because my English marks are **higher** this semester.
39. I tried to **hop** on one leg but fell down.
40. I **hope** you are having a good time right now.

41. Would you like to **join** me for a movie this Wednesday afternoon?
42. I have a **jug** of water for those of you who are thirsty.
43. Can you hang the picture a little **lower**? It is too high right now.
44. Which **month** does the winter start in Dubai?
45. He goes to work at 8 in the **morning**.
46. Thank you very **much** for helping me.
47. You **must** work on your revision sheets before the final exams.
48. Last **night** I saw my friends at the cinema.
49. He fell **over** the rock and hurt his leg.
50. I **paid** a lot of money to stay at the Burj Al Arab for 3 days.
51. I **planned** a great holiday last summer but it turned out to be boring.
52. I like to buy another green **plant** for my garden.
53. He was stopped by the **police** for driving fast.
54. The sheikh has a lot of **power** to rule this country.
55. What is the **problem**, why aren't you doing your work?
56. How many chillies did you **put** in this curry? It is so spicy.
57. Let's have a **race** and see who runs faster.
58. My favourite colour is **red.**
59. I ordered a **round** cake for his birthday.
60. There is a new **rule** which states that you cannot smoke in the college.
61. This knife is so **sharp**, it cut my finger.
62. Do you like to travel by **ship** or by airplane?
63. The **sheep** is a beautiful animal found in Australia.
64. The security asked me to **show** him my ID card.
65. I have one **son** and two daughters.
66. She **speaks** Arabic at home but English in college.
67. I like to **stand** up rather than sit down when I'm teaching.
68. My favourite hobby is **swimming**.
69. Why are **these** students in our class, they should not be here?
70. Do **they** know the way to Bur Juman from Garhoud Bridge?
71. I **think** I have a great idea for our next project.
72. He was **tired** after working for 10 hours.
73. His new trousers got **torn**, so he has given it to the tailor to fix it.
74. Tourists like to take a **tour** of Dubai on the wonderbus.
75. I think he is honest, I can **trust** him with all my money.
76. His **voice** is so loud, he sounds like a lion.
77. Look at the time in your **watch**, you have five minutes left.
78. Your exams will start in the second **week** of June.
79. There are many **wild** and dangerous animals in the jungle.
80. **Would** you like to have a break now?

APPENDIX 3

WORD DICTATION ANSWER SHEET

Student # : _____

	RESPONSE	Don't know the spelling	Don't know the meaning
1			
2			
3			
4			
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78			80
79			
80			

APPENDIX 4

READING ALOUD ANSWER SHEET

Student # : _____

	READING ALOUD	PRONUNCIATION	correct	vowel	consonant	cluster	other
1	about	/Ω∩βα←τ/					
2	asked	/□ɔσκτ/					
3	bear	/βεΩ/					
4	better	/∩βετΩ/					
5	bit	/β\τ/					
6	boy	/β⌐\/					
7	bring	/βρ|/					
8	brother	/∩βρ℘∂ε/					
9	buy	/βα\/					
10	care	/κεΩ/					
11	cash	/κ—♣/					
12	caught	/κ⌐ɔτ/					
13	change	/τ♣ε\νδ|/					
14	cooks	/κ←κσ/					
15	country	/∩κ℘ντρ\/					
16	cried	/κρα\δ/					
17	crowd	/κρα←δ/					
18	cut	/κ℘τ/					
19	dollar	/∩δ□λΩ/					
20	early	/∩±ɔλ\/					
21	escape	/\∩σκε\π/					
22	father	/∩φ□ɔ∂Ω/					
23	fever	/φιɔϖΩ/					
24	fewer	/φφυɔΩ/					
25	fill	/φ\λ/					
26	fire	/φα\Ω/					
27	first	/φ±ɔστ/					
28	fly	/φλα\/					
29	food	/φυɔδ/					
30	form	/φ⌐ɔμ/					
31	friend	/φρενδ/					
32	girl	/ϟ±ɔλ/					
33	hair	/ηεΩ/					

34	head	/ηεδ/					
35	heart	/η□⊃τ/					
36	her	/η±⊃/					
37	here	/η⌒Ω/					
38	higher	/ηα⌒Ω/					
39	hop	/η□π/					
40	hope	/ηΩ←π/					
41	join	/δ⏐⌋⌒ν/					
42	jug	/δ⏐℘⎬/					
43	lower	/λΩ←Ω/					
44	month	/μ℘ν□/					
45	morning	/∩μ⌋⊃ν⌒⎮/					
46	much	/μ℘τ♣/					
47	must	/μ℘στ/					
48	night	/να⌒τ/					
49	over	/∩Ω←ϖΩ/					
50	paid	/πε⌒δ/					
51	planned	/πλ—νδ/					
52	plant	/πλ□⊃ντ/					
53	police	/πΩ∩λι⊃σ/					
54	power	/∩πα←Ω/					
55	problem	/∩πρ□βλΩμ/					
56	put	/π←τ/					
57	race	/ρε⌒σ/					
58	red	/ρεδ/					
59	round	/ρα←νδ/					
60	rule	/ρυ⊃λ/					
61	sharp	/♣□⊃π/					
62	ship	/♣⌒π/					
63	sheep	/♣ι⊃π/					
64	show	/♣Ω←/					
65	son	/σ℘ν/					
66	speaks	/σπι⊃κσ/					
67	stand	/στ—νδ/					
68	swimming	/σω⌒μ⌒⎮/					
69	these	/∂ι⊃σ/					
70	they	/∂ε⌒/					
71	think	/□⌒⏐κ/					
72	tired	/∩τα⌒Ωδ/					

73	torn	/τ⌐ɔν/					
74	tour	/τ←Ω/					
75	trust	/τρ℘στ/					
76	voice	/ϖ⌐\σ/					
77	watch	/ω☐τ♣/					
78	week	/ωι⊃κ/					
79	wild	/ωα\λδ/					
80	would	/ω←δ/					

APPENDIX 5

MULTIPLE CHOICE TEST

1. I am reading a story _____ Ali Baba.

a. abuot
*b. about
c. aboute
d. abot

2. The teacher _____the student to speak loudly.

a. asket
b. aksd
*c. asked
d. askd

3. A _____ is a big animal with thick fur.

a. pair
b. bair
c. baer
*d. bear

4. I am _____ at English than Math.

*a. better
b. batter
c. battre
d. bettre

5. Ms. Eileen is going to be a _____ late to class today.

a. bett
b. bet
*c. bit
d. but

6. Fahad is a _____ and Fatima is a girl.

a. bay
b. bhoy
c. buy
*d. boy

7. Do we need to _____ our books during the exams?

a. bering
b. brieng
c. pring
*d. bring

8. Alia is my big sister and Ali is my small _____.

a. brather
*b. brother
c. breather
d. bruther

9. Which shop did you _____ your dress from?

*a. buy
b. bhai
c. bay
d. bai

10. My parents love and _____ about me.

a. cair
b. cear
c. carre
*d. care

11. He does not have _____ but he has a credit card.

a. cush
*b. cash
c. cashe
d. kash

12. The fisherman _____ a big shark yesterday.

a. cought
b. cot
c. catch
*d. caught

13. I want to _____ my car, it is too old now.

*a. change
b. chaing
c. chang
d. chanj

14. My mother_____ chicken biryani every Friday.

a. cookes
b. cocks
c. coocks
*d. cooks

15. I think Malaysia is the best _____ in Asia.

a. cantry
b. contry
*c. country
d. cuontry

16. He was very sad and _____ a lot when his dog died.

a. craid
b. cry
c. cryed
*d. cried

17. There was a big _____ and a lot of noise at the party.

a. crawod
b. crowed
*c. crowd
d. craoud

18. John is going to _____ his cake, let's sing him a birthday song.

a. cat
b. cate
c. caught
*d. cut

19. One American _____ is the same as 3.65 dirhams.

*a. dollar
b. dollor
c. doller
d. dowller

20. He is always late to class, I have never seen him coming _____.

a. arlly
*b. early
c. earlly
d. erly

21. The thief tried to _____ from jail because he wanted to be free.

a. skap
b. scape
c. escap
*d. escape

22. Mohammad looks just like his _____, not like his mother.

*a. father
b. feather
c. faather
d. fother

23. When I was sick the doctor checked to see if I had _____.

*a. fever
b. feever
c. fevor
d. fevar

24. There are _____ people in the park in the winter than in the summer.

a. fewour
b. feuwer
*c. fewer
d. fuwer

25. _____ in the blanks with the correct answer.

a. fel
b. fell
*c. fill
d. file

26. The children shouted for help when the house was on _____.

a. fair
b. faier
*c. fire
d. fiar

27. At _____ the movie was interesting but later it was a little boring.

*a. first
b. fairst
c. farst
d. furst

28. The bird has a broken wing and now it cannot _____.

*a. fly
b. flai
c. flay
d. flew

29. There is no more _____ at home, let's buy some bread, meat and vegetables.

*a. food
b. foods
c. fud
d. foot

30. I would like to apply for a credit card, can I have the _____ please?

a. fourm
*b. form
c. forme
d. forrm

31. He has been my best _____ since Grade 1.

*a. friend
b. frind
c. freind
d. firend

32. Who is that beautiful _____ standing there?

a. gril
b. gurl
c. giral
*d. girl

33. What colour is your _____? Black, brown or blond?

*a. hair
b. hiar
c. heir
d. hir

34. If your _____ hurts, take a panadol.

a. had
b. hade
*c. head
d. haed

35. What shape do you like for the wedding cake, _____ or square?

a. haert
b. haret
c. hort
*d. heart

36. Aisha told me that _____ exam was easy.

a. hue
b. har
*c. her
d. hair

37. Is Ahmad _____ today? I haven't seen him all day.

*a. here
b. hear
c. heir
d. hir

38. I am working hard to get _____ marks in my next exam.

*a. higher
b. hayer
c. haier
d. highr

39. To jump on one leg means to _____.

a. hup
b. hub
*c. hop
d. hap

40. I _____ it does not rain today because I want to go out and play.

a. hop
*b. hope
c. hoppe
d. hoob

41. Would you like to _____ me for a game of football?

a. goun
*b. join
c. joyen
d. goyn

42. I was so thirsty that I drank a full _____ of orange juice.

*a. jug
b. juge
c. gug
d. judge

43. Can you _____ the price of this necklace, it is too expensive?

a. lauer
b. lowre
*c. lower
d. lwer

44. Which _____ is your birthday, May or June?

a. munth
b. manth
c. mounth
*d. month

45. I had eggs and toast for breakfast this _____.

a. moring
b. morrning
c. morring
*d. morning

46. How _____ money do you need to buy a Ferrari?

*a. much
b. match
c. mutsh
d. macth

47. You _____ not park your car on the yellow lines.

a. muste
b. mast
*c. must
d. most

48. One _____ I saw a very bad dream.

a. nieght
b. neight
*c. night
d. nighte

49. Can you come _____ to my office at 1pm?

a. ever
*b. over
c. ovre
d. evir

50. I _____ a lot of money for a first class ticket.

*a. paid
b. payed
c. baid
d. paied

51. They have _____ a surprise party for his graduation.

*a. planned
b. pland
c. planed
d. plan

52. The new _____ in my garden has big green leaves.

a. planet
*b. plant
c. plaant
d. plent

53. Call 999 if you need the _____.

a. polic
b. ploice
c. polis
*d. police

54. There is a _____ with my mobile phone, I have to get it fixed.

a. broblem
b. proplam
c. broplem
*d. problem

55. The king has a lot of _____ and money.

a. pauor
b. pawer
*c. power
d. powre

56. Where did you _____ the house keys?

a. poot
b. bot
c. pot
*d. put

57. Are you going to watch the camel _____ tomorrow?

a. ras
b. rase
c. rac
*d. race

58. _____ is the colour of love.

a. read
b. rad
*c. red
d. raed

59. The earth is _____, not flat.

a. raund
*b. round
c. rawnd
d. arund

60. It is a _____ that smoking is not allowed in college.

a. roall
b. roul
c. rowl
*d. rule

61. Your finger nails are as _____ as the lions teeth.

*a. sharp
b. charp
c. sharb
d. sherp

62. The boat is smaller than a _____.

a. chep
b. shep
c. shaip
*d. ship

63. A _____ is an animal from which we get wool and meat.

a. sheeb
*b. sheep
c. sheap
d. shape

64. Mr. Richard wanted me to _____ him my homework.

*a. show
b. shwo
c. sho
d. shoh

65. I would like to have one _____ and two daughters after
I get married.

a. sun
b. san
*c. son
d. saon

66. Where is she from? She _____ English very well.

a. speks
*b. speaks
c. spekes
d. speakes

67. Do not sit down, _____ up.

a. setand
b. staned
c. standed
*d. stand

68. I like _____ in the pool more than in the sea.

a. swim
b. swmming
*c. swimming
d. swmng

69. _____ books are all very nice, I don't know which one
to choose.

a. theis
b. thees
*c. these
d. this

70. _____ are all waiting for us at the bus stop. Hurry
up!

a. thay
b. thye
c. thy
*d. they

71. Do you _____ it is going to rain?

a. tink
*b. think
c. thaink
d. thing

72. I have worked very hard. I am _____ and want to sleep.

*a. tired
b. tierd
c. tiyerd
d. taierd

73. Most of the pages from this old book are _____.

*a. torn
b. tourn
c. turn
d. toren

74. When I visit France, I would like to go for a city _____.

*a. tour
b. touer
c. tur
d. tower

75. Can I _____ you to be good while I am away?

a. trast
b. trst
*c. trust
d. terast

76. I enjoy listening to Amar Diab's songs, he has a great _____.

a. voes
b. vois
c. voise
*d. voice

77. Do you want to _____ TV at home or go out for a movie?

a. wach
*b. watch
c. wacth
d. wotch

78. This _____ is the second last before the final exams.

a. weak
b. wek
c. weik
*d. week

79. I am scared of _____ animals in the jungle.

a. waild
*b. wild
c. while
d. whaild

80. _____ you like a cup of tea or coffee?

a. wood
*b. would
c. wuld
d. wold

APPENDIX 6

Table 8 <u>Near Homophone Errors in WD</u>

TARGET WORDS	NEAR HOMOPHONE ERRORS
bear	pair
better	batter
bit	bet
boy	bay
buy	bay
care	car
cooks	cocks
cut	cat, caught
escape	skip
fewer	flower
fill	fell, file, fall
fire	fair
hair	heir, hear
head	had, hand
heart	hard, heat
here	hear, her, heir
higher	hair
hop	hub, hope
hope	hop

TARGET WORDS	NEAR HOMOPHONE ERRORS
jug	judge
much	match
must	most
over	ever
planned	plant
plant	planet
put	pot
race	rice
red	read
rule	role, roll
sheep	shape
son	sun
these	this
think	thing
torn	turn
tour	tower
wild	while
would	wood

APPENDIX 7

Table 9 <u>Letter Misordering in WD</u>

TARGET WORDS	LETTER MISORDERING
bear	baer
care	cear
cried	cride
crowd	crwod
fire	fier
form	from
friend	frined
girl	gril
hair	hiar
head	haed, hade
paid	piad
police	ploice
race	reac
show	shwo
these	thees
tired	tierd, teird
tour	tuor
watch	wacth

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