A COMPARISON OF RECALL OF FILM ELEMENTS BETWEEN SUBTITLED AND DUBBED VERSIONS AMONG CHINESE STUDENTS

YUEZHUO SU

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of

MASTER OF ARTS IN INDIVIDUAL AND FAMILY STUDIES

Graduate School of Psychology
ASSUMPTION UNIVERSITY
THAILAND

July 2008

A COMPARISON OF RECALL OF FILM ELEMENTS BETWEEN SUBTITLED AND DUBBED VERSIONS AMONG CHINESE STUDENTS

YUEZHUO SU

A Thesis Submitted in Partial Fulfillment

of the Requirements for the Degree of

MASTER OF ARTS IN INDIVIDUAL AND FAMILY STUDIES

Graduate School of Psychology

ASSUMPTION UNIVERSITY

THAILAND

July 2008

A COMPARISON OF RECALL OF FILM ELEMENTS BETWEEN SUBTITLED AND DUBBED VERSIONS AMONG CHINESE STUDENTS

YUEZHUO SU

Pages:86 July 2008

The purpose of this study was to find out the comparison of recall of film elements between subtitled and dubbed version in Chinese student.

APPROVED:

VORAPOT RUCKTHUM, Ph.D.
Chairperson

CHANCHA SUVANATHAT, Ed. D.
Member

CHRISTINE BIERDRAGER, Ph.D.
Advisor

MARIA BELLA BAMFORTH, Ph. D.
Member

HOLLY DUGAN, Ph. D.

A COMPARISON OF RECALL OF FILM ELEMENTS BETWEEN SUBTITLED AND DUBBED VERSIONS IN CHINESE STUDENTS

YUEZHUO SU

ABSTRACT

The main purpose of this study was to examine the difference between the recall of two types of foreign language films (i.e., dubbed, subtitled) and the recall of its film elements, based on questions that focused on visual elements or dialogue. Likewise, the study aimed to investigate what kinds of individual factors (gender, age, perceived English proficiency, perceived reading speed, and reported stress level) influence the memory for film detail.

Based on the findings of this study, there was a significant difference in the total recall scores between a group of Chinese students who watched the movie with subtitles and another group of Chinese students who watched the movie in a dubbed version. Chinese students who watched the dubbed movie scored significantly higher in the recall of movie elements compared to their counterparts, namely the Chinese students who watched the movie with subtitles.

There was a significant difference in the recall of visual and dialogue elements between the dubbed and subtitled groups, with the dubbed group having better recall of both elements, but especially visual elements.

The study also found a positive, moderately high, significant relationship between

total recall for the movie and perceived English proficiency, and perceived reading speed. The relationship between total recall scores and reported stress level indicated a negligible, insignificant relationship between the variables. For age, there was a positive, moderately low, significant relationship between the variables. Overall, perceived English proficiency, perceived reading speed, and age accounted for 43.6% of the variances in recall of movie elements.

The study also found a significant difference between male and female on total recall scores.

ACKNOWLEDGEMENTS

I would like to express my appreciation to many people whose encouragement cooperation and assistance made this study come true.

First of all, I would like to thank my parents, who are always beside me, encouraging me to overcome obstacles during difficult times.

My appreciation and special thanks go to Dr. Vorapot Ruckthum, the Dean of Graduate School of Psychology, for his suggestions, and advice. He has devoted his time to giving useful information and encouragement to his students.

I would like to express my sincere gratitude to Dr. Christine Bierdrager, my advisor, who encouraged me whenever she could and gave useful counsel when she found weak points in my study.

A special note of gratitude is due to Dr. Edward Krishnan for his suggestions and the revision of my statistical analyses.

Thanks to Daisy and Yvonne for their persuasiveness and self-sacrificing; without their kindness, friendships, and support, this would not have been a success.

My close friend Lisa and her expertise and guidance on SPSS have been a great help to me.

Finally, I would like to take this opportunity to thank all my MSCP teachers who equipped me with the knowledge to complete this thesis.

Y.Z.S

TABLE OF CONTENTS

LSIT OF TABLES

LIST OF FIGURES

A COMPARISON OF RECALL OF FILM ELEMENTS BETWEEN SUBTITLED AND DUBBED VERSIONS AMONG CHINESE STUDENTS

APPROVED:

VORAPOT RUCKTHUM, Ph.D.
Chairperson

CHRISTINE BIERDRAGER, Ph.D.
Advisor

CHAPTER I

Introduction

Background of the Study

According to Grignon, Lavaur, and Blanc (2007), the comprehension of a film depends on the processing of various types of information viewers simultaneously encounter: visual elements (e.g., framing, make-up, lighting, etc.), sound elements (i.e., non-linguistic information such as noise or music), and linguistic elements (i.e., dialogues) and which contribute to the understanding of a film. The researcher was interested to see if the mode of presentation of a foreign film (subtitled or dubbed) will influence its recall, in terms of its visual, and dialogue elements. Subtitles are textual versions of the dialogue in films and television programs, whereas "dubbed" refers to a special version of the film where the actors' voices are in another language. This researcher was particularly interested in looking at these variables for Chinese students living in China. Some of the key studies that prompted this idea are presented below.

It well admitted that visual elements play a crucial role in film understanding and, more specifically, in the generation of predictive inferences; moreover, it has already been demonstrated that visual elements help viewers in detecting temporal and spatial shifts in the situation displayed (Magliano, Miller, & Zwaan, 2001). The influence of nonverbal communication conveyed by the characters present at the screen could favor the comprehension of a foreign language. Indeed, Sueyoshi and Hardisson (2005) demonstrated that the same verbal message is better memorized when the framing

allows the audience to see both the face and the body of the person on the screen, rather than his/her face only.

Not only do viewers spontaneously use visual elements to understand a film, but they also automatically process the subtitles that appear on the screen. D'Ydewalle, van Rensbergen, and Pollet (1987) showed evidence for the fact that reading subtitles is an automatic behavior in film understanding. Indeed, these authors observed that immediately after the appearance of the subtitles on the screen, viewers focused their attention on them, whatever the degree of knowledge they had of the spoken language on the film. Hence, this researcher wanted to see if recall is affected by shifting attention to the subtitles, as attention is a very important factor for reading subtitles or when listening to a dubbed film. However, a Swedish study looking at subtitling or dubbing found that less than five percent of the time was spent on reading subtitles. This phenomenon appeared even when the audiotape and the subtitles were in the mother tongue of the viewers (D' Ydewalle et al., 1987).

Attention to a foreign movie can be influenced not only by whether one reads subtitles or listens to dubbed films, but is also controlled by other factors. For example, Niedenthal and Kitayama (1995) showed that biologically significant stimuli, such as emotional faces (and angry faces in particular) automatically capture our attention. There are also differences between Eastern and Western cultures based on different ways of viewing things. A study conducted by the University of Michigan (Richard, 2001) found that North Americans spent a longer time looking at the foreground image than the Chinese, whereas the Chinese spent more time looking at the background

images.

