THE EFFECTS OF TWO COMPUTERIZED PROGRAMS IN REDUCING JORDANIAN TERTIARY STUDENTS' SPELLING ERRORS

by

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LIST OF ABBREVIATIONS

ICT: Information and Communication Technology

EFL: English as a Foreign Language

MOE: Ministry of Education

MOHE: Ministry of Higher Education

OSP: Online Spelling Program

ESP: English for Specific Purposes

CALL: Computer-assisted Language Learning

CAI: Computer-assisted Instruction

ANOVA: Analysis of Variance

SPSS: Statistical Package for Social Science

ANCOVA: Analysis of covariate

HE: High percent of Errors

ME: Medium percent of Errors

LM: Low percent of Errors

TA: Text-audio mode

T: Text mode

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KESAN DUA PROGRAM BERKOMPUTER DALAM MENGURANGKAN KESILAPAN EJAAN PELAJAR DI INSTITUSI PENGAJIAN TERTIARI JORDAN

ABSTRAK

Kajian ini memeriksa kesan-kesan menggunakan dua program berkomputer dalam mengurangkankesilapan-kesilapan mengeja pelajar-pelajar tertiari Jordan. Ginger dan Microsoft Word 2007 digunakan sebagai dua mod pembentangan. Program-program ini mewakili audio-teks dan mod teks, mengikut prinsip modaliti. Tahap-tahap kesilapan ejaan (iaitu tinggi, sederhana dan rendah) para pelajar telah dibandingkan. Kajian ini dijalankan berdasarkan teori kognitif Mayer-pembelajaran multimedia, teori dwi-laluan ejaan yang berkesan, dan ejaan dalam pendekatan berkonteks. Prinsip modaliti turut digunakan sebagai satu alat yang efektif untuk memperbaiki prestasi ejaan dan mengurangkan kesilapan ejaan para pelajar. Sampel kajian terdiri dari 80 orang pelajar tahun kedua lelaki dan perempuan yang memang dipilih dari Universiti Hashemite University di Jordan. Kedua-dua kumpulan pelajar telah mengambil pra- dan pasca-ujian dan mengambil bahagian dalam temuramah berstruktur untuk menjawab soalan-soalan utama kajian ini. Kesilapan-kesilapan ejaan para pelajar Jordan ini diklasifikasikan kepada empat jenis kesilapan mengikut klasifikasi Cook. Peranan analisis kesilapan dalam ejaan, dan interferens di antara Bahasa Arab dan Bahasa Inggeris turut dijelaskan. Perbezaan fonologi di antara kedua-dua bahasa boleh menyebabkan banyak kesilapan ejaan yang turut menjejaskan sebutan perkataan mereka. Pelajar-pelajar tersebut yang menggunakan mod audio-teks telah membuat sedikit sahaja kesilapan berbanding dengan mereka yang menggunakan mod teks. Pelajar-pelajar yang mempunyai aras

kesilapan ejaan sederhana yang menggunakan mod audio-teks telah membuat sedikit sahaja kesilapan berbanding dengan mereka yang mempunyai aras kesilapan yang rendah dan tinggi yang menggunakan mod teks. Tambahan lagi, mod audio-teks mengurangkan banyak kesilapan-kesilapan yang melibatkan penggantian, pemasukan, transposisi dan pemotongan jika dibandingkan dengan mod teks. Kajian ini boleh mengajarkan profesor atau tenaga pengajar tentang bagaimana mahu membantu pelajar-pelajar mereka dalam ejaan, sebutan, pendengaran dan tatabahasa. Menulis melalui program komputer boleh menarik minat pelajar lebih dari menulis di atas kertas. Prinsip modaliti perlu digabungkan ke dalam rekabentuk-rekabentuk instruksional, kurikulum, berasaskan komputer dan berasaskan laman sawang untuk membantu pelajar-pelajar membangunkan prestasi ejaan mereka. Profesor-profesor EFL(Bahasa Inggeris sebagai Bahasa Asing) digalakkan menggunakan program dengan ciri-ciri ejaan kontekstual untuk mengajar pelajar-pelajar mereka bagaimana hendak mengeja. Kajian-kajian akan datang perlu mengkaji kesan-kesan ciri-ciri kontekstual ini ke atas kemahiran-kemahiran bahasa yang lain, seperti sebutan, tatabahasa dan kosa kata. Kajian-kajian ini juga perlu mengukur kesan-kesan menggunakan program-program berkomputer ke atas cara-cara pelajar menyebut perkataan.

THE EFFECTS OF TWO COMPUTERIZED PROGRAMS IN REDUCING JORDANIAN TERTIARY STUDENTS' SPELLING ERRORS

ABSTRACT

This study investigated the effects of using two computerized programs on reducing the spelling errors Jordanian tertiary students. Ginger and Microsoft Word 2007 were used as two modes of presentation. These programs represented the text–audio and text modes, respectively, according to the modality principle. The spelling error levels (i.e., high, medium, and low) of the students were compared. This study was conducted based on Mayer's cognitive theory of multimedia learning, dual route theory of efficient spelling, and spelling in the context approach. The modality principle was similarly used as an effective tool for improving the spelling performance and reducing the spelling errors of students. The study sample comprised 80 male and female second-year students who were purposefully selected from Hashemite University in Jordan. Both study groups took pre- and post-tests as well as participated in structured interviews to answer the main questions of the study. The spelling errors of these Jordanian students were classified into four types according to Cook's classification. The role of error analysis in spelling was explained, and the interference between the Arabic and English languages was clarified. The phonological differences between these languages may cause many spelling mistakes that may also affect how students pronounce words. Those students who used the text–audio mode obtained fewer errors compared to those who used the text mode. The students with a medium level of spelling errors who used the text–audio mode obtained fewer errors compared to those with low and high spelling error levels

