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From Memorising to Visualising: The Effect of Using Visualisation Strategies to Improve Students' Spelling Skills

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Abstract

Spelling is an essential literacy skill and an important language component that can have a significant effect on L2 students' future education and occupational status. However, many students struggle to master this skill, and most L2 teachers are limited to traditional approaches when teaching spelling. Therefore, this study aims to investigate both the effect of using visualisation strategies to improve the L2 students' spelling skills and student's attitudes towards the use of those strategies. I adopted an experimental approach, whereby the experimental group was trained to use visualisation strategies to study the spelling of new words, while the control group received no special tuition and was required to study the spelling of new words using the methods they normally use. The sample for the study consisted of 42 female sixth graders from Al-Manahej Private Elementary School in Riyadh; they were divided into two groups: 21 students in the experimental group and 21 students in the control group. In order to collect data and achieve the goal of the study, three tools were used: pre-achievement and post-achievement tests to measure the differences between the experimental and control groups' scores. The students undertook five weekly tests to measure the effectiveness of the visualisation strategies to improve their spelling skills, and a social validity questionnaire to assess their attitudes towards the strategies. The findings were anticipated to promote the use of visualisation strategies in the field of education, to encourage curriculum designers, decision makers, and language teachers to employ them when teaching spelling.

Keywords: spelling, visualisation, strategies

1. Introduction

1.1 Background to the Study

Approaching spelling at the level of letters fails to communicate the essential strategies that are required to help students spell successfully. As observed by Blackerby (2001), "In the English language all words do not look as they sound. Therefore, all words cannot be correctly spelled according to how they sound but they can be spelled correctly according to how they look" (p. 3). This is often why second language (L2) students stumble and become frustrated with the inaccuracy of their attempts when writing new words, especially if they do not follow logical phonemic patterns. This discouraging effect can be avoided by teaching students a more visual approach to learning the spelling of new words. Visualisation is believed to be crucial for helping students spell correctly. This is explained by the fact that spelling is a visual process: we need to visualise, or see a word we have encountered before, in order to spell it. When good spellers are observed at work, their eyes can be seen moving up to the left, to access their visual memory, then down to detect accuracy, by imagining writing the word down using their kinaesthetic channel, before looking up again to check it looks right (Hamilton, 2000).

1.2 Statement of the Problem

Saudi students, including most Arabs, struggle to master the English spelling system (Fender, 2008). I observed when working as an English teacher in Saudi schools, that most students struggle with spelling and feel frustrated and tense when expected to complete sentences, give definitions, and complete workbook tasks independently.

When asked to express their thoughts, students choice of words is usually poor or limited; for example if a student wants to describe the taste of a certain dish, she will use the word *nice* instead of *delicious*, and when describing the appearance of an individual, she is more likely to use the word *good* instead of *beautiful*, even

though she knows the meaning of the more complex word. Students with a rich vocabulary have a tendency to use simpler words rather than the more complex ones, because they are unsure about how to spell lower frequency words. Moreover, while students' spelling is often phonetically accurate, they often fail to visualise the patterns of words; consequently, it is not unusual to find different spelling variations of a word within the same piece of work. For example, *place* might be written as *pleac* and *pleca*; the correct letters have been used, but with no consistency of positioning (Bowen, 2008). This fact prompted the researcher to search for an alternative approach to the traditional methods of teaching spelling in Saudi schools; an effective strategy that would help improve students' spelling skills and motivate them to learn the spelling of new words. It is hoped that this study will prove that implementing visual strategies in teaching spelling is effective, and will assist Saudi students overcome their spelling difficulties.

1.3 Purpose and Significance of the Study

The use of visualisation strategies in education, and their effect on improving literacy, are gaining worldwide importance in the research field. However, there has been no study on the effect of visualisation strategies on improving students' spelling skills conducted in a Saudi context. The current study aimed to examine the effect of using visualisation strategies to improve students' spelling skills, and observe if students who are trained to use visualisation strategies will show a positive attitude towards adopting these strategies. In fact, this study is significant for several reasons:

1) The results may be useful in offering students a new approach to spelling instruction that will hopefully enhance their spelling skills and decrease frustration.

2) The study might encourage teachers to try new alternative approaches, such as visualisation strategies, and realise the importance of spelling instruction.

3) The study could assist the Ministry of Education in finding solutions to the obstacles that face our students because of the irregularity of English spelling. This is especially important given that developing and improving the educational system is currently a priority in Saudi Arabia.

4) The current study would assist curriculum designers in enriching the English language curriculum with new techniques and activities for teaching spelling.

5) The study may also draw attention to the effectiveness of visualisation strategies in teaching spelling and may motivate researchers to investigate the effects of these strategies further.

1.4 Research Questions

The study attempts to answer the following questions:

1) Are visualisation strategies effective for improving sixth grade students' spelling skills?

2) Are there any statistically significant differences in the total average of post test scores between students who were trained to use visualisation strategies (experimental group) and those who were taught using traditional methods (control group)?

3) What are the attitudes of students in the experimental group towards the visualisation strategies that they were trained to use?

2. Literature Review

2.1 Issues associated with Spelling in English

Definitions of spelling vary from the purely descriptive to the more interactive. According to the American Heritage dictionary of the English Language (2000), *spelling* describes the formation of words with letters according to an accepted order, orthography. Spelling as defined by the Oxford Dictionary (2012) is the process or activity of writing or naming the letters that compose a word. Hornby (2000) defines spelling as the act of forming words correctly from individual letters, emphasising the element of *correctness* as a key. Kallom (as cited in Mpiti, 2012) argued that spelling is an act of seeing or hearing accurately what may be written or spoken, and translating that visual or aural image into motor activity. Hodges (1984, as cited in Mesmeh, 2012) defined spelling as a process of representation, explaining it as the process of converting oral language into a visual format by placing graphic symbols on some sort of surface. In agreement with the former studies; and furthering this definition, Mesmeh (2012, p. 15) stated, "Spelling is the ability to produce words, orally or in a written format, by placing the letters of these words in accurate sequence". This view was developed further by Dehham and Mohmmed (2008) stated, "Spelling is the formation of words using letters orthographically; a combination of letters representing a word. It is also the ability to write words correctly depending on the memory" (p. 3).