It has also to be mentioned that the reading speed of subtitles is not sensitive to viewers' differences in watching subtitled films. Thus, participants less accustomed to watching subtitled films do not read the subtitles more slowly than participants who are used to watching subtitled films (D' Ydewalle et al., 1991).

Research Objectives

The general aim of this study was to examine the difference in recall rates between two types of foreign language films (i.e., dubbed, subtitled) and the recall of film elements, based on questions that focus on visual elements or dialogue. Likewise, the study aimed to investigate what kinds of individual factors (gender, age, perceived English proficiency, perceived reading speed, and reported stress level) influence the memory for film detail.

Statement of the Problem

In the era of globalization, with faster and faster methods of sharing electronic media, more cultures are faced with language barriers. Subtitles and dubbed films allow for non-native speakers to access such information. In China, theaters are required to offer both types of foreign language films (i.e., dubbed, subtitled) in order to allow more people to comprehend the movie, thus people from all over the world living in China can see these movies. Most young people in China are more likely chose subtitled films in order to learn English (from native speakers) and to experience the

feelings from hearing the original sounds. However, there are few studies comparing these two forms of film sequences. As the world moves towards providing audiovisual training, entertainment, and so forth across international borders, this study hopes to explore any differences in recall rates based on stimulus aspects of the data (visual, auditory), and according to individual differences, across these two types of film. As the researcher is Chinese, this was felt to be a suitable population with which to address the research question, using a Western movie in an Eastern context.

Research Hypotheses

The purpose of this study was to see if the mode of presentation (subtitled or dubbed) of a foreign film influences its recall, and in terms of its visual and dialogue elements. Based on the research objectives and statement of the problem of the study, the following null hypotheses were formulated:

Ho1. There is no significant difference in the total recall scores of movie details between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the 0.05 level.

Ho2. There is no significant difference in the recall scores of visual elements between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the 0.05 level.

Ho3. There is no significant difference in the recall scores of dialogue elements between a group of Chinese students who watch the movie with subtitles and

another group of Chinese students who watch the movie in a dubbed version, at the 0.05 level.

Ho4. There is no significant difference between male and female Chinese students on total recall scores.

Ho5. There is no significant relationship among the following variables, at the 0.05 level:

1) Perceived English Proficiency

2) Perceived Reading Speed

3) Reported Stress Level

4) Age of Respondents

This research is also interested in looking at English proficiency in the parents of the students, how fashionable students think they are, how often they regularly see movie with subtitles, and how happy they rate themselves, as these factors may also affect choice of subtitled or dubbed movie. These variables will be analyzed for descriptive purposes only.

Significance of the Study

This study would raise general awareness about whether the presence of subtitles enhances the comprehension of a film sequence but, at the same time, would disrupt the memory for its visual elements. In other words, whether the comprehension of a film sequence would vary as a function of its mode of presentation: with or without subtitles,

or with or without the presence of the mother tongue of the participants. The researcher also expects that some individual factors (i.e., gender, age, reading speed, and perceived level of English) can influence the understanding and memory of different scenes in the film. The study will be beneficial to the viewers themselves by helping them to select which kinds of the versions of the film sequence (i.e., dubbed, subtitled) is better suited to them. This study has implications for educational, counseling, and training videos used across cultures, in order to provide the best recall.

Definition of Terms

The following constructs will be operationalized as stated below for the purpose of this study:

Perceived Reading Speed (fluency) (RS):

According to Carroll (1993), reading speed refer to the ability to silently read and comprehend connected text (e.g., a series of short sentences; a passage) rapidly and automatically (with little conscious attention to the mechanics of reading). In this study, reading speed would be a self-rated measure from 1 to 7 based on perceived reading ability compared to other Chinese students.

Perceived Level of English Proficiency

In this study, English proficiency would be a self-rated measure (is this valid) from 1 to 7 based on perceived English ability, as "compared to other Chinese students".

Perceived Stress

Stress has been described as the arousal of mind and body in response to demands

made on them. Stress is an inevitable part of living and can be experienced as neustress, eustress, or distress in term of impact (Schafer, 2000). In this study, the researcher used three items from the Perceived Stress Scale (PSS) to roughly gauge current level of stress, as stress may contribute to cognitive overload, hence ability to attend. As stress was not a primary variable, the number of questions assessing this variable was limited to a few questions. The stress level was a composite score of three PSS items plus one item, "I felt tired before the movie ("The Longest Yard") started."

CHAPTER II

Literature Review

This research planned to study the relationship between versions of a film (i.e., dubbed, subtitled), type of stimuli (i.e., visual element, dialogues), and individual factors with in terms of recall (attention and memory). The review of related literature to support this study were presented under the following headings: (a) Overview of attention and memory; (b) research on attention and memory comparing subtitles and dubbed movies, (c) the biological significance of stimuli; (d) the relationship between memory and individual factors (i.e., gender, age, culture); (e) research on attention and memory using Chinese students; and (f) the relationship between stress and verbal memory for a film (cognitive overload).

Overview of Attention and Memory

Cognitive Psychology covers the empirical investigation of mental processes and activities used in perceiving, remembering, and thinking, and the act of using those processes. Strayer et al., (2003) add that major research areas in Cognitive Psychology includes perception, categorization, memory, knowledge representation, numerical cognition, language and thinking. Perception includes attention, where attention is the cognitive process of selectively concentrating on one aspect of the environment while ignoring other things.

As early as 1858, Franciscus Donders used mental chronometry to study attention

(Franciscus, 1858 -- as cited in Nesbitt, 2004). In the 1950s, research psychologists renewed their interest in attention when the dominant epistemology shifted from positivism to realism during what has come to be known as the "cognitive revolution" (Deutsch & Deutsch, 1963). In the 1990s, psychologists began using positron emission tomography (PET) and later functional magnetic resonance imaging (fMRI) to image the brain in attentive tasks (Posner & Raichle, 1994). Current research areas of active investigation involve determining the source of the signals that generate attention, the effects of these signals on the tuning properties of sensory neurons, and the relationship between attention and other cognitive processes like working memory (Wright & Ward, 2008).

Memory is an organism's ability to store, retain, and subsequently retrieve information. Cognitive psychology represents the dominant approach in psychology today. A primary focus of this approach is on memory (the storage and retrieval of information), a subject that has been of interest for thousands of years. The late nineteenth and early twentieth century put memory within the paradigms of cognitive psychology. The most widely accepted theory is labeled the "stage theory," based on the work of Atkinson and Shriffin (1968). The focus of this model is on how information is stored in memory; the model proposes that information is processed and stored in 3 stages. In this theory, information is thought to be processed in a serial, discontinuous manner as it moves from one stage to the next.

Sensory memory (STSS). Sensory memory is affiliated with the transduction of energy (change from one energy from to another). The environment makes available a

variety of sources of information (light, sound, smell, heat, cold, etc.), but the brain only understands electrocheanical energy. The body has special sensory receptor cells that transduce (change from one form of energy to another) this external energy to something the brain can understand. In the process of transduction, a memory is created. This memory is very short (less than 1/2 second for vision; about 3 seconds for hearing) (Atkinson & Shriffin, 1968).