who used the text mode. Moreover, the text–audio mode reduced more substitution, insertion, transposition, and omission errors compared to the text mode. This study can teach professors on how to help their students in spelling, pronunciation, listening, and grammar. Writing through computer programs may interest students more than writing on paper. The modality principle must be integrated into the instructional, curriculum, computer-based, and web-based designs to help students develop their spelling performance. EFL professors are encouraged to use programs with contextual spelling features for teaching their students how to spell. Future studies must investigate the effects of these contextual features on other language skills, such as pronunciation, grammar, and vocabulary. These studies must also measure the effects of using computerized programs on how students pronounce words

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

This study examines two factors, namely, technology and the English language. It likewise demonstrates the effects of technology on the English language, specifically on English spelling.

The world has witnessed the phenomenal growth in the usage of information and communication technology (ICT) in the field of education. Integrating ICT into language learning classes may create interaction among learners and affect the teaching process. Various means of technology, such as teleconferencing, online and web-based instruction, and e-learning, are employed in the teaching and learning process in teaching writing; meanwhile, the Internet and web-based programs (Park & Son, 2009) have been used and affected student essays in terms of organization, grammar, and mechanics. Research indicates that teaching writing through computers can reduce student errors (Chen & Cheng, 2006). For instance, computer programs identify and correct the spelling errors of students in both words and the context, thus helping students to recognize and correct such errors. Computers can easily identify and codify these errors. Similarly, simple matching procedures can be used to flag errors and improve the writing quality of students (Eliot & Mikulua, 2004). The writing quality of students is improved by providing them with accurate feedback, which encourages them to reduce writing errors and increase editing activity in their writing. Moreover, receiving good feedback on errors increases student awareness and reduces errors,

thereby reflecting the quality of writing. Computers affect student writing in several aspects, such as general competence, organization, and writing mechanics.

Both students and teachers can benefit from ICT use in the context of teaching English as a foreign language (EFL) or English as a second language (ESL) (Albirini, 2004). ICT enhances the language skills (i.e., speaking, reading, grammar, coherence in writing, and syntax) of students; moreover, it contributes to learner awareness of the language (Kapka & Oberman, 2001). ICT supports creativity and independent learning as well as provides various forms of presenting information. Meanwhile, ICT provides teachers with different types of media that can be used in conveying messages in a manner that differs from the traditional one. Moreover, ICT helps teachers to communicate their ideas and experiences with each other.

ICT is a useful tool for teachers and students in many aspects. For instance, students can present the information of the lesson in the form of pictures, diagrams, charts, and tables. ICT likewise accelerates student understanding of the lessons (Dong & Li, 2011). Computers will not make students lazy; rather, they will motivate them to practice their language skills and help them improve the text and its components, such as spelling and other technical skills (Quinlan, 2004).

One of the most important areas in writing is spelling, and this study has selected spelling as its focus. Spelling is more complex than many people think (Oakley, 2005). Spelling denotes the ability of a learner to write a word correctly, which involves the process of identifying the spoken word and selecting the appropriate grapheme–to–

phoneme correspondence. Spelling is learned as a component of writing, and it is not a result of studying isolated skills. More importantly, effective writing depends on effective spelling; meanwhile, understanding the spelling difficulties of learners can help teachers support the improvement of learner writing. More specifically, the ability to accurately write the spelling of a word largely depends on the necessary skills of written expression. Spelling skill is similar to other skills, including identifying letters and their sounds as well as the word structure.

Given the positive effects of ICT on English language skills, this study intends to manifest this relationship by adopting two programs and investigating their effects on spelling. Spelling programs can develop the writing skill of students and motivate them to write. They can likewise aid students in generating writing in terms of both quantity and quality. Using spelling programs in writing classes facilitates the environment of a student-centered classroom because students are given time to identify and rectify their mistakes while writing the topics. Moreover, spelling programs provide students with the opportunity to control the text and possibilities of editing the text. Spelling programs allow students to edit, save, and return to the text any time. Such programs similarly motivate students to attend writing classes and reduce their anxiety about making spelling errors (Bolter, 2001).

The role of teachers in spelling programs involves guiding and facilitating students as the latter writes and edits the texts. In this regard, a paradigm shift has occurred in the role of teachers; from being merely a source of information, teachers nowadays have become facilitators. Moreover, students write, edit, and improve the quality of texts

through the independent use of a spelling program. Spelling programs in writing classes create a type of communicative writing, in which students can send texts and reply to each other. In short, spelling programs motivate students to write, edit, communicate, and improve the text quality. Faber (2010) cites evidence that spelling programs are a helpful tool for students in writing classes.