Spelling was defined by Reed (2012) as the act of producing correct orthographic representation of a written word. For the purpose of this work, the researcher offers the following definition: *Spelling is the ability to produce words, orally or in a written format, by positioning letters in a precise order*.

Several researchers and specialists discussed the importance of spelling, attributing its importance to several factors. Beverly (2010, p. 3) stated,

Accurate spelling is standard equipment for functioning in daily life. In order to communicate effectively, a person needs to develop the ability to spell quickly and accurately the words he uses in his everyday writing. Those who fail to develop spelling skills are often judged negatively by their peers, business associates, employers, and even themselves.

If spelling is lacking in accuracy then language competence and communication are both compromised. Steve Graham and Lamoine Miller (1979, as cited in Hinson, 1982) argued that incorrect spelling can adversely affect an individual's educational and occupational status.

Research suggests that poor spelling can impede educational achievement, reduce employment opportunities, affect interpersonal relationships and also reduce self-esteem (Moats, 1991, as cited in Babkoff, 2005). Warda (2005) argued that individuals with low confidence regarding their spelling and related skills not only write less and with a more limited vocabulary, but may feel unable to express their knowledge in various subject areas. Kosnik, (1998, as cited in Kernaghan, 2007) believes that a person's knowledge and sometimes intelligence are judged on either their ability or difficulty with managing conventional spelling

According to Mesmeh (2012), poor spellers expend time and energy thinking about the correct form of the words at the expense of thought flow, thus hampering the logic of texts. Poor spellers also tend to use simpler words which they can spell confidently, and avoid those that reveal their weakness. Hickling (2010) believes an essential factor informing the development of writing ability is the development of spelling skills. Templeton (1991, as cited in Simmons, 2007) found that students who were good spellers were better able to express themselves in writing than poorer spellers were. Proficient spellers have more time to devote to text structure, grammar and word choice, enabling their ideas, knowledge and skills to be conveyed through their writing. Those who spend a lot of time and energy on their spelling, or avoiding words which are difficult to spell, can feel lacking in confidence to write (Literacy Secretariat 2010, p. 1). Hinson (1982, p. 4) states "one of the necessary ingredients of learning to write is that of being able to reproduce the words exactly as they should be spelled orthographically on a page." In addition, non-automatic spelling drains the L2 student's attention away from the conceptual challenges of planning, generating ideas, formulating sentences, and monitoring their progress. Gentry (1997, as cited in Jones, 2006, p. 1) explained, "Spelling is a tool for writing. The purpose of learning to spell is that writing may become easier, more fluent, more expressive, and more easily read and understood by others". Graham, Harris and Chorzempa (2003, p. 1) stated that early problems with spelling can, in later life, constrain a child's development as a writer; for example, "Difficulties mastering spelling skills may lead young children to avoid writing and develop a mind-set that they cannot write, resulting in arrested writing development".

The correlation between spelling and reading mirrors that between spelling and writing. Many scholars have illustrated that spelling can be a critical feature when striving to improve students' reading skills. Graham, Harris, and Chorzempa (2003) believe that learning how to spell can enhance a child's reading development, especially their ability to pronounce words correctly and to decode unknown words. Gentry (2004, as cited in Kernaghan, 2007) states that "children learn to read by spelling". Warda (2005) agrees; arguing that not only are strong readers better spellers, but low spelling skills can measurably hinder a student's reading ability. This was supported by Kernaghan (2007), who stated that knowledge of the alphabetic principles of spelling can facilitate reading. Ehri (1997, p. 237) tied spelling more closely to reading: "Learning to read and learning to spell are one and the same almost". Additionally, Ehri and Wilce (1987, as cited in Cuidon, 2009) observed a strong correlation between learning to spell and learning to read, and noted that each skill contributed to the development of the other.

Researchers working in the English as a Second Language (ESL) domain for the last 20 years, have noted that English spelling is unpredictable and cannot be learned solely by learning rules (Schlagal & Schlagal, 1992, as cited in Davis, 2011). Kotercová (2007, as cited in Mesmeh, 2012) states that there is a perception that one of the possible reasons (among others) for illiteracy in English speakers may be the over-difficult spelling system. This can be explained by the fact that English spelling is undeniably one of the most difficult spelling systems to master, invariably causing much difficulty to many pupils.

Rakas (2008, as cited in Mesmeh, 2012) states that there is no direct relationship between English sounds and

letters. Meanwhile, Miressa and Dumesaa (2011) believe that learning the spelling rules for English words is particularly difficult due to the discrepancy between the pronunciation of words and the spelling system. This discrepancy between spoken and written forms contributes to the spelling errors made by students, since many words with the same sound are spelt differently, while many others have silent letters, or are not spelt as they sound. It is unsurprising, therefore, that many children and adults have difficulty with spelling, given the irregular patterns and excessive number of exceptions to the rules established in English orthography (Adams, 1990, as cited in Shippen, Reilly & Dunn, 2008).

Due to this excessive variation, Hasan (2000, as cited Dehham & Mohmmed, 2011) states that English cannot be said to be a phonetic language; i.e., it is not written as it is spoken and does not show a close relationship between phonemes and graphemes. Therefore, spelling difficulties are anticipated, not only amongst foreign pupils learning English as a foreign language (EFL), but also among native speakers.

2.2 Spelling Concerns for Arabic Learners

Webb (2002, as cited in Mpiti, 2012) concludes that spelling errors rank first among all the types of grammatical and lexical errors identified in language performance data from those for whom English is an L2. The fact that English spelling is more complex than Arabic necessarily leads to difficulties for Arab students, particularly in the early stages of spelling development (Al Jarf, 2008, p. 10). According to (Kharma & Hajjaj, 1989), the greatest difficulty encountered by Arab students arises from the irregular spelling system of English compared with the greater regularity of the predominantly phonetic script used in Arabic.

According to Radi (2001, as cited in Szczerbik, 2011), in Arabic words each letter is usually pronounced and if a person can say a word in Arabic, they are likely to be able to spell it easily. Arab students do not spend time memorising the spelling of Arabic words, which explains their resistance to spending time learning English spelling. Additionally, certain types of vowels are usually omitted in written Arabic, often resulting in using mostly consonants to write in Arabic; for example, *Mohammed* is spelt *mhmd* in Arabic. Dehham and Mohmmed (2008, p. 21) report that Arab students' errors in English spelling may be traced back to the following possible causes: (a) the complexity of English spelling system, (b) influence of the mother tongue, (c) the students' carelessness in English spelling, (d) failure of the teachers to emphasise the rules of English spelling, assuming that the students will have already mastered these earlier in their education, (e) lack of sufficient practice in English spelling. Arab students also experience difficulties with the multiple homophones that exist in English. Homophones are words that sound the same, but have different spellings and different meanings. For example, *where* and *wear*, *weight* and *wait*, and *sea* and *see*. According to Khan (2011), homophones in English can be found at every level of proficiency. In Arabic, only a couple of such features exist and these can be differentiated by the use and the context.

Most teachers are aware that their students suffer when it comes to spelling even the simplest of words, but many struggle to find a solution. Nadon (2007, as cited in Hickling, 2010) bemoans the fact that he continues to hear complaints about students' lack of spelling competency, yet very rarely hears ideas for helping them to improve. Although teachers are sure that the traditional strategies used to teach spelling are inadequate, they persist in employing them. They implement the same strategies used when they were students: Often this means that teachers focus too much on weekly spelling tests and do not teach students spelling techniques. Mann, Bushell Jr. and Morris (2010, as cited in Gulinna, 2011) argue that the majority of students are taught to spell using a traditional assign-and-test procedure, but this is not effective for many students. According to Neals (1998, as cited in Mesmeh, 2012), teaching spelling should not consist of merely presenting students with lists of words without the explicit teaching of spelling knowledge. Studies such as those by Nies and Belfiore (2006, as cited in Dives, 2011) indicates that students are not learning to spell effectively, and traditional methods are not providing adequate support for students.

2.3 Visualisation and Spelling Strategies

Since research suggests that traditional spelling strategies are not very effective, it is essential to find and experiment with new, more effective alternatives. It is important that teachers recognise and articulate the various strategies that a speller can use when required to spell an unfamiliar word (Westwood, 2008, p.8). Teachers who emphasise the learning of skills through a variety of strategies that are developmentally appropriate are likely to be more successful at teaching spelling (Morrow, Tracey, Woo and Pressley, 1999, as cited in Morrison, 2003). The impact of visualisation on improved spelling has long been recognised; traditionally teachers would ask children to write out words multiple times in order for them to remember and visualise the accurate spelling. According to Blackerby (1996), the ability to visualise in rich detail, retaining that image for reference, is a skill highly indicated in success at school. Hickmott & Bendefy (2006, p. 52) states,

"visualisation is the key to successful spelling". Hunt (1963, as cited in Davis, 2011) identifies the ability to look at a word and to produce it later as one of the four factors, besides general intelligence, that affect the ability to spell English words. Gabarró (2012) stated,

Our students will only be confident spellers when they can "SEE" the letters of the words in their minds. Until they are able to apply this mental strategy of linking visual memory to spelling, they will not know for sure if they are spelling words correctly or not.

It is widely accepted that visual imagery plays an important role in students' spelling practices, enabling them to spell unfamiliar words accurately in a variety of social and academic contexts (Department of Education and Training, 1998, as cited in Mpiti, 2012). Research by Allred (1977, as cited in Davis, 2011) discovered that one of the main problems with spelling is the inability of students to spell words that do not follow phonetic principles. Allred, in combination with other researchers, concluded that one of the main processes by which a student learns words that do not follow phonetic rules is by visualising those words that most resemble them. Bush (2010) argues that a focus on visual strategies assists students to move beyond phonetic spelling.

Furthermore, research has also concluded that as children learn to visualise, they have the ability to observe and recognise a misspelled word (Hendrickson, 1967, as cited in Davis, 2011). Kamhi and Hinton (2000, as cited in Sawyer & Joyce, 2006) point out that spelling relies on having a memory of the way a word looks to compensate for limitations in phonological knowledge. According to Bush (2010) visual strategies enables students to learn how to recognise possible and impossible letter sequences, notice if a word looks incorrectly spelled, identify the part of the word that looks incorrect and replace it with another more likely option. Also, using visual strategies can help students to create a clear picture of the word in the brain. When teaching students, the brain can be compared to a camera and the explanation given that any spelling errors result from the *photo* of the word being slightly out of focus. Visual strategies help to bring the word into focus so that the picture becomes clear and accurate (Scott & Siamon, 1999). Gabarró (2012) claimed, "The teacher's goal must be to teach students to "picture" words in their mind. They must help them to acquire an applied visual strategy for spelling; i.e., they have to learn how to automatically and unconsciously "picture" words before writing them down".

Previous analysis has shown that it is effective to implement a multi-sensory approach while teaching and learning English spelling (Jubran, 2012). Indeed, Jubran (2012) found that language learners engage more fully with learning with they can use all their senses. Moreover, a multi-sensory approach enables students to learn English with entertainment and pleasure. According to Sudiargo et al. (2003), this is why games can improve students' spelling ability and ensure the process of learning and teaching is interesting and effective. However, teachers must take into consideration that games should be flexible, focusing on the development of certain skills, which fit into the lesson. In addition, teachers should make sure that all students understand the rules of the game. It is essential not to interrupt successful games to correct the mistakes made by weaker students.

Nassaji (2007) investigated the development of spelling knowledge with print concepts, claiming that is it possible to learn spelling effectively with the assistance of a series of randomly combined print symbols. These are related to the fact that spelling is largely based on word pronunciation and the segmentation of words into sounds. Although phonics is thought to be an effective approach, as mentioned above, the English system of spelling has an opaque orthography and some inconsistent connections between grapheme-phonemes (Johnson, McGeown, and Watson, 2011). There work also mentions a mixed methods approach presupposing an advantage from recognizing words by sight. Such an enables students "to recognize letter sounds at the beginning, the end, and then the middle position of printed words" (Johnson, McGeown, & Watson, 2011, p. 1371), enabling them to decode printed words through the letter sound blending.

However, no single technique can cover all aspects of teaching and learning spelling and suit all language students, with their diverse needs, expectations, and achievements. Successful teaching and learning depend on the efforts of both teachers and students, and their desire and ability to implement the most effective approaches and techniques.

3. Methodology and Data Collection

3.1 Research Design

The study employed the experimental approach using two groups of sixth graders; an experimental group and a control group. To investigate the effect of using visualisation strategies to improve students' spelling skills, I used two types of achievement tests: a pre and post test, and five weekly tests. I also used an attitudinal questionnaire to assess the students' opinions about the strategies. Visualisation strategies were used to train the students in the experimental group for studying the spelling of new words, while the traditional learning method

was used with the control group students.

3.2 Participants

The subjects in this study were 42 sixth graders, selected from two classes at Al-Manahej Private Elementary School in Riyadh. Each class consisted of 21 participants; one class was designated as the control group, and the other the experimental group. The age of the students ranged between 11 and 12 years, and they were all of an equivalent economic, cultural and social level.

3.3 Research Instruments

To implement the study, I integrated and used materials from two specialist sources, concerned with improving literacy through visualisation. The first source was provided in the Empowering Learning Professional Practitioner Training; hosted by Olive Hickmott (2012), who is a professional coach and expert, experienced in helping people overcome their learning difficulties using visualisation strategies. The second source used was the Seeing Stars Program designed by Nanci Bell (1997), a program based on the premise that efficient spellers have the ability to see letters in their mind's eye. The Seeing Stars Kit, which is a comprehensive set that provides the teaching materials needed to implement Seeing Stars instruction in one-to-one, small group, or classroom settings, was used

To conduct the study, I employed quantitative measurement tools before, during and after the experiment. These tools consisted of the pre post test, to measure the significant differences between the scores of the experimental and the control group. The pre post achievement test was conducted before and after the intervention. The test consisted of 30 high frequency words chosen from the Star Words List of the 1000 most commonly used English words for teaching reading and spelling (which was originally the 1000 Instant Words) by Edward Fry. In addition, an achievement test was administered to both groups over five consecutive weeks. This weekly test consisted of six high frequency words taken from the same list. The purpose of the weekly achievement tests was to measure the students' progress during the training period, and to monitor their scores. At the end of the experiment, the participants were asked to complete an attitudinal questionnaire. The questionnaire was adapted from a questionnaire pioneered by Mesmeh (2012). I translated the questionnaire into Arabic and assisted the students while they were completing it, in order to prevent any misunderstanding. The questionnaire consisted of 15 statements, which students were asked to rate using a 5-point Likert scale: strongly agree, agree, uncertain, disagree and strongly disagree, after the final post-test.

3.4 Data Collection Procedures

The study was conducted over a period of six weeks. In week 1, the experimental group received its first training session in visualisation strategies, being introduced to the concept of visualisation and its strategies. Both the control and experimental group were set a pre test to measure the participants' achievements in spelling as well as to guarantee equivalence between the experimental and control groups.

Table 1 illustrates that the results from the pre test showed no statistical differences between the experimental and the control group participants.

Table 1. Equivalence in Pre test scores between the two groups

	Experimental	**Control**
Mean	12.5714	13.0952
N	21	21
Std. Deviation	7.22199	7.15475
Grouped Median	12.3333	13.3333
Skewness	-0.023	-0.165
Minimum	0	1
Maximum	24	24

Both groups were asked to memorise six words each week: their original teacher would write two words on the board every day from Saturday to Monday and ask the students to memorise them for a test the following Wednesday. The control group received no special treatment and had to study the spelling of the new words

using the traditional methods they normally used. Meanwhile, the experimental group was trained (by the researcher) to use visualisation strategies to study the spelling of the new words. The training lasted 45 minutes, it took place a day before the weekly test (every Tuesday), and was conducted in the experimental group's classroom. Both groups were tested every Wednesday for five weeks.

4. Results and Analysis

Applying the methodology explained in the previous section, the data analysis was conducted to answer the research questions. For the data analysis, SPSS version 19 was used to perform descriptive statistical analysis, frequency counts analysis, and Pearson Correlation analysis.

4.1 Results and Analysis of the First Question

For the analysis of the first question, a descriptive and frequency counts analysis were performed on the results of the five weekly achievement tests.

4.1.1 Descriptive Analysis

The table below provides the descriptive statistics for the students in both the experimental and the control groups. For the experimental group, the data shows that six students scored the lowest level failing to memorise a single word in a week, while six students memorised at least one word during the week. Contrary to the experimental group of students, not all of the students in the control group were able to achieve the maximum score obtained when memorising six words. In total, 11 of the 21 students scored a maximum score of six words. In terms of the lowest score, 12 students showed an inability to memorise any words.

Table 2. Descriptive statistics – experimental and control groups

		Experimental Group				**Control Group**			
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Student 1	5	0.00	6.00	2.6000	2.60768	0.00	6.00	2.2000	2.68328
Student 2	5	0.00	6.00	3.8000	2.48998	0.00	6.00	3.4000	2.79285
Student 3	5	0.00	6.00	3.8000	2.38747	0.00	6.00	2.6000	2.70185
Student 4	5	0.00	6.00	3.2000	2.68328	0.00	4.00	1.8000	1.64317
Student 5	5	0.00	6.00	2.4000	2.30217	0.00	5.00	3.4000	2.07364
Student 6	5	0.00	6.00	3.0000	3.00000	0.00	4.00	2.2000	1.64317
Student 7	5	1.00	6.00	3.6000	2.40832	0.00	4.00	1.8000	1.78885
Student 8	5	1.00	6.00	3.8000	2.58844	0.00	6.00	3.6000	2.88097
Student 9	5	1.00	6.00	3.2000	1.78885	0.00	4.00	2.4000	1.81659
Student 10	5	1.00	6.00	4.4000	2.07364	0.00	5.00	2.4000	1.94936
Student 11	5	1.00	6.00	3.4000	2.07364	1.00	6.00	4.2000	1.92354
Student 12	5	2.00	6.00	3.6000	1.81659	0.00	6.00	2.6000	2.79285
Student 13	5	3.00	6.00	4.6000	1.51658	2.00	6.00	3.2000	1.78885
Student 14	5	3.00	6.00	4.4000	1.51658	2.00	5.00	4.4000	1.34164
Student 15	5	3.00	6.00	4.2000	1.30384	0.00	6.00	2.6000	2.79285
Student 16	5	4.00	6.00	4.8000	0.83666	3.00	6.00	3.6000	1.34164
Student 17	5	3.00	6.00	5.0000	1.22474	3.00	6.00	4.2000	1.64317
Student 18	5	3.00	6.00	4.6000	1.51658	3.00	4.00	3.2000	0.44721
Student 19	5	3.00	6.00	5.2000	1.30384	3.00	6.00	3.6000	1.34164
Student 20	5	1.00	6.00	4.4000	2.30217	3.00	3.00	3.0000	0.00000
Student 21	5	3.00	6.00	3.6000	1.34164	3.00	3.00	3.0000	0.00000
Valid N (listwise)	5								

4.1.2 Frequency Counts Analysis

The frequency counts analysis of the data gathered from the students in both the experimental and the control groups shows that during the first week, when the interactive visual sessions began, most of the students in the experimental group (28.6%) were unable to memorise a single selected word, while 19% each were able to memorise one word and three words respectively. In total, 14.3% of students delivered an outstanding performance and were able to memorise all six words, as taught using the visual techniques. A small percentage of subjects (9.5%) memorised only two words during the week, while 4.8% each were able to memorise four or five words.

Table 3. Week 1 results – experimental group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.00	6	28.6	28.6	28.6
	1.00	4	19	19	47.6
	2.00	2	9.5	9.5	57.1
	3.00	4	19	19	76.2
	4.00	1	4.8	4.8	81
	5.00	1	4.8	4.8	85.7
	6.00	3	14.3	14.3	100.0
	Total	**21**	**100.0**	**100.0**	

On the other hand, the results of the control group showed a lack in the students' capability to memorise words. During the week, 33.3% of the sample, the highest number of students, was unable to memorise any words, followed by 23.8% of the sample or five students who memorised three words. In total, 19% of the students were able to memorise 1 or 2 words each, while just 4.8% (1 student) memorised four words during the week, representing the highest standard of control group students. None of the students demonstrated the ability to memorise more than four words during the week.

Table 4. Week 1 results - control group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.00	7	33.3	33.3	33.3
	1.00	4	19	19	52.4
	2.00	4	19	19	71.4
	3.00	5	23.8	23.8	95.2
	4.00	1	4.8	4.8	100.0
	Total	**21**	**100.0**	**100.0**	

The comparison of the performance between the experimental and the control groups is presented in Figure 1 below.

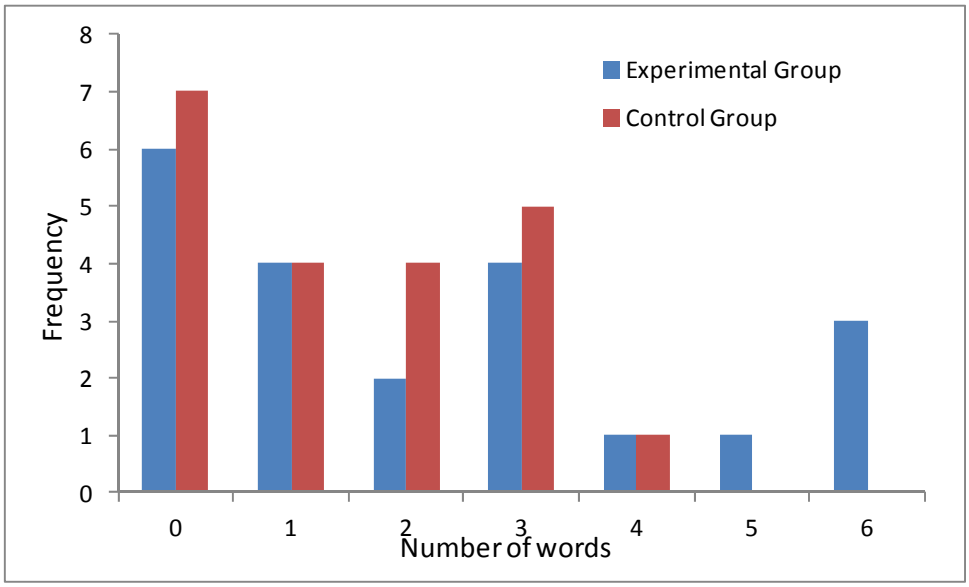

Figure 1. Week 1 – Performance comparison between the two groups

The fifth week of the experiment showed that 95% of the students in the experimental group demonstrated the ability to memorise five words or more using visual strategies. 18 out of 21 students; i.e., 85.7% of the sample, memorised all six words, while two out of 21 students, constituting 9.5% of the sample, demonstrated the ability to memorise five words during the week. The remaining one student; i.e., 4.8% of the sample, memorised three words that week. The overall performance of the students witnessed a significant increase in the final week, indicating the usefulness and importance of using visual strategies to enhance the learning capabilities of the students.

Table 5. Week 5 results - experimental group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	1	4.8	4.8	4.8
	5.00	2	9.5	9.5	14.3
	6.00	18	85.7	85.7	100.0
	Total	**21**	**100.0**	**100.0**	

On the other hand, the students in the control group were placed between the three and the six words categories; the same range as that of the experimental group. However, in contrast to the experimental group, where there was a high concentration of students in the six words category, the students in the control group were scattered across the four categories almost equally. Of these, 28.6% were found to be able to memorise three and six words each. A further five students, constituting 23.8% of the sample, demonstrated the ability to memorise five words during the final week, while four students, constituting 19% of the sample, showed that they could memorise four words during the week.

Table 6. Week 5 results - control group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	6	28.6	28.6	28.6
	4.00	4	19.0	19.0	47.6
	5.00	5	23.8	23.8	71.4
	6.00	6	28.6	28.6	100.0
	Total	**21**	**100.0**	**100.0**	

The comparison of the performance between the experimental and the control groups in the fifth and final week of the experiment is presented in the figure below.

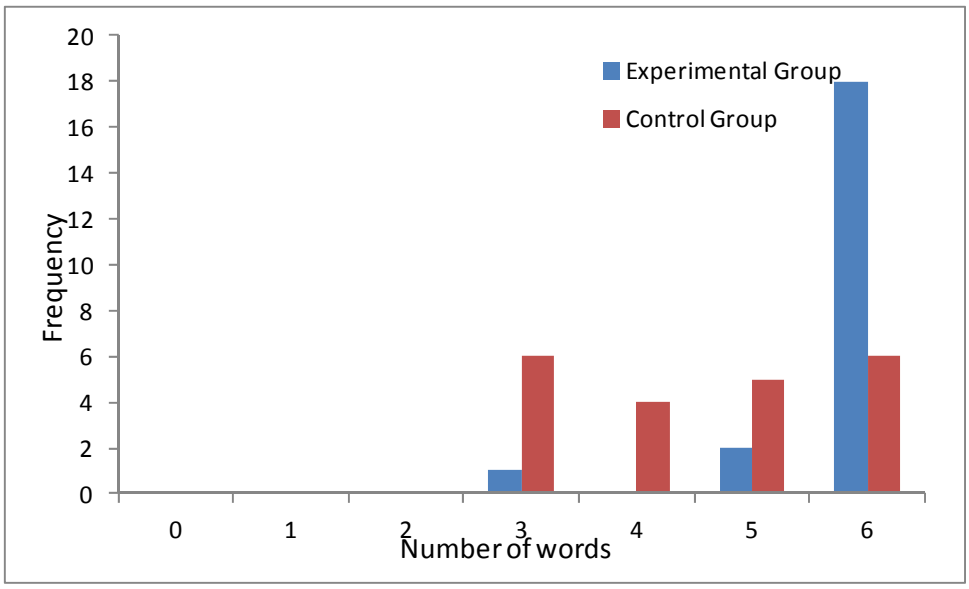

Figure 2. Week 5 – performance comparison between the two groups

4.2 Results and Analysis of the Second Question

For the analysis of the second question, a means comparison analysis was used to analyse the results of the pre-post achievement test.

4.2.1. Pre-test Scores

The analysis of the pre-test scores showed that the means for the experimental group and the control group were in the same range. In fact, the mean for the control group was higher than that of the experimental group.

Table 7. Mean comparison – pre test scores

	Experimental	Control
Mean	12.5714	13.0952
N	21	21
Std. Deviation	7.22199	7.15475
Grouped Median	12.3333	13.3333
Skewness	-0.023	-0.165
Minimum	0.00	1.00
Maximum	24.00	24.00

The pre test scores revealed that the students in both groups had approximately the same level of spelling skills.

4.2.2 Post test Scores

The statistical data analysis gathered by monitoring the experimental and the control groups revealed that the mean of the scores for the experimental group was higher (21.52) than those for the control group (15.85), indicating that on average; students in the experimental group scored higher than the students in the control group. In addition, the analysis also revealed that the scores of the students in the experimental group were closer to the mean when compared to the scores of the control group students, whose scores were scattered across the mean to a higher degree.

Table 8. Mean comparison – post-test scores

	Experimental	Control
Mean	21.5238	15.8571
N	21	21
Std. Deviation	5.78463	7.30949
Grouped Median	20.3333	16.2000
Skewness	0.224	-0.294
Minimum	14.00	1.00
Maximum	30.00	29.00

The comparison of pre and post test scores indicates that the students were at the same level of spelling skills prior to the start of the study. However, the experiment involving use of visual strategies improved the students' spelling skills to a large degree. In addition to the above mentioned scores, the analysis of the findings from the experimental and control group data indicates that the students in the experimental group not only showed much better performance in terms of memorising more words by the fifth week, but also that the pace of their improvement in performance was a lot higher than that of the students in the control group.

4.3 Results and Analysis of the Third Question

To analyse the attitudes of the students in the experimental group, an attitudinal survey was conducted. The responses were analysed using simple mean, standard deviation and the percentage of participants who responded positively to questions related to the use of visualisation strategies. The Pearson's correlation was also used to analyse the responses.

4.3.1 Descriptive Analysis

The question regarding visual strategies being interesting and enjoyable received the most favourable response. In total, 90.48% of the participants agreed that visual strategies are interesting. The second most favourable response (85.71%) was to the question regarding visual strategies being simple and easy to use, this was then followed by visual strategies being better than traditional methods (85.71%). The three questions that investigated whether visualisation strategies need more time and efforts than the traditional method, whether

visualisation strategies have little effect on memorising the correct spelling of words, and whether visualisation strategies are boring, and complicated received very low responses from the participants (23.81%, 14.29%, and 9.52%). This indicates that a large portion of the participants do not believe that visualisation strategies are boring and complicated or require them to expend more time and effort than the traditional method. The findings from the attitudinal survey indicated that the students prefer the use of visualisation strategies over traditional methods.

Table 9. Attitudinal questionnaire

No.	Question	Sum	Mean	Std. Deviation	% of the Students With Positive Response	Rank
1	I think that visualisation strategies help me to be a good speller	21	7	6.56	71.43%	12
2	I feel that visualisation strategies are enjoyable and interesting.	21	5.25	7.23	90.48%	1
3	I believe that visualisation strategies help me to concentrate well when learning the spelling of words.	21	5.25	4.03	76.19%	9
4	I believe that the use of visualisation strategies help me to master the spelling of difficult words.	21	5.25	5.91	80.95%	5
5	I believe that visualisation strategies help me a lot in retaining the correct spelling.	21	5.25	5.32	80.95%	6
6	I think that visualisation strategies give me the opportunity to correct my spelling errors immediately.	21	5.25	3.86	80.95%	7
7	I feel that visualisation strategies are simple and easy to use.	21	10.5	10.61	85.71%	2
8	I feel that visualisation strategies motivate me more to learn the spelling of words	21	7	6.24	76.19%	10
9	I feel that visualisation strategies give me more self- confidence in learning the spelling of words.	21	7	7	80.95%	8
10	I think that visualisation strategies are of little effect on memorising the correct spelling of words.	21	5.25	5.85	14.29%	14
11	I think that learning spelling using visualisation strategies is better than the traditional method	21	5.25	7.18	85.71%	3
12	I feel that visualisation strategies are boring and complicated.	21	5.25	5.85	9.52%	15
13	I think that it is better for all English teachers to use visualisation strategies in teaching spelling.	21	4.2	5.5	76.19%	11
14	I think that the use of visualisation strategies needs more time and efforts than the old method.	21	4.2	3.35	23.81%	13
15	I prefer to use visualisation strategies in learning spelling in the future.	21	5.25	7.18	85.71%	4

4.3.2 Pearson Correlation Analysis

The responses from the students in the experimental group were analysed to find correlations between different factors and students' preference of using visual strategies.

For example, the correlation between *students' attitude towards visual strategies being better than the traditional method of teaching* and *students' preference of using visual strategies* was found to be very high, indicating that students' perceptions of the usefulness and effectiveness of visual strategies influenced their preference for the method of teaching. The sig (two-tailed) of 0.001 indicates that any improvement or deterioration in the perception of students with regard to visual strategies being better than traditional methods will significantly impact on their preferences for the teaching methods.

Table 10. Attitudinal questionnaire - correlation between questions 11 and 15

	Better than traditional method	**Preference for using visual strategies**	
Pearson Correlation	1	.994**	**Better than traditional method**
Sig. (2-tailed)		0.001	
N	5	5	
Pearson Correlation	.994**	1	**Preference of using visual strategies**
Sig. (2-tailed)	0.001		
N	5	5	

**. Correlation is significant at the 0.01 level (2-tailed).

4.4 Summary of the Results

The analysis of the data from the experimental and the control groups indicated that students belonging to the experimental group not only showed an improved performance when compared to students in the control group, but they also worked more quickly than them. The analysis of the average results for the pre and post tests yielded the same results, indicating that the overall performance of the experimental group was better than that of the control group. The post test scores for the experimental group were more concentrated around the mean than those of control group students.

The analysis of the attitudinal survey showed that the use of visualisation strategies is preferred by the students over traditional methods. Pearson's correlation analysis indicated that the participants believe that the use of visual strategies had improved their command of the language, as well as their self-confidence. The respondents also indicated that visual strategies give better results than traditional method of teaching. The use of inferential statistics (Pearson Correlation) has enabled the researcher to generalise the findings from the sample to the whole population, indicating that the use of visual strategies enhances learning capabilities and is preferred by students.

5. Discussion, Recommendations and Conclusion

5.1 Discussion

The findings provided clear support for the hypotheses of the study, and answered the questions of the research.

5.1.1 Interpretation of the Results Related to Question Number One

The results revealed that visualisation strategies are indeed effective for improving students' spelling skills. This was confirmed by the descriptive and the frequency counts analysis gathered from the weekly achievement tests that both groups performed, as presented in the previous chapter. The analysis of the data from the experimental and the control group indicated that the students belonging to the experimental group not only showed a more improved performance as compared to students in the control group, but also that their performance improved at a higher pace than that of the students of the control group.

This result clearly supports the first hypothesis stated by the researcher: *Visualisation strategies will effectively improve the students' spelling skills*. It also supports and agrees with previous opinions and findings suggesting visualisation strategies do improve spelling skills; such as those reported by Blackerby (1996), who believes that visualisation strategies are significantly valuable for succeeding in school; Hickmott and Bendefy (2006, p. 52), who consider visualisation to be the key to successful spelling; and Hunt (1963, as cited in Davis, 2011), who identified visualisation as one of the key factors influencing the ability to spell English words.

5.1.2. Interpretation of the Results Related to Question Number Two

There were statistically significant differences in the total average score of the post test between the experimental group and the control group favouring the experimental group. The statistical analysis of the data gathered when monitoring the experimental and the control group revealed that the mean for the scores of the experimental group was higher (21.52) than the control group (15.85); indicating that on average, students in the experimental group scored higher than the students in the control group. In addition, the analysis revealed that the scores of the students in the experimental group were closer to the mean as compared to the scores of the control group students, whose scores were scattered across the mean to a higher degree.

This result clearly supports the second hypothesis, as stated by the researcher: *There will be statistically significant differences in the total average scores for the post-test between the students who were trained to use visualisation strategies (experimental group) and those who were taught using the traditional method (control group).* It also supports and agrees with previous opinions and findings, such as reported by Bell (1997), who witnessed significant improvements to the spelling scores of a student on spelling tests, after practicing visualisation technique with that student. It also supports the findings of Lee-Vieira, Mayer, and Cameron (2006, as cited in Davis, 2011) who conducted a study, which examined traditional spelling lessons versus the creation of words using tiles, and visualising where the appropriate letters should be placed. The result of this study was that students were found to perform more consistently when given weekly spelling tests if traditional instructional procedures were supplemented with visualisation strategies.

5.1.3 Interpretation of the Results Related to Question Number Three

The social validity questionnaire that was completed by participants showed that the use of visualisation techniques is preferred by students over traditional methods, and indicated that the participants believed that the use of visual strategies improved their command of the language, as well as their self-confidence. This supports the third hypothesis stated by the researcher: *Students who are trained to use visualisation strategies will show positive attitudes towards those strategies*, and proves that the students experience a greater degree of success if they are motivated, self-confident and have a lower level of anxiety (Shrum & Glisan, 2010). This was also evident in the results of the fifth week when students in the experimental group showed a significant improve in their results. I realised that in the fourth week, the students' results were not as good as in the third week, so I integrated visual strategies with spelling games, in order to motivate the students to use the strategies and make the lesson more fun, which is considered extremely motivating (Dipple, 2012) .

I believe that those students belonging to the experimental group, outperformed students in the control group and showed a positive attitude towards the use of visualisation because, the new strategies they were introduced to helped them improve their spelling skills, assisted them to move beyond phonetic spelling, and overcome their common errors (Bush, 2010). Furthermore, the visualisation strategies that the students were trained to use helped them to observe and recognise misspelled words and correct them to prevent any mistakes (Hendrickson, 1967, as cited in Davis, 2011). This also enabled the students to spell unfamiliar words accurately (Department of Education and Training, 1998, as cited in Mpiti, 2012). In contrast with the experimental group, the control group was presented with a weekly list of words that had to be memorised without explicit spelling techniques. They were restricted by the traditional method of teaching spelling, as demonstrated by the results of the study to be a less effective method, supporting the findings and opinions of previous researchers; such as Heald-Taylor (1998, p. 404, as cited in Kernaghan, 2007), Mann, Bushell Jr. and Morris (2010, as cited in Gulinna, 2011), Neals (1998, as cited in Mesmeh, 2012), and Nies and Belfiore (2006, as cited in Dives, 2011) who all believe that traditional methods in teaching spelling are not providing adequate support for students.

5.2 Recommendations

In the light of the findings of the study, the following recommendations are provided.

Curriculum designers and decision makers are recommended to:

1) Enrich the Saudi Curriculum with different and assorted spelling exercises and a variety of strategies.

2) Introduce visualisation strategies to the Saudi Curriculum

Supervisors are recommended to:

1) Prepare and distribute instructional materials to increase teachers' knowledge and use of visualisation strategies as new and effective strategies for teaching spelling.

2) Conduct training courses to help English language teachers enhance their competencies when implementing different strategies for teaching spelling.

English language teachers are recommended to:

1) Help students overcome their spelling difficulties by introducing new and interesting strategies for teaching spelling.

2) Emphasise the importance of correct spelling, and provide students with opportunities for sufficient practices.

Recommendations for Further Studies

1) Further research should be conducted to investigate the effectiveness of visualisation strategies on different groups of students at various levels of education.

2) Further field-based research should be conducted to investigate the effectiveness of visualisation strategies on other skills such as reading comprehension.

3) During the research, I trained the whole class together, which caused some students to be distracted by others. In future research, it would be advisable to allow students who need more time to master skills to be trained in private sessions to improve their concentration.

5.3 Conclusion

This purpose of this study was to investigate the effect of using visualisation strategies on improving students' spelling skills, and to examine the potential of these strategies to assist students in overcoming their spelling difficulties. The findings of the study revealed that visualisation is an effective strategy and a valuable methodology for improving spelling skills. The results proved that visualisation strategies have a significant impact on students' spelling skills, and that applying them is a valuable method for improving spelling skills.

Students exposed to visualisation strategies, favoured the use of strategies and showed a positive attitude towards them. They believed that visualisation strategies were more interesting and motivating than the traditional approach in teaching spelling. Moreover, they stated that the visualisation strategies helped them overcome their anxiety, and increased their confidence when spelling words. In general, the results of the study revealed a remarkably positive effect from visualisation strategies, on both students' attitude and spelling skills; hopefully this will encourage curriculum designers, and language teachers to employ these strategies when teaching spelling.

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