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The effect of using same language subtitling (SLS) in content comprehension and vocabulary acquisition in Arabic as a foreign language (AFL)

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THE EFFECT OF USING SAME LANGUAGE SUBTITLING (SLS) IN CONTENT COMPREHENSION AND VOCABULARY ACQUISITION IN ARABIC AS A FOREIGN LANGUAGE (AFL)

A Thesis Submitted to

Department of Teaching Arabic as a Foreign Language

in partial fulfillment of the requirements for

the degree of Masters of Arts/Science

by Aysha Abdel-Moneim Selim

Bachelor of Arts in Psychology

(under the supervision of Dr. Raghda El Essawi)

Fall 2010

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بسم الله الرحمن الرحيم

تعلموا العربية و علموها الناس

let knowledge grow from more to more and more of its reverence in us dwell

To My Mum, Dr. Hoda Ali-Kamal Hebaisha

I owe it all to you!

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ABSTRACT

The American University in Cairo

THE EFFECT OF USING SAME LANGUAGE SUBTITLING (SLS) IN CONTENT COMPREHENSION AND VOCABULARY ACQUISITION IN ARABIC AS A FOREIGN LANGUAGE (AFL)

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This study investigates the effects of SLS (Same-Language subtitling) on content comprehension and vocabulary acquisition of MSA (Modern Standard Arabic) as L2 at the intermediate level and addresses three research questions: (1) Does SLS enhance or hinder L2 content comprehension when the writing script of L2 is different than that of L1? (2) Does SLS enhance or hinder L2 vocabulary acquisition when the writing script of L2 is different than that of L1? (3) What is students' attitude towards the use of SLS? Twenty seven students of AUC's ALI program with English as L1 were chosen for the study and divided between a control group (without SLS) and a treatment group (with SLS). Instructions concerning the procedure were given in L1 to rule out any false results due to task misinterpretation. Both groups watched an authentic 3:11 minute documentary twice after completing an individual background questionnaire and taking a multiple choice vocabulary pre-viewing test. Post-viewing, participants took the same vocabulary test, then wrote a summary in L1 based on their notes taken during/and in-between the viewings and completed a questionnaire/questions related to their experience with and -/out captions. L1 summaries were analyzed in terms of 23 semantic units related to content comprehension. The degree of vocabulary acquisition was calculated by comparing the responses between the pre- and post-viewing vocabulary multiply choice tests. Results using t-test and one way ANOVA indicate that SLS neither facilitates nor hinders comprehension and vocabulary acquisition. The majority of students enjoyed captions and wanted to continue using them in class. Pedagogical suggestions and future research recommended training with captions and focus on other text-aids, e.g. reverse subtitling at other proficiency levels. Contains 84 references, 17 figures, 5 pictures and 5 tables.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

Importance of this Thesis in the Area of Applied Linguistics

In the time and age we now live in, no longer can the effects of multimodality, text-aids, remote learning, and CALL material in L2 acquisition be ignored. As a result, SLS and Standard Subtitles as text-aids can play a vital role in L2 acquisition. With the extensive presence of cable TV and satellite channels, easier access to the internet, in addition to the vast and constantly improving features and options of DVD, foreign language acquisition might be accessible from the comfort of a living room, be it through incidental or highly structured learning procedures. Though it may seem a somewhat expensive procedure now, in fact, it could actually provide a cheaper, easier, and more convenient L2 acquisition alternative.

Research in this area seems to be quite minimal in comparison to other areas of applied linguistics. Studies on Arabic as a foreign language (AFL) compared, for example, to English as a foreign language (EFL) are quite scarce; therefore the scope for research is even larger than for other languages. Now, more than ever, is a golden opportunity to advance this research. The internet is for many just a mouse click away; the DVD industry is flourishing in the Arab World; new satellite channels are opening by the minute and with it dubbing and voice-over techniques, subtitling, captions and SLS.

Danan (2004) described captions (audio/video and text-aid in L2) and subtitles (audio/video in L2 and text-aid in L1) as "undervalued strategies" that have not been fully researched as pedagogical tools to optimize their effectiveness in L2 acquisition. In scholarly literature, captions are often referred to as same-language subtitles, bimodal, teletext, unilingual, or intralingual subtitles. Khothari (2008) called it "Karaoke unleashed on the airwaves and not confined only to bars for the entertainment of the literate" (p. 776). Standard subtitles are referred to as interlingual, i.e. translation subtitles in the native language. But how effective really are these two text-aids (SLS in this thesis)?

Rationale and Statement of the Problem

A partial answer to the above question can be found in research on captions and subtitles. Several studies explored the benefits of text-aids on listening comprehension. For the focus of this thesis, subtitles are going to be mentioned briefly.

Chung's (1999) conducted a study with 183 Chinese university students studying English at the intermediate level. Based on multiple choice questions testing content comprehension, results supported that those who viewed a video with captions significantly outscored those who viewed a video without captions by almost 14%. This led Chung to conclude that the benefits of captions lie in the ability to identify details pertaining to characters and plot; an observation earlier supported by Markham (1989) in his study of ESL university students, including three proficiency levels (high, intermediate, and novice). After watching captioned television videotapes, students answered comprehension and vocabulary questions more accurately with captions than without.

In Garza's (1991) study with advanced ESL Russian learners viewing captioned videos, results indicated that captions significantly increased comprehension of the video's linguistic content. He further suggested that captions bridge the gap between students' reading and listening comprehension.

Lambert & Holobow's (1984) study, over a 10-week period, involved English-speaking pupils studying French. Results demonstrated that SLS and reverse subtitling (audio/video in L1 and text-aid in L2) enhanced comprehension and vocabulary acquisition through time.

In another study, Vanderplank (1990) tried to explain the factor of improvement through time, observed by Lambert & Holobow (1984) above. Fifteen European ESL students (high-intermediate to superior) watched captioned programs one hour per week over a period of nine weeks. Vanderplank noted that after a few hours of practice with captions, students were able to process longer segments of both verbal and written texts. The same was noted by Neuman and Koskinen (1992) in their nine-week experiment with 129 advanced seventh and eighth grade ESL students. After watching nine 5- to 8-minute long segments of an American children's science program, results indicated that captions while listening benefited vocabulary acquisition and recognition more than reading.

The main criticism for the use of captions is that it encourages students to rely on written text and not exercise their listening skills to the utmost. To combat this argument, Markham (1999) tested 118 advanced ESL students after watching two 12 and 13-minute video programs with or without captions. During the post-examination listening tests, participants heard sentences taken directly from the script followed by four words (one key word belonging to the

sentence just heard and three distractors). Results indicated that captions during the screening significantly improved the students' ability to identify the key words.

To combat the second criticism, that captions do not improve learners' ability to comprehend new material without captions, Bird and Williams (2002) conducted two studies to test how captions affected listening ability irrelevant of semantics. They focused on implicit learning that pertains to auditory word recognition, and explicit learning that refers to the intentional recollection and conscious retention of aural stimuli. The first study examined 16 native English and 16 nonnative advanced speakers and demonstrated that the treatment groups (with captions) were superior to the control groups (without captions) in retaining phonological information recently processed and in identifying words presented in a previous phrase (explicit recognition memory). The second study experimented with 24 advanced ESL students and demonstrated that captions were beneficial in word recognition and implicit learning of non-word targets, paired with two rhyming and two non-rhyming aural cues. These studies support that captions aid learners with the phonological visualization of aural text and with forming memory traces of the words, which allows them to retrieve aural input without textual support.

On standard subtitling, though current methodology discourages any use of L1 in L2 acquisition, Danan (2004) pointed out that it can lead to greater depth of processing, which in return increases comprehension. It is to be noted, as Van de Poel & d'Ydewalle (1999) observed that comprehension through subtitles is most frequently incidental, without conscious or systematic effort from the viewers. De Bot et al. (1986) concluded through a study that subtitles help maintain foreign language skills. They mentioned a Dutch Broadcasting Service (NOS) survey

conducted in 1977 and cited by Danan (2004), which revealed that 70% of viewers preferred subtitling to dubbing because it allowed them to increase their foreign language proficiency. This survey drew attention to the fact that the key to beneficial use of subtitles in L2 acquisition may in part be due to a familiarity with the subtitled program.

At this point it is worth reviewing the pilot study conducted by researcher in November 2009 and presented at 43rd Annual Meeting of the Middle East Studies Association (MESA) in Boston, MA on the effects of L1 subtitling in the acquisition of Egyptian Colloquial Arabic (content comprehension). The pilot study partially replicated Guichon & McLornan's 2008 pilot study, which supported the notion that subtitles do aid in L2 acquisition, in terms of content comprehension. Twenty American participants (*N* = 20), with an average age of 25, and an average of 3 years studying AFL, were chosen from AUC[1]'s ALI[2], CASA[3], and the Diplomat program of intermediate and advanced levels. Participants were divided into 4 groups, two of which (one intermediate and one advanced) served as control groups, CGs (video without subtitles), and the other two served as the treatment groups, TGs (video with subtitles).

The material used for this study was the 2:41-minute opening sequence of a modern Egyptian, romantic comedy movie, where both main characters voiced-over how they had met as children, with in-between dialogue sections. The segment was chosen due to its voice-over nature, which replicated the 3-minute BBC authentic documentary Guichon and McLornan (2008) had used in their study. The segment was rich in content and vocabulary, as well as image-independent, disallowing the video to give students straight forward clues.

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[1] The American University in Cairo
[2] The Arabic Language Institute
[3] The Center for Arabic Studies Abroad

Before viewing the segment twice, explanation of test instructions and objectives were giving to students in L1 (English). During and between viewings students were recommended to take notes in either L1 or L2. Post viewing, students were to produce an as detailed as possible written summary in L2 (Arabic) based on their notes, within a time limit not exceeding 20 minutes. These summaries were later analyzed in terms of 30 semantic units (SM), based on the 35 semantic units chosen by Guichon and McLornan (2008) in their study, that were deemed essential to the researcher in the segment's content comprehension. The semantic units featured main characters, events, time, and various details. Results were obtained using the same method Guichon and McLornan (2008) used in their study, "by calculating the number of semantic units from the materials that were reported by students in the written summary. When a student simply wrote a word or a phrase that was associated with the semantic unit, the item was scored as being 'understood' even if grammatically inaccurate, as this did not indicate a failure to comprehend the text. The number of subjects reporting each semantic unit was then recorded by groups . . . A total of the semantic units reported under each condition was then calculated and expressed as a percentage of all possible semantic units" (p. 89). In this study it was calculated as 30 semantic units multiplied by the complete number in each group, and expressed as a percentage for all possible units and levels. No statistical analysis was conducted.

Comparison was made between the Control Groups and the Treatment Groups as a whole. Summaries were further analyzed by comparing the intermediate level to the advanced level to determine which level most benefited from the treatment. Results indicated that TGs benefited from subtitling by approximately 20% more than CGs and that intermediate level students benefited from the subtitling more than the advanced level. Acquisition was enhanced

6

through subtitling by 28.33% at the intermediate level, whereas enhancement reached 18.73% at the advanced level.

In comparison to past research, this pilot study supported most of the past results. Researcher concluded by recommending a sufficient amount of interactive exposure, training and pre-listening activities if subtitles were to be used in a classroom setting, and offered two pedagogical suggestions. Future research was suggested in other areas of language acquisition, e.g. grammar, which to date has only been researched by Van Lommel, Laenen and d'Yedewalle (2006) and has led them to conclude that L2 grammar cannot be acquired through watching a subtitled L2 movie. Another area that would need more research is the most beneficial multimodality model that would enhance L2 acquisition.

Multimodality

Multimodality, in the field of education, refers to simultaneously employing two or more modules, or modality, to achieve acquisition. It is imperative to differentiate between *multimodality* and *multimedia* and not confuse one with the other. The first refers to the active learner's use of more than one sense modality, e.g. visual and verbal processing; the second refers to the teacher's use of more than one presentation medium, e.g. animation and narration (Mayer & Sims, 1994). The use of audiovisual material by the teacher is an example of multimedia, where audio and video are employed; and the learner is pressed to use multimodality. For educators in the field of teaching foreign languages, more and more believe in the value of presentation material reflecting real-life situations. There is no better imitator of the latter than authentic audiovisual material, presented in TV programs, movies and video clips,

among others. Baltova (1994) believes that audiovisual material, which allows learners to view and listen to the message simultaneously, motivates and affects learners, which in turn facilitates auditory processing and comprehension. For Noblitt (1995, cited in Danan, 2004), listening comprehension is an active cognitive process that allows guessing strategy to fill in missing information from the acoustic input, which he believes is far more beneficial than deciphering individual acoustic information. In other words, that allows top-down processing (moving from a larger linguistic picture to small linguistic units through analysis) as opposed to bottom-up processing (moving from small linguistic units to larger ones), as per Fromkin, Rodman & Hyams (2007).

However, with new and unfamiliar material, the aural message might not get across and learners my need supportive information, as per Garza (1991, cited in Jones & Plass, 2002). Meskil (1996) calls this supporting informational "hooks" learners use to hang meaning to the aural message. Vanderplank (1988, cited in Danan, 2004) described second-language learners as "hard of listening," in need of a "hearing aid". Scholars cited in Jones & Plass (2002), e.g. Joiner (1986), Raphan (1996) and Mendelsohn (1998) among others, regarded this information as tools learners need to access and interact with in order to interpret the unfamiliar, aural message. When several tests by Baltova (1994, cited in Danan, 2004) demonstrated that comprehension via video and audio did not seem to differ from comprehension via video alone or audio alone, he saw the need for further aid that could be supplied through captions or subtitles. This demonstrates another example that allows multimodality in the field of education. Guillory (1998) experimented with keywords and full text captions to provide supporting information and found that they aided comprehension, though listening and reading are perceptually channeled

differently. Rost (1990) explained this by the cognitive processing similarity between listening and reading. Listening comprehension processing is explained in frame two theories in the following section.

Listening comprehension theories with multimodality

The Dual Coding Theory by Paivio founded the basis for all subsequent theories on multimodality. Chun and Plass (1996) gave an example of this theory with vocabulary acquisition. According to them, when new vocabulary is associated with different types of media, e.g. image and word, this results in richer recall cues and increases retention. This rationale lies in their nature of being dually coded by the learner and thus better learned than when coded in only one mode. Dual coding furnishes the learner with more retrieval paths and thus helps him build two types of recall cues with two systems in memory. These two systems are presumably interconnected, but can also function independently. Interconnection is demonstrated by the observation that representations in one system are cable of activating representations in the other system, e.g. words can activate images and images can be named. Independence is when imagery and verbal memory codes are aroused directly (by images and words) or indirectly (by imagery and verbal encoding tasks). This applies to meaningful learning in general, where learners are able to coordinate imagery and verbal representations of the same material.

Jones & Plass (2002) stated the theory as follows: "in order to comprehend a text meaningfully, students must select relevant written ("verbal") and pictorial ("visual") information from it, organize the written information into a coherent verbal mental representation, organize the pictorial information into a coherent visual mental representation, and then integrate these

newly created mental representations with one another by building referential connections

between them and integrating them into a mental model" (p. 548).

Paivio's Dual Coding Theory (DCT)

According to Yates (1966), Dual Coding Theory has its roots in using images as memory

aids as long as 2500 years ago. In 1602, Tommaso Campanella wrote *The City of the Sun*, in which

pictures were used entirely for educational purposes. Verbal explanations were provided by

teachers, hand in hand with the pictures in the book. This book, in fact, embedded a pictorial-

verbal educational system following dual coding theoretical terms. *Orbis Sensualium Pictus* ("The

World Explained in Pictures") (1658) by the educational pioneer Jan Amos Comenius, is in actual

pictures and descriptions to teach Latin and other languages. No wonder it is considered "the

mother of all children's picture textbooks". Comenius argued that children need to have direct

experience with materials and that teachers need to facilitate this, for "things are essential,

words only accidental; things are the body, words but the garment; things are the kernel, words

the shell and husk. Both should be presented to the intellect at the same time, but particularly

the things, since they are as much objects of understanding as is language" (Comenius, 1896

translation, p. 267; cited in Piaget, 1993; cited in Paivio, 2006, p. 2).

DCT and its educational implications, as Paivio had presented in his draft chapter for the

conference on *Pathways to Literacy Achievement for High Poverty Children* (2006), argue the

same point, by allowing pictures to "concretize" knowledge. Cognition, according to the theory,

involves two distinct subsystems; verbal that deals directly with language, and imagery (non-

verbal) that deals with nonlinguistic objects and events. Though in some linguistic aspects the

verbal system is self-sufficient, it is essential for meaningful linguistic aspects to draw on the rich

knowledge base of the nonverbal system. In contrast, the nonverbal system is not self-sufficient,

though capable of engaging in nonverbal "solitaire". A good example to "visualize" both systems

is to consider the verbal system "crosswords" and the nonverbal system "jigsaw puzzles".

Accordingly, cognition in DCT is the interaction between the two systems in their degree of

development, which distinguishes DCT from more abstract coding theories of cognition. This

"concreteness" of the theory attributes its importance in memory and recall, where the

nonverbal system has a stronger impact. It is to be noted that abstract words are difficult to dual

code, as they are difficult to represent.

Mayer's Generative Theory of Multimedia Learning

The roots of this theory lie in the modified version of Paivio's theory by Mayer & Sims

(1994), and offers a three-process account leading to knowledge integration as follows: one,

presentation of verbal explanation; two, presentation of visual explanation; and three, the

mental representation of both verbal and visual systems in the working memory. Learners are

then expected to build referential connections between the two representations. Thus three

connections are formed: verbal representational connection, visual representational connection

and referential connection. This version of the theory predicts problem-solving transfer, which

Paivio did not emphasize as a dependant measure. Mayer and Sims recommended instructions

that promote the formation of all three connections.

Mayer (1997) further modified this theory and gave it the name of *Generative Theory of*

Multimedia Learning, which is based on Wittrock's (1989) Generative Theory, Paivio's (1986) Dual

Coding Theory, and Clark & Paivio (1991) Dual Coding Theory. "From generative theory, I take the idea that meaningful learning occurs when learners *select* relevant information from what is presented, *organize* the pieces of information into a coherent mental representation, and *integrate* the newly constructed representation with others. From dual coding theory, I take the idea that these cognitive processes occur within two separate information processing systems: a *visual* system for processing visual knowledge and a *verbal* system for processing verbal knowledge" (p. 4).

In other words, from a simultaneous presentation of text and illustrations, the learner actively selects words and images to form a word and image base, respectively. Words are then organized in a verbally-based model, and images into a visually-based model. By integrating the two models learning occurs, or as Mayer prefers to call it and paraphrased here, "knowledge is constructed through connecting visual and verbal knowledge" (p.4).

Mayer stresses the importance of the multimedia instructional design, which affects the degree of a leaner's cognitive processing and consecutively the degree of meaningful learning.

Orthography and Different Writing Systems

SLS as a listening comprehension aid involves reading, and given that Rost (1990) believes that listening and reading processing share similarities, "What is written to be read?" needs to be considered. While sound may fade in time and space, written words can trespass both. Therefore, the invention of writing is one of mankind's principal achievements. Writing scripts represented with symbols are based on spoken languages and are categorized based on feature, segment, syllable, morphemes or words (Tzeng & Wang, 1983). As diverse as the writing systems

are (alphabetic[4], syllabic[5], logographic[6]), researchers are challenged by whether the presentation of the spoken language in print hinders or facilitates the acquisition of reading as a skill. Learning to read explores the relationship between what is spoken and what is written, whether in L1 or L2. But what happens when the writing script of L2 is different from that of L1, as is the case with this study, although both adopt an alphabetic writing system?

Most research regarding reading comprehension and different writing scripts, e.g. McBride-Chang, Tong, Shu, Wong, Leung, & Tardif (2008), Tzeng (1994), Tzeng & Wang (1983), Wang & Koda (2007) and Wang, Perfetti & Lui (2005) involves logographic and syllabic writing scripts versus alphabetic writing scripts, This includes English in particular and/or children as subjects. Yet researchers seem to agree that reading a different writing script depends on both phonological processes and orthographic specific skills, i.e. a combination of universal and language-specific processes, since it relies on decoding semantic, phonological and orthographic knowledge. Psychologists Gleitman & Rosin (1977, quoted in Tzeng, 1983) believe that it is a mere biological adaptation of the eye to any language in question. Only Tzeng (1983) and Fisherman (1982) experimented with English, versus Hebrew, as a language with short vowel deletion in spelling (like Arabic) and found evidence in word recognition supporting phonological information processing at a very early stage, regardless of the writing system. Fisherman's (1982) findings on biliteracy acquisition support the idea that "discrepant writing systems rarely posed difficulty" (p. 82).   Arabic, though similar to Hebrew in the aspects of using non-Roman script,

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[4] Each separate character usually represents a simple vowel, a diphthong (two vowels), or one or two consonants, e.g. English and Arabic (Encyclopedia Britannica on line)

[5] one character or symbol represents a whole syllable or mora (unit of sound), e.g. Japanese Kana (Encyclopedia Britannica on line)

[6] Each graph, image or character represents to one meaningful unit of the language (words and morphemes rather than phonetic elements), e.g. Chinese (Encyclopedia Britannica on line)

writing from right to left and deletion of short vowels, is diverse from Hebrew in at least the number of letters (29 in Arabic versus 22 in Hebrew) and the fact that the Arabic letters change their shape depending on their placement in a word (initial, middle and final). Hebrew is limited to only five letters where their shapes change at the final position, as per Encyclopedia Britannica on line.

Eye Movement Patterns

Yet reading a text book is different than reading captions, particularly when used as an educational tool, where learners supposedly are listening, watching and reading simultaneously.

Most of the previously limited research on eye movement patterns involves subtitling, yet deserves to be mentioned for its results that can be applied to captions, as well. By tracking eye-ball movement patterns through a series of cognitive experiments, reading television subtitles proved to be automatic, consistent and unavoidable. This is irrelevant to the presence or absence of sound, knowledge or ignorance of the spoken language, and familiarity or unfamiliarity with subtitling (d'Ydewalle *et al*., 1991).