ICT improves the language skills of students by reducing their spelling errors. For instance, students need not worry about mistakes in their writing because the spell-check feature helps them reduce their spelling errors (Unus & Salehi, 2012). Moreover, computer usage in teaching writing plays an effective role in learning and teaching English language; that is, it provides learners with the opportunity to check grammar and spelling problems as well as choices to learn English as it appears in the form of text, audio, and video. Thus, students can choose programs and tasks according to their interests and the aims of the lessons (Hayati, 2005; Matheos, 2003). Kenworthy (2004) described the relationship between writing and technology as ideal. This relationship indicates that technology helps learners develop their writing skill and plays a vital role in language learning/teaching process (Cho & Schunn, 2007). This relationship simultaneously emphasizes the importance of technology in a writing class. When students review their text by hand, they have to rewrite the texts; hence, they may view this task as more time-consuming and tedious. By contrast, if students use a computerized program, they may regard the same task as easier, more interesting, and less time-consuming (Mansor, 2007).

Internet-based teaching can be useful for improving student performance in many aspects, which include facilitating the English writing instructions, content, and text organization development (Tsou, 2008). Students can develop their text and organize it with the correct form of paragraphs, combine content and language, edit, check the spelling, as well as indent and outdent the text. Moreover, the writing process will increase peer-editing revision and the computer skill of students. The Internet is also useful for teachers, such that they can obtain the benefits from the experiences of other teachers through the sharing of ideas and lessons that enable students to improve their writing skill (Miyazoe & Anderson, 2010). This factor signifies the crucial role of technology in the field of language learning.

In Jordan, the Internet and computers have influenced the lives of people with the widespread use of e-commerce, e-banking, e-telecommunication, and e-government, as well as the usage of the Internet and computers in education and language learning (Bataineh & Baniabdelrahman, 2006). The Jordanian government likewise intends to maximize the use of computers and the Internet. The Jordanian Ministry of Education (MOE) and the Ministry of Higher Education (MOHE) are in the process of reforming the educational system by focusing on the incorporation of ICT into training programs and curricula. Moreover, efforts have been undertaken to integrate ICT into language learning in university and school classes at all levels.

Despite government efforts and the fact that Jordanian universities are equipped with computers and Internet connection, the use of technologies in Jordanian classrooms has not gained considerable acceptance. Consequently, educational authorities organize

workshops to provide teachers with sufficient knowledge about computer programs (Bataineh & Baniabdelrahman, 2006). Moreover, in an attempt to modernize the Jordanian educational system, the government exerts efforts to shift from the traditional methods of teaching writing to the new methods involving technology and other supportive means by adding ICT application to English classes and integrating it into the curricula.

Most countries in the Middle East have invested in ICT in schools and universities, but the use of ICT has been marginalized, especially in Jordan. For instance, teachers frequently use computer applications in preparing exam questions, student register, and announcements. Internet use is limited to checking emails and sourcing information. Vanhegan and Wallace (2004) reported that numerous American, European, and Japanese schools and universities have integrated computers into their curricula. By contrast, documented evidence showing that ICT is embedded into the curricula of Jordanian universities, including spelling instruction, is lacking.

ICT is an important factor that helps students check their spelling errors and improve their written English, as well as provides them with useful feedback. The use of spelling software can be a valuable part of the spelling repertoire of students. Using technology for spelling instruction can induce positive outcomes as well (Westwood, 2008). Thus, the review of previous studies on writing and spelling indicates that the traditional methods of teaching spelling through texts may not simplify the instruction process (Bishop, Amankwatia, & Cates, 2008). Moreover, the failings of most spelling programs

may be attributed to separating spelling teaching from the context rather than associating it with the context.

The current study contends that the appropriate use of modality as a principle of computer-based learning could actively foster the learning of spelling. This study helps students enhance and develop their spelling, thereby allowing them to revise their essays and improve their writing. Teaching spelling in conjunction with the pronunciation of words would be appropriate as well. Meanwhile, Jordanian students have difficulty in writing their topics because they have a low level of writing skill, especially in spelling (Rababah, 2003). Obtaining student participation in writing activities in class is an exhausting undertaking. At the same time, writing is a task that is more teacher-oriented than student-oriented. Thus, a new means of facilitating learning should be identified (Bakar, 2009).

Teachers in writing class focus on a few misspelled words, and they cannot make the correction for the texts of all of the students in class using red ink. Editing the errors in student texts is an exhausting and time-consuming task. This study highlights the importance of integrating and incorporating spelling programs into classrooms and curricula to help students receive immediate feedback on misspelled words and promptly correct their errors.

The researcher conducted a preliminary survey among 43 university students in Hashemite University in Jordan. The results of the preliminary survey indicated that the majority of the students made different types of spelling errors, namely substitution,

omission, transposition, and insertion errors. At the same time, Jordanian university professors expressed their difficulty in teaching English spelling. The mastery of spelling words is indeed essential in becoming a good writer (Treiman, 1993). Consequently, the spelling skill weakness of students would adversely affect their writing skill. The importance of spelling should be demonstrated because it is a basic component of English writing.