Short-term memory (STM). Short-term memory is also called working memory and relates to what we are thinking about at any given moment in time. In Freudian terms, this is conscious memory. It is created by our paying attention to an external stimulus, an internal thought, or both. It will initially last somewhere around 15 to 20 seconds unless it is repeated (called maintenance rehearsal) at which point it may be available for up to 20 minutes. The hypothalamus is a brain structure thought to be involved in this shallow processing of information. The frontal lobes of the cerebral cortex are the structure associated with working memory (Atkinson & Shriffin, 1968).

Another major limit on information processing in STM is in terms of the number of units that can be processed any one time. Miller (1956) gave the number as 7 + 2, but more recent research suggests the number may be more like 5 + 2 for most things we are trying to remember.

Long-term memory (LTM). Long-term memory is also called preconscious and unconscious memory in Freudian terms. Preconscious means that the information is relatively easily recalled (although it may take several minutes or even hours) while unconscious refers to data that is not available during normal consciousness. It is

preconscious memory that is the focus of cognitive psychology as it relates to long-term memory. The levels-of-processing theory, however, has provided some research that attests to the fact that we "know" more than we can easily recall (Atkinson and Shriffin, 1968).

In recent decades, memory has become one of the principal pillars of cognitive neuroscience a branch of science linking cognitive psychology and neuroscience. A basic and generally accepted classification of memory is based on the duration of memory retention, and identifies three distinct types of memory: sensory memory, short- term memory and long- term memory (Schacter, 1996).

Anderson (1976) divides long-term memory into declarative (explicit) and procedural (implicit) memories. Declarative memory can be further sub-divided into semantic memory and episodic memory. Semantic memory allows the encoding of abstract knowledge about the world. Episodic memory, on the other hand, is used for more personal memories, such as the sensations, emotions. Autobiographical memory is memory for particular events within one's own life. Visual memory is part of memory preserving some characteristics of our senses pertaining to visual experience.

Research on Attention and Memory Comparing Subtitles and Dubbed Movies

Dubbed versions of English-language films are for people who do not understand English. Subtitling is inexpensive and quick to add than dubbing. Dubbing is the favored form in some countries, such as Germany, Italy, France and Spain (Ramez, 1996). However, the proportion of subtitling is slowly growing, mainly to save cost and

turnaround-time, but also due to a growing acceptance among younger generations, who are better readers and increasingly have a basic knowledge of English (the dominant language in film and TV) and thus prefer to hear the original dialogue. Recently, preference for subtitles or dubbing varies according to individual taste and reading ability, and theaters may order two prints of the most popular films, allowing moviegoers to choose between dubbing and subtitles (Ramez, 1996).

Based on this background, essays at a Swedish university (Holmqvist, 2000) focused on an intuitive argument against subtitling and in favor of dubbing, in that subtitling deteriorates the understanding of the material, when one continually moves one's gaze and attention away from the action and towards the subtitles. The researcher wondered if subtitling instead of dubbing could be assumed to exercise a negative influence on the actual understanding/perception of coherence of audio-visual material such as movies and TV programs. In order to find out, the therapists had seventeen subjects to watch the initial 28 minutes of the French movie 'Asterix and Obelix vs. Caesar'. Half (9) saw a French spoken version with Swedish subtitles, and half (8) saw a version dubbed with Swedish speech. From eye-gaze measurements, the amount of time spent on reading subtitles was calculated, and the study found that less than five percent of the time was spent on reading subtitles. In the discussion it is argued that the reading of subtitles does not exercise a negative influence on the actual understanding of the material and that the use of subtitling contribes to an increased understanding of the both languages (Holmqvist, 2000).

A Investigation into the effects of using Spanish captions, English captions, or no

captions with a Spanish language soundtrack on intermediate university-level Spanish as a Foreign Language students' listening/reading comprehension from University of Kansas (Markham & Peter, 2003). The statistically significant results revealed that the English captions group performed at a considerably higher level than the Spanish captions group which in turn performed at a substantially higher level than the no captions group on the listening test.

The Biological Significance of Stimuli

A biologically significant stimulus automatically captures our attention. Niedenthal and Kitayama (1994) showed that biologically significant stimuli, such as emotional faces, automatically capture our attention. When emotional faces (for example, angry) are showed in the film, the viewer will be expected to pay more automatically attention. This finding may be a factor in the discussion of the results of this study.

The Relationship between Memory and Culture

Memory is functional, no matter whether it is about semantic knowledge of the world or of significant personal experiences from an individual's life, that is, autobiographical memory. Many contemporary researchers posit that the retention of personal information strongly depends on the functional significance of such information in sustaining an individual's current goals, self-theories, attitudes, and beliefs (Baddeley, 1988). Little is known, however, about the specific ways these memory functions manifest in the context of culture, in spite of the critical role of

culture in shaping personal remembering.

In addition, the cultural conception of selfhood determines the perceived importance of autobiographical memory in constituting one's self and identity. It is a predominant view in Western philosophy and psychology that the self is developed, expressed, and reconstructed from one's accumulated life history (Bruner, 1990; Hume, McAdams, 1993; Nelson, 1996; Pillemer, 1998; Singer & Salovey, 1993 -- all as cited in Nisbett, 2004). In order to limit possible confounding variables, the researcher will show the English-language movie to Chinese students living in China.

The Relationship between Memory and Age

Cultural theories pertinent to self and its development foreshadow possible similarities and differences in memory uses across cultures. As theorists assert, the ultimate goal of human development in any society is to establish social connections and to achieve individuation (Costanzo, 1992; Damon, 1983; Harter, 1999; Kagitcibasi, 1996; Kihlstrom, 1993; Spiro, 1993 -- all as cited in Nisbett, 2004). Consequently, individuals develop both personal and social identities through their cultural experiences. During the early years of life, the child develops a sense of individual agency and, in the meantime, learns about the rules and conventions of their society.

The youth period is the time for education and employment training, followed by the establishment of an early career. An essential goal of this period is for an individual to develop an identity that comprises both unique personal attributes and important social roles and categories. Whether this affects choice of dubbed versus subtitled

movies remains to be seen, although subtitled movies are associated with being "fashionable", hence peer influences may be more apparent among teenagers in this study.

When individuals reach early midlife, many have career and family both in place. They are expected to be responsible not only for themselves but also for others in the family, community, workplace, and so on. During peak midlife, individuals are reaping the rewards of career and family and their personal and social identities become further stabilized. Thus, through ontogenetic development individuals incorporate increasing autonomy and relatedness in the construction of their self and identity (Kagitcibasi, 1996). This study will focus only on Chinese students from middle school to university to see if there are any effects on recall of film data based on age.

The Relationship between Memory and Gender

Gender differences provide one channel to examine the use of memories in constructing the autonomous and relational sense of self. Theorists argue that multiple societal influences lead women to focus on social connectedness and men to focus on individual agency and autonomy (Gilligan, 1992; Cross & Madson, 1997). Accordingly, empirical research has shown that women tend to provide memories with detailed interpersonal episodes and vivid emotions, whereas men tend to provide skeletal descriptions of personal events focusing on independence and often remember for the purpose of savoring a triumph or evaluating their progress in life (Davis, 1999; Merriam & Cross, 1982; Ross & Holmberg, 1990; Thorne, 1995 -- as cited in Nisbett, 2004).