Still, reading subtitles does not hinder soundtrack processing as text-sound associations are unconsciously strengthened (Kothari, 2008), as d'Ydewalle & Pavakanum (1997, cited in Danan, 2004) demonstrated through cognitive experiments relying on double task technique to measure eye movement reaction times to a flashing light while watching a subtitled television program. When the light flashed, reaction was slower, which suggests that more complex simultaneous sound track and subtitling processing was happening. Danan (2004) also cited another experiment by d'Ydewalle & Gielen (1992) that confirmed sound track processing. In this

experiment, when the sound was turned off, viewers devoted slightly more time to the subtitles, which suggests that in the presence of sound, viewers' attention seemed to be divided between sound and subtitles as needed. It is to be noted that usually more time is dedicated to subtitles due to the complex information processing required.

The only study on eye movement patterns and captions in the last 30 years, to the researcher's knowledge, is a government-funded research project (U.S. Department of Education Grant H026R70003) by Jensema et al. (2000), undertaken at the Institute for Disabilities Research and Training (IDRT). Research questions regarded how people truly viewed captions in terms of how they changed the viewing of the television program, the individual viewing strategies, if any, prior program's content influencing the method of viewing, if any, and how captions' rate influenced viewing.

A variation of the DOS-based *Eyegaze Development System*, designed by LC Technologies, of Fairtax, VA was used to accurately track eye movement. Six subjects, of whom three were deaf, watched eight, custom-made video clips with a captioning rate of 122 words per minute (the average being 140 words per minute [Jensema, McCann, & Ramsey, 1996]).

Results indicated a major change in eye movement patterns when captions were introduced, as the viewing experience became more of a reading experience. The general tendency was "to start by looking at the middle of the screen and then moving the gaze to the beginning of a caption within a fraction of a second. Viewers read the caption and then glanced at the video action after they finished reading. When a new caption came on the screen, they moved their gaze to the new caption and began reading again" (p. 284). As the caption rate increased, so did the time spent on caption reading, leaving less and less time for viewing.

15

Researchers recommended future research to address the relationship between captions'
position on screen and eye movement, between eye gaze and scene changes, and between
screen complexity/action and caption reading. Replication with more participants is needed for
data verification.

These studies confirm that research on reading can no longer focus on the mere
acquisition of reading skill, as studied by linguists, neurolinguists, anthropologists, cognitive &
educational psychologists, and in the field of artificial intelligence. In today's world, studies need
to continue with technology and manipulate new techniques to its benefit and advantage.

Research Questions

As previous research, as indicated above, has supported the effectiveness of captions in
L2 acquisition using multimodality, this thesis will investigate the effect of using Same Language
Subtitling (SLS) in Modern Standard Arabic (MSA) acquisition, in terms of content comprehension
and vocabulary acquisition via listening processing and reading processing as aids. As per Dual
Coding Theory (Paivio, 2006) and Generative Theory of Multimedia Learning (Mayer, 1997), the
possibility that, in simultaneously reading what one is hearing, learners activate different
language skills, leading to better L2 acquisition, cannot be discarded. It is still questionable
whether SLS, as opposed to standard subtitling, is to be used. Would the dissimilarities between
the two languages prove captions to be more of a hindrance than a facilitator, as per d'Ydewalle
and Pavakanun (1997, cited in Koolstra & Beentjes, 1999)? The results will explore the finest
multimedia that would prompt multimodality, in order to enhance Arabic acquisition as L2 in
listening comprehension and vocabulary acquisition.

As researcher's pilot study supported previous research on the effectiveness of standard subtitling for the intermediate level more than the advanced level, this study will only be conducted with Arabic learners at the intermediate level (mid and high).

Research questions addressed

1. Does SLS enhance or hinder L2 content comprehension when the writing system of L2 is different than that of L1?

2. Does SLS enhance or hinder L2 vocabulary acquisition when the writing system of L2 is different than that of L1?

3. What are students' attitudes towards the use of SLS?

Results may confirm that captions are indeed instrumental in AFL acquisition, and thus help to accommodate them into a curriculum, be it in class or through remote learning. It will also serve as an example of "edutainment", the blend of traditional sources of entertainment with educational tools as per Bird (2005), through authentic material that can be used for MSA as well as ECA.

This thesis constitutes the first empirical data on this subject in the field of AFL.

Hypothesis

Although most of the research on SLS supports its positive effect on listening comprehension, e.g. Froehlich (1988) and Markham (1992), a few studies on speaking effect (Borrás, & Lafayette, 1994), on writing (Parks, 1994) and on lexical acquisition (Neuman, & Koskinen, 1992), this thesis hypothesizes that the same might not be applicable to the Arabic

language. Past research tested across European languages used a writing system shared by both L1 & L2, while in this thesis the Arabic L2 writing system is not shared by the students' English L1. Based on the fact that there is no prior research pertaining to differing alphabetic languages, one using a Roman script and one using a non-Roman script, researcher assumes null hypotheses on research questions 1 and 2, which is per Perry (2005) "the null hypothesis is always there to be tested . . . it is more accurate to state the hypothesis in the negative because it is this hypothesis that inferential statistics test" (p.166-167). The null hypotheses on research questions 1 and 2 hypothesize that there is no relationship between SLS and content comprehension and there is no relationship between SLS and vocabulary acquisition.

Delimitations

This thesis will focus on the students' listening comprehension and vocabulary acquisition, while using text-aids in the form of SLS. Thus, it will not address reading comprehension per se, but rather the latter as a text-aid for listening comprehension. Comprehension will be tested based upon a summary in L1 written by the students. Vocabulary acquisition will be tested through multiple choice questions administered pre- and post-treatment. Age and gender are not variables in this study. Eye movement in relation to the on-screen captions is beyond the scope of this thesis.

Definitions

In this thesis, "researcher" refers to the thesis' author. The following is a list of terms and their definitions used throughout this thesis.

Annotations in linguistics: adding information about the linguistic form (Webster's Online Dictionary)

Closed captions: a form of SLS, where the on-screen translation is hidden and is shown on the screen only when activated, e.g. as a DVD feature (Taylor, 2005)

Listening Comprehension in L2: the cognitive process whereby learners receive and actively assign a meaning to an aural text based on prior knowledge and linguistic knowledge, and the interaction between the two (Coakley & Wolvin, 1986; Fischer &Farris, 1995; cited in Jones & Plass, 2002)

Multimedia: a teacher's use of more than one presentation medium (Mayer & Sims, 1994)

Multimodality (multimodal): the process whereby learners actively employ more than one processing module to stimulate their language skills when exposed to a combination of more than one multimedia (Mayer & Sims, 1994)

Open captions: a form of SLS, where the on-screen translation is consistently on the screen and one has no option but to see/read them (Taylor, 2005)

Same-language subtitling (SLS): refers to both on-screen translation and audiovisual material in L2, where the SLS (captions) act as a transcription of the audio-visual. In other words, it is subtitling that displays spoken dialogue in print form, usually on the bottom of the screen (Danan, 2004). Captions and SLS will be used interchangeably

Standard subtitling: translation of the audiovisual in any other language but the on-screen spoken one, usually in L1. In the context of this paper, audio in L2 and text-aid in L1 (Danan, 2004)

Text-aid: in the context of this paper, a text that aids listening comprehension. It is the process of transferring the spoken language into a written language (Khanwalkar, 2006). Both subtitles and SLS fall under the term "text-aids"

Verbatim: using exactly the same words, word for word; in the context of this paper: full text, same-language subtitling (Webster's Online Dictionary)

Vocabulary Acquisition in L2: involves bottom-up processing assuming that direct translations of L2 keywords provide learners with the micro-level information necessary for macro-level processing (aural comprehension) (Jones & Plass, 2002). Simultaneous multiple annotations can facilitate this retrieval process through multiple access routes to the information (Plass et al., 1998)

Writing system: as per Encyclopedia Britannica Online is a "system of human visual communication using signs or symbols associated by convention with units of language— meanings or sounds". In this thesis "writing system" and "writing script" are used interchangeably.

Abbreviations

Table 1

List of Abbreviations used throughout the Paper

Abbreviation	Stands for
ACTFL	American Council for the Teaching of Foreign Languages
AFL	Arabic as a Foreign Language
ALI	Arabic Language Institute
AUC	American University in Cairo
CALL	Computer-Assisted Language Learning
CCTV	Closed Captioned Television
CG	Control Group
DCT	Dual Coding Theory
DV	Dependent Variable
ECA	Egyptian Colloquial Arabic
EFL	English as a Foreign Language
IPA	International Phonetic Alphabet

(continued)

Table 1

(continued)

IV	Independent Variable
L1	Language 1 (native language)
L2	Language 2 (foreign language studied)
MC	Multiple Choice
MSA	Modern Standard Arabic
SLS	Same Language Subtitling
SM	Semantic Units
TG	Treatment Group

CHAPTER 2

LITERATURE REVIEW

Goal and Focus of the Review

According to Burger (1989), Froehlich (1988), Grimmer (1992) and Vanderplank (1988) cited in Winke, Gass, & Sydorenko (2010), the initial reason for introducing SLS in foreign language classes in the 1980s was to reduce learners' anxiety, increase their attention and motivation and give them instant confirmation of their understanding of what was heard. Kothari, Pandey, & Chudgar (2004) view the contribution of SLS to language acquisition as still in its infantry stage, where four factors mark its literature. The first factor is that literature is based on research in North America or Europe; the second addresses languages that use the Roman script; the third is the use of SLS for the deaf and hearing impaired; and the fourth and final factor explores the language learning potential among elevated proficiency levels in L2.

This review aims at providing an overview of SLS as a text-aid in L2 acquisition, focusing on acquisition in respect to content comprehension and vocabulary acquisition. The review covers the intermediate proficiency level as defined by ACTFL, which will be referred to in the Methodology Chapter. Since SLS and standard subtitles are usually co-studied, this review will also cover studies comparing the two modules, where applicable. Studies on Reverse Subtitles, i.e. L2 on-screen text translation of an L1 video, will not be addressed in this review, as well as studies on SLS as a means to combat illiteracy and as a pedagogical tool for individuals with

hearing disability. Studies addressing writing and speaking skills will also not be covered as well as studies with children as participants.

The second aim of this review is to provide an overview of available literature on the effect of L1's orthography on L2's reading process in respect to languages with different writing systems. It is imperative in this thesis to review the literature on this point, since participants' L1 (English) use a Roman alphabetic script and Arabic (L2) uses a non-Roman alphabetic script. The review will assist in answering both research questions, as SLS as a text-aid involves reading captions in L2. As such, bilingual literacy will not be addressed in this review. Proficiency level and participants' age will not be delimitations in this part of the review.

Review Method

In accordance with this aim and focus, studies have been chosen from academic sources. The initial search was through Google Scholar and Academic Search Complete (EBSCOhost). LLBA (Linguistics and Language Behavior Abstracts) (CSA) proved to be a very useful database that led to further searches within the two aforementioned tools. Two articles were purchased on line from ACTFL. Research was guided by the following keywords: dubbing, subtitles, captions, foreign language acquisition, learning and/or teaching L2, watching television programs, orthography, and edutainment.

The criteria guiding this research on SLS and L2 language acquisition were journal articles, from the last ten years, with a focus on content comprehension and/or vocabulary acquisition in L2 through SLS and/or subtitles. To remain faithful to the first aim of the review, some aspects of the studies have been ignored, e.g. long-term effect in Bianchi and Ciabattoni (2008) and audio

only as an IV in Guichon and McLonan (2008). It is to be noted, however, that research on

vocabulary acquisition compared to content comprehension using multimodality has not yet

been fully explored. As for orthography and the reading process abstracts, journals and reports

covered date back to the 1980s, the period richest in this respect, to researcher's best

knowledge; and with children as participants in some of them.

Historical Perspective

SLS as a tool for L2 acquisition

The initial use of captions began in the 1970s, mainly for hearing impaired individuals as

per Markham & Peter (2003) and Kikuchi (1997, cited in Taylor, 2005). As captions and subtitles

began to be used as tools for L2 acquisition, the 1980s and 1990s witnessed a rich research

period on the advantages and disadvantages thereof, as using multimedia in terms of audio,

video and text simultaneously could facilitate, as well as hinder acquisition. Froehlich (1988) used

German captions with German videos and found captions to be beneficial in listening

comprehension, vocabulary acquisition and in facilitating the transition from reading to

comprehending a spoken language. Smith (1990) tested vocabulary acquisition in ESL in an

Employment Program in Virginia using closed-captioned Television (CCTV). Different programs

were used and it was concluded that it was the content, length and kind of captions (whether key

words or literal verbatim) that led to acquisition. Results indicated that programs with adult

themes, simple language, slow narration and comedy combined with literal verbatim captions

were the most beneficial. Markham (1989, cited in Bianchi & Ciabattoni, 2008) supported its

effectiveness, especially in regard to vocabulary acquisition, when captions rather than subtitles

were used. A point further supported by Baltova (1999, cited in Guichon & McLornan , 2008).

Most of the studies seemed to advocate effective acquisition at the intermediate and advanced levels as opposed to novice level (Taylor, 2005), with the exception of Markham (1989, cited in Taylor, 2005). On the other hand, Tardieu and Gyselinck (2003, cited in Guichon & McLornan, 2008) argued against the authenticity of subtitles and its imposition of a further decoding element on the learner. A hypothesis earlier supported by Suzuki (1997, cited in Taylor, 2005) especially for novice learners, and by d'Ydewalle and Pavakanun (1997, cited in Koolstra & Beentjes, 1999).

As of the late 1990s, research has seemingly shifted to explore the effect of SLS on literacy, especially in India, with few studies on L2 acquisition. However, with new technology, DVD as an example, research in L2 commenced again, reflecting multimodality, and with it captions and subtitles as text-aids.

Orthography and the reading process

Most of this research has been conducted by cognitive psychologists, experimental psychologists, anthropologist and neurolinguists. It is based on comparisons between Asian languages, using syllabic or logographic writing systems, and the English language, using an alphabetic writing system, and/or on bilingualism in both, especially with children. It was hypothesized that depending on the writing system, different cognitive strategies were used to achieve reading proficiency by learners.

As per Tzeng's paper (1980) hoping to provide the missing link in research regarding reading, research on reading goes back to the late 1870s, when German psychologist Wilhelm

Wundt founded one of the first formal laboratories for psychological research at the University of

Leipzig to study the content of the mind, as per Britannica Online Encyclopedia. Wundt was later

dubbed "father of experimental psychology". Shortly after, his first American student, James

McKeen Cattell, wrote his dissertation on reading. In 1908, most of the research on reading was

summarized in Edmund Burke Huey's book *The Psychology of Reading and Pedagogy*. Research

then shifted to the analysis of verbal behaviors and assessments. It was not until the mid 1950s

that interest in basic reading behavior was revived as a result of Chomsky's innateness idea,

advance of computer technology, reaction time experiments (aka psychochronometric

procedures), and accumulation of knowledge regarding different levels of speech signals. Yet, the

most important drive behind this revival was the publication of Rudolf Flesh's *Why Johnny Can't

Read*. Tzeng has noted, though, that the issue of orthography had not been addressed until Rozin,

Poritsky and Sotsky (1971) were able to teach illiterate American children with serious reading

problems how to read English represented by Chinese characters. In 1978, Scribner and Cole

presented the most impressive research at the time. In an ethnographic study, they strove to

teach tribal Vai literacy in Vai and Arabic, through various cognitive tasks (the Vai tribe resides in

Liberia and speaks Vai, a western African Mande language as per Britannica Online Encyclopedia).

Vai is a tonal language, using a syllabic writing system, but neither tonal information, nor word

boundaries nor punctuations are marked on its script. To read Vai, one must group syllables

together to form words. In order to comprehend one must integrate these words into meaningful

semantic units. Arabic, on the other hand, uses an alphabetic script and, according to Tzeng, is

learned through a rote memory process. It is to be noted that members of the Vai tribe did not

speak nor understand Arabic. Results from the cognitive task tests indicated no difference in

terms of word stringing comprehension for both Vai and Arabic literates. However, Vai literates excelled in picture reading and syllable integration, while Arabic literates excelled in memory tasks. These results support that different writing systems dictate different task requirements needed for proficiency. The results further indicated that strategies developed, while meeting these requirements, are transferrable to situations that demand similar task requirements. This research in the 1970s prompted researchers to untangle the relationship between script and speech, and the desire to emphasize processing differences rather than production variations.

Areas of Research Covered

Two areas of research informed this literature review: SLS as a tool for content comprehension and vocabulary acquisition, and the effect of L1's orthography on L2's reading process.

SLS as a tool for content comprehension and vocabulary acquisition

Winke, Gass & Sydorenko (2010)

This study is, to researcher's knowledge, the singular one conducted with Arabic learners, among others: Chinese, Spanish, and Russian. The study addressed four research questions concerning vocabulary and comprehension: the overall effect of captioning, the overall effect of caption's presentation order, the effect of caption's presentation order in relation to languages, and finally, the caption's presentation order in relation to proficiency level, bearing in mind the different orthographical symbols between L1 and L2.

One hundred fifty students from a large Midwestern university, in their second or fourth year of language study, volunteered in this study. The breakdown of students was as follows: 67 studying Spanish, 41 studying Russian, 13 studying Chinese and 29 studying Arabic. All except one were native English speakers, with some at different proficiency levels of other languages, e.g. French, Polish, Korean and Farsi. None of the participants were heritage students. The study was conducted in a computer lab during regular class, except for the Spanish studying participants.

The material used was three short, 3-5 minute English documentaries on animals by a single narrator. After transcription, the documentaries were dubbed by native female narrators into the four target languages, resulting in 12 videos to which captions in the corresponding target language were added. Participants of each language were divided into two groups: one that watched the videos with captions first; the other that watched it second. The Spanish language embraced two extra groups: one that watched the captioned video twice and the second watched the non-captioned video twice.

Prior to the viewings, participants filled out a background questionnaire; and the study procedures were explained. After viewing, participants took a vocabulary test, of which 50% was in written form and 50% in aural form via voice recordings on the Web. Though each test had the same key vocabulary words, there were two versions, where the aural and written forms interchanged. The versions were randomly assigned to participants. To determine students' prior knowledge of key words, for which they had to write the translation in English, participants had to indicate whether they knew or think they knew the word prior to the viewings or not. Researchers refrained from giving the vocabulary test prior to the viewings in order not to direct

students' attention to specific words during the viewing. Upon completion of the vocabulary tests, participants took an MC comprehension test in English, focusing on the main story points. Following that, 26 participants volunteered for an interview regarding their experience with captions, the goal of which was to shed some light on how participants dealt with captions.

Vocabulary tests were scored on the basis of exact translations receiving one point and translations from the same semantic field of the word receiving half a point. A list of pre-viewing unfamiliar words, as determined by participants, was established and the correct answers to these were identified as "raw vocabulary". These were then divided by the number of pre-viewing unfamiliar words for analysis. For comprehension, each correct answer was given a point. Group means were compared using independent t-tests (Levene's test for equality of variances) and two-way ANOVAs. The alpha level for all tests was set at $p < 0.05$.

To answer the first research question on the overall captioning effect on comprehension and vocabulary acquisition, only the two extra Spanish groups, who watched the videos twice with and without captions, were considered. For the second research question, related to overall captioning presentation order, all groups were considered. Second-year students were the only proficiency level considered for the third research question, related to captioning presentation order by language. Finally, since the Spanish and the Russian groups were the only groups that were represented by two proficiency levels, they supplied the answer to the fourth research question, related to captioning presentation order in relation to proficiency level.

In terms of comprehension, results indicated that captions viewed twice yielded significantly higher results, supporting the use of multimodality to facilitate overall

comprehension. Overall, when captions were presented first, results on comprehension were not statistically significant, though in terms of language for Russian and Spanish, first viewing appeared to be more beneficial, whereas for Arabic and Chinese the second viewing was. In terms of proficiency level, a two-way ANOVA resulted in no significant interactions between language, year, and caption order.

In terms of vocabulary acquisition, results indicated that captions viewed twice yielded significant higher results than viewings without captions. This supports captions aiding in new vocabulary recognition, which in turn supports multimodality as a vocabulary recognition facilitator. Overall, when captions were presented first, participants scored significantly higher on the aural vocabulary test, though results on the written vocabulary test were not statistically significant. As for comprehension in relation to language and order of captions' presentation, results on vocabulary acquisition, though not statistically significant, indicate that first viewing appeared to be more beneficial for Russian and Spanish, second viewing for Arabic and Chinese; and a two-way ANOVA resulted in no significant interactions between language, year, and caption order.

Concerning orthographic differences between participants' native and target language, researchers speculate that it is easier to take notice of a previously unknown word in L2 that is similar to L1 script when written, rather than with L2 scripts that are different from L1 when spoken. In their opinion, the reason could be because orthography of a language affects the digestion of language input differently when simultaneously presented through multimedia.

Therefore, researchers suggest that when L1's orthography is different than that of the target language (L2) and the written symbols of the latter are not well mastered, learners rely more on the aural than on the written mode as an initial source of information.

Based on the interview data gathered, five themes were identified: learners' need for multimedia input, written input in the form of captions reinforces aural input, positive or negative effect of captions on learner's attention to either forms of input, captions' aid in analyzing language and finally, captions considered as "crutches" by learners. Researchers elaborated on the last two themes, as they were not part of the research questions, but emerged as a result of the interviews. Interviews revealed that captions achieved what speech many times fails to do. Speech sets boundaries for words resulting in chunks, which in researchers' view reduces the burden of analyzing bits, thus linking form and meaning. Therefore, they believed that their study may help explain their claim of the greater depth of processing provided by captions. This led them to quote Vanderplank (1993) in support of captions being unaffected by accents or audio quality, which facilitates comprehension. The second emerging theme was the notion of "crutches" and how learners used captions as a scaffold to comprehend the aural message that might sometimes be complex, again linking form to meaning.

Thus the study confirms past research on the benefits of captions in general. On the issue of proficiency level, researchers wondered whether it was a question of the complexity and content of the video/audio, combined with the appropriateness of choice of captions, e.g. captions of key words only, rather than a proficiency level per se. They believe that captions allow for individual differences between learners in their preference to utilize one mode of input over the other.

They concluded their work by encouraging replications of their study with learners of different writing scripts and proficiency levels. In their opinion, future research should address several other questions, e.g. what learners focus on when they watch captions, what individual differences and learning strategies aid in the utilization of captions, the number of viewings in relation to acquisition, and whether learners could be trained to use captions as a learning tool. They warned of the use of a pedagogical tool via technology in the language classroom without a full understanding of its implications.