1.2 IMPORTANCE OF SPELLING

The importance of spelling derived from language lies in the texture and the structure, and students should develop both aspects. Structure requires certain items to decode the written language. Spelling should be an integral part of language instruction for students, particularly those who have spelling problems, because it aids them in mastering the basics of language, as well as in properly reading and writing in English. Moreover, teaching spelling allows students to master the strong connection between the sounds of the language and to bond the connection between the letters and their sounds. Spelling not only helps students in pronunciation, but also assists them in conveying the meaning of words. For instance, if words that sound the same (e.g., wright, write, and right) were spelled in a similar way, their meanings would be more difficult to differentiate. Spelling is complex, but it is perfectly decodable when people understand its system. The complexity of spelling is attributed to the lack of instruction and poor teacher preparation. Recognizing the rules and patterns of spelling helps the student and the teacher to clarify the complexity of the spelling system. For instance, if students practice spelling in an effective manner and they obtain an appropriate and immediate feedback for their spelling errors, spelling would become an enjoyable task for them, particularly

when technology is used in a creative manner. Students can use a suitable program that helps them with spelling; in this regard, they will use auditory and visual channels in the learning task. To correctly spell, students have to retrieve the letters of the word from their memory, and then rebuild them in the correct sequence. This approach helps students overcome the challenge of remembering the spellings of words because of the efficient use of the working memory, which engages the visual and auditory channels in the learning of the task (Mousavi, Low, & Sweller, 1995).

Technology eases the spelling task for poor spellers. However, this idea does not imply that students have to rely on technology and forget the spelling rules and other aspects that help them reduce the probability of misspelling words. Spell checker is regarded as a time-saving helping tool for poor spellers; nevertheless, it is useful specifically for minor mistakes and common typographical errors, such as typing "teh" instead of "the."

Students require a spelling program that is more useful for recognizing spelling as it provides them with the sounds of the words. Advances in technology have induced the need for teaching students how to spell properly, as well as read and write fluently using the most suitable program (i.e., helps them in spelling). Students tend to write less because they struggle with spelling. Communication becomes clear for students who are equipped with the proper spelling skill. Moreover, incorrect spelling can hinder communication between and among people and can change the meaning of communication.

The researcher opted to investigate the spelling errors of Arab students for two reasons. First, a large percentage of Arab students have a real spelling problem in their writing because they attempt to use their own technique in writing English words. For instance, they use their own native language to write English words, and this approach results in new words that do not exist in the English language. Second, the experience of the researcher in teaching Arab students provides a solid foundation on the spelling system used by Arab students. These research motivations underlie this study at the Ph.D. level; the results of the study are intended to aid researchers in eliciting the causes and sources of spelling errors and in further examining the spelling system of Arab students.

1.3 PROBLEM STATEMENT

English is taught in Jordan as a foreign language (EFL) in which students are expected to master the four language skills of listening, reading, speaking, and writing (El-Koumy, 2004). However, most EFL Jordanian students face difficulties in creating a piece of writing (Abuseileek, 2006). One of the major problems is how to correctly spell English words (Rababah, 2003). Several EFL students misspell words, which result in incoherent sentences.

In connection with this idea, Abdel-Jawad (1986) stated that the major writing problems EFL teachers in Jordan face are those associated with student inability to correctly spell English words when attempting to produce a piece of writing. Similarly, Abed Al-Haq (1997) indicated that EFL learners in Jordan are incompetent in writing because they encounter difficulty at the sentence level. Although these EFL students are aware of the

importance of spelling in writing, they continue to experience difficulty in correctly spelling English words.

EFL teachers at the higher education level in Jordan are highly interested in improving the writing performance of their EFL students and in enabling them to produce a meaningful piece of writing (Abuhamdia, 1995). To achieve the objectives of teaching EFL in Jordan, teachers direct all their support toward facilitating students with the necessary linguistic skills and enhancing the teaching method required for advanced writing performance (Khuwaileh & Al-Shoumali, 2000). Teachers assert that students generally have problems in writing, especially in spelling, at the tertiary level. The spelling problem begins with university students from the first year until they graduate.

Brown (2000) argued that learners experience challenges in acquiring a foreign or a second language. Similarly, Arab learners encounter numerous difficulties, causing them to make linguistic, semantic, syntactic, and phonological errors. Hilderth (1962) regarded these errors as an indicator of the learning progress and explained that spelling affects student writing: "Spelling is a sort of draft horse of written expression [without which] the load of work in writing cannot be done easily" (p. 2). Hilderth further stated that spelling facilitates student expression of ideas in the writing task. Moreover, Smedley (1983) regarded spelling as an important factor in writing tasks because it strengthens the connection between the writer and the reader.

In Jordan, spelling is ignored at the university level although it has an important position in writing tasks. To the researcher's best knowledge, most Jordanian students have a

spelling problem in their writing. Bahlol (2007) reported that spelling is a problem for all learners, even if they are native speakers. Fender (2008) pointed out that most learners have spelling problems. The current study cited the differences that exist between English and Arabic languages as a source of such a spelling problem because these languages are linguistically distant.

Swan and Smith (2001) contended that "all aspects of writing in English cause major problems for Arab speaker(s)" (p. 199). These problems arise due to several factors. For instance, the Arabic writing system is characterized by a right-to-left direction, whereas English adopts a left-to-right writing system. Moreover, Arabic interferences are a contributing factor; for instance, Arabic does not have the voiceless bilabial stop /p/ of English, thus inducing confusion for students who tend to pronounce /p/ as /b/. The correspondence between the written form and the spoken form in Arabic is considerably more regular than in English. For instance, the letter /a/ in the words "fan" and "fade" has two different pronunciations. Moreover, English has several silent letters, but Arabic silent letters are very rare.