Hence, this study will investigate whether gender is implicated in the recall of the dubbed or subtitle film, including type of film sequence.

Research on Attention and Memory with Chinese Students

A research team from labs at Michigan headed by Hedden, Park, Nisbett, Jing, Jing, Jiao, and Yao (2000) examined how memory for words would be affected by the type of pictorial background they appeared on. The test showed there was no difference between Chinese and Americans in recall of words initially presented on a non-social background or on no background, but Chinese participants recalled more words that had been presented on social backgrounds than did American participants. Memory for the pictures of people apparently served as a retrieval cue for the words emblazoned on them, indicating that the Chinese had paid more attention to the social cues than the Americans.

Developmental psychologists Han, Leichtman, and Wang (1998) asked four- and six-year-old American and Chinese children to report on daily events. They found three remarkable things: First, although all children made more references to themselves than to others, the proportion of self-references was more than three times higher for American children than that provided for Chinese children. Second, the Chinese children provided many small details about events and described them in a brief, matter-of-fact fashion. American children talked in a more leisurely way about many fewer events that were of personal interest to them. Third, American children made twice as many references to their own internal states. In short, for American children: "Well, enough about you; let's talk about me."

Asians have a more holistic view of events, taking into perspective the orientation of other people, as also indicated by a study by social psychologists Cohen and Gunz (2002). They asked North American students and Asian students to recall specific instances of ten different situations in which they were the center of attention. North Americans were more likely than Asians to reproduce the scene from their original point of view, looking outward. Asians were more likely to imagine the scene as an observer might, describing it from a third-person perspective.

Americans provided more memories of individual experiences and unique, one-time events, and focused more on their own roles and emotions. In contrast, Chinese were more inclined to recall memories of social and historical events and placed a great emphasis on social interactions and significant others in their memory narratives. Chinese also more frequently drew upon past events to convey moral messages than did Americans.

Richard Nisbett, a social psychologist from the University of Michigan, conducted an experiment (1999) in which the test subjects of the experiment were 25 American and 27 Chinese students. Each of them was shown 36 photos, and they were allowed to see each photo for 3 seconds. Nisbett's experiment shows that American test subjects spent a longer time looking at the foreground image than the Chinese test subjects did. The Chinese test subjects spent more time looking at the background images and less time on the foreground images. When the test subjects were given memory tests afterwards, the Chinese test subjects could remember the background images more clearly and the American test subjects could remember the foreground images more

clearly. Hence, it appears that a study focusing on the visual recall of Chinese living in China may be pertinent (rather than Chinese living abroad), as in the design of this study.

The Relationship between Stress and Verbal Memory for a Film

The effect of psychosocial stress on distinct memory processes was investigated by Beckner, Tucker, Delville, and Mohr (2006). In 157 college students using a brief film, which enabled comparison of verbal and visual memory by using a single complex stimulus. The result shows that stress facilitates consolidation of verbal memory for a film but does not effect retrieval. However, cognitive overload may be a factor that affects recall.

Research on cognitive overload. Cognitive overload is the result of excessive demands made on the cognitive processes, in particular memory. It happens when the working memory can no longer process information in the quantities or at the speed with which it is being presented. Cognitive overload was a concept developed in the 1980s but, as with any scientifically based theory, it takes a while before enough people do enough research to validate its credibility. Cognitive overload deals with three memory types: sensory, working and long-term. Sensory memory is what you see and hear; working memory is what you are thinking about; long-term memory contains the knowledge and skills we have processed and retained (Dale, 1993).

Conclusion

The above literature review suggests that recall of film data may be affected by emotionally-laden visual, and/or dialogue data. Culture may affect recall of film data. But there are no studies that suggest that these of subtitles and dubbing may affect recall of film data differently. Therefore, this research will compare Chinese students in their recall of subtitled or dubbed versions of an English-language film. The research will also measure recall of film data between visual and dialogue stimuli between subtitled or dubbed versions. The literature suggests that age, gender, and stress (cognitive overload) may be related variables; therefore these variables were also investigated in this study.

CHAPTER III

Research Methodology

The research methodology was presented in the following order: (a) Research Design, (b) Participants of the study, (c) Instrumentation, (d) Data Collection Procedure, (e) Data Analysis.

Research Design

This study utilized a quantitative, comparative experimental research design. The researcher made use of two modes of presentations: original of English language and Chinese subtitles, and a Chinese dubbed version of the same film. The simple experimental design was XO for two independent groups (dubbed or subtitled versions of the movie).

Participants of the Study

The population of the study consisted of 300 students at a junior high school, senior high school and an university in China. The junior high school and senior high school students would be from one famous school in the capital of China (Beijing). The university students would be from the college of Communication Arts in Beijing as well. Their ages range from 12 years to 26 years old. There was a total of 300 participants in this study; there were 141 males (47%) and 159 females (53%). The researcher purposefully selected an equal number of participants from each age group (12-15, 16-18, 19 and over) and grade (junior, senior, bachelor's). Hence, there were 100 people

in each group, or 33.3% of the total in each group. There were also exactly half the participants who saw the subtitled version and half who saw the dubbed version of the movie. Therefore, there were 50 people per cell according to age / grade, and version of the movie.

The pretest of the research instrument was conducted with 30 students from Assumption University and included 27 students from China and 3 other foreign students studying in Thailand.

Instruments of the Study

The research instrument that would be employed to gather data for this study was a survey questionnaire, written in the Chinese language, which consists of a set of two sections, as follows:

Part I. Personal Information and Demographic Questionnaire.

The first part of the research instrument was a demographic questionnaire. The first three items were age, gender and grade in your school. The next ten questions asked the participant to self-rate their English proficiency, parents' English proficiency, reading speed, history of watching movies with subtitles, fashionableness of seeing a subtitled movie, tiredness, and happiness. The questions were all worded in a positive direction, with individuals indicating their opinion on a seven-point, likert-type scale that ranged from "strongly disagree" to "strongly agree." Finally three items were selected from the Perceived Stress Scale (PSS). The first item was, "In the last week, how often have you

felt nervous and "stressed"?; the second item was, "In the last week, how often have you found that you could not cope with all the things that you had to do?"; and the last item was, "In the last week, how often have you felt difficulties were piling up so high that you could not overcome them?" These three items were selected because they were specifically directed at perceived stress and possible cognitive overload associated with stress. The total score for the three items was used.

The original PSS is a 10-item scale measuring the degree to which situations in one's life are appraised as stressful. The questions are all worded in a negative direction, with individuals indicating how often they felt that way, as described on a five-point scale that ranged from "never" to "very often". The Perceived Stress Scale (PSS) was originally developed by Cohen and Williamson (1988). The PSS assesses global perceptions of stress with a rationale that stressful events can increase risk of health problems when they are appraised as threatening or otherwise demanding. The PSS provides information about the process through which stressful events influence pathology, and also can be used to assess whether a factor known to moderate stress-illness relations, such as social support, operates through its influence on stress appraisal or through some other pathway. The scale can be used to investigate the role of overall stress appraisal and situations in which the objective sources of stress are difficult to measure. The PSS also can be viewed as an outcome measure examining the experienced level of stress as a function of objective stressful events, coping processes, and personality factors.