Bianchi & Ciabattoni (2008)

This study addressed the research question concerning which of the two text-aids, subtitles or captions, is more appropriate for different proficiency levels to acquire aspects of L2, English in this study. Although 107 Italian students between ages 18-45 initially volunteered for the study, results were satisfactorily obtained by only 85 participants. A pre-test of four parts, testing various language aspects, was administered to determine the proficiency level of the students and placed them in respective levels. Due to the reduced number of volunteers, the proficiency level groups were not even in number, with 17 in the novice, 45 in the intermediate and 23 in the advanced level. However, a closer proportion to the target population was obtained for the group assignments. TG1 with video and captions had 24 participants; TG2 with video and subtitles had 33 participants; and CG without any text-aids had 28 participants. Students worked separately on computers with headphones, watching two clips from English movies: one with image-dependent context (Harry Potter) and one with image-independent context (Fantasia). CALL program V.A.L. (View and Learn) and C.A.S.T.ing (Caption and Subtitle Test-ing) were used, where the latter had been especially designed for this experiment to facilitate its administration.

Students then completed MC questions pertaining to content comprehension, vocabulary acquisition, and lexico-grammatical context phrases that test popular expressions in L2, which is not going to be addressed in this review. A week later a proficiency test was administered, similar to the pre-test, to look for long term effects, which will also not be tackled in this review. Mean scores were used to analyze the results.

In content comprehension, novices benefited most by subtitles, especially in the Harry Potter movie. In the intermediate level, captions and subtitles equally scored better than the CG in the Harry Potter movie, with subtitles scoring higher than CG and TG1 respectively in Fantasia. Advanced students favored subtitles, followed by captions, and both performed better than the CG, regardless of the film's context.

In vocabulary, text-aids were not the most useful method for novices, as the CG outperformed both TGs, favoring subtitles. For intermediate students, subtitles were the most beneficial only when the video did not reveal any clues, as with Fantasia. With Harry Potter, the three groups performed the same. Advanced students performance on vocabulary was the same for all three groups.

The researchers thus found that their experiment supported some past findings. However, the different variables presented in their study supported the notion that depending on context, acquired skills, proficiency level and most of all, learning strategy to process multimodal information, the most relevant text-aid can be determined.

Guichon & McLornan (2008)

34

In their strong belief concerning the role multimedia (video, audio, and text) in L2

acquisition, where the three modules should interact to achieve higher performance, researchers

conducted this pilot study with French students, aged 20, on their acquisition of English as L2.

The research questions focused on whether intermediate students can make use of captions

and/or subtitles to comprehend L2 authentic material and whether they can process multimodal

information. They hypothesized that students could, and thus hoped to suggest

recommendations for CALL programs, which they believed was a somewhat neglected area in

linguistics. Based on a pre-test English proficiency test, 40 of 85 students meeting the

intermediate criteria were chosen. They were then divided into 4 equal groups to test the

research questions, as well as to what extent captions and subtitles enhanced or hindered L2

acquisition in the content aspect of language. For the focus of this review, the group that was

presented with audio only has been omitted, as it does not meet the multimodality nature in

question. Thus the review focuses on 30 students, compromising TG1 (video with captions), TG2

(video with subtitle) and CG (video only). After being given instructions in L1, students watched

and listened twice to a 3 minute BBC program, during which note taking was allowed in either

language. Finally, they were asked to summarize the content of the video in L2. Results were

tested according to 35 semantic units, where grammatical errors were not taken into

consideration. Results indicated that both TG1 and TG2 outscored CG, with the subtitles group

performing slightly better. Researchers also concluded that since the video was not directly

related to the audio (image-independent context), increased comprehension was hindered due

to the split-attention effect, as mentioned by Moreno and Mayer (1999, cited in Guichon &

McLornan, 2008). The most noted finding, though, was that similarities between English and

French words that did not necessarily have the same meaning caused some lexical confusion, which indicted that text concentration over powered audio concentration. Due to the small size of the sample, no statistical analysis was conducted. Researchers suggested recommendations for future CALL designs based on the outcome of their study, emphasizing that the choice should be left up to the students themselves.

Taylor (2005)

The main goal of this study was to shed light on learning strategies used by students to comprehend material presented for multimodality, through the use of captions. The research questions focused on whether students comprehend more when presented with captions. If so, how does the novice level differ in their content comprehension from intermediate, and can intermediate students superiorly use learning strategies to process multimodal information. The researcher's hypothesis was that intermediate students would be able to comprehend more, as they are better equipped with learning strategies due to their presumed length of study, though he did not make the mistake of associating length of study with proficiency level. He merely linked length of study to longer L2 exposure, and thus more language familiarity. For better comparison, one-year students are labeled in this study as "novice", and 3 / 4-year students as "intermediate". For this study, 85 native English-speaking students that were enrolled in a one-year Spanish class were chosen. Since they were all in their second semester at university, the average age estimated for this review was 18, based on the average age of their peers at the American University in Cairo (AUC), for better comparison between the studies. It is not clear, however, how the procedure and results only focused on 71 students of the 85. Students were

volunteers and were randomly assigned to a TG of 35 participants (initially 44) that watched a 10-minute video with captions, and a CG of 36 participants (initially 41) that watched the same video without captions. Data gathered on the students reflected that there were 41 at the novice level, of which 17 were in TG and 24 in CG; and 30 at the intermediate level, of which 18 were in the TG and 12 in CG.

Prior to the experiment both groups were given a vocabulary list. During the viewing of the clip, they were asked to write down anything in L2 that they had understood from the content, which was labeled "free recall". After watching the video they were asked to answer MC questions presented in L2 that would reflect their comprehension of the text. They were then asked to write how the video and text helped them with content comprehension. The results showed no difference on content comprehension between TG and CG as a whole, based on free recall and multiple choice questions. Closer analysis indicated that intermediate students outscored novices in the TG, which indicates better use of multimodality with increased years of study. Moreover, 50 % of intermediate students found multimodality useful, as compared to 23% of novices. Only 11% of intermediate students found captions distracting, as opposed to 35% of the beginners. This might explain the fact that about 28% of novices and 24% of intermediates nearly blocked the sound when presented with text-aids.

Taylor interpreted these findings to be supportive of previous research, but his most prominent interpretation was the fact that only 2 years of study could help students use better strategies with multimodality. Since length of study does not equal proficiency, then novice

students should be trained early in their studies to use captions, realizing that the ultimate goal is not complete comprehension but rather a top-bottom one.

Steward & Pertusa's abstract (2004)

Their study on intermediate students learning Spanish with captions (TG) as opposed to standard subtitling (CG) showed slight difference in terms of vocabulary acquisition. However, students pointed out several benefits to using captions that researcher recommends to be further investigated.

Markham & Peter (2003)

Before Markham conducted this study with Peter in 2003, he earlier conducted a study in 1989 on university students of various proficiency levels studying ESL, to test comprehension using captioned videotapes. Results indicated substantial benefit for all proficiency levels. Later in 1992-1993, he further tested comprehension with intermediate and advanced ESL students with captioned videos of varying difficulty, represented by low and high audio/video correlation. Results indicated that regardless of proficiency level, low audio/video correlation yielded the best results.

The purpose of this study was to explore the effects of captions and subtitles on L2 content listening and reading comprehension. The research question focused on how comprehension (DV) was affected by any of the three IV (captions with video & audio, subtitles with audio & video, video only). A pilot study had been conducted earlier to determine the points upon which comprehension was to be tested. Of the 213 university students (freshmen to

graduates) studying Spanish who volunteered for the study, 95 % were native English-speakers (L1). All were of intermediate level. They were divided among three groups as follows: 85 in TG1 (L2 video with L2 captions), 65 inTG2 (L2 video with L1 subtitles), and 63 in CG (video only). A 7-minute video in Spanish (L2) was presented to the participants and a multiple choice exam of 20 items was handed out, where the teacher read the questions out loud twice. For each item, 45 seconds were allotted for the answer. Multiple choice questions had been chosen as the best means of content productivity measures in order to concentrate on comprehension ability and not allow poor writing skills, as would be expected of intermediate students, to get in the way of content expression.

Statistically analyzed results indicated that TG2 (subtitles) significantly outperformed TG1 (captions), which in turn significantly outperformed CG. Researchers concluded that subtitles and captions significantly enhanced comprehension and that students use both listening and reading skills in doing so. However, they also pointed out that for comprehension to take place, students needed to be literate in L1 and of intermediate level in L2, provided that their reading skills outperform their listening skills in the latter.

Since TG2 outscored the other two groups, researchers questioned whether there was a relationship between proficiency and dependency on text-aids. Would an L2 learner begin their studies with subtitles, and as his proficiency increases move to captions and from there to no text-aids? To test this, a lengthy study would be needed, involving the same participants over time and/or testing the same participants in the three different groups simultaneously. Researchers concluded by suggesting further research on the use of DVD in teaching L2,

especially in recent times, with the many options available with DVD and its multilingual audio tracks and texts.

Jones & Plass (2002)

This study tested the effect of multimedia on the enhancement of listening comprehension and vocabulary acquisition, as well as its manipulation to achieve this goal.

Researchers mentioned numerous software packages specifically designed by other researchers to achieve this goal, e.g. *The Listening Tool* by Otto and Pusack (1992) and *¡Atrevete!,* developed by Heining-Boynton, Cowell, and Torres-Quifiones (1999). Some researchers, e.g. Guillory (1998), found that key words as captions enhanced comprehension, whereas for others, e.g. Chung (1998), it is by adding pictorial information. Others, e.g. Lynch (1995, 1998), believed that it is by the usage of particular listening strategies that the results are best.

In this study, researchers argued that by adding a visual mode (pictures) and a verbal mode (written text) to an audio passage, listening comprehension and vocabulary acquisition are enhanced. Accordingly, they hypothesized that listening comprehension and vocabulary acquisition would be enhanced when students use both modes rather than only one.

As a regular class activity, 171 English-speaking Southern University students in the US, studying French in their second semester, were randomly assigned to 4 groups: audio only, audio with text, audio with picture and audio with text and picture. For the purposes of this literature review, only groups 3 and 4 are going to be addressed, since the first two groups dealt with audio only.

A pre-treatment vocabulary test resulted in low prior vocabulary knowledge, *M* = 3.08 out of a maximum score of 25, with no difference between groups 3 and 4. A vocabulary test (identical to the pre-treatment) and a recall protocol test administered directly after treatment tested vocabulary acquisition and comprehension. The same two tests were repeated 3 weeks later to test retention, which will not be addressed in this literature review. Two experienced French instructors chose 63 propositions (semantic units) to represent the main ideas of the passage. Tests were scored by giving one point to each correct vocabulary and each correct proposition identified.

The study was conducted in a computer lab using a 20-minute, authentic historic passage consisting of 331 words. The passage was an encounter between LaSalle and the Quapaw Indians, as it was written in 1682, recounted by a female French native speaker. The study was conducted over a period of two consecutive days, during regular class hours. On the first day, students filled out a questionnaire with their personal data at their leisure, and then were given 8 minutes to complete the pre-treatment vocabulary test. On the second day, after randomly assigning the students to one of the 4 groups, students were given 14 minutes to listen to the passage, during which they were to use the annotations available to the group to which they belonged. Each working on his/her own computer, the students were presented with 5 separate screens containing 25 key words collectively on the left side of the screen. These key words were accompanied by dots indicating missing words that imitated the flow of the passage dialogue. From the right side of the screen, students were to drag the key word to a camera icon to activate its visual presentation via picture and/ or to a text icon to activate its verbal presentation via English translation. In both cases, students had the option to listen to the key word being

41

pronounced. Eight minutes were then given to summarize the passage in English. The whole

procedure, over two days, took 75 minutes.

For the two post-treatment tests, a multivariate analysis of variance (MANOVA) with the

correct answers was conducted. Post hoc comparisons (Tukey HSD) resulted in statistically

significant outperformance of the group using visual and verbal annotations (group 4) over the

visual group (group 3) for vocabulary acquisition (24.3 % of the variance was accounted for

through the visual mode and 20.9 % through the verbal mode). In terms of comprehension, the

same comparison resulted in marginally significant outperformance (visual mode rendered 27.4%

of the variance versus 6.5% by the verbal mode).

Researchers believe that this study offers practical implications by providing evidence

relevant to the design of multimedia instruction for L2 learning and by suggesting the learners'

option to choose the multimodality mode suitable to the individual. As for the theoretical

implications, the study provides evidence supporting Mayer's Generative Theory of Multimedia

Learning (1997, 2001) and its extension from reading to listening comprehension in L2

acquisition. They concluded by recommending future research addressing cognitive load imposed

by aural, visual (pictorial), and verbal (written) information, in addition to assessing the extent

and effect of individual differences in choosing and benefiting from different annotations.

Al-Seghayer (2001)

This study examined whether still pictures or videos yield more effective results in ESL

vocabulary acquisition. Though the study itself did not investigate the use of captions, per se, in

vocabulary acquisition, it is important to include in this literature review as it addresses the role

of video coupled with written word in a multimodality environment as an aid to vocabulary acquisition.

Al-Seghayar draws on two studies. The first being Wittrock's (1990) study of Generative Theory, suggesting that learners, when presented with visual and verbal information, e.g. video and text, engage in three major processes of selection, organization and integration. Second being Paivio's (1986) Dual Coding Theory, stating that presentation of material in two forms, e.g. video and text, promotes learning.

Thirty students of five different native languages (Arabic, Korean, Japanese, Thai and Spanish), that enrolled in the intermediate level of English as L2 at the University of Pittsburgh, were conveniently chosen for this study. To avoid students' conscious studying of new words, they were not informed of the vocabulary test in advance. Students' instructors were consulted regarding students' prior knowledge of the words. In a computer lab, students individually read a short passage of about 1300 words on a Native American boy. Participants took two vocabulary tests concerning recognition and production, divided under three conditions: text alone, text with still pictures, and text with video. The recognition MC test consisted of 15 words, five of which fell under one of the three conditions. Participants were to choose the correct definition of a word that was presented as either text only, text with still picture or text with video. In the production test participants had to define 6 words from the story, each two falling under one of the three conditions, i.e. annotated with either text (written definition), text and still image, or text with video. Tests were scored on the basis of "only right" answers. A post-test questionnaire served to rate the usefulness of the three conditions by students. To verify answers to the questionnaire,

face-to-face interviews were conducted. Results of both tests came from using the Friedman test, a non-parametric analog to a repeated-measures one-way ANOVA, and indicated that videos were most effective in acquiring new vocabulary. Researcher explained the findings by referencing three theories/suggestions/hypothesis: Paivio's Dual Coding Theory (1986), which is based on the effectiveness of learning by connecting two forms of mental representation (verbal and visual); McCombs' (1972) and Day's (1982) suggestion that when curiosity is stimulated, acquisition of information is enhanced; and Sherwood, Kinzer, Hasselbring, & Bransford's (1987) Redundancy Hypothesis that suggests that retention of information takes place upon receipt of the same information twice. Based on the findings, researcher recommended the consideration of two principles: design of instructional material using integrated media to accommodate individual differences, as per Pusack and Otto (1997); and mode of presentation selected to support a particular cognitive process, as per Chun and Plass (1997).

Accordingly, the study recommended replication with a larger number of participants of the same background and/or different proficiency levels to allow for generalization, alternative assessment techniques to cover various aspects of vocabulary knowledge, study of participants' individual differences and study path, and long-term retention.

Table 2 provides a comparison summary of the studies reviewed above on content comprehension and vocabulary acquisition.

Table 2

Comparison Summary of the Studies on Content Comprehension and Vocabulary Acquisition

Study/Year	L1	L2	Level	Results
Winke, Gass & Sydorenko (2010) (use of captions on content comprehension and vocabulary)	English	Spanish	Intermediate-advance	Captions significantly improved content comprehension and vocabulary acquisition (the higher the difference between L1 & L2 orthography, the more learners depend on the aural message rather than the written one for clues)
Bianchi & Ciabattoni (2008) (use of captions and subtitles on content comprehension and vocabulary)	Italian	English	Novice	Benefited from subtitles in terms of content comprehension only. No vocabulary acquisition
			Intermediate	Captions and subtitles same benefits in content comprehension. Subtitles more beneficial with image-independent videos in terms of vocabulary
			Advanced	No benefits from either captions or subtitles

(continued)

Table 2

(continued)

Guichon & McLornan (2008) (use of captions and subtitles on content comprehension)	French	English	Intermediate	Captions and subtitles almost the same benefit. Image-independent videos yielded least benefits.
Taylor (2005) (use of captions on content comprehension)	English	Spanish	Novice Intermediate	No benefits Benefited from captions
Steward & Pertusa (2004) (use of captions and subtitles on vocabulary acquisition)	English	Spanish	Intermediate	Slight benefit of subtitles over captions
Markham & Peter (2003) (use of captions and subtitles on content comprehension)	English	Spanish	Intermediate	Benefits from subtitles more than from captions, though latter beneficial.
Jones & Plass (2002) (use of text-aid in content comprehension and vocabulary acquisition)	English	French	Intermediate	Benefits in terms of vocabulary acquisition, but not so much in terms of content comprehension
Al-Seghayer (2001) (use of text-aid in vocabulary acquisition)	Various	English	Intermediate	Text-aid combined with video significantly improved vocabulary acquisition

From the above table, it's obvious that all the studies agree that text-aids are beneficial in

content comprehension and vocabulary acquisition. However, they differ in terms of degree of

benefit and in preference of the text-aid. Also some found that image-independent videos where more beneficial, whereas others saw it as a distraction. The one study that addressed orthography found that the different writing script of L2 from L1 forced the learners to rely on the aural message rather than the written one. It is to be noted that all the studies were conducted with European languages as L2. The thesis will be testing SLS (captions) as the preferred text-aid with an image-independent video on a non-European L2 (Arabic) and compare it to the studies' results; and whether the different writing scripts will push the learners towards the aural message.

The effect of L1's orthography on L2's reading process

McBride-Chang et al.'s abstract (2008)

Several tasks, including word reading in both Chinese and English, phoneme measures and syllable detection, were administered to 211 Chinese children from Hong Kong, aged 4 and 5. Results indicated that even within the same children, tone detection played the major role in Chinese character recognition, while phonemes played the role in English word recognition. These findings contradict the idea of universality for L1 phonological transfer to L2 reading acquisition.

Wang & Koda.'s abstract (2007)

To examine the effect of L1 on L2 reading progress, researchers tested word recognition skill in a naming experiment an auditory category judgment task with Korean and Japanese college student learning ESL. Koreans use Hangul, a phonemic alphabet like the English alphabet,

though sometimes referred to simultaneously as an alphabetic and a syllabic script, as per Tzeng

and Wang (1983). In contrast, Japanese uses a combination of three scripts: Kanji, a logographic

script, and Hiragana and Katakana, two syllabic scripts. Overall, Koreans outscored Japanese,

which suggests that though reading is a universal process, L1 does affect the reading skills of L2,

especially when one uses an alphabetic writing system and the other a non-alphabetic.

Tzeng & Wang (1983)

Through *Stroop* interference tasks, where the names of colors are written in an ink of a

different color, researchers have demonstrated that the proficient reader is not able to activate

the semantic code and thus name the colors upon seeing the word. The control group had to

name the color upon seeing a patch of the color. Without exception, it took longer to name the

written color than to name the patched color. By subtracting the time to name the patched color

from the time it takes to name the written color, they reach the magnitude of interference and

considered whether it would differ among various scripts. Their results indicated that not only do

logographic scripts render greater interference than both syllabic and alphabetic scripts, but also

that there is a systematic relationship between the interference and the degree of similarity

between scripts, even if they fall under the same type of scripts, e.g. logographic, syllabic or

alphabetic.

Other experiments with numbers in Chinese, Spanish and English languages were

conducted using the numbers 6 and 9, where participants were asked to identify the larger

number. The numbers were first presented in Arabic numerals in the same font size (CG), then

with the number 9 written larger in Arabic numerals and finally, both numbers spelled out

instead of the Arabic numerals. For English, no interference was observed in the latter part of the experiment, whereas for Chinese, using logographic script, interference was observed. To verify the data, the experiment was carried further with Chinese-English bilingual readers, with Chinese as their L1. Not only was interference on Chinese logographs and Arabic numerals observed as expected, but also, oddly enough, on the English alphabet. To test whether this last finding is a result of English being acquired at a later stage in life or whether processing strategies of L1 had been transferred to L2, the experiment was conducted with Spanish-English bilingual readers with English spelling, Spanish spelling and Arabic numerals. Results indicated that interference singularly appeared with Arabic numerals, thus supporting the reasoning that the transfer of L1 processing strategies to L2, in the case of the Chinese-English bilinguals.

Accordingly, researchers additionally expected greater memorial activity in the visual system when processing logographs than when processing alphabetic characters. A series of recall tasks conducted with English and Chinese native speakers supported the superiority of visual presentation over auditory presentation for Chinese, thus supporting the idea that different scripts employ different memory mechanisms.

Researchers used the half-field technique (T-scope) in the lab to study word recognition in various scripts as well. As expected, for alphabetic scripts, e.g. English, Spanish and even Arabic and Hebrew that run right to left on the page, the right visual field (RVF) responsible for sequential-analytic ability is superior. In contrast, for Chinese logographs recognition, superiority goes to the left visual field (LVF), specialized in Gestalt-holistic match of visual pattern. It is striking to note that tests with the Japanese language indicated that when exposed to their

49

syllabic Kana script, RVF was dominant, as opposed to when exposed to their logographic script

Kanji, LVF was dominant.

These findings suggest that the linguistic code of reading relies on semantic, phonological,

as well as orthographical information.

Fisherman et al. (1982)

Though the focus of this report was a comparative ethnography of minority

ethnolinguistic schools, where the subjects were children of grade 1 mainly, it is important to

include it in this review. It is in line with the subject of study, especially because 80% of the

groups studied had English as their L1.

Over a period of two years, researchers studied through observation, unobtrusive

conversation and self reports the factors, e.g. societal, that might affect the acquisition of

biliteracy in four schools in the Greater New York Metropolitan area. Of these factors, for the aim

of this review, only the one pertaining to different scripts will be addressed. Of the four schools,

the French-English school served as the control group, whereas the treatment group consisted of

the other three: Armenian-English, Greek-English and Hebrew-English. Data was gathered by

more than one researcher and was validated for reliability, though the self reports had only face

validity without receiving inter-observer consistency. Researchers' null hypothesis was that two

different scripts would not hinder reading and writing acquisition. The variation considered in line

with this review was the overall, different writing system in comparison to English. Of these

differences were the existence of separate printing and writing systems, and the existence of a

separate upper and lower case systems. Results confirmed the null hypothesis, as discrepant

writing scripts rarely obstructed reading acquisition. Moreover, they observed that any problems

with L1 reading were not transferred to L2.