In Jordan, studies that investigate spelling problems and how they are handled and can be reduced are lacking. This study attempts to fill this gap by investigating spelling errors, suggesting solutions, and establishing a connection between technology and English spelling. Brown (2000) contended that the analysis of student errors predicts and addresses the problems of students. According to Burt (1975), understanding these errors facilitates communication, stating that "relevant teaching [develops] more confident learners and [induces a] more effective communication" (p. 63). Similarly, Burt (1975)

investigated the effects of errors on the comprehension of listeners because these errors affect writing and reading. This finding implies a connection between writing and spelling and other aspects of language. Readers often fail to read the message of a writer if it has many errors; consequently, these errors hinder comprehension. Dameraa (1964) revealed that 80% of misspelled words are the result of a single insertion, deletion, substitution, or transposition of letters.

According to Smedly (1983), "poor spelling and pronunciation interfere to a greater or a lesser degree with communication between writers and readers" (p. 7). Moreover, spelling is an indicator of a well-developed writing ability, whereas spelling errors hinder communication between the writer and the reader. Hilderth (1962) argued that "knowing what the commonest types of spelling errors will put teachers on the lookout for them" (p. 224). This aspect allows teachers to investigate these errors and helps students overcome such errors.

Bahlol (2007) examined Arab students' spelling errors that are very similar to those made by native speakers. An example of such errors is reversing the order of letters in certain words, such as "frist" (should be "first"). Henderson (1981) cited the one-to-one correspondence between the written word and its pronunciation as another reason for the spelling errors of students. Hilderth (1962) investigated the features that affect the spelling errors of students. First, sounds are given to the same letter or combination of letters, as in "break" versus "cream." A single sound can then be expressed by different letters, as in "made" and "say." Bahlol (2007) pointed out that "Arab learners, and possibly most other learners, including native speakers find it quite challenging to utter

the same letter /a/ in eight different ways to spell the high front vowel /i/ in 11 different ways" (p. 43). Moreover, learners need to know more letter combinations of 43 phonemes of English, not only 26 letters of the English alphabet. Finally, many silent letters in English, as in "know" and "foreign," and the spelling of words such as "favourite–favorite," cause spelling errors as well.

Smith (1973) pointed out that learners of English face numerous spelling difficulties; for instance, what letters c, q, and x can do cannot be done by other consonants. The learner should likewise remember all of the pronunciations for the letters and letter combinations in English. For instance, /th/ is unpredictable because this combination of letters is pronounced as /ð/ (e.g., "this" and "other") or /θ/ (e.g., "thing" and "author"). These regularities of English induce numerous spelling problems. Another cause of spelling errors is the mother tongue of learners, which influences the learning of English spelling. As Corder (1993) emphasized, "those speakers whose mother tongue has more similarities to the target language are likely to find it easier to acquire than other speakers whose mother tongue is more distant linguistically" (p. 21). Interference between the first language (L1) and the second language (L2) becomes another cause of spelling errors, particularly when Arab learners have difficulties in pronouncing and spelling /p/ and /v/ because these letters do not exist in Arabic. By contrast, Spanish learners easily learn English because these two languages have the same writing system, whereas Arabic and Japanese have dissimilar writing systems.

Smith (2008) further explained the linguistic differences between English and Arabic, which affect the spelling of students: "All aspects of writing in English cause major

problems for Arabic speakers" (p. 199). For example, the Arabic equivalent of the English word "play" is "يلعب," which is formed by separate Arabic letters ب/ع/ ل/ي.

Kharma and Hajjaj (1997) stated that "the greatest difficulty arises from the differences between the seemingly irregular spelling system of English compared with the greater regularity of the predominantly phonetic script of Arabic" (p. 56). The writing system of the Arabic language is principally phonetic. Therefore, Arab learners will look for a sound–symbol correspondence in English words. Moreover, the Arabic language does not double and silent words the way that the English language does, which may cause confusion among Arab learners. The right-to-left mode of the Arabic writing system similarly affects the Arab learners' reading and misspelling of words because the English language has mirror-shaped letters, such as /d/ and /b/.

Bahlol (2007) indicated that different from English, the written form in Arabic does not realize vowels, thus affecting the spelling of students. The Arabic language only has consonants and three long vowels, which allows learners to write several words without the use of any written vowel. Hence, Arab learners transfer their knowledge of the Arabic writing system to English, which may cause numerous spelling errors.

Phonological differences between Arabic and English may cause numerous spelling mistakes, which in turn, might affect the pronunciation of students. Odlin (1989) argued that some Arab learners use English words in the same way that they pronounce them. For instance, Alkarki (2005) investigated the problems of Jordanian learners of English. Considering that Arabic does not have a phonemic distinction between /p/ and /b/ the

way that English does, most Jordanian learners misspell words that have /p/ and /b/ (i.e., writing "blaying" instead of "playing"). Research similarly suggested that spelling errors negatively affect the writing proficiency of students. This finding implies that language background causes the spelling problem of Arab students. In other cases, students pronounce "friend" as "frend" and omit /i/ in the pronunciation, although it exists in the word. In vowels, /iy/ is spelled in many ways, such as "receive" (*/risiyv/*) and "free" (*/friy/*). In sum, English spelling is difficult to learn for Arabic speakers of English in Jordan principally because of the pronunciation variations between English and Arabic.