The stress level was a composite score of three PSS items plus one item, "I felt

tired before the movie ("The Longest Yard") started." All items were on a 7- point, likert-type scale. Items 7, 11, 12, 13 with higher scores indicated greater stress. The internal reliability for part I of the research instrument (question 4 -- question 13) had good internal consistency, with an alpha of .72.

Part II. Sixteen questions related visual, and dialogue elements of the film.

The second part of the research instrument is a questionnaire that includes visual and dialogue comprehension elements. The sixteen questions were multiple choice test items.

Scoring: visual scores were the sum of the responses to items 1, 3, 5, 7, 9, 11, 13, and 15. Dialogue scores were the sum of the responses to items 2, 4, 6, 8, 10, 12, 14, and 16. Part II of the research instrument had good internal consistency, with an alpha of .74.

Instrument Translation

Translation of the above instruments was done by two Chinese professionals who teach English at a University in Beijing, China. Both professional English teachers have Master's degrees in Arts of English language and also have prolific experiences with English-Chinese translation.

Data Collection Procedure

Pretest of the Research Instrument

To test the internal consistency of the questionnaire, the researcher conducted a

pretest study with 30 students who were not included in the population (.72, Part I, .74, Part II). The pretest study was using a room from the Graduate School of Psychology at Assumption University, Bangkok, Thailand. The pretest was conducted to establish the readability and comprehension of the questionnaire's directions and item questions for the respondents. As a result, the items that most respondents could not answer and those everyone got right were removed.

Data Collection

Students were invited to see the movie at a local cinema in Beijing. They could choose between the dubbed or subtitled versions. After showing, viewers were given the research instrument to complete. Before administering the survey questionnaire, the researcher showed one English- language film ("The Longest Yard") using the mode of presentation of subtitled and dubbed (Chinese).

"The Longest Yard" is not very famous film in China, but the content is about sports and relationships. If the film is famous in China, many people are more likely to have seen the film, and the researcher cannot control the level of memory.Therefore, "The Longest Yard" is very compatible with the researcher requirements.

Data Analysis

After completion of data collection, the researcher used various statistical methods to analyze the collected data, using the Statistical Package for Social Sciences (SPSS 11.0). All information was summarized for further analysis.

1 . Frequency data (e.g. means, *SD*) were used to describe the characteristics of the demographic variables and individual characteristics of the respondents.

2 . An independent samples *t*-test was used to evaluate the difference in total recall scores of movie detail between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version.

3 . An independent samples *t*-test was used to evaluate the difference in the visual recall scores of movie elements between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version.

4. An independent samples *t*-test was used to evaluate the difference in the dialogue recall scores of movie elements between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version.

5. An independent samples *t*-test was used to evaluate the difference between male and female Chinese students on total recall scores.

6. Pearson's *r* correlation coefficient was used to test for relationship significance between total recall scores of movie detail and perceived English proficiency, perceived reading speed, reported stress level and age of respondents.

7. A simple regression analysis was used to further investigate the predictability of the main variable in the context of these individual variables significantly correlated to the total scores on recall of movie elements.

CHAPTER IV

Results

Presentation and Analysis of Data

This chapter reports the results obtained from this study. The findings of the study are presented in the follow sequence:

1. Section 1: Descriptive Statistics -- analysis of the demographic and individual characteristics of the respondents.

   Note: The research realized that the age and grade variable cover exactly the same participants, so the grade variable was deleted from analysis, as an interpretation related to age will apply equally to grade.

2. Section 2: Inferential Statistics -- individual hypothesis testing for statistical significance.

3. Section 3: Additional analysis of items the researcher was interested in, including looking at the English proficiency of the parents of the students, how fashionable the students think they are, and how often they regularly see movie with subtitles, and how happy they think they are, as these factors might also affect students' choice seeing a subtitled or dubbed movie.

Section 1. Descriptive Statistics

Individual Characteristics of the Respondents

Gender. The frequency and percentage distribution of the respondents in terms of gender were shown in the following figure 1. There were 141 males and 159 females with the percentage of 47% and 53%, respectively. More than half of the respondents were females.

Figure 1. Percentage distribution of gender.

Figure 2. Distribution of perceived English proficiency across gender for Chinese students.