Table 3 provides a comparison summary of the studies reviewed above in terms of effect

of L1's orthography on L2's reading process.

Table 3

Comparison Summary of the Studies on Effect of L1's Orthography on L2's reading process

Study/Year	L1	L2	Results	Implication
McBride-Chang et al. (2008)	Chinese	English	In word recognition, tone detection was crucial for L1; phonemes for L2	contradict the universality of L1 phonological transfer to L2 reading acquisition
Wang & Koda (2007)	Korean/ Japanese	English	Korean with their semi-alphabetic script outscored Japanese with their logographic and syllabic scripts in word recognition.	reading is a universal process, but L1 does affect reading skills of L2, especially when one uses an alphabetic writing system and the other uses a non-alphabetic one.

Table 3

(continued)

| Tzeng & Wang (1983) | Chinese/ Spanish | English numbers spelled out | logographic scripts render greater interference than both syllabic and alphabetic scripts, but also that there is a systematic relationship between the interference and the degree of similarity between scripts, even if they fall under the same type of scripts, e.g. logographic, syllabic or alphabetic. | processing strategies of L1 had been transferred to L2. |
| Fisherman et al. (1982) | English | Armenian/ Hebrew/ Greek | two different scripts did not detain the reading and writing acquisition | L1 has no effect on L2 reading processing |

From the above results, the only two studies that did not find any transfer of L1's reading

processing strategies to L2 taking place, were studies conducted on children. Thus all the studies

on adults confirm that with different writing scripts, the writing script of L1 does affect the reading processing of L2, where the latter's writing script is different than that of L1. The thesis will test whether this is applicable to non-European/non-Asian L2, where both L1 and L2 share an alphabetic script, but the latter uses a non-Roman alphabet.

CHAPTER 3

METHODOLGY

Design of the Study

This study examines the effect of SLS on AFL content comprehension and vocabulary acquisition at the intermediate level (mid and high) using listening skills supported by reading skills. ACTFL Arabic proficiency guidelines (1989) assume that learner comprehends MSA. Guidelines for listening are based on occurring in an authentic environment with a normal rate of speaking; for reading it is assumed that all texts are authentic and legible (p. 379 and p. 383). Definitions of ACTFL Arabic proficiency guidelines (1989) intermediate level for listening (p. 380-381) and reading (p. 384-386) are abridged by researcher in a table (Appendix 1).

To determine the effects of SLS on comprehension, written L1 summaries based upon viewing and note-taking, while and in between viewings, will evaluated in terms of 23 semantic units (SM). To determine the effects of SLS on vocabulary acquisition, i.e. new vocabulary that may be acquired through the viewing, there will be testing through comparison from pre- and post-treatment identical MC tests. A post-study questionnaire (for TG) and questions (for CG) will measure students' attitude towards texts aids, SLS in particular, and students' recommendations to help draw an example of beneficial multimodality to be used in AFL acquisition.

Participants

Twenty-seven students from AUC's ALI, with either English as their L1 or as their language of education since childhood at the intermediate level, were conveniently chosen and randomly assigned to either TG or CG. The initial admittance placement exam, taken prior to the fall 2010 semester, already assigned students to the intermediate level, whether mid or high. All the students were advised that the study is totally unrelated to course grade.

The Control Group (CG) that was not exposed to SLS consisted of 12 students. The Treatment Group (TG) that was exposed to SLS consisted of 15 students. Each group had students from both intermediate-mid and intermediate-high proficiency levels, as shown in Figure 1.
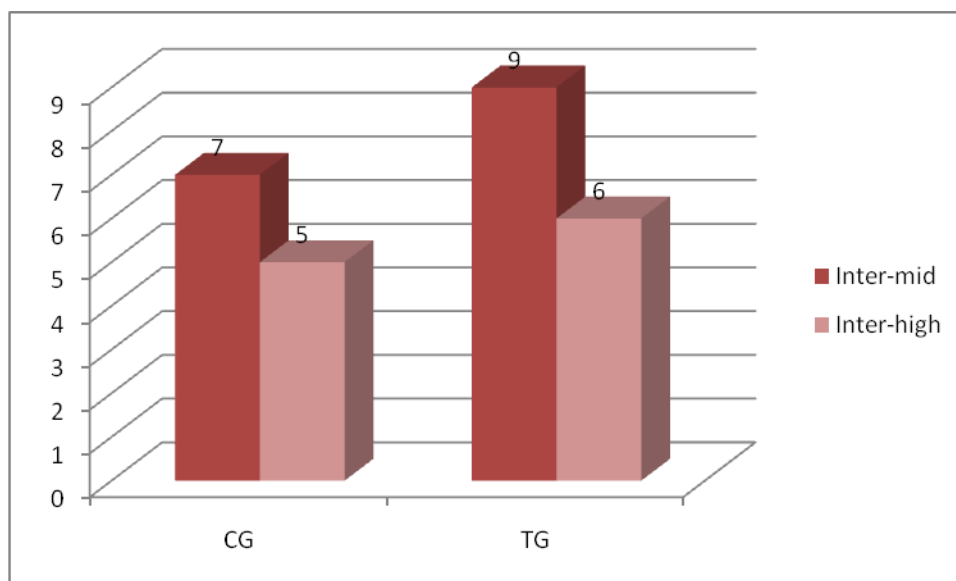

Figure 1. Distribution of proficiency at the intermediate level.

All the data henceforth is derived from students' individual background questionnaire, except if otherwise indicated. The average age of students is 24.8 and the average years of study for AFL is two. All of the students are enrolled in an extensive AFL program of 11-20 hours of class

per week, of which 3 hours per week are dedicated to aural media, where students watch and listen to authentic news items; and teachers use the same book and teaching techniques that do not involve the use of captions. The study was conducted between 8:30 am and noon during the 8th and 9th weeks of the 15 week fall 2010 semester, which means that all students had between 24 to 27 hours of aural media exposure by the time the study was conducted. However, none of the participants had used SLS in class, though 25% indicated having used it at one point in their educational life (from students' post- treatment questionnaire/questions). All students use the textbook *Media Arabic: Volume one,* compiled by Nariman Al-Warraki and Abbas Al-Tonsi (2005) apart from other textbooks: *al-Kitāb fī ta'allum al-'Arabīyah* by Kristen Brustad, Mahmoud Al-Batal and Abbas Al-Tonsi (2004), *al-Kitab al-asasi fi ta'leem al-'Arabiyah li ghair al-nateqeen beha* by Elsaid Badawi and Fathi Yunus, *Haya naqra'* by Abbas Kazem (2000) and *Lehrgang für die arabische Schriftsprache der Gegenwart* by Wolfdietrich Fischer and Otto Jastrow (1996) as shown in Figure 2.
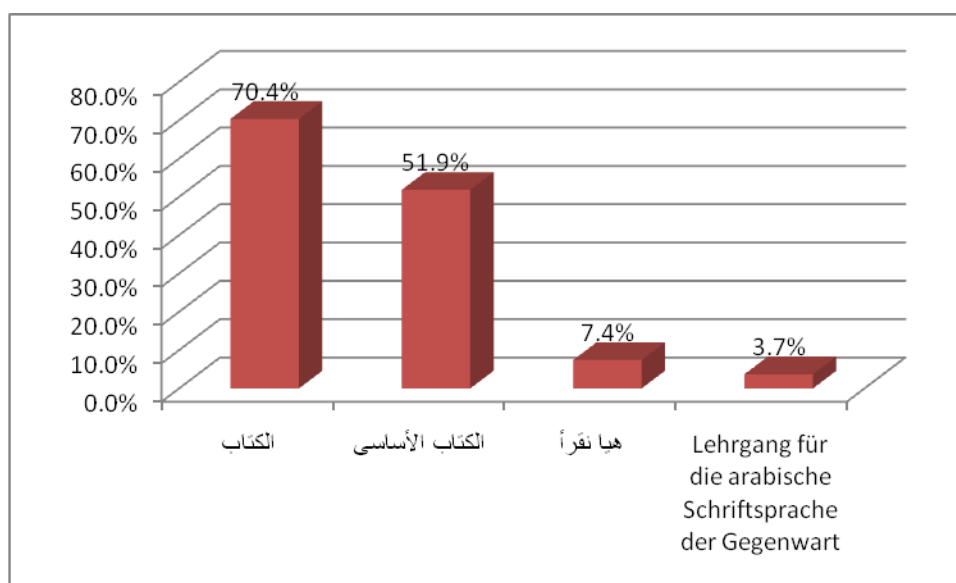
Figure 2. **Percentage of AFL textbooks as used by students.**

Of the 27 students, 22 were native English speakers. Of the five non-native English speakers, two spoke English excellently and 3 good, although the latter's childhood education was in English. It is to be noted that the explanations given textbooks used at ALI, when there is a need to explain in any other language than Arabic, are given in English. Also, English is the language that teachers revert to in class when and if clarification is needed. Figure 3 and 4 show the demography of students per nationality and per L1.
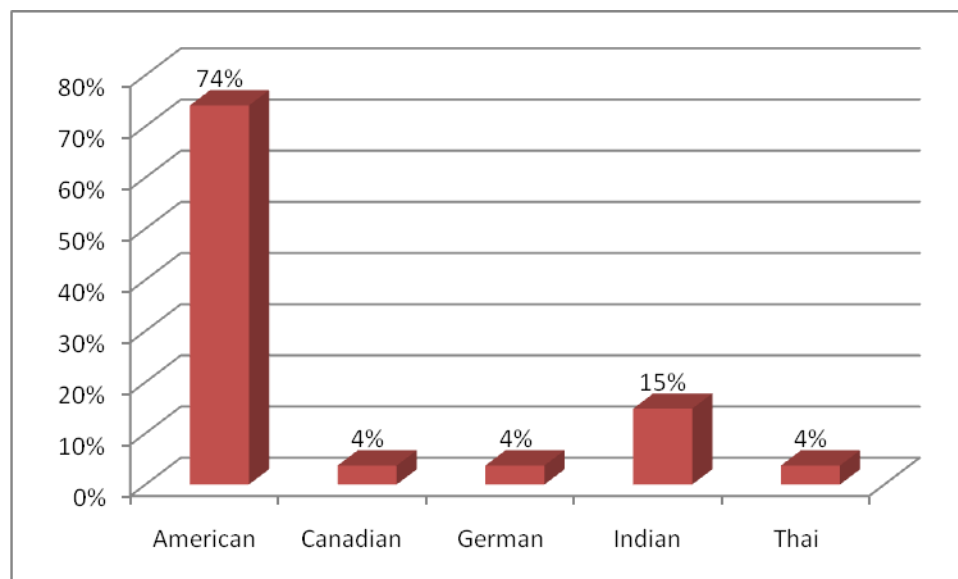
Figure 3. **Students by nationality.**
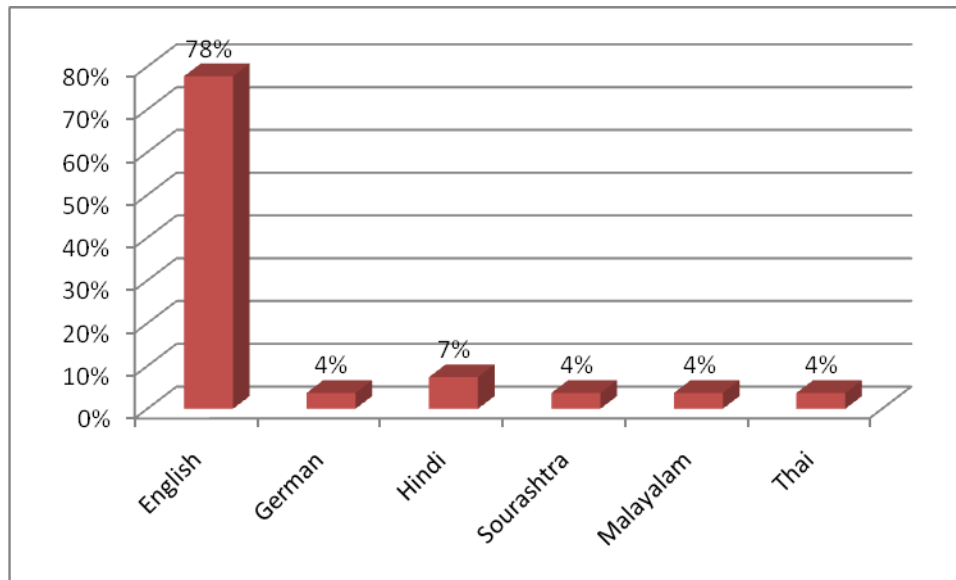
Figure 4. Students by L1.

Figure 4 indicates that 82% of participants use alphabetic Roman writing script. The rest use Austroasiatic languages with semi-syllabic writing script, which is by default non-Roman. The majority of the students (70%) have learnt other languages ranging in fluency from "fair" to "excellent", or in linguistic terms, from novice to advanced proficiency levels. These languages include French, Spanish, Italian, Hebrew, Russian, Farsi, Tamil, Punjabi, Dogri, Urdu, Bengali and Turkish. Of these languages only two (Urdu and Farsi), familiar to three student, employ the same writing system as Arabic. However, only one student of them was in the TG exposed to captions, and this student indicated being fluent in speaking Urdu, but illiterate when it came to writing. One student (CG) falls under the category of "heritage" student, but was only exposed to Arabic after the age of 30 and was thus included in the study, which would not have been the case if she was a true heritage student. This indicates that the Arabic orthography of the captions in the study was unfamiliar to all participants of the TG, apart from their exposure to it in their AFL classes.

The last two points to consider are self-reports by participants regarding their competence in listening comprehension for CG and TG; as well as reading skill and comprehension for the TG. When students rated themselves on one or all, they chose "easily", "with some difficulty" or "with much difficulty". Figure 5 and 6 show their responses.
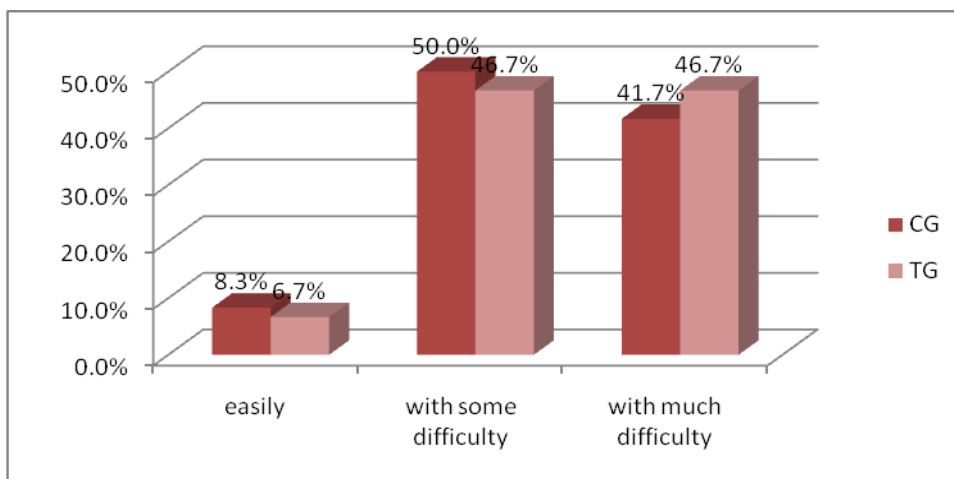
Figure 5. Students' self-reports on listening comprehension.

Figure 5 clearly demonstrates that at the onset of the study both CG's and TG's competence levels were extremely similar. It also demonstrates that the participants are in line with ACTFL Arabic guidelines cited above, in "limited understanding" and "can partially understand" the language.
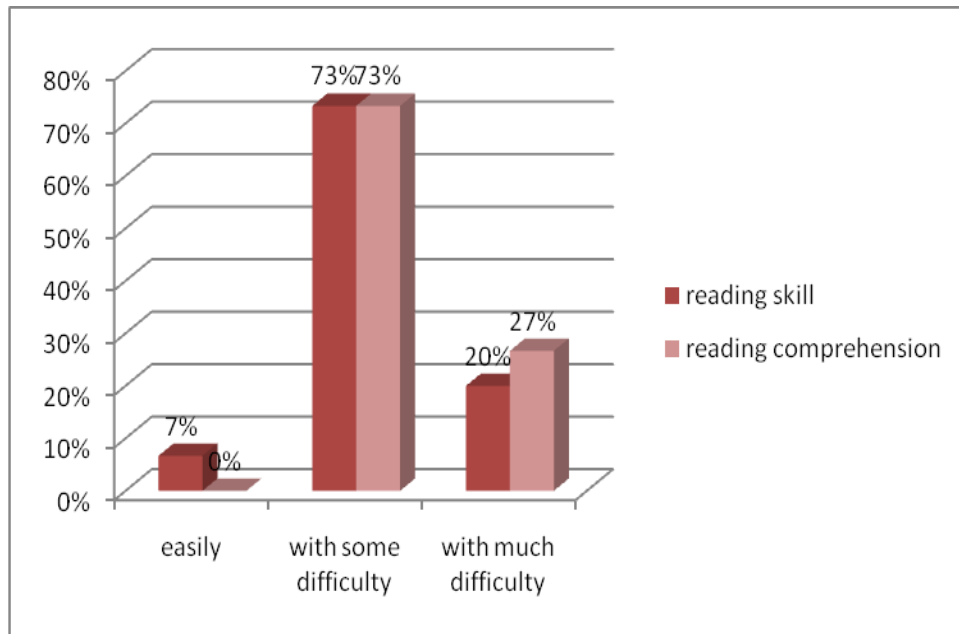
Figure 6 demonstrates that the majority of students rate their reading skill and comprehension as "with some difficulty", which is in line with ACTFL Arabic guidelines for intermediate- mid and intermediate- high in "sufficient comprehension" and "partial comprehension". Both figures support Garza (1991, cited in Danan, 2004): "Reading comprehension skills . . . are usually more developed . . . [than] listening comprehension" (241-243, 246). Garza speculated that captions can bridge the gap between the two by allowing the audio input to be more intelligible.

Instruments

Video

The material for this study is a 3:11 minute video in MSA, recorded from the Emirate channel *Al Aan* (www.alaan.tv), broadcasted on Nile Sat and Arab Sat with a membership on

www.youtube.com, from which researcher has downloaded and edited the program. The segment is from a short documentary program, *Shaimaa the Severely Treated Child* (initially 4:14 minute), concerning an Egyptian girl who was sent by her parents, before the age of ten, to work as a maid for a rich Egyptian family in California, as a means to pay off her family's debts.

شيماء ابراهيم فتاة مصرية أجبرت على العمل فى المنازل ...

Picture 1. **Shaimaa.**

The passage is recounted by two female voiceovers; one of the narrator and another voicing over in translation what Shaimaa, now over 18, is saying in English. The English heard throughout the viewing is "washing their clothes if there is dirty clothes and hanging them" and "start all over again and clean". The reason for choosing this segment is the fact that it shares the same pattern with aural media classes' material that students are exposed to, in terms of voiceover narration with some dialogue in between, length, authenticity, and consisting of main clauses with limited subordination. Moreover, the passage is not available in English, as per Jones & Plass' (2002) recommendation. Also, the audio is image-independent, as used in researcher's pilot study (2009) and other studies, e.g. Bianchi and Ciabattoni (2008). In other words, there was a low audio/video correlation.

The form of SLS used is closed captions, i.e. the captions were placed onto the video by a professional subtitling company, with no option to turn them on and off. Arabic captions were added to the video using *Final Cut* Pro on Macintosh computer. The video was converted to DVD using *Toast Titanium*. The font used is *Arabic Transparent*, size 46 and is white in color.

Picture 2. Font size and color.

Captions did not undergo editing and thus are 100% verbatim of 385 words (for transcript, see Appendix II). The speed of captioning is 121 WPM (word per minute), which is below the average 141 WPM, as per Jensema & Ramsey (1996), by 14.2%. There are 41 pop-up captions (as opposed to rolling captions), of which 7 (17%) appear as one line on the screen. Otherwise the captions are divided on two lines.

Picture 3. One-line pop-up caption.

Picture 4.Two-line pop-up caption.

The captions appear at the bottom of the screen, except in three instances where the name of the program appears on screen, so they are moved to the center of the screen. Researcher noted these instances in case students refer to them as factors for distraction. These instances amount to a total of 25 seconds of duration and cover a total of 7 pop-up captions as follows:

- instance 1- duration: 8 seconds-2 pop-up captions (at 00:09 min. of the video)

- instance 2- duration: 11 seconds-3 pop-up captions (at 00:42 min. of the video)

- instance 3-duration: 6 seconds-2 pop-up captions (at 02:02 min. of the video)

Picture 5. Instance of non-bottom screen caption

The video was shown to students during regularly scheduled class periods mostly in their normally assigned CALL supported "smart" classroom, after taking permission from the director of ALI and with the approval and support of the teachers, who incorporated the material into their lesson plans. As a token of appreciation, each student was given a DVD of an authentic Arabic movie, each different from the other, so together they could build a shared library. An Epson EMP 6110 projector was used to project the video on a screen, averaging in dimensions 123 cm x 95 cm.

Comprehension test

The comprehension test was a recall evaluation based on students' L1 written summaries. L1 (English) was chosen in order to isolate comprehension as a variable and not let students' L2 production competency (grammar, vocabulary and spelling) obscure the results. This method has been successfully used in other related studies, e.g. Chun & Plass (1996) and Lee (1986, cited in Jones & Plass, 2002).

Vocabulary tests

When choosing every test one has to consider its reliability, practicality and validity as per Pike (1979) and Scholz & Scholz (1981). Multiple choice (MC) cloze format was chosen and administered to both CG and TG. The two pre- and post- treatment vocabulary tests, consisting of 21 items, were identical (see Appendix IV). The multiple choice format is reliable, as there is only one correct answer. The students must only identify the correct answer without any further writing input responses, as in the open-ended cloze, as Pike (1979) has indicated. Moreover, it is

the chosen format for the Secondary Level English Proficiency Test: US/Overseas Edition (1990), since by being standardized it eliminates the risk of researcher's subjective interpretations. In terms of practicality, MC fits the design of this study; on the one hand by allowing isolation of the vocabulary as a variable, as per Hale (1988), and on the other hand by addressing two of the four vocabulary knowledge types Kitao & Kitao (1996) have identified (speaking and writing being the two active, listening and reading being the two passive). This study aims to test the two passive types, described by Kitao & Kitao (1996) as being oral (listening) and as graphic (reading). Pike (1979), by comparing MC format to the standard TOEFL tests using standard open-ended cloze format, validated MC, as both formats yielded the same results.

The vocabulary chosen was based on key words pertaining to the listening comprehension of the audiovisual passage. Two thirds of the total vocabulary the students by this level have been exposed to, either from regular textbooks, from the media book or as derivatives of the ECA through textbooks or face-to-face encounters. As students are exposed to audiovisual material during aural media classes three hours a week, most of the vocabulary chosen was media oriented, as per below in IPA.

Examples from the media: سداد الديون "sœdɑːd ʔœl-dejuːn" (repaying the debts), مقاضاة "moqɑːɖɑːt" (the act of filing a law suit), تبنى "tœbœnnœ" (to adopt), أفسد "afsœdœ" (to corrupt), اشتكى "ʔʃtœkœ" (to complain), ملائم "molɑːʔem" (appropriate), يتكوّن من "jœtœkawwœn men" (to consist of), معاناة "moʕɑːnɑːt" (suffering) أجبر على "odʒberœ ʕœlœ" (forced to), عاقب "ʕɑːqabœ" (to penalize), ثريه "θœrejjœh" (rich)

65

Examples from regular textbooks or derivatives of ECA: شغاله "ʃœɣɣœːlœh" (maid), ظلام "z̧alaːm"

(darkness), اناره "ʔinaːrah" (lighting)

Examples of estimated new vocabulary: عطف على "ʕatafœ ʕœlœ" (to care for), شتم "ʃœtœmœ" (to

insult), صفع "ʂafaʕœ" (to hit), الحمقاء "ʔœl-ħamqaːʔ" (the stupid one), تدفئه "tœdfeʔœh"

(heating), قاسى "qaːsi" (cruel), فى غنى عن "fi ɣenœ ʕœn" (can do without)

Each Arabic vocabulary item was presented with three distractors, in addition to the

correct answer. Distractors were either based on phonetics, e.g. for "z̧alaːm"[7] (darkness) the

distractor "z̧olm"[8] (unfairness), or on antonyms, e.g. for ملائم the distracter "inappropriate"

(appropriate) or from the same semantic field, e.g. for سداد الديون (repay the debts) the distractors

were "balance the accounts", "ask for loans" and "borrow money". To test prior knowledge of

keywords, students circled next to each item on the pre-treatment vocabulary test whether they

"know" the answer or "think" they know the answer. Educated guesses were recommended;

otherwise the question was left unanswered. Post-treatment, the same test was taken without

the "know/think" component.

Procedure

The experimental procedure was strictly identical for both groups as follows:

---

[7] In IPA
[8] In IPA

a. Explanation of test instructions and objectives/goals were given to students in L1 along

    with a test booklet of 10 pages containing an individual background questionnaire partly

    based on Pike's (1979), the two vocabulary tests, pages for notes on the viewing and

    summary, and post-study questionnaire/questions. Each test booklet had an ID number

    printed on every page that was preceded by the letter "C" for "control group" or the letter

    "T" for "treatment group".

b. Students filled out the individual background questionnaire (see Appendix III).

c. Students completed the pre-treatment vocabulary test.

d. Students viewed the video twice, during which note-taking in L1 or L2 was recommended

    (between the two screenings a break of 2 minutes was granted to allow for contemplation

    on the notes taken).

e. After screenings, students completed the post-treatment vocabulary test.

f. Pages 1 to 7, containing the individual background questionnaire and the two vocabulary

    tests, were then handed to researcher. Students kept page 8 with their viewing notes,

    page 9 for the summary and page 10 for the post-study questionnaire/questions.

g. Students then produced an as detailed as possible summary in L1, based on their notes,

    and were to hand it in to researcher the following day, along with the post-study

    questionnaire. For the TG, the questions related to their experience with SLS to test their

    attitudes and recommendations. CG had two questions to answer on whether they would

    have preferred to watch the program either subtitled or captioned, and if so, how they

    would have benefited from it (see Appendix V). Figure 7 gives an overall flowchart of the

procedure that took 30 minutes in class and about 20 minutes outside class for summary

and post-study questionnaire/questions.
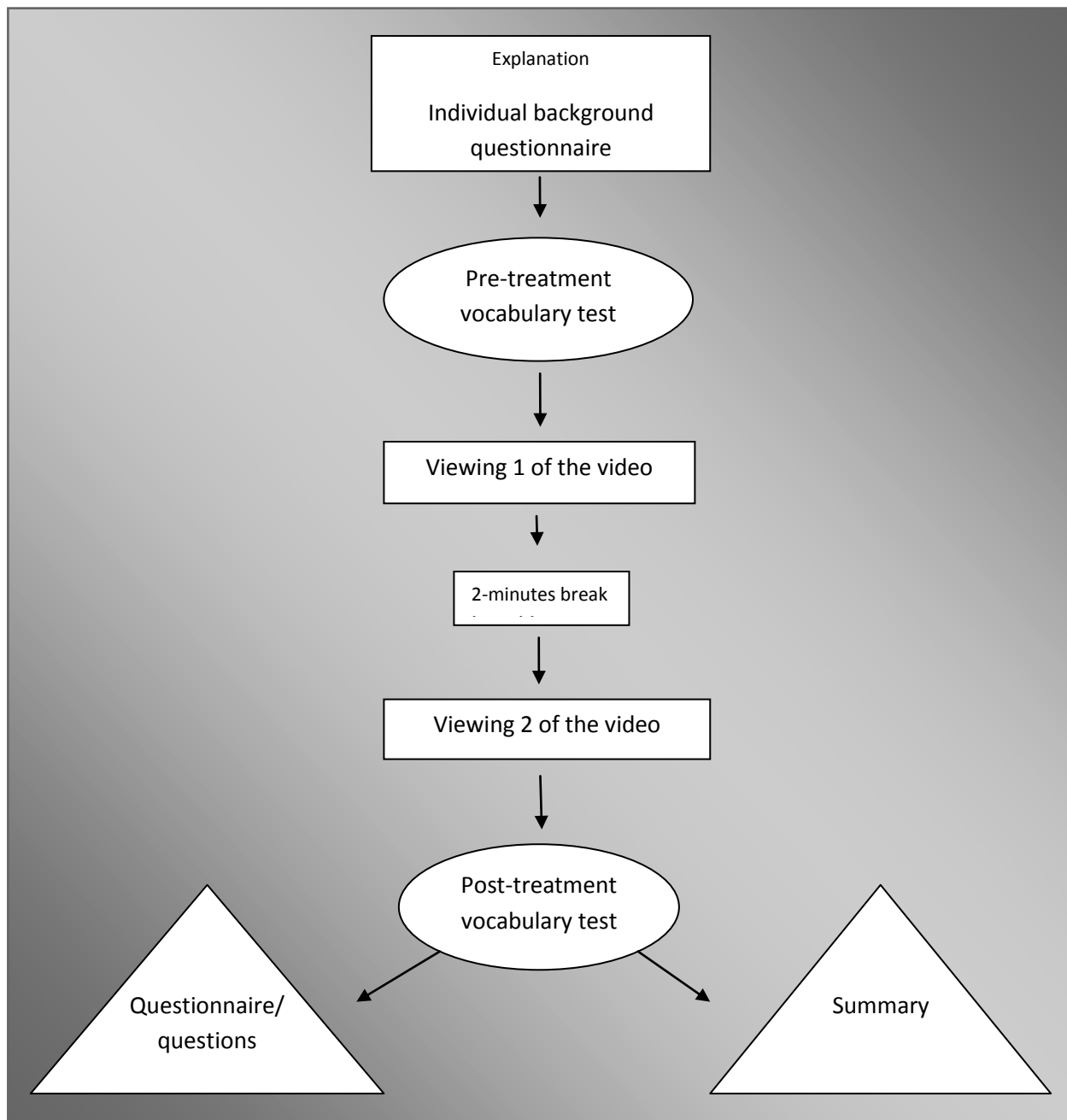
Figure 7. The study procedure.

Variables

The 3:11 minute video segment, with and without SLS, served as the Independent Variable (IV). Students' comprehension based on their L1 summaries and the vocabulary acquisition, as demonstrated through comparison of results between pre- and post-treatment vocabulary tests constitute the two Dependent Variables (DV).

Scoring

Comprehension test

The L1 summaries are scored in terms of 23 semantic units (SM) that were deemed essential to the researcher in the segment's content comprehension, on the basis of "who, what, when, where and why", as trained in media classes (Appendix VI). These units feature the main character, place & time, main theme and some details. Every mentioning or partial mentioning of a SM is given one point.

Vocabulary tests

Based on the "right-only" answers on the pre-treatment vocabulary test, a list of unfamiliar words, i.e. words answered incorrectly, was created for each student to establish a "raw" vocabulary list, as per Winke, Gass, & Sydorenko (2010). The degree of post-treatment vocabulary acquisition is calculated by giving each correct answer on the raw vocabulary list one point and dividing the total by the pre-treatment raw vocabulary list, thus obtaining a raw vocabulary score, following Smith (2004, cited in Winke, Gass, & Sydorenko, 2010). This proved to

be a more reliable way to measure prior knowledge of vocabulary than the "think" and "know"

that students were asked to circle on the pre-treatment vocabulary test. Not all words students

marked as "know" were answered correctly and, for some, the video seemed to confuse their

prior knowledge, where correctly answered items on the pre-treatment test were incorrectly

answered in the post-treatment test. The latter finding supports earlier studies that low

audio/video correlation (image-independent) did not prove to be very beneficial contrary to

Bianchi & Ciabattoni's (2008) results.

Analysis

Content Comprehension

The results of the content comprehension are obtained by conducting two *t*-tests with

different statistical and graphical software for verification.

Vocabulary Acquisition

For both CG and TG a *t*-Test and *one-way* ANOVA is used to determine the statistical

significance of the acquisition.

Treatment

The quantitative results on comprehension answer research question 1 on whether SLS

enhances or hinders L2 content comprehension with different orthographies in play. Quantitative

results also answer research question 2 on whether SLS enhances or hinders L2 vocabulary

acquisition, again with different orthographies between L1 and L2. Students' answers to the post-

study questionnaire (TG) and the post-study two questions (CG) will answer research question 3

(qualitative method).

CHAPTER 4

RESULTS AND DISCUSSION

RESULTS

To answer the first question regarding whether SLS facilitates or hinders comprehension with different L1 and L2writing systems, results of CG and TG are compared by quantitative measures using two t-tests with different statistical and graphical software for verification. To answer research question 2 regarding whether SLS facilitates or hinders vocabulary acquisition with different L1 and L2writing systems; first, t-test is used to measure the degree of vocabulary acquisition for both CG and TG separately; second, results between the CG and TG are compared for statistical significance using t-test and *one-way* ANOVA. Qualitative method is used to answer research question 3 regarding students' attitude towards SLS.

Statistical significance as per Perry (2005) "has to do with the probability of a mistake being made when inferring that the results found in a sample reflect some truth about the target population" (p. 167) and is related to the null hypothesis. If results are "statistically insignificant", then there is no true relationship or difference between the variables and the null hypothesis is accepted. If, however, results are "statistically significant", then there is a true relationship or differences between the variables and the null hypothesis is rejected.

In this thesis statistical analysis is run by researcher using *QI MACROS* (2009) (www.qimacros.com), except for result verification on content comprehension and where otherwise indicated *SYSTAT* (2008) (www.systat.com) is run by Dr. Fred L. Perry, Jr. .

Quantitative

Before running *t*-tests and *one-way* ANOVA (parametric procedures) on both CG and TG

for results, Kruskal - Wallis One-Way Analysis of Variance (nonparametric procedure) is run by Dr.

Fred L. Perry, Jr. using *SYSTAT* (2008) to verify that the variances are equal. Result indicates that

and probability = 0.1796.Since *p* (0.151) is greater than alpha (0.05) at a 95% confidence level, the

null hypothesis that the variances are equal is accepted.

Research question 1: Does SLS enhance or hinder L2 content comprehension when the writing

system of L2 is different than that of L1?

T-test is run with *QI MACROS* (2009), assuming equal variances.

t-test: Two-Sample Assuming Equal Variances Equal Sample Sizes	α	0.05	
	CG	TG	
Mean	6.46667	6.6	
Variance	26.12381	11.68571	
Observations	15	15	
Pooled Variance	18.90476		
Hypothesized Mean Difference	0		
df	28		
t Stat	-0.084		
P(T<=t) one-tail	0.467		Accept Null Hypothesis because p > 0.05 (Means are the same)
T Critical one-tail	1.701		
P(T<=t) two-tail	0.934		Accept Null Hypothesis because p > 0.05 (Means are the same)
T Critical Two-tail	2.048		

Given that the null hypothesis is the mean difference (1-x2) = 0, this is a two-sided test. Therefore, the two-tail values are used for analysis. Since the *t statistic < t critical* (-0.084< 2.048) and *p value > a* (0.934> 0.05), the difference is not statistically significant and the null hypothesis stating that the means are the same is accepted. Therefore CG's and TG's comprehension is the same at a 95% confidence level. SLS neither facilitates nor hinders content comprehension. The line graph below reflects the results.
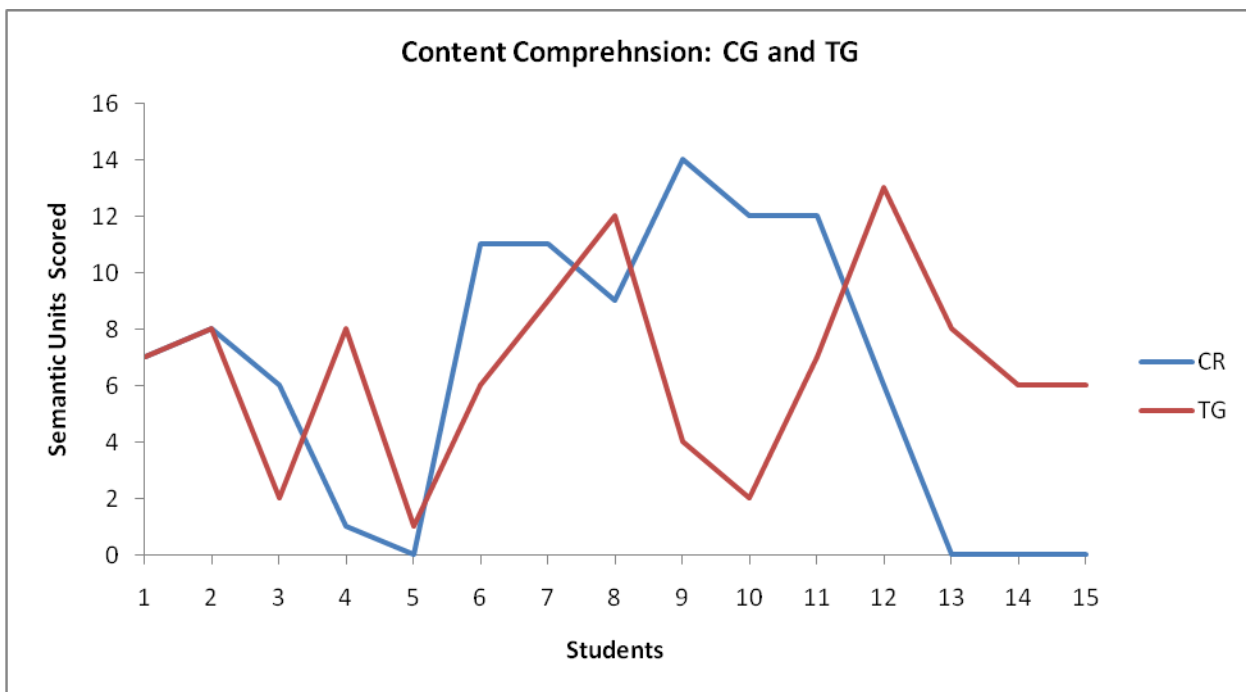
Figure 8. Content comprehension using QI MACROS.

For data verification, *T*-test is run with *SYSTAT* (2008) and has yielded the same result as with *QI MACROS* (2009).

Two-sample t test on SU grouped by GROUP			α	0.05

Group	N	Mean	SD
1	12	8.250	4.048
2	15	6.600	3.418

Separate Variance t =   1.127 df = 21.6   Prob =   0.272

Difference in Means =   1.650 95.00% CI =   -1.390 to   4.690

Pooled Variance t =   1.149 df = 25   Prob =   0.262

Difference in Means =   1.650 95.00% CI =   -1.308 to   4.608
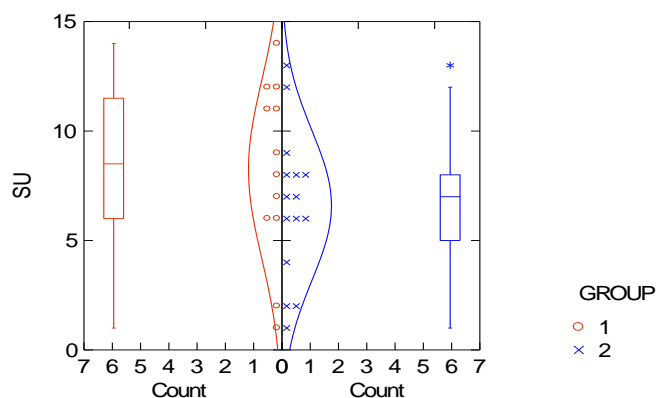
Figure 9. **Mixed graph of content comprehension using SYSTAT.**

Since the *t statistic p value* (probability) with both *t*-tests (0.934 and 0.262 respectively) is > *a* (0.05), the difference is not statistically significant and the null hypothesis that the means are the same is accepted. Therefore CG's and TG's comprehension is the same at a 95% confidence level. SLS neither facilitates nor hinders content comprehension.

Research question 2: Does SLS enhance or hinder L2 vocabulary acquisition when the writing system of L2 is different than that of L1?

First, to answer this question, *t*-tests need to be run on vocabulary acquisition data for CG and TG separately. As stated in the last chapter, a list of unfamiliar words, i.e. words answered incorrectly, was created for each student to establish a "raw" vocabulary list for each, as per Winke, Gass, & Sydorenko (2010) (see Appendix VI). The degree of post-treatment vocabulary acquisition was calculated by calculating "right-only" answers on the raw vocabulary list and dividing them by the pre-treatment raw vocabulary list, thus obtaining a raw vocabulary score, following Smith (2004, cited in Winke, Gass, & Sydorenko, (2010).

All students were found to have an average knowledge of the vocabulary, as expected at the intermediate level, with an average score of 10 out of a maximum score of 21, M = 10.48, SD = 2.69. The internal consistency of the vocabulary test, using the split-half reliability method, was 0.96.

The following 2-D column graph shows the raw vocabulary list for all students at the start of the study. "C" refers to CG and "T" refers to TG.
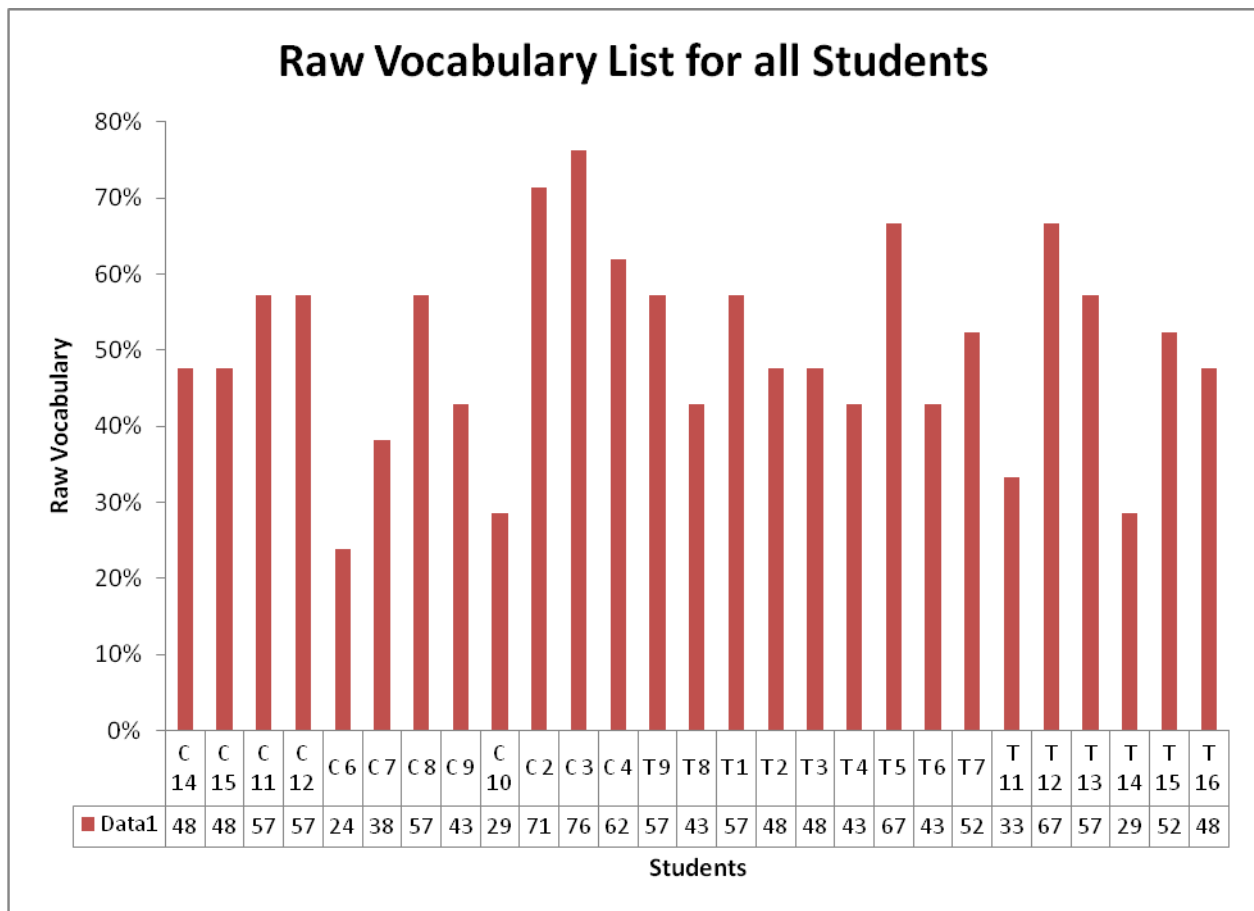
Figure 10. Raw vocabulary list by student.

Since the intermediate level in the study included participants of both intermediate-high and intermediate-mid, the raw vocabulary list is compared between the two sub-levels. The 2-D column graph shows that the intermediate-high outperforms the intermediate-mid by 26.7%. Note that a higher raw vocabulary score means the student is less proficient.
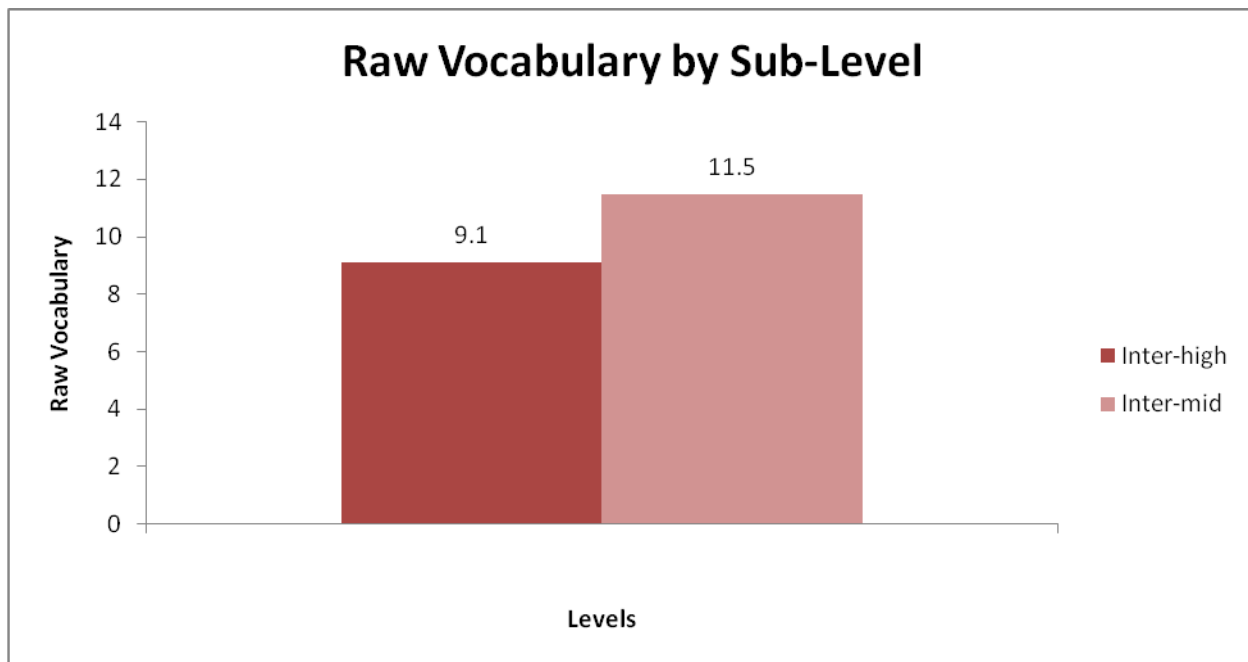
Figure 11. Raw vocabulary by sub-level.

Control group (CG)

F-test supported that *F < Fcrit* (0.95 < 2.82) and *p value > a* (0.467> 0.05), so equal

variances can be assumed, the null hypothesis is accepted and the *t*-test can be run, as per below.

F-Test Two-Sample for Variances		α	0.05	
	Pre-treatment	Post-treatment		
Mean	10.66667	8.5		
Variance	11.15152	11.72727		
Observations	12	12		
df	11	11		
F	0.95			
P(F<=f) one-tail	0.467	0.935	Two-tail	
F Critical one-tail	2.82	3.47	Two-tail	
One-tail	Accept Null Hypothesis because p > 0.05 (Variances are the same)			
Two-tail	Accept Null Hypothesis because p > 0.05 (Variances are the same)			

t-test: Two-Sample Assuming Equal Variances		
Equal Sample Sizes	α	0.05
	Pre-treatment	*Post-treatment*
Mean	10.66667	2.166667
Variance	11.72727	3.242424
Observations	12	12
Pooled Variance	7.484848	
Hypothesized Mean Difference	0	
df	22	
t Stat	5.670	
P(T<=t) one-tail	0.000	Reject Null Hypothesis because p < 0.05 (Means are Different)
T Critical one-tail	1.717	
P(T<=t) two-tail	0.000	Reject Null Hypothesis because p < 0.05 (Means are Different)
T Critical Two-tail	2.074	

Since the *t statistic > t critical* (5.670> 2.074) and *p value < a (*0.000< 0.05), then difference

is statistically significant and the null hypothesis that the means are the same is rejected.

Therefore, CG's pre-treatment raw vocabulary score is not the same as CG's post-treatment raw

vocabulary score at a 95% confidence level. This means that the CG benefited from exposure to

the video in terms of vocabulary acquisition. The 2-D column graph below reflects these results.

It is to be noted that the decrease in raw vocabulary score equals an increase in vocabulary

acquisition.
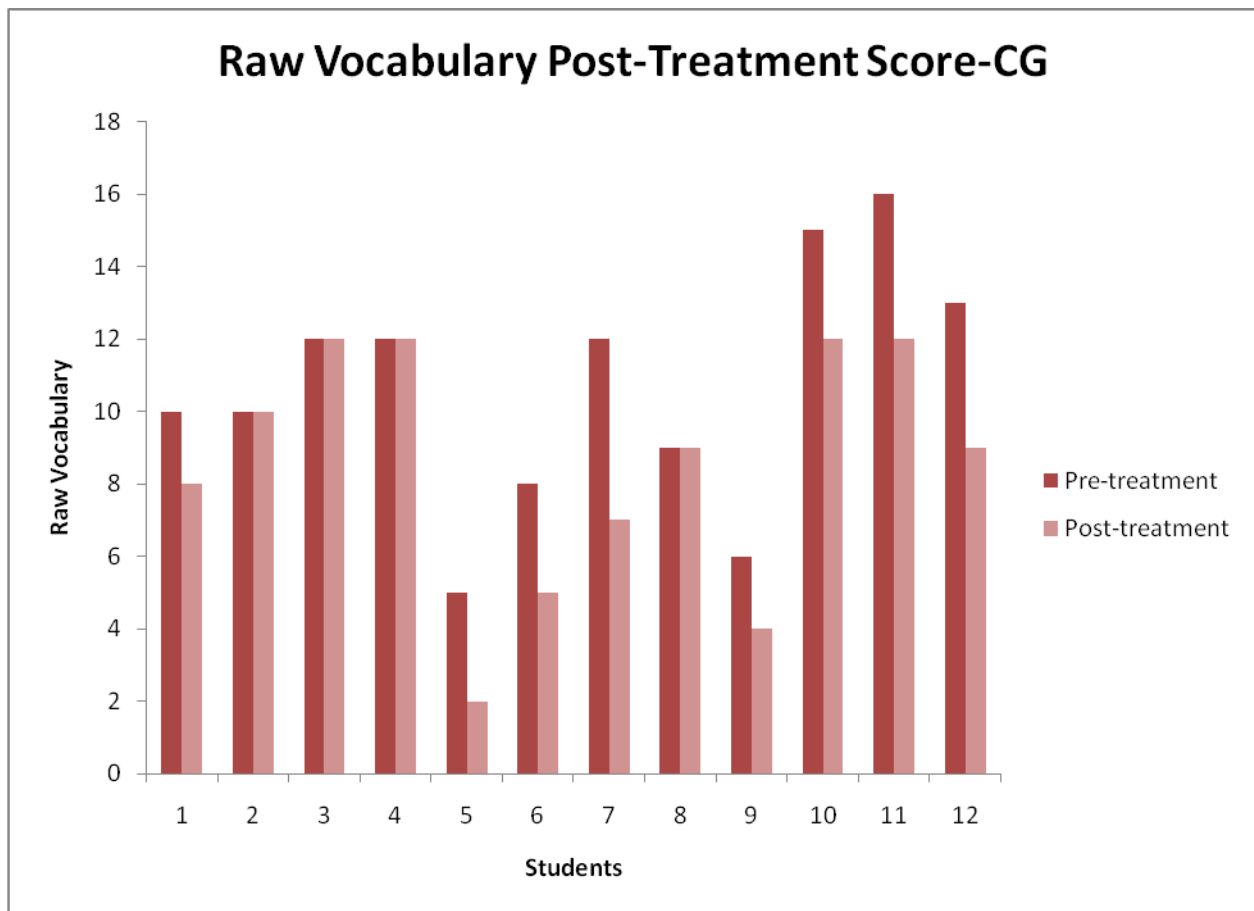
Figure 12. Raw vocabulary post-treatment score-CG.

Treatment group (TG)

F-test supported that $F < Fcrit$ (0.68< 2.48) and *p value* > *α* (0.242> 0.05), so equal variances can be assumed, the null hypothesis is accepted and the *t*-test can be run, as per below.

F-Test Two-Sample for Variances	α	0.05
	Pre-treatment	*Post-treatment*
Mean	10.4	7.933333
Variance	5.114286	7.495238
Observations	15	15
df	14	14
F	0.68	
P(F<=f) one-tail	0.242	0.484 Two-tail

F Critical one-tail		2.48	2.98	Two-tail
One-tail		Accept Null Hypothesis because p > 0.05 (Variances are the same)		
Two-tail		Accept Null Hypothesis because p > 0.05 (Variances are the same)		

t-Test: Two-Sample Assuming Equal Variances Equal Sample Sizes	α	0.05	
	Pre-treatment	*Post-treatment*	
Mean	10.4	7.933333	
Variance	5.114286	7.495238	
Observations	15	15	
Pooled Variance	6.304762		
Hypothesized Mean Difference	0		
df	28		
t Stat	2.690		
P(T<=t) one-tail	0.006		Reject Null Hypothesis because p < 0.05 (Means are Different)
T Critical one-tail	1.701		
P(T<=t) two-tail	0.012		Reject Null Hypothesis because p < 0.05 (Means are Different)
T Critical Two-tail	2.048		

Since the *t statistic > t critical* (2.690> 2.048) and *p value < a (*0.012< 0.05), then the

difference is statistically significant and the null hypothesis that the means are the same is

rejected. Therefore, TG's pre-treatment raw vocabulary score is not the same as TG's post-

treatment raw vocabulary score at a 95% confidence level, which means that the TG benefited

from exposure to the video with SLS in terms of vocabulary acquisition. The 2-D column graph

below reflects the results. It is to be noted that the decrease in raw vocabulary score equals an

increase in vocabulary acquisition.
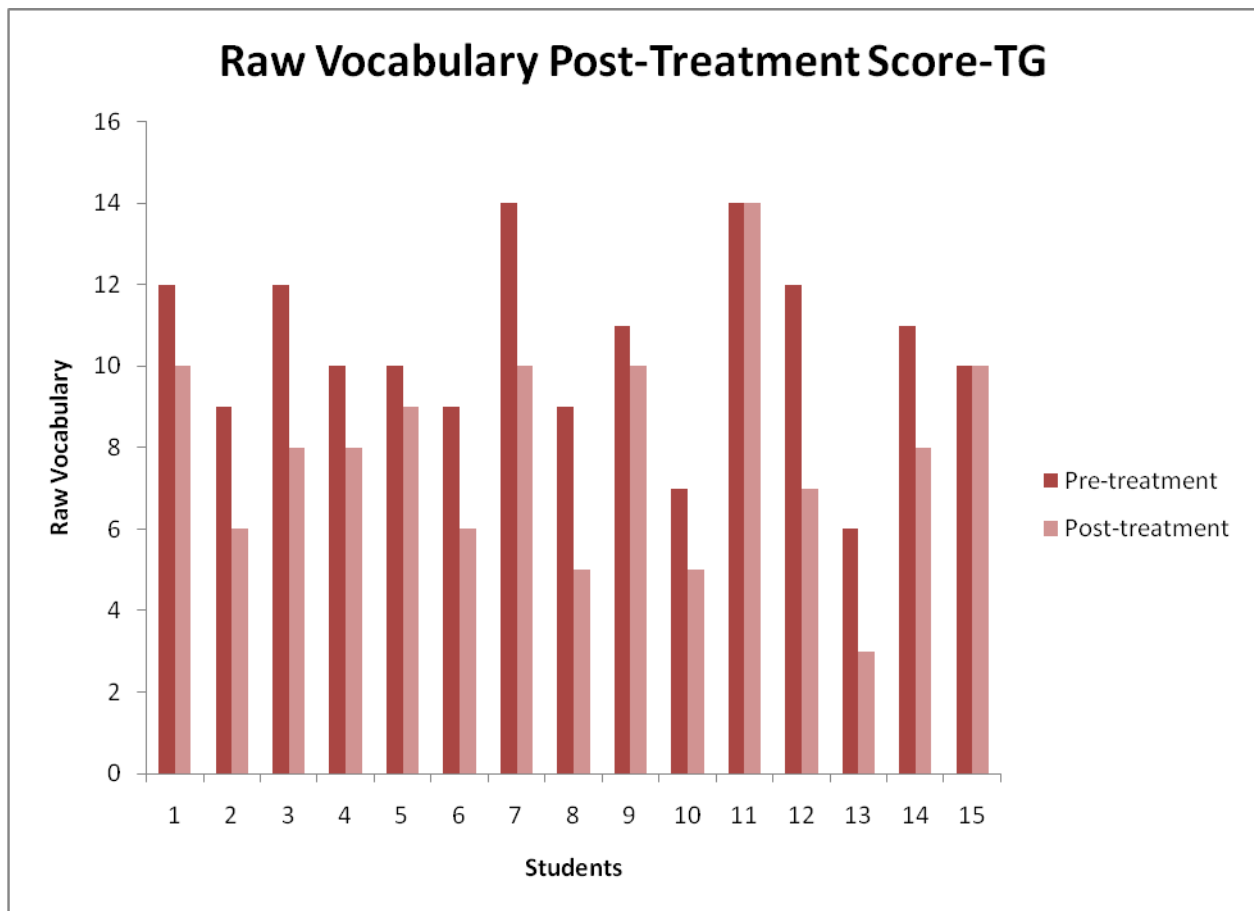
Figure 13. Raw vocabulary post-treatment score-TG.

Verifying statistical significance for difference in vocabulary acquisition

The line graph below presents the comparison data between CG and TG in terms of vocabulary increase and **not** raw vocabulary. In order to do so, the raw vocabulary score of each student has been transferred into a percentage, assuming a 0%-level of vocabulary prior to the treatment. For example, if the raw vocabulary pre-treatment score is 10 and the correctly answered raw vocabulary in the post-treatment is 8, then the vocabulary gain is 2, which

translates into a percentage of 20% (vocabulary raw score = correctly answered vocabulary from the raw vocabulary list in the post-treatment divided by the raw vocabulary list).
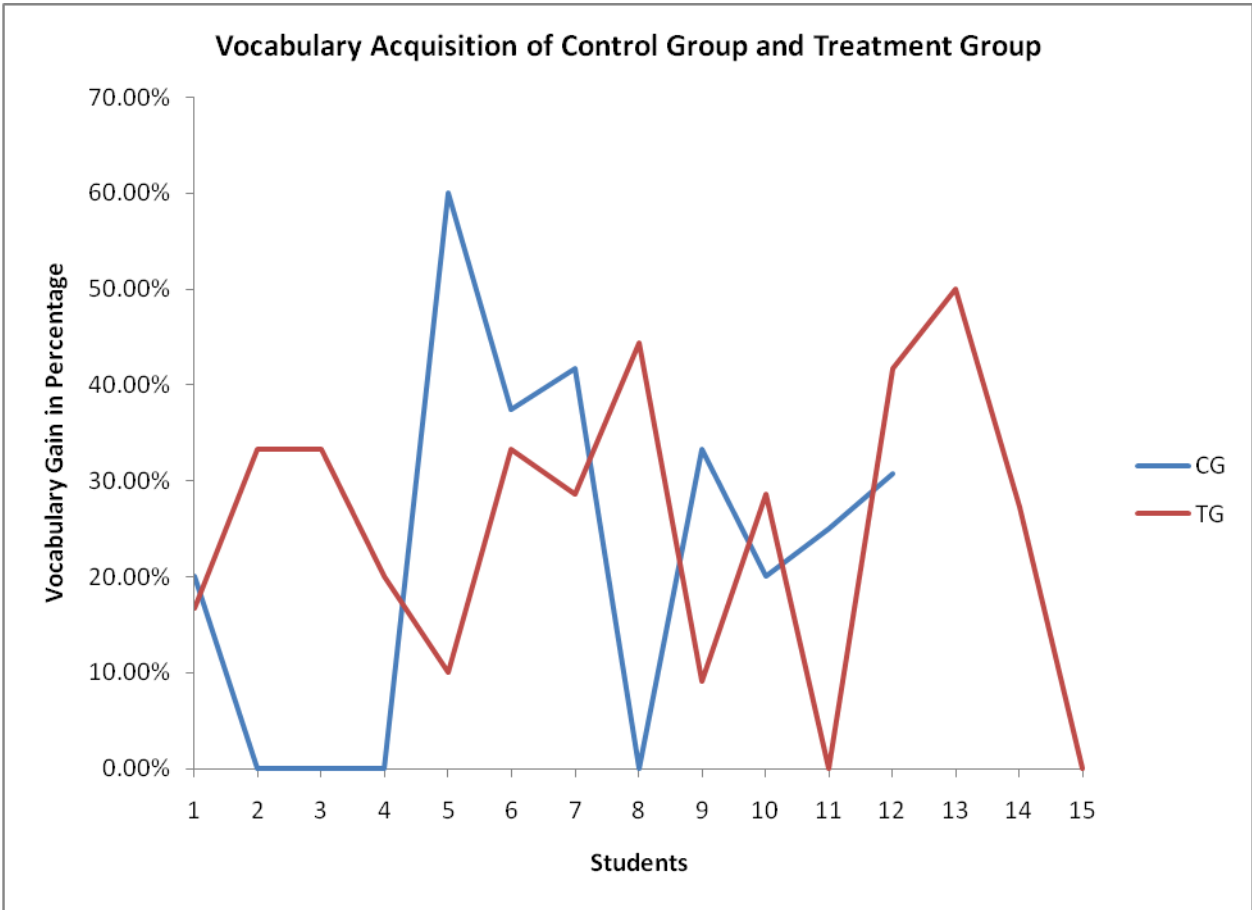
Figure 14. Vocabulary acquisition for CG and TG.

An interesting observation pertains to intermediate-high versus intermediate-mid in terms of vocabulary gain. Prior to treatment, according to the pre-treatment vocabulary test, the intermediate-high outscored the intermediate-mid by 26.7%. Oddly enough, it is the intermediate-mid that outscored the TG in the post-treatment, especially the CG. Researcher has

no scientific explanation for this except that perhaps because the study was conducted with intermediate-high first thing in the morning (1st class), while with intermediate-mid was conducted ranging between 1st and 3rd class, some of the latter's brain functioning had already been activated from prior classes that day. It is to be noted that the control group had no knowledge concerning the existence of a treatment group.
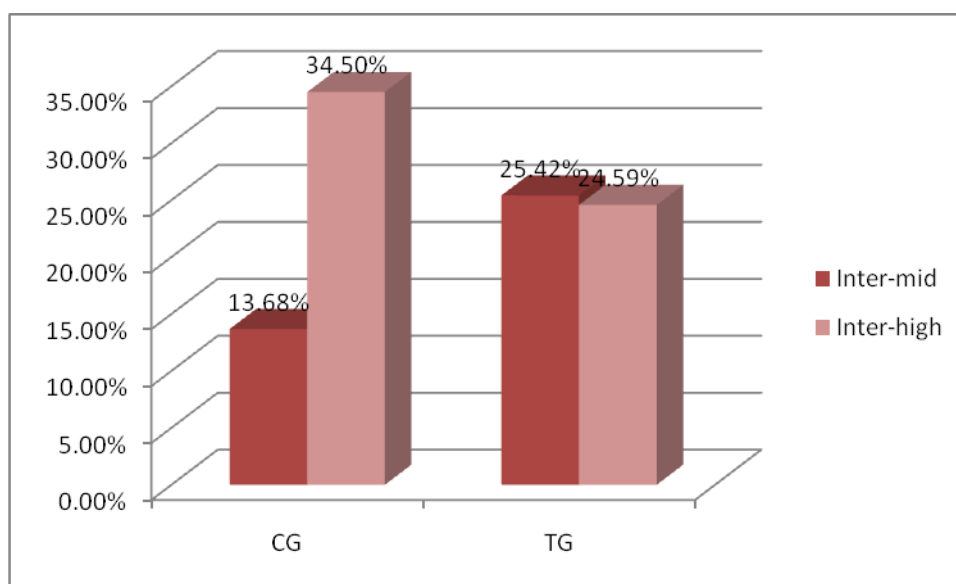
Figure 15. **Post-treatment vocabulary acquisition per sub-level**

Now that it has been established that both CG and TG have gained vocabulary after exposure to the video with and without SLS, the difference in gain between the two groups is analyzed in terms of statistical significance. First *t*-test assuming equal variances and unequal sample sizes is used, and then *one-way* ANOVA is used for data verification.

t-Test: Two-Sample Assuming Equal Variances		α	0.05
Unequal Sample Sizes			
	CG	TG	
Mean	0.223558	0.250847	
Variance	0.038436	0.023872	
Observations	12	15	
Pooled Variance	0.03028		
Hypothesized Mean Difference	0		
df	25		
t Stat	-0.405		
P(T<=t) one-tail	0.344		Accept Null Hypothesis because p > 0.05 (Means are the same)
T Critical one-tail	1.708		
P(T<=t) two-tail	0.689		Accept Null Hypothesis because p > 0.05 (Means are the same)
T Critical Two-tail	2.060		

Since the *t statistic < t critical* (-0.405<2.060) and *p value > a (*0.344>0.05), then the difference is statistically insignificant and the null hypothesis regarding the means are the same is accepted. In other words, the gain of vocabulary with SLS (TG) equals the same gain of vocabulary without SLS (CG), so SLS neither hinders nor facilitates vocabulary acquisition.

One-way ANOVA has been run for further verification of data and has yielded the same results.

ANOVA: Single Factor		α	0.05		
SUMMARY					
Groups	*Count*	*Sum*	Average	Variance	
CG	12	268.27%	22.36%	0.038436	
TG	15	376.27%	25.08%	0.023872	

ANOVA				Accept Null Hypothesis because p > 0.05 (Means are the same)		
Source of Variation	*SS*	*df*	*MS*	*F*	*P-Value*	*F crit*
Between Groups	0.004964	1	0.004964	0.16395	0.689	4.241699

Within Groups	0.756994	25	0.03028
Total	0.761959	26	

Qualitative:

Research question 3: What are students' attitudes towards the use of SLS?

From the questionnaire and questions data, when asked whether they liked watching captioned TV, 83% of students in TG answered in the affirmative. The same percentage indicated to desire to use SLS in future classes. What is interesting, however, is that one student (6.67%) who enjoyed watching SLS during the study did not want to use it in future. In contrast, one student, who did not enjoy watching SLS during the study wanted to use it in the future. Researcher attributes the first case to the novelty of constituting a break from daily routine; and in the second case to the probability of a better handling of SLS with practice. Also, one student indicated wishing to use SLS at a higher proficiency level.

Students were asked about four areas: comprehension, vocabulary acquisition, pronunciation, and spelling and whether they thought SLS was helpful in these areas. Percentage results of those answering in the affirmative are shown in Figure 16 below.
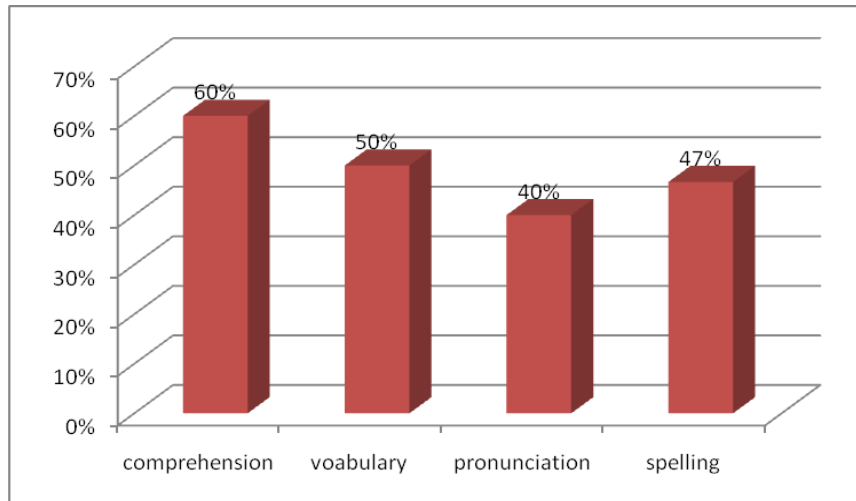
*Figure 16.*Students' responses.

Students were then questioned about their foremost focal point being either audio or SLS.
Two-thirds focused their attention on primarily SLS (reading skill) and one third on primarily
audio (listening skill). What is interesting is that the video was only mentioned by three students
(20%), and not as a primary focus. Two mentioned it in relation with audio and one in relation
with SLS.
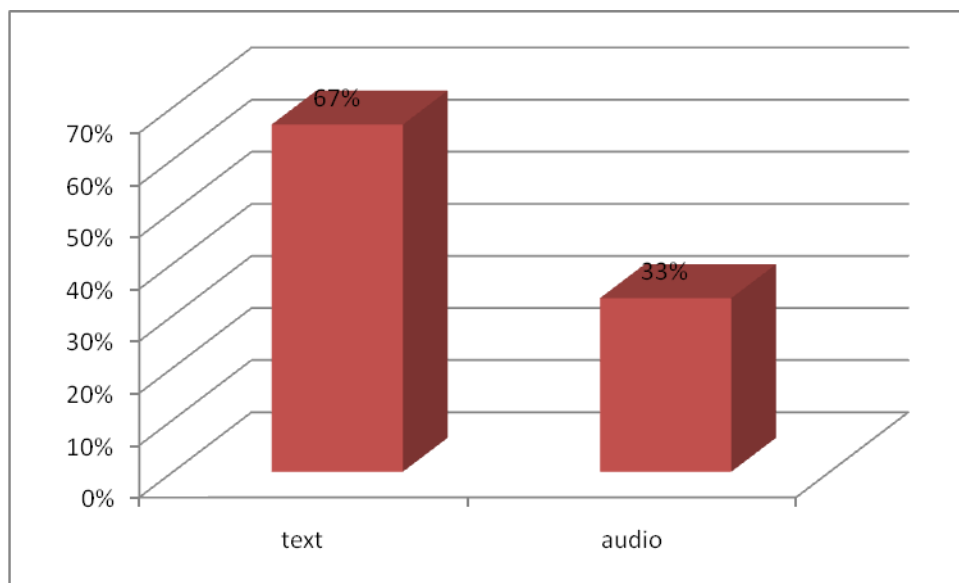
Figure 17. Students' primary focal point during viewing with captions.

From students' comments, researcher was able to sum up the three main benefits of SLS from students' perspectives as follows:

The first benefit is related to the theme of multimodality. Students are aware of the positive effect of visualization of audio on comprehension.

Example 1. *"They put words with images and give me greater context in which to guess the words' meanings."*

Example 2. *"Seeing the words helps me comprehend better than just hearing them, which is often too fast at this point."*

Example 3. *"Reinforcing what I've just heard with captions was nice, since we're all used to comprehension through reading rather than listening."*

Example 4. *"I can visualize the word. Seeing the word visually provides context of words."*

Example 5. *"Seeing the words that I have thought I heard. It was easier with captions than if I had watched it without them. If I heard something I could look to make sure that it was what I thought that it was."*

Example 6. *"Seeing the word as it was spoken helped."*

Example 7. *"I was able to make educated guesses about the documentary."*

Example 8. *"A word here or there that I wouldn't have picked up on orally that helped decipher the meaning."*

Example 9. *"Presenting the material aurally and visually is how I learn best."*

The second benefit is related to vocabulary recognition.

> **Example 10.** *"I recognized 2 words from the vocabulary test that you gave us before the watching of the video."*

> **Example 11.** *"The known words are identified in a better fashion because you hear them and also read them. It helped in identifying the already known words."*

The third and last benefit is related to reading and spelling.

> **Example 12.** *" …fluidity of reading. It also encourages faster reading."*

> **Example 13.** *"…to catch the spelling of words. I can see how the words are written and then can look them up.*

When CG was asked whether they would have liked to watch the video with Arabic captions, 83% answered "yes", for mostly the same reasons given by TG, with three elaborations below that will be discussed in the next section:

> **Example 14.** *"Yes, it would have helped me separate words."*

> **Example 15.** *"Yes or with transcription in hard copy **<u>BUT</u>** I would have first wanted to view it without anything (as it was presented). Having the Arabic written is helpful as sometimes I can't understand the pronunciation of certain words but reading the words provides clues to the meaning, i.e. finding the root, etc."*

> **Example 16.** *"Yes seeing words spelled out would have helped me identify the vocabulary in the questions and also identify the most important points."*

However, 40% found SLS distracting even when enjoyed them, mainly because they thought the speed was too quick. Another point of distraction relates to the theme of multimodality. In their case, the effect of visualization of audio on comprehension was a negative one.

Example 17. *"It's difficult to read and watch at the same time."*

Example 18. *"It drew away from my focus on the story as a whole."*

Example 19. *"Distracted me from actually comprehending."*

Example 20. *"Had to rely on them rather than listening and I don't read fast enough."*

Example 21. *"Distracted me from listening and I want to improve <u>my listening</u>."*

Example 22. *"I wouldn't read and match the picture at the same time so I didn't really look at the captions much."*

Example 23. *"They were not allowing me to concentrate on the audio, as reading them was easier."*

Example 24. *"information overload. The mind was reading and listening and trying to comprehend."*

Example 25. *"I didn't pay enough attention to the audio <u>or</u> the text. Frankly when both the audio and the text are in Arabic I felt worse off than if I just had one."*

Regarding the question of whether students would have preferred standard subtitles in L1 as a text-aid, 40% of TG answered in the negative as opposed to 13% of CG. Researcher attributes

this to TG being recently exposed to SLS and their need to balance efforts exercised with

something familiar (L1). Though mostly agreeing that subtitles would have facilitated

comprehension, the reason for students' rejection of subtitles is demonstrated by examples from

their questionnaires and questions as follows:

Example 26. *"For practicing Arabic I prefer Arabic subtitles."*

Example 27. *"It would have confused me and caused me to focus on English."*

Example 28. *"It would be pointless to listen in Arabic and read in English."*

Example 29. *"When trying to learn Arabic, it's distracting."*

Example 30. *"I am at the stage where i need to push all Arabic and not be able to relax into an English Arabic mix."*

Example 31. *"I would have just read them and not listen. I would not have benefited as much because I probably would have neglected the Arabic completely. This would not have served the right purpose."*

Example 32. *" English captions would have caused me to understand less of the Arabic."*

Those who wrote in favor of subtitling mentioned their proficiency in English reading and

vocabulary as opposed to their limited Arabic reading speed and vocabulary. One interesting

comment merits consideration in the following section.

Example 33. *" I could have listen to the Arabic words & match them up with the English words & actually learn new vocabulary that way."*

Another text-aid, apart from SLS and standard subtitles, was suggested by some of the students. This text-aid is known as *Reverse Subtitling* (audio in L1 with subtitles in L2), which is worth further investigation. Other aids, dubbing and audio only, were also mentioned by students.

> ***Example 34.*** *"Arabic subtitles on English sound can help one read and comprehend better."*

> ***Example 35.*** *"*** Arabic subtitles with English audio! ***."*

> ***Example 36.*** *"I think that it would be an interesting experiment if there were captions and audio but no visual aids."*

> ***Example 37.*** *"* I've talked with friends about finding movies we know dubbed in Arabic plus captioned, so we can concentrate on the translation and words knowing what we're listening for.*"*

When asked about suggestions on how to make captions more beneficial, answers included slower speed to be gradually increased, while ensuring captions are on the screen long enough for the brain to process them, shorter segments, repetitions of the clip with the option to stop and re-play on their own, being exposed to the vocabulary before viewing, practice with captions to bring out different meanings and usages in a visual context, providing the transcript and alterations between subtitling and captions as a prerequisite before moving to non-usage of either audio or visual context. The latter has actually been questioned by Markham & Peter (2003) in exactly the same order and both concluded that to test this, a lengthy study is needed,

involving the same participants over time and/or testing the same participants in the three different groups simultaneously. This suggestion is in fact in line with Krashen's (1985, cited by Danan, 2004) hypothesis of comprehensible input and his suggestion of a stage by stage approach, where at every stage input can be only slightly above the students' level of proficiency.

DISCUSSION

This thesis set out to investigate the effect of SLS on AFL content comprehension and vocabulary acquisition when L1 and L2 do not share the same writing scripts. By presenting a news documentary to 15 students with Arabic captions (TG) as opposed to 12 students who watched the same documentary without Arabic captions (CG), researcher found in response to the first research question, that SLS did not aid content comprehension. In a similar vein, in response to the second research question, SLS did not aid in vocabulary acquisition. Both findings are aligned with researcher's null hypothesis, supported in this respect by Winke, Gass, & Sydorenko (2010), "that language input, presented simultaneously through multiple modalities (aurally and in writing), is taken in differently depending on the orthography of the language" (p.16); and Tzeng (1980), that different scripts dictate different task requirements needed for proficiency. The findings are also supported by Wang & Koda (2007), that L1 does affect the reading skills of L2, especially when one uses an alphabetic writing system and the other uses a nonalphabetic one; and Tzeng & Wang (1983), that different scripts employ different memory mechanisms.

The rationale for researcher attributing SLS's failure as an aid with different orthographies is the fact that most prior research has supported the effectiveness of SLS in foreign language

acquisition, but none of this prior research was conducted with English as L1 and Arabic as L2,

except Winke, Gass & Sydorenko (2010), whose primary focus was on the order of caption

presentation. However, findings in this thesis contradict those of Winke, Gass & Sydorenko

(2010), saying that when L1's orthography is different than that of L2 and the written symbols of

the latter are not well mastered, learners rely more on the aural than on the written mode as a

primary source of information. As mentioned above, students in this study relied on the written

mode by 67% versus 33% on the aural mode, thus confirming the criticism directed on SLS.

Still, researcher argues that SLS can lead to language gain and believes that although

subtitling in her pilot study was more efficient with the intermediate level, this might not be true

for SLS. Experiments by Neuman & Koskinen (1992) and Lambert & Holobow (1984, cited in

Danan, 2004), suggest a minimum language competency threshold for learners to yield captions

beneficial, as captions cannot compensate for the fast rate of speech and difficult vocabulary

level (Guillory, 1998). It may be that dual coding of multimedia with different orthographic scripts

imposes a burden on the intermediate level, as indicated by various student comments, though

they are still aware of the important effect it can have on acquisition, again as indicated by their

comments. This suggestion contradicts findings by Weasenforth's (1994), that indicated that

students at the advanced level vis-à-vis students at the intermediate level were less in favor of

captions, as they found them to be overloading their already developed listening skills. Mueller

(1980, quoted in Jones & Plass, 2002), based on his findings, suggests the same in different

wording: "single-mode approach is sufficient for high-prior-knowledge students, but … dually-

coded information could help low-prior-knowledge learners fill in the gaps that would otherwise

exist in their prior knowledge" (p.549). Further research is needed to verify whether the reason

94

for breakdown of comprehension is due to orthographic differences or due to the proficiency

level of the students, or perhaps a combination of the two.

The third research question concerned students' attitudes toward SLS and their

comments mostly confirmed past research. As per the final report issued by The Center for

Applied Linguistics in Washington, D.C., based on a pilot study conducted by Prince George's

County Public Schools (1989), 29 ESL students from fourth to sixth grade of Hispanic, African and

Asian origin, students reported enjoying the captions and felt that they promoted faster reading.

Weasenforth's (1994) study investigated the attitude of 106 adult ESL students at intermediate

and advanced levels towards SLS through a questionnaire and revealed that 92% of students

enjoyed captions and 91% wanted to continue using them in class.

Researcher will now address the three comments, examples 14, 15 and 16, where

students from CG elaborated on the role captions play in separating words, surpassing difficulty

of speaker's pronunciation and identifying main points. The notion of "separating words", in

example 14, is supported by Winke, Gass & Sydorenko's (2010) findings that captions achieved

what speech many times fails to do, being the setting of boundaries to words resulting in chunks,

which in their view reduces the burden of analyzing bits and links form and meaning. In other

words, the results use top-down processing as opposed to bottom-up processing (Fromkin,

Rodman & Hyams, 2007). Example 15 is supported by Vanderplank (1993, cited in Winke, Gass &

Sydorenko, 2010), in that captions aid the listener by being unaffected by accents or audio

quality. Accent does not necessarily mean dialect, since MSA is theoretically the "neutral" Arabic

language, but accents can be any trace of the local language affecting MSA's pronunciation, as

per Badawi (1973). The idea of "main points" in example 16 has not been overlooked by

researchers, and led them to suggest keyword captions instead of verbatim. Among these

researchers is Smith (1990), who concluded that it is the content, length and kind of captions

(whether key words or literal verbatim) that lead to acquisition. The same was concluded by

Guillory (1998) "with smaller amounts of texts in the visual channel, learners are less likely to

encounter overload to multichannel processing and more likely to achieve fuller comprehension

of the information coming through the auditory channel" (p. 97). All three elaborations will be

further addressed in the next chapter.

As mentioned before, example 33 merits further consideration. In her opinion, researcher

deduced from it the key point to making use of SLS. What the student is in fact referring to by

"actually learn . . . that way" are the strategies used by learners that lead to acquisition in general

and not only in the realm of vocabulary. Chern (1994) stressed the importance of metacognitive

awareness in learners, which refers to learner's knowledge that his own perception could affect

his performance; learner's understanding of when to use certain strategies and learner's

awareness of comprehension breakdown as well as knowing what to do about it. He proposed a

metacognitive interview and questions that could increase learner's awareness. Thompson &

Rubin (1996, cited in Danan, 2004) defined metacognitive strategies as "management

techniques" to control and reflect on the learning process. They also induced three metacognitive

strategies to be used in multimodality. The first, "planning" in terms of how many times to watch

a segment, at what pace and how to use the sound and captions; the second, "defining goals" in

terms of deciding on what to listen for and how much time is needed for each level of

comprehension; and the third, "monitoring" in terms of understanding self-evaluation,

identifying difficulties, judging strategy effectiveness, and choosing strategies in a flexible

manner.

Metacognitive strategies can also be observed on how learners' memory is employed. For

example, while taking part in the study, students were using their implicit or direct memory,

which is demonstrated in their unconscious and intentional acquisition, as per Schacter & Church

(1992); by contrast, explicit memory "entails conscious recollection of previously studied

information" (Schacter & Church, 1992, p. 915).

In general, strategies, whether cognitive or metacognitive, need to be intentionally taught

to learners, particularly regarding the use of captions, being a field fairly recently researched.

Learners need to be provided with enough practice and training on the use of captions along with

the strategies, especially since the majority of the students in researcher's present study favored

the use of captions. Results of this study might have yielded different results had students been

trained to use captions and hence the indirect/long-term effect could have been observed.

Training was one of the points stressed by both Guichon & McLornan (2008) and Taylor (2005).

Danan (2004) believes that multimedia in particular offers a wide range of strategies in

which learners need in be trained in order to consciously and effectively use them to become

"good" learners, actively processing information. Rubin (1995, cited in Danan, 2004) mentioned

making and testing hypotheses, guessing and inferring, predicting during screening while using

background knowledge, clarifying through questions and verifying meaning as essential cognitive

strategies. Therefore, it is recommended that teachers systematically teach strategies and select

appropriate material and tasks enhanced with text-aids. Researcher agrees with Danan (2004)

that yet both captions and subtitling may not be suitable for all materials and all proficiency

levels.

CHAPTER 5

CONCLUSION

This thesis has yielded a number of observations regarding the use of SLS in AFL acquisition. As the study proved that SLS is neither a hindrance nor a facilitator in content comprehension or vocabulary acquisition, different orthographies between students' L1 (English) and L2 (Arabic) might be the real obstacle to acquisition via SLS. Because of the different alphabetic writing scripts, where one uses a Roman script and the other does not, SLS might be better suited for advanced rather than intermediate students. Still, the majority of intermediate students enjoyed the captions and wanted to use them again in the future, which implies the importance of teaching cognitive and metacognitive strategies by teachers and allowing practice and training to maximize the positive gain that could be achieved through SLS.

Moreover, this thesis offers theoretical and practical implications. Theoretically, it constitutes the first empirical data on this subject in the field of AFL. It also does not abide by the four factors that mark SLS literature, since it is not based on research in North America or Europe, nor does it address a language that uses Roman script, nor does it deal with the use of SLS for the deaf and hearing impaired, and finally it does not explore language learning potential among elevated proficiency level in L2. Rather, it is based on research in the Middle East, the Arab World and Africa, it addresses a language that uses non-Roman script, deals with individuals who have full hearing capacity and explores the language learning potential among intermediate proficiency level in L2.

Practically, this thesis provides evidence that different students efficiently learn in different ways (Reinert, 1976, cited in Jones & Plass, 2002), which needs to be addressed in the classroom if SLS is to be used. However, should SLS be used in the comfort of one's own living room as homework or self-teaching, then with the right metacognitive strategies, students can make their own choice regarding whether or not to use SLS and how and when to use them, as Guichon & McLornan (2008) emphasized. This allows students to feel autonomous and in control, and promotes responsibility over their own learning process, which is bound to yield positive results, as per Chern (1994). This responsibility, equipped with the needed metacognitive strategies, was addressed by Danan (2004) by suggesting multi-step or need-based approaches when using any text-aid that "ultimately lead to independent, life-long language acquisition" (p. 76).

Pedagogical Suggestions

Provided that educators are willing to adopt computer technology in foreign language education, which is referred to by Garrett (1989, cited in Al-Seghayer, 2001) as "new humanism", and with it the positive role SLS could play in L2 acquisition, there are several employable resources. The last chapter mentions reverse subtitling, setting word boundaries by captions, captions surpassing difficulty of speaker's pronunciation and focusing on main points. All this can be incorporated in a pedagogical curriculum.

Holobow et al. (1984, cited in Kothari, Pandey & Chudgar, 2005) are credited for the earliest systematic study on text-aids in language learning. Results of their study supported the idea that reverse subtitling was most beneficial to English- speaking students studying French, followed by SLS and then standard subtitling, because reverse subtitling and SLS require the

major processing to be in L2, which leads to better acquisition. Researchers attribute this to the ease and quickness with which L1 audio is processed and understood, leaving more time for L2 reading processing. This can be easily employed by teachers in the classroom, as Egypt predominantly uses subtitling rather than dubbing, or in this context, reverse subtitling. American movies, TV series and programs are all subtitled in Arabic. All that is required of the teacher is to select the segment relevant to a lesson studied, not necessarily in media class, and use it to reinforce the lesson. A vocabulary list can be given beforehand and thoroughly discussed in other contexts. From there, the teacher can move to the same movie, series or program in its dubbed version, which are now available on many Arabic channels dedicated to dubbing. Drawing on the step-by-step approach by Markham & Peter (2003) to use captions before jumping to an audiovisual material without text-aids, these dubbed versions can be enhanced by keyword captions, as suggested in the last chapter. This will not only provide the main points, but will allow the captions to stay longer on screen with larger font, framing the word boundaries and not only setting them. These dubbed versions will also allow for exposure to MSA in different accents (mostly Egyptian, Syrian and Lebanese) that become balanced and neutralized with constant exposure with captions.

Another suggestion for using captions lies somewhere between literal verbatim and keywords. It can be modeled after what was done for the deaf in *ABC World News Tonight and the French Chef in the 1970s*, as cited by Jensema, McCann & Ramsey (1996). The word count was cut by a third, so the reading level lowered. All passive voice sentence construction, idioms and jokes were removed. Clauses were converted into short declarative sentences. As the students progress, this editing can be revised until students are ready for literal verbatim. This method can

be adapted to any proficiency level, any subject and would address different students'

preferences. Moreover, it would provide the "hearing aid" Vanderplank (1988, cited in Danan,

2004) referred to earlier in this thesis, for the "hard of listening" L2 learners. Needless to say, it

would require more preparatory effort from the teacher, using *Windows Movie Maker* or similar.

Using the program *Audacity*, the teacher can record the audio and follow the same procedure as

above with SLS from keywords to literal verbatim. Eventually, researcher hopes that students

would develop flexible strategies to use when reverting to captions, Meskil's (1996) "hooks" and

Winke, Gass & Sydorenko's (2010) "crutches", only to test their listening ability, as Vanderplank

(1990, cited in Danan, 2004) has proven by a study with European and Arabic students learning

ESL.

Limitations

Ideally the summaries that students wrote to test their comprehension should have been

written immediately after viewing in order to rule out missing semantic units from their

summaries due to memory lapses. However, due to logistic reasons, this was not possible and the

majority of the students (21) had to write the summaries over night. Three handed in their

summaries after 2 days, one after 3 days and two after a week. This would not have limited the

study had students handed in their viewing notes, which not all of them managed to. From the

notes researcher would have been able to identify what had been recognized and

comprehended. Even with those who handed in their notes the following day, some missed

details in the summary that were in their viewing notes. Therefore, there is an element of

memory effect on the comprehension measure. Using MC questions might have been a more

effective alternative.

Moreover, the overnight factor could have prompted some students to check the segment on-line, even if it does not exist in English. Checking it in Arabic would have allowed for several viewing options with the choice to pause and re-listen to parts, though on line it exists without captions. However, since all students had this option, then the procedure was the same for all participants.

The study was conducted over a period of 10 days, so students in the second week could have heard about the study and what was expected from those taking part in it during the first week, though there was no indication that this was the case.

Guillory (1998) would have considered the vocabulary in the study "too advanced" for the students, as the percentage of estimated unknown vocabulary in a study of his was 28% (as opposed to 33.3% in this study), was already considered too advanced. This might have posed a further limitation on this study.

Implications for Future Research

As mentioned earlier, now more than ever is a golden opportunity to continue research on AFL in this area of applied linguistics, especially with the flourishing DVD industry and its options and the newly opened TV channels in the Arab World that are dedicated to dubbing. Now is the time to make use of edutainment.

Future research in AFL with text-aids needs to address a number of questions:

- Would the effects of SLS work better for advanced students? How important is the effect of different orthographies on them?

- Would keyword SLS work better for intermediate students?

- How would reverse subtitling affect acquisition for both intermediate and advance students?

- How would Arabic dubbed material affect acquisition of both intermediate and advance students?

- Is it possible for the novice level to benefit from text-aids?

- What would be the best strategy to use with text-aids?

- How could learners use strategies, both cognitive and metacognitive, by themselves?

Researcher joins Danan (2004) in her hope "that current interest in multimedia will lead to the development of language curricula and self-learning programs integrating [text-aids] while encouraging in-depth pedagogical research on their most effective use" (p. 76) with full understanding of their implications.

تم بحمد الله

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APPENDICES

Appendix I:

Table 4:

ACTFL Arabic Proficiency Guidelines for Listening

Level	Characterization
Intermediate	**Generic:** Ability to understand main ideas and some facts from interactive exchanges and simple connected aural texts
Intermediate-mid	**Generic:** Can understand sentence-length utterances on various topics. Content expands from personal background, needs and social conventions to more complex tasks, personal interest and activities. Listening tasks expand from face-to-face conversations to some deliberate speech, e.g. simple announcements and reports over the media. Understanding is uneven.
	Arabic: Limited understanding of topics beyond a variety of survival needs, beginning of understanding longer utterances, frequent need for repetition, increased awareness of time-frames and more complex syntactic patterns such as comparison, purpose and causality.
Intermediate-high	**Generic:** Can sustain understanding over longer stretches of connected discourse on a number of topics pertaining to different times and places. Inconsistent understanding due to failure to grasp main ideas and/or details.

(continued)

Table 4

(continued)

Level	*Characterization*
	Arabic: Can partially understand more complex structures, e.g. relative clauses and subordinate sentences, though miscommunication still occurs. Partial ability to deal with longer segments of discourse. Increasing ability to use lexical, grammatical, situational and pragmatic cues to help decode partially understood messages. Necessity for repetition.

Table 5

ACTFL Arabic Proficiency Guidelines for Reading

Level	Characterization
Intermediate	**Generic:** Ability to understand main ideas and some facts from simple connected texts.
Intermediate-mid	**Generic:** Can read consistently with increased understanding simple connected linguistically noncomplex texts with a clear underlying internal structure dealing with a variety of basic and social needs, to which learner makes minimal suppositions and brings personal knowledge, e.g. straightforward descriptions of persons, places, and things written for a wide audience **Arabic:** Sufficient comprehension to understand simulated authentic reading materials consisting of several connected sentences for informative purposes, main ideas and some facts in authentic material. Can understand and follow events of a very simple passage when content deals with basic situations, the sentence structure is uncomplicated and generally parallel to native language syntax. Can read critical elements of public announcements and events to determine who, when, and where. Ability to interpret present and past time for most regular, and a number of irregular verbs, but still has difficulty recognizing the significance of other aspects of the verbal paradigm (e. g., indirect imperative and purpose). Errors will still occur with such features as prepositional usages and **al-idaafa.**

(continued)

Table 5

(continued)

Level	Characterization
Intermediate-high	**Generic:** Can read consistently with full understanding simple connected texts dealing with basic personal and social needs, to which personal knowledge is brought. Can get some main ideas and information from texts at the next higher level featuring description and narration. Structural complexity, e. g. basic grammatical relations and temporal references primarily rely on lexical items. Comprehension is less consistent. Reading repetition necessary for understanding. **Arabic:** Partial comprehension of simple discourse of paragraph-length materials within narrow topic range, relying on low-level, high-frequency sentence patterns. Ability to read for key points and detail. Ability to decode hand-printed notes or short letters for main facts (given sufficient time). Can follow the narrative thread in more extended discourse. Understands major syntactic constructions, perfect, imperfect and future tenses and their negation. Can read numeric information (dates, timetables, bills, etc.) accurately. Partial comprehension of conditional and relative clauses, but misunderstanding occurs with more complex patterns and idiomatic usages. Errors in comprehension still occur, but lexical guessing begins to be used as a reading strategy. Begins to connect the meaning of sentences to discourse, but cannot sustain understanding of longer discourse.

Appendix II: Transcript of Listening Comprehension Passage

شيماء ابراهيم فتاة مصرية أجبرت على العمل فى المنازل و هى طفلة لم تتجاوز العاشرة من عمرها

تحدثت عن معاناتها فى بداية مغادرتها لأسرتها و التحاقها بمنزل أسرة ثرية فى مدينة هيرفن بكاليفورنيا

معاناة كبيرة من قلوب قاسية، هكذا وصفت شيماء اقامتها مع العائلة التى استقدمتها كخادمة حيث كانت تقوم بكل الأعمال المنزلية بمفردها فى منزل كبير يتكون من خمس غرف. هذا الى جانب رعاية الأطفال.

عندما يستيقظ كل من فى البيت يبدأ عملى. أعد أمورهم اذا كانوا مغادرين أو فطورهم. ثم أقوم بتنظيف الغرف و أرتب الأسرة و الحمامات و دورات المياه و الأرضيات. أغسل لهم ملابسهم و أعلقها و أفعل كل شيء. هذا ما أفعله طوال يومى حتى يأتى الأولاد من المدرسة. و يصبح المنزل فوّضويا و أبدأ العمل مرة أخرى. لا أرتاح أبدا. اعمل طوال النهار دون اجازة.

تقول شيماء ان العائلة المصرية و التى تقيم فى كاليفورنيا أجبرتها على العمل من أجل سداد ديون عائلتها. كانت معاملة قاسية. و رغم أن المنزل كبير كانت شيماء تنام فى المرآب دون أي ظروف صحية ملائمة. و لم يكن المكان يحتوى لا على نوافذ أو أي وسائل للتدفئة و لا مكيف بالصيف. الى جانب الظلام فى الليل لأن المكان لا يحتوى على أجهزة للانارة. و كانت تحصل فقط على خمسة و أربعين دولاراً مقابل العمل طوال ساعات النهار دون راحة و لا عطلات. و ما حزّ فى نفس شيماء أن أبناء العائلة التى كانت تشغّلها يسخرون منها دائما و يسمونها ب"الشغالة". و فى الكثير من الأحيان ينادونها "الحمقاء"

الأولاد يستفزوننى دائماً ظلماً و يشكوننى لامهم. عندها تبدأ بالصراخ عاليا و كنت أحاول أن أقول لها اننى لم أفعل شيئا فصفعتنى و دفعتنى بعيدا. كانوا يطلبون منى أشياءً صعبة. و عندما لا أستطيع فعلها يشكوننى لأمهم التى تعاقبنى دائما و تشتمنى.

و بعد معاناة طويلة تمكنت شيماء من الابتعاد عن تلك العائلة حينما تبناها رجل و عطف عليها و أصبحت تعيش فى منزل جميل. تقول ان والدها الجديد أصبح يناديها بالأميرة كما أكملت الدراسة و تخرجت من المدرسة الثانوية. و حين سئلت شيماء لماذا لم تحاول مقاضاة تلك العائلة قالت انها لا تريد الدخول فى مشاكل هى فى غنىً عنها

لا أريد أن أفسد حياتى الجديدة و أقع فى المشاكل لأنى أريد أن أصبح شرطية. فى بعض الأحيان أفعل أشياء قبل أن أفكر بها و لكننى فى معظم الوقت أحب أن أفكر فى الأمر. أنا طموحة جدا و أريد أن أنسى سنوات العذاب و الحرمان.

Appendix III: Individual Background Questionnaire

Age:

Gender:

Name (optional):

Contact email or phone number:

Nationality:

Native Language:

If English is not your native language, pls indicate how fluent you are in English: **(pls circle one)** excellent-very good-good-fair

What other languages do you speak **(pls list and indicate fluency)**:

Are you a Heritage Learner (of Arabic-speaking origin and/or Arabic is spoken at home)? Y -N

Nr. of years of formal Arabic study:

Level of Arabic – Intermediate **(pls circle one)**: High – mid- low

Name of book you studied Arabic from:

Estimate your general level of competence in Arabic reading: **(pls circle one)**   easily – with some difficulty – with much difficulty[9]

Estimate your general level of competence in Arabic reading comprehension: **(pls circle one)** easily – with some difficulty – with much difficulty[10]

Estimate your general level of competence in Arabic listening comprehension: **(pls circle one)** easily – with some difficulty – with much difficulty

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[9] Treatment Group (TG) only

[10] Treatment Group (TG) only

Appendix IV: Vocabulary Pre-Treatment Test[11]

PLEASE CIRCLE THE CORRECT WORD AND CIRCLE NEXT TO IT, WHETHER YOUR CHOICE IS BASED ON YOU "THINK" OR YOU "KNOW"

1. أجبر/أُجبر (على العمل)

    a. <u>Likes</u> to work

    b. <u>Forced</u> to work

    c. <u>Pretend</u> to work

    d. <u>Hates</u> to work　　　　　**I THINK - I KNOW**

2. معاناة كبيرة

    a. a lot of <u>content</u>

    b. a lot of <u>happiness</u>

    c. a lot of <u>suffering</u>

    d. a lot of <u>sadness</u>　　　　**I THINK - I KNOW**

3. أسرة ثريه

    a. <u>rich</u> family

    b. <u>poor</u> family

    c. <u>big</u> family

    d. <u>small</u> family　　　　**I THINK - I KNOW**

4. قلوب قاسية

    a. <u>soft</u> hearts

    b. <u>cruel</u> hearts

---

[11] Vocabulary post-treatment test is identical to the pre-treatment with the exception that students no longer had to circle either "I know" or "I think"

c. <u>healthy</u> hearts

d. <u>sick</u> hearts   **I THINK - I KNOW**

5.   يتكوّن من

    a. to belong to

    b. to be from

    c. to consist of

    d. to be void of   **I THINK - I KNOW**

6.   ظروف صحية <u>ملائمة</u>

    a. <u>high</u> medical conditions

    b. <u>low</u> medical conditions

    c. <u>appropriate</u> medical conditions

    d. <u>inappropriate</u> medical conditions   **I THINK - I KNOW**

7.   وسائل <u>للتدفئه</u>

    a. <u>cooling</u> means

    b. <u>transportation</u> means

    c. <u>financial</u> means

    d. <u>heating</u> means   **I THINK - I KNOW**

8.   أجهزة <u>للاناره</u>

    a. <u>cooking</u> appliance

    b. <u>heating</u> appliance

    c. <u>lighting</u> appliance

    d. <u>music</u> appliance   **I THINK - I KNOW**

9. الظلام

   a. Darkness

   b. Unfairness

   c. Light

   d. Fairness   **I THINK - I KNOW**

10. يسمونها ب"الشغاله"

   a. They <u>call/name her</u> a maid.

   b. They <u>made her work</u> as a maid.

   c. They <u>insult her</u> as a maid.

   d. They <u>want her to be</u> a maid.   **I THINK - I KNOW**

11. الحمقاء

   a. the <u>red</u> one

   b. the <u>smart</u> one

   c. the <u>stupid</u> one

   d. the <u>sick</u> one   **I THINK - I KNOW**

12. <u>اشتكى</u> الطالب المدرس

   a. The student <u>asked</u> the teacher.

   b. The student <u>answered</u> the teacher.

   c. The student <u>complained</u> of the teacher.

   d. The student is <u>satisfied</u> with the teacher.   **I THINK - I KNOW**

13. لا يجب أن <u>يصـ</u>فع الأب ابنه

   a. The father should not <u>insult</u> his son.

   b. The father should not <u>scream</u> at his son.

c. The father should not <u>hit</u> his son.

d. The father should not <u>ignore</u> his son.   **I THINK - I KNOW**

14.   لا يجب أن يَشتِم الأب ابنته

a. The father should not <u>insult</u> his daughter.

b. The father should not <u>scream</u> at his daughter.

c. The father should not <u>hit</u> his daughter.

d. The father should not <u>ignore</u> his daughter.   **I THINK - I KNOW**

15.   <u>عاقب</u> الأستاذ الطالب

a. The teacher <u>complimented</u> the student.

b. The teacher <u>penalized</u> the student.

c. The teacher <u>followed</u> the student.

d. The teacher <u>prevented</u> the students   **I THINK - I KNOW**

16.   <u>تبناها</u> رجل

a. A man <u>adopted</u> her.

b. A man <u>married</u> her.

c. A man <u>built</u> for her.

d. A man <u>divorced</u> her.   **I THINK - I KNOW**

17.   <u>عطف</u> عليها

a. He <u>protected</u> her.

b. He <u>left</u> her.

c. He <u>hated</u> her.

d. He <u>cared</u> for her.   **I THINK - I KNOW**

18.   يجب <u>مقاضاة</u> اللص.

   a. The thief should be <u>punished.</u>

   b. The thief should be <u>arrested.</u>

   c. The thief should be <u>sent to court.</u>

   d. The thief should be <u>put in jail</u>.   **I THINK - I KNOW**

19.   مشاكل هى <u>فى غنىً عنها</u>

   a. problems <u>she has to face</u>

   b. problems <u>she can do without</u>

   c. problems <u>she has to solve</u>

   d. problems <u>she has plenty of</u>   **I THINK - I KNOW**

20.   <u>أفسد</u> حياتى

   a. <u>c</u>orrupt/ruin my life.

   b. <u>i</u>nterfere in my life.

   c. <u>s</u>teal my life.

   d. <u>s</u>tart my life.   **I THINK - I KNOW**

21.   سداد الديون

   a. to balance the accounts

   b. to repay the debts

   c. to ask for loans

   d. to borrow money   **I THINK - I KNOW**

Appendix V: Post-Study Questionnaire/Questions

Post-study questionnaire[12]

1. Did you like watching a captioned program?

2. Would you have preferred English subtitles? Why?

3. Have you used captions in class before?

4. Did watching captioned TV help you understand the program better?

5. Did watching captioned TV help you learn new vocabulary? If so, why do you think they helped?

6. Did watching captioned TV aid your pronunciation?

7. Did watching captioned TV aid your spelling?

8. Did you find captions distracting?

9. While watching, would you say you concentrated more on the audio or on the text?

10. Based on your above answers, in your opinion, what did you benefit the most from the captions?

11. In your opinion what didn't you like the most about captions?

12. Do you want to use captions in class in the future?

13. Do you have any suggestions on how to implement captions in class in a way that could be useful to you?

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[12] For the Treatment Group (TG)

Post-study questions[13]

Would you have liked to watch the program with Arabic captions? If yes, why and how would have this helped you?

Would you have liked to watch the program with English subtitles? If yes, why and how would have this helped you?

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[13] For the Control Group (CG)

Appendix VI: Semantic Units (Measure of Comprehension)

1 Shaimaa Ibrahim/Egyptian girl

2 forced to work

3 since age of 10

4 Rich family

5 Egyptian family

6 California

7 Big house with five rooms

8 hard & difficult life, bad condition

9 Taking care of the kids

10 keeping things in order, chores

11 cleaning, wash clothes and hang them

12 Work and no holiday

13 working to pay back the family debt

14 living in a garage

15 working for $ 45

16 kids provoke and call her a fool and maid

17 Mother beats her and insults her,

18 Adopted by a nice man

19 big house

20 finished high school

21 doesn't want to sue to avoid problems

22 likes to think about things

23 wants to become a police officer

Appendix VII: Raw Vocabulary List per Student

ID #	أجير/أجير على	معاناة	ثرية	قاسية	يتكوّن من	ملائمة	للتدفئة	للانارة	الظلام	يسمونها	الحمقاء	اشتكى	يصفع
C 14	أجير/أجير على			قاسية		ملائمة	للتدفئة				الحمقاء		يصفع
C 15	أجير/أجير على	معاناة				ملائمة	للتدفئة	للانارة			الحمقاء		يصفع
C 11					يتكوّن من		للتدفئة	للانارة		يسمونها	الحمقاء		يصفع
C 12	أجير/أجير على				يتكوّن من	ملائمة	للتدفئة	للانارة			الحمقاء	اشتكى	يصفع
C 6							للتدفئة		الظلام				يصفع
C 7	أجير/أجير على	معاناة				ملائمة	للتدفئة		الظلام				
C 8	أجير/أجير على		ثرية	قاسية		ملائمة	للتدفئة			يسمونها	الحمقاء		يصفع
C 9				قاسية					الظلام			اشتكى	يصفع
C 10													يصفع
C 2	أجير/أجير على	معاناة		قاسية	يتكوّن من	ملائمة	للتدفئة	للانارة			الحمقاء	اشتكى	يصفع
C 3	أجير/أجير على	معاناة		قاسية	يتكوّن من	ملائمة	للتدفئة	للانارة				اشتكى	يصفع
C 4	أجير/أجير على	معاناة		قاسية	يتكوّن من	ملائمة	للتدفئة	للانارة				اشتكى	يصفع
T 9		معاناة			يتكوّن من	ملائمة	للتدفئة	للانارة		يسمونها	الحمقاء		يصفع
T 8	أجير/أجير على					ملائمة	للتدفئة	للانارة	الظلام				يصفع
T 1	أجير/أجير على			قاسية		ملائمة		للانارة			الحمقاء		يصفع
T 2		معاناة		قاسية	يتكوّن من		للتدفئة					اشتكى	يصفع
T 3	أجير/أجير على			قاسية			للتدفئة		الظلام		الحمقاء		يصفع
T 4		معاناة		قاسية			للتدفئة		الظلام		الحمقاء	اشتكى	
T 5	أجير/أجير على	معاناة				ملائمة	للتدفئة			يسمونها		اشتكى	يصفع
T 6				قاسية	يتكوّن من	ملائمة		للانارة					
T 7	أجير/أجير على	معاناة		قاسية							الحمقاء	اشتكى	يصفع
T 11						ملائمة	للتدفئة					اشتكى	يصفع
T 12		معاناة	ثرية	قاسية	يتكوّن من	ملائمة	للتدفئة	للانارة	الظلام	يسمونها		اشتكى	يصفع
T 13		معاناة	ثرية			ملائمة	للتدفئة				الحمقاء	اشتكى	يصفع
T 14		معاناة										اشتكى	يصفع
T 15							للتدفئة				الحمقاء	اشتكى	يصفع
T 16				قاسية	يتكوّن من		للتدفئة	للانارة				اشتكى	يصفع

Appendix VI: Raw Vocabulary List per Student *(continued)*

ID #	يشتم	عاقب	تباناها	عطف على	مقاضاة	في غنىً عنها	أفسد	سداد الديون	raw voc	corr raw
C 14	يشتم					في غنىً عنها	أفسد	سداد الديون	10	2
C 15	يشتم		تباناها			في غنىً عنها			10	0
C 11	يشتم	عاقب	تباناها	عطف على	مقاضاة	في غنىً عنها			12	0
C 12	يشتم	عاقب		عطف على		في غنىً عنها			12	0
C 6			تباناها		مقاضاة				5	3
C 7		عاقب			مقاضاة	في غنىً عنها			8	3
C 8		عاقب	تباناها		مقاضاة	في غنىً عنها			12	5
C 9	يشتم	عاقب	تباناها	عطف على		في غنىً عنها			9	0
C 10	يشتم	عاقب	تباناها	عطف على		في غنىً عنها			6	2
C 2	يشتم		تباناها			في غنىً عنها	أفسد	سداد الديون	15	3
C 3		عاقب	تباناها	عطف على	مقاضاة	في غنىً عنها	أفسد	سداد الديون	16	4
C 4	يشتم		تباناها	عطف على		في غنىً عنها			13	4
T 9	يشتم	عاقب		عطف على		في غنىً عنها			12	2
T 8	يشتم			عطف على		في غنىً عنها			9	3
T 1	يشتم	عاقب	تباناها	عطف على		في غنىً عنها		سداد الديون	12	4
T 2		عاقب		عطف على	مقاضاة	في غنىً عنها			10	2
T 3		عاقب	تباناها				أفسد	سداد الديون	10	1
T 4	يشتم	عاقب				في غنىً عنها			9	3
T 5	يشتم	عاقب	تباناها	عطف على		في غنىً عنها	أفسد	سداد الديون	14	4
T 6		عاقب	تباناها	عطف على			أفسد	سداد الديون	9	4
T 7	يشتم			عطف على	مقاضاة	في غنىً عنها		سداد الديون	11	1
T 11		عاقب			مقاضاة	في غنىً عنها			7	2
T 12		عاقب				في غنىً عنها		سداد الديون	14	0
T 13			تباناها	عطف على	مقاضاة	في غنىً عنها		سداد الديون	12	5
T 14			تباناها		مقاضاة	في غنىً عنها			6	3
T 15	يشتم	عاقب		عطف على	مقاضاة	في غنىً عنها	أفسد	سداد الديون	11	3
T 16	يشتم			عطف على	مقاضاة	في غنىً عنها			10	0