In a preliminary study, the researcher investigated whether or not the students have spelling errors in their writing. Forty-three students were asked to write about "accidents on highways." The researcher analyzed their writing and classified the errors into different types in Table 1.1.

Table 1.1 Numbers of Learners Making Spelling Errors

Type of Error	No. of Learners	Actual Word	Example
Insertion (add a letter to the word)	24 55.8%	hour	houre
Omission (omit a letter from the word)	28 65.11%	friend	frind
Substitution (substitute a letter with another one)	32 74.41%	few	vew
Transposition (reverse the order of two letters or more)	8 18.60%	because	becaues
No errors	1 2.32%	_____	_____

The researcher likewise analyzed the errors according to the frequency of different types of spelling errors (see Figure 1.1 in the subsequent section).

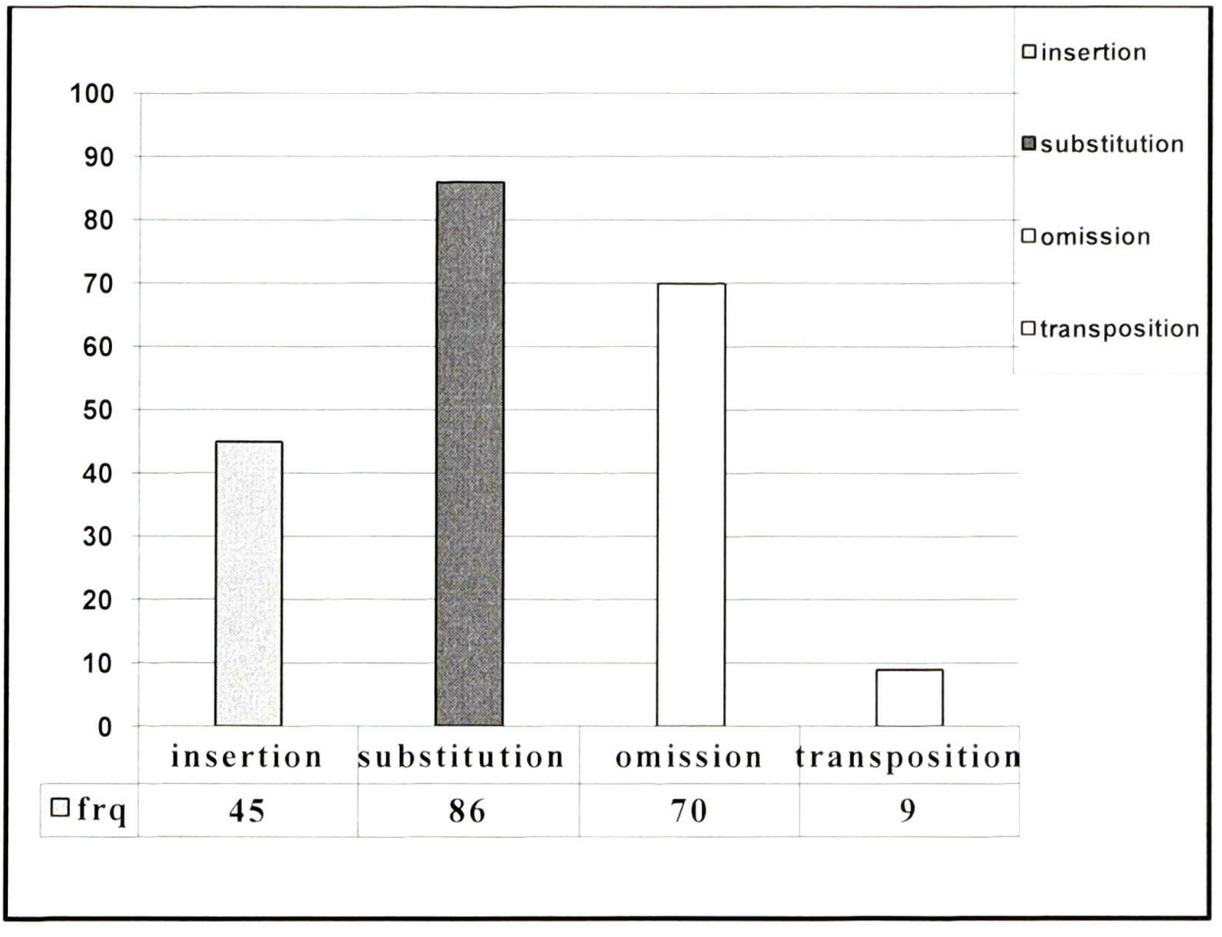

Figure 1.1 Frequencies of Spelling Errors

The results indicated that the most common spelling mistakes made by the learners were substitution and omission errors; notably, students have difficulty in using actual words in their writing. Moreover, the students used close words that express semi-meaning as well as wrote Arabic words with English letters and actual Arabic words.

Despite the importance of spelling in producing meaningful written texts, the researcher observed that spelling has not been given the attention that it deserves in Jordan. Moreover, teachers do not sufficiently help weak spellers; they require additional

training in the area of spelling. The researcher intends that through this study, which investigates the effect of two computerized programs on spelling among English language students at Hashemite University, scholars will focus on the spelling problem that Jordanian EFL students encounter.

With regard to the effect of computer usage on foreign language learning, the majority of previous studies focused on writing skill in general. Abuseileek (2006) explored the effects of the word processor on the writing achievement of students and paid no attention to spelling. Tsou (2008) examined web-based writing programs and their effects on the writing of students in general, without focusing on spelling errors. The current study contends that English spelling can be improved if the modality principle is considered. Therefore, this study explores two computerized programs that deal with the following two aspects:

- Comparing text-audio and text modes to test the modality principle.
- Testing the modality principle with three levels of spelling errors.

This study principally aims to examine the effects of the two computerized programs on improving the learning of spelling among Jordanian university students. Specifically, the study investigates whether any significant differences in reducing spelling errors exist between students taught via the text and audio (TA) mode and those who are taught via the text (T) mode.

In this regard, this study explores the effects of the two programs on spelling errors made by English language students at Hashemite University in Jordan and provides recommendations and suggestions to enable both university teachers and students in Jordan to improve their written work quality as well as reduce the spelling errors of students.

1.4 CONCEPTUAL FRAMEWORK

The conceptual framework in Figure 1.2 shows the relationship between study variables.

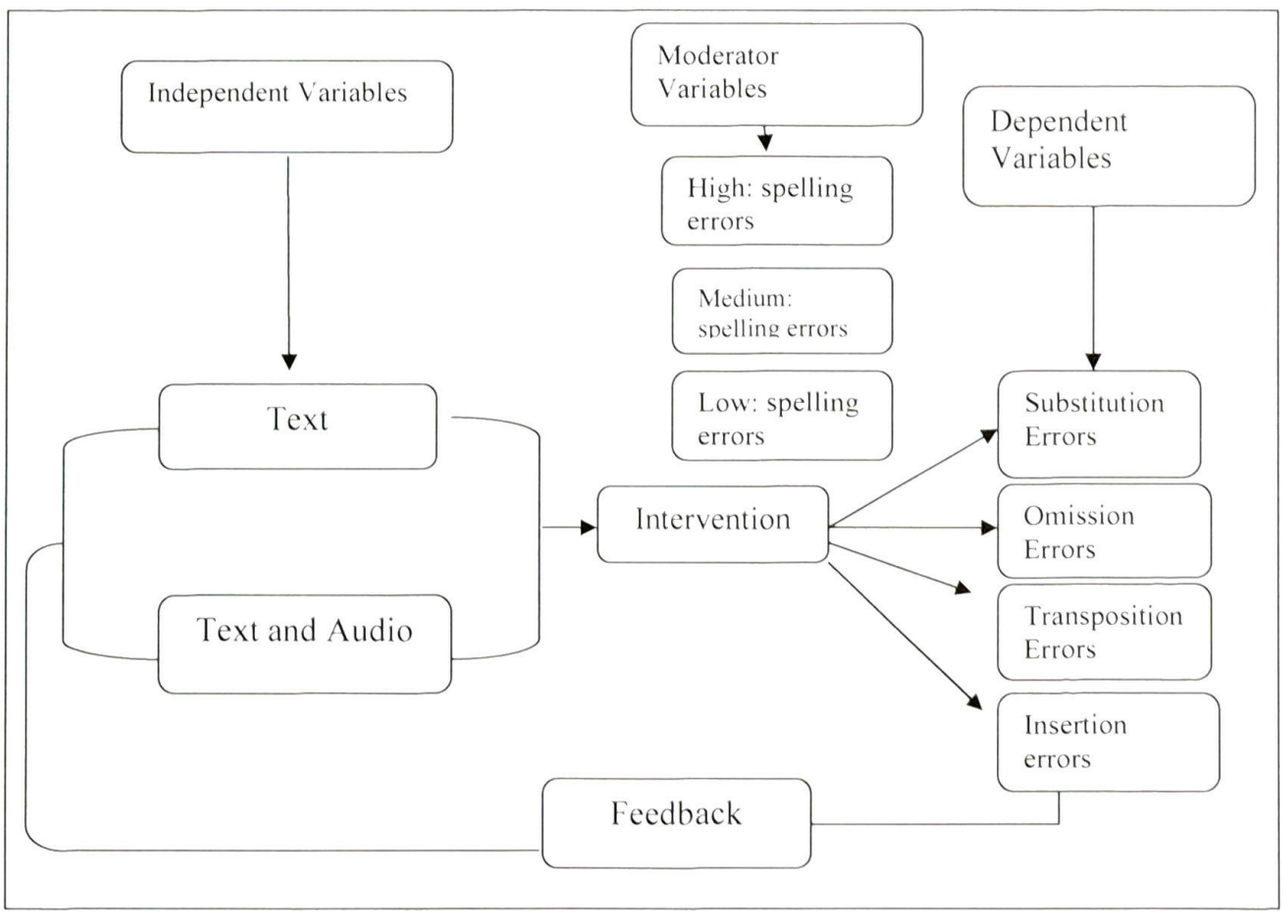

Figure 1.2 Conceptual Framework

The framework consists of three variables. The independent variables are two treatments, namely, text on screen and text with audio. The moderating variables are spelling errors in three levels, namely, high, medium, low. The dependent variables are the four types of spelling errors, namely, substitution, omission, transposition, and insertion errors. The three moderating variables are presented in this study, and they provide the relationships between the independent and dependent variables. The effects of using the two treatments, "the two computerized programs," in reducing spelling errors were identified by measuring the overall effect on reducing the spelling errors in the written texts of the second-year university students.

1.5 SIGNIFICANCE OF THE STUDY

This study is regarded as a pioneering step in using computerized programs for improving the English spelling of EFL learners in Jordan. Its results will provide teachers with a new method for helping them in writing classes, as well as for aiding students in how to spell better. For curriculum designers, adding web-based and ICT programs to the curriculum is an effective idea. Previous research investigated the effects of technology on the writing skill, with no attention given to spelling. By contrast, this study focuses on spelling and the use of technology in reducing the spelling errors of students. This study intends to help curriculum designers and university professors understand the importance and effects of implementing the modality principle through instructional programs on reducing spelling errors. This goal is achieved using multimedia in the two instructional programs (i.e., text audio program and text-only program).

This study likewise attempts to achieve the following goals:

- To assist teachers in diagnosing the spelling weakness of their students;
- To help teachers provide students with suitable activities;
- To focus on a student-centered rather than a teacher-centered method in classes;
- To aid students in identifying and correcting spelling errors;
- To help students use the study program as a self-learning program;
- To provide both teachers and students with practical programs and activities in spelling;
- To use the interactive approach to help students do their writing in a comfortable and enjoyable atmosphere; and
- To improve teaching methods and techniques by adopting technology in English classes and incorporating it into the curricula.

In this regard, the results of this study will provide English professors at universities and teaching materials designers with the effects of the modality principle through instructional programs, as well as the benefits of incorporating such instructional programs into the present teaching and learning materials. Moreover, this study will significantly contribute to research in the Jordanian context. The Jordanian MOHE is exerting considerable efforts to activate the role of ICT in education via computer-based programs as instructional aids in the teaching and learning process.

1.6 RESEARCH OBJECTIVES

The objectives of this study are as follows:

1. To examine the effects of the text–audio mode and text mode on substitution, insertion, omission, and transposition spelling errors;

2. To compare the effects of text–audio mode and text mode on students with high, medium, and low levels of spelling errors;
3. To investigate the most dominant and least dominant spelling errors in the essays of second-year university students; and
4. To study the effects of the audio effect of the text–audio mode on students with high, medium, and low levels of spelling errors.

1.7 RESEARCH QUESTIONS

This study was carried out on two groups; the first group was taught via the text–audio mode in a spelling program (Ginger), whereas the second control group was taught via the text mode in Word 2007. This study aimed to answer the following questions:

1. What are the effects of the text–audio mode and text mode on the four types of spelling errors (i.e., transposition, insertion, omission, and substitution)?
2. What are the effects of the text–audio and text mode on students with high, medium, and low levels of transposition, insertion, omission, and substitution spelling errors?
3. What are the most dominant and least dominant spelling errors in the essays of second-year university students?
4. Does the audio effect of the text–audio mode affect students with high, medium, and low levels of spelling errors?

1.8 RATIONALE OF THE STUDY

All of the Jordanian universities are connected to the Internet, and most professors are trained to use computers and the Internet. Professors likewise undertake courses on

using new methods of teaching with technology, such as the blackboard method. Moreover, numerous computer programs have been used in teaching English language skills. However, Jordanian universities have not integrated these programs into English classes, especially in writing classes.

Research on spelling in Jordan is scant. The majority of studies have focused on defining the problem and the source of errors without integrating the technology into the context. The vast development in technology and software programs allows us to shed light on the role of this technology in English classes. This study is an attempt to integrate technology into English classes, especially in writing classes. The study compares the two programs (Word program and Ginger program, which is provided with sound) to determine their usefulness in reducing the spelling errors of students.

Students generally use their first language in their English writing class. This approach is attributed to the Arabic writing system and lack of vocabulary repertoire; consequently, students make spelling errors in their writing. The researcher conducted a pilot study on university students in Jordan and determined that they made numerous spelling errors and have difficulties in spelling. Moreover, writing methods in Jordan do not focus on spelling, that is, no actual chapters or lessons focus on spelling. This aspect may prompt the need for a new study that attempts to help students with spelling difficulties, which will shed light and focus on spelling errors and provide the students with the programs to assist them in identifying and reducing and their spelling errors.

1.9 LIMITATIONS OF THE STUDY

This study investigates the effects of two computerized programs based on the implementation of the modality principle through two instructional programs; the sample comprises second-year university students at Hashemite University in Jordan.

This study is limited to the following factors:

- English spelling, which may restrict the generalization of the research findings to other writing skills;
- One principle of the cognitive theory of multimedia learning, that is, modality principle;
- The setting of the study (i.e., computer laboratory), which implies an unnatural setting;
- Three levels of spelling errors (i.e., high, medium, and low) that moderated the study;
- Two programs (Ginger and Word 2007) that were presented in two modes of presentation (text–audio and text); and
- Investigation into four types of spelling errors (substitution, insertion, omission, and transposition).

Given that this study focuses on the spelling errors of students, the terms "reduce" and "minimize" must be differentiated. "Reduce" means to decrease the number or size of an item. By contrast, "minimize" means to reduce an item to the smallest possible amount or keep it in the minimum degree. This study adopts the term "reduce" because it suits the purpose and objectives of the study. In other words, it focuses on decreasing the