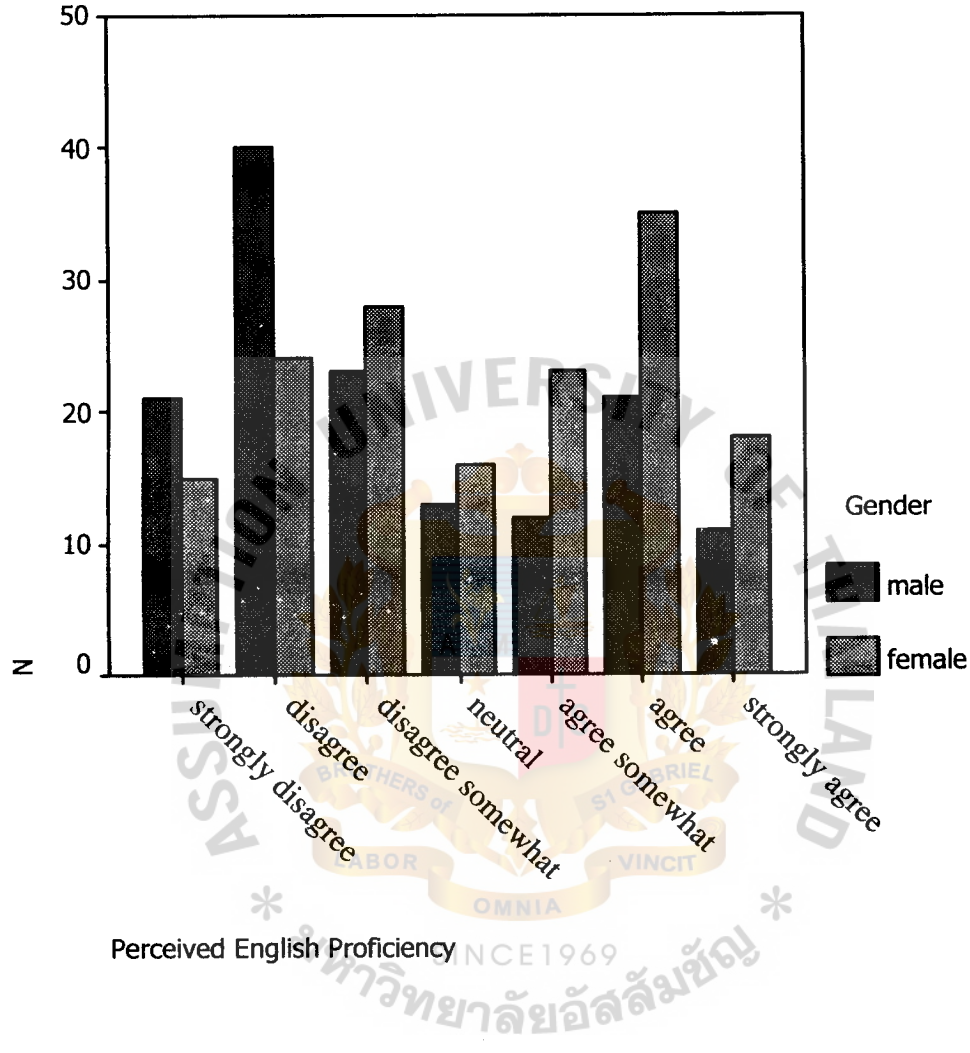

Table 1

Group Statistics of Perceived English Proficiency across Gender

		Perceived English Proficiency	
		M	SD
Gender	Male	3.44	1.93
	Female	4.16	1.92

Figure 2 shows the frequency distribution of the respondents in terms of perceived English proficiency. Perceived English proficiency was defined as a standard from strongly disagree to strongly agree by 1-7 levels. From Figure 2 and Table 1, it can be seen that the modal store for male respondents was "disagree" and for females, "agree". The mean perceived English proficiency score was 3.44 (*SD* = 1.93) for males and 4.16 (*SD* = 1.92) for females. Males had a lower perceived English proficiency than females.

Figure 3. Distribution of perceived reading speed across gender among Chinese students.

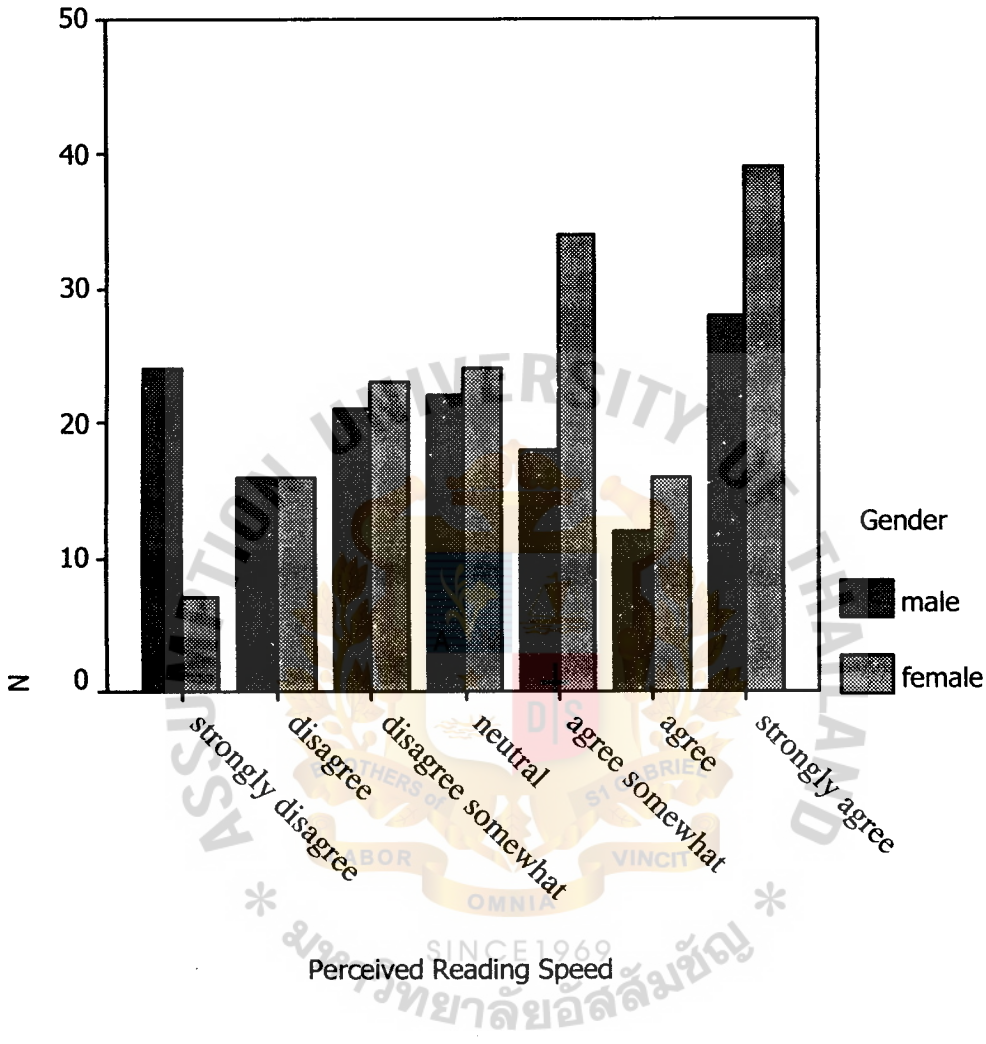

Table 2

Group Statistics of Perceived Reading Speed across Gender

		Perceived Reading Speed	
		M	SD
Gender	Male	4.01	2.10
	Female	4.67	1.83

Figure 3 shows the frequency distribution of the respondents in terms of perceived reading speed. Perceived reading speed was defined as a standard from strongly disagree to strongly agree by 1-7 levels. From Figure 3 and Table 2, it can be seen that the modal store for both male and female respondents was "strongly agree". The mean perceived reading speed score was 4.01 (SD = 2.10) for males and 4.67 (SD = 1.83) for females. Males had a lower perceived reading speed than females.

Figure 4. Distribution of perceived English proficiency across age among Chinese students.

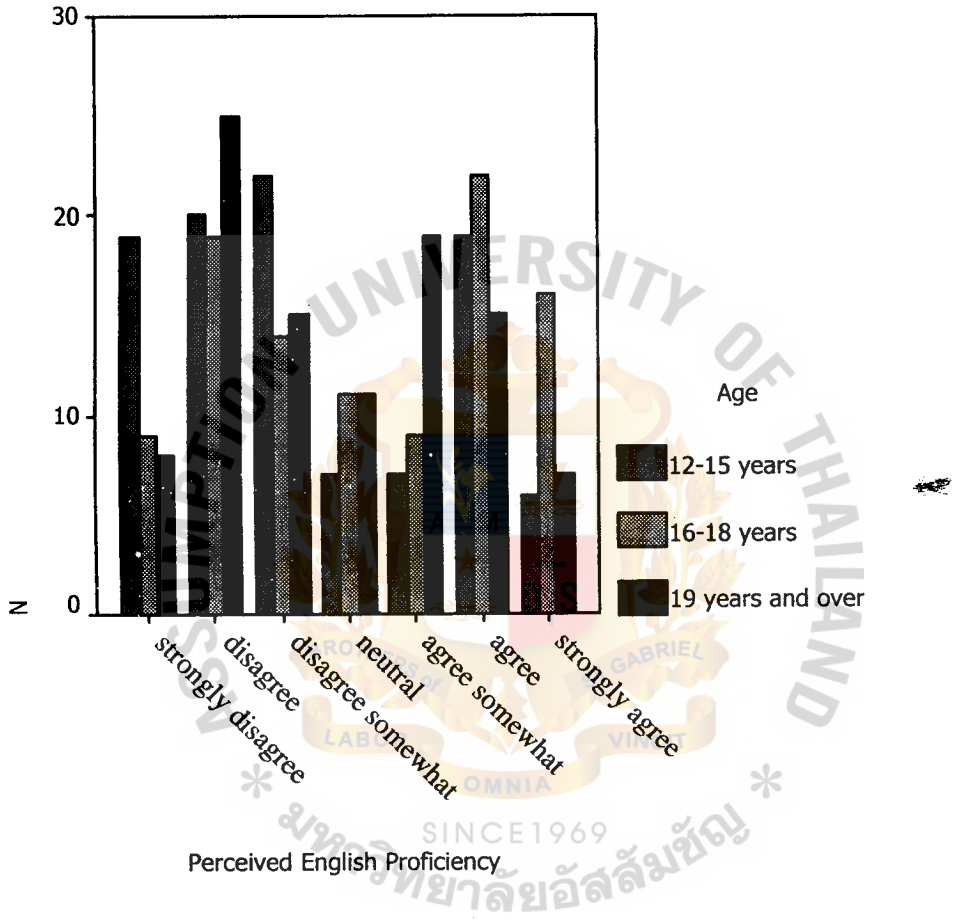

Table 3

Group Statistics of Perceived English Proficiency across Age

		Perceived English Proficiency	
		M	SD
Age	12-15 years	3.44	1.96
	16-18 years	4.22	2.03

19 years and over	3.81	1.81

Figure 4 shows the distribution of the respondents in terms of the distribution of perceived English proficiency across age groups. The modal score for 12-15 year olds was "disagree"; for 16-18 year olds, it was "agree"; and for 19+ years old, it was "disagree". From Table 3, it can be seen that the mean perceived English proficiency score was 3.44 (*SD* = 1.96) for 12-15 year old respondents, 4.22 (*SD* = 2.03) for 16-18 years old respondents, and 3.81 (*SD* = 1.81) for respondents 19 years and over. The 16-18 year old respondents had a higher perceived English proficiency than the other two groups.

Figure 5. Distribution of perceived reading speed across age among Chinese students.

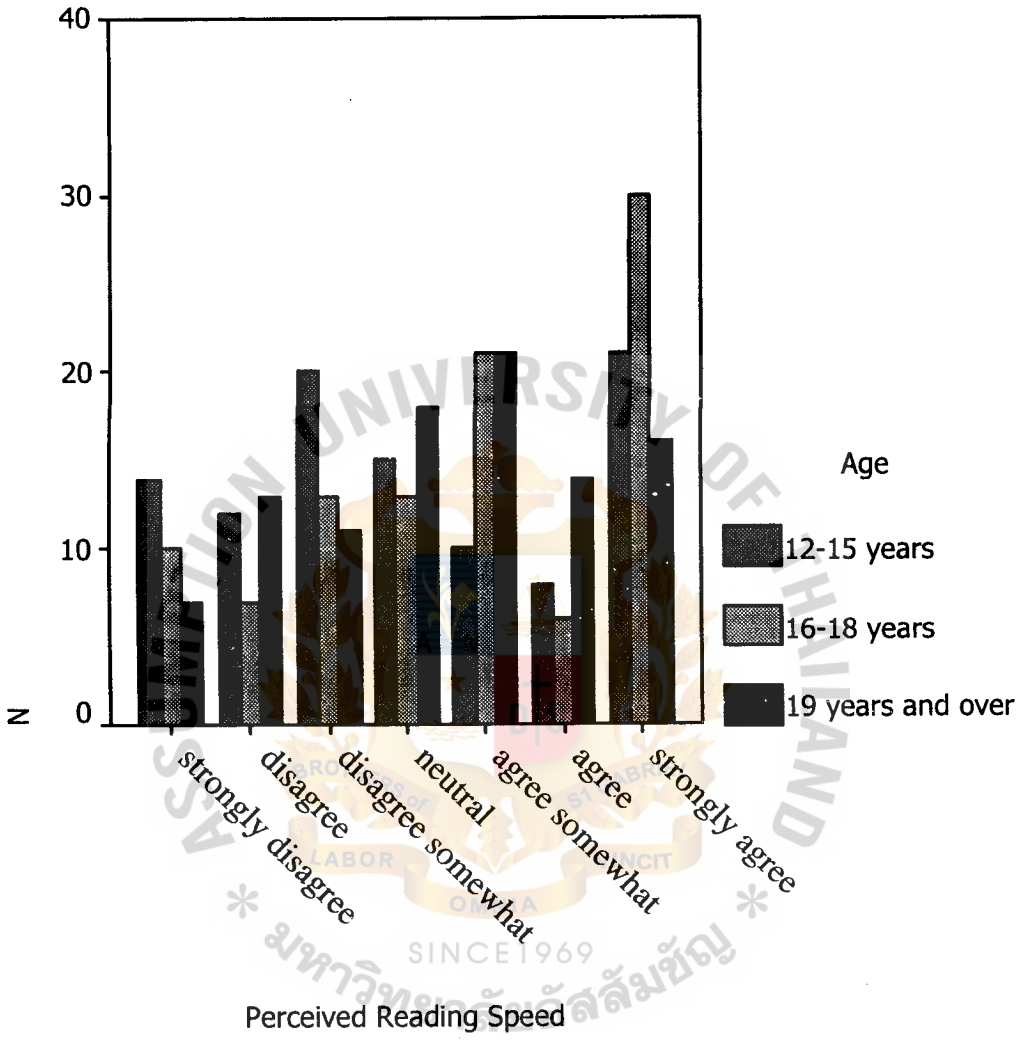

Table 4

Group Statistics of Perceived Reading Speed across Age

		Perceived Reading Speed	
		M	SD
Age	12-15 years	4.03	2.07
	16-18 years	4.66	2.02

19 years and over	4.39	1.83

The following Figure 5 shows the distribution of the respondents in terms of relationship between perceived reading speeds across age groups. The modal score for 12-15 year olds was "strongly agree"; for 16-18 year olds, it was "strongly agree"; and for 19+ years old, it was "agree somewhat". From Table 4, it can be seen that the mean perceived reading speed score was 4.03 (*SD* = 2.07) for 12-15 years old respondents, 4.66 (*SD* = 2.02) for 16-18 year old respondents, and 4.39 (*SD* = 1.83) for respondents 19 years and over. The 16-18 year old respondents had a higher perceived reading speed than the other two groups.

Table 5

Group Statistics of Reported Stress Level across Gender and Age among Chinese Students

		Reported Stress Level	
		M	SD
Gender	Male	3.74	1.56
	Female	4.00	1.54
Age	12-15 years	3.50	1.31
	16-18 years	4.52	1.56
	19 years and over	3.60	1.58

From Table 5, it can be seen that the mean reported stress level score was 3.74 (*SD* = 1.56) for males and 4.00 (*SD* = 1.54) for females. Females had a higher reported stress level than males.

It also can be seen that the mean reported stress level score was 3.50 (*SD* = 1.31) for 12-15 years old respondents, 4.52 (*SD* = 1.56) for 16-18 years old respondents and 3.60 (*SD* = 1.58) for respondents 19 years and over. The 16-18 years old respondents had a higher reported stress level than the other two groups.

Note: for more detailed results for demographic and individual variables across all experimental conditions please refer to Appendix C.

Section 2. Inferential Statistics

Testing Hypothesis 1

Ho1: There is no significant difference in the total recall scores of movie detail between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the 0.05 level.

Table 6

Group Statistics between Subtitled and Dubbed Groups on Total Recall Scores

	Group	N	Mean	Std. Deviation
Total Score on Test	Dubbed	150	10.4133	2.49882
	Subtitle	150	8.5200	3.90958

Table 7

Difference in the Total Recall Scores of Movie Detail between a Group of Chinese Students who Watched a Movie with Subtitles and Those who Watched the Movie in a Dubbed Version Using the Independent Samples t-Test

	t	*df*	Sig. (2-tailed)	Mean Difference
Group*Total Recall Score	4.998	253.327	.000	1.89333

Table 6 indicates that the mean difference in the total recall scores of movie detail between a group of Chinese students who watched the movie with subtitles and another

group of Chinese students who watched the movie in a dubbed version is significantly different. The mean total recall score of movie detail obtained by the group of Chinese students who watched the movie with subtitles was 8.52 (maximum possible score was 16), whereas the mean total recall score of movie detail obtained by the group of Chinese students who watched the movie in a dubbed version was 10.41.

Table 7 indicates the *t*-test indicates a t-observed value of 4.998 and this value was significant at the .000 level, smaller than the level specified during hypothesis statement. Hence, the null-hypothesis was rejected. The alternate hypothesis would state that there was a significant difference in the total recall scores of movie detail between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the 0.05 level.

It is also seen that those Chinese students who watched the movie with subtitles scored significantly lower in the recall of movie detail compared to their counterparts, namely Chinese students who watched the movie in a dubbed version. In other words, those Chinese students who watched the foreign movie in its dubbed version had significantly higher recall rates than those who watched the movie with subtitles.

Testing Hypothesis 2

Ho2: There is no significant difference in the visual recall scores of movie elements between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the 0.05 level.

Table 8

Group Statistics between Subtitled and Dubbed Groups for Visual Recall Scores

	Group	N	Mean	Std. Deviation
Total Score on Visual Items	Dubbed	150	6.1600	1.59731
	Subtitle	150	4.7667	2.11234

Table 9

Difference in the Visual Recall Scores of Movie Elements between a Group of Chinese Students who Watched the Movie with Subtitles and those Who Watched the Movie in a Dubbed Version Using the Independent Samples t-Test

	t	*df*	Sig. (2-tailed)	Mean Difference
Group*Total Recall Score on Visual Items	6.444	277.413	.000	1.39333

Table 8 indicates that the mean difference in the visual recall scores of movie elements between a group of Chinese students who watched the movie with subtitles

and another group of Chinese students who watched the movie in a dubbed version was significantly different. The mean of visual recall scores of movie elements obtained by the group of Chinese students who watched the movie with subtitles was 4.77 (maximum possible score was 8), whereas the mean of visual recall scores of movie elements obtained by the group of Chinese students who watched the movie in a dubbed version was 6.16.

Table 9 indicates the *t*-test indicates a *t*-observed value of 6.444 and this value was significant at the .000 level, smaller than the level specified during hypothesis statement. Hence, the null-hypothesis was rejected. An alternate hypothesis would state that there was a significant difference in the visual recall scores of movie elements between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the 0.05 level.

It is also seen that those Chinese students who watched the movie with subtitles scored significantly lower in the visual recall scores of movie elements compared to their counterparts, namely Chinese students who watched the movie in a dubbed version.

Testing Hypothesis 3

Ho3: There is no significant difference in the dialogue recall scores of movie elements between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the 0.05 level.

Table 10

Group Statistics between Subtitled and Dubbed Groups for Dialogue Recall Scores

	Group	N	Mean	Std. Deviation
Total Score on Dialogue Items	Dubbed	150	4.2533	1.73084
	Subtitle	150	3.7533	2.46570

Table 11

Difference in the Dialogue Recall Scores of Movie Elements between a Group of Chinese Students who Watched a Movie with Subtitles and those Who Watched the Movie in a Dubbed Version Using the Independent Samples t-Test

	t	*df*	Sig. (2-tailed)	Mean Difference
Group*Total Recall Score on Dialogue Items	2.033	267.153	.043	.50000

Table 10 indicates that the mean difference in the dialogue recall scores of movie elements between a group of Chinese students who watched the movie with subtitles

and another group of Chinese students who watched the movie in a dubbed version was significantly different. The mean dialogue recall scores of movie elements obtained by the group of Chinese students who watched the movie with subtitles was 3.75 (maximum possible score was 8), whereas the mean dialogue recall scores of movie elements obtained by the group of Chinese students who watched the movie in a dubbed version was 4.25.

Table 11 indicates the *t*-test indicates a *t*-observed value of 2.033 and this value was significant at the .043 level, smaller than the level specified in the hypothesis statement. Hence, the null-hypothesis was rejected. An alternate hypothesis would state that there was a significant difference in the dialogue recall scores of movie elements between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the 0.05 level.

It is also seen that those Chinese students who watched the movie with subtitles scored significantly lower in the dialogue recall scores of movie elements compared to their counterparts, namely Chinese students who watched the movie in a dubbed version.

Testing Hypothesis 4

Ho4: There is no significant difference between male and female Chinese students on total recall scores.

Table 12

Group Statistics between Male and Female Chinese Students on Total Recall Scores

	Gender	N	Mean	Std. Deviation
Total Recall Score on Test	Male	141	8.5106	3.36922
	Female	159	10.3145	3.22596

Table 13

Difference between Male and Female Chinese Students on Total Recall Scores

	t	*df*	Sig. (2-tailed)	Mean Difference
Gender*Total Recall Score	- 4.734	298	.000	- 1.8038

Table 12 indicates the mean difference between male and female Chinese students on total recall scores: The mean score for males was 8.51 (maximum possible score was 16), whereas the mean score for females was 10.31.

Table 13 indicates the *t*-test indicates a *t*-observed value of - 4.734 and this value is significant at the .000 level, smaller than the level specified in the hypothesis statement. Hence, the null hypothesis was rejected. An alternate hypothesis would state that there was a significant difference between male and female Chinese students on

total recall scores, at the 0.05 level.

It is also seen that those male Chinese students scored significantly lower in total recall scores compared to their counterparts, namely, female Chinese students.

Testing Hypothesis 5

Ho5: There is no significant relationship between the total recall scores of movie detail and the following individual variables, at the 0.05 level:

a) Perceived English Proficiency

b) Perceived Reading Speed

c) Reported Stress Level

d) Age of Respondents

Table 14

Correlation Matrix between the Total Recall Scores of Movie Detail and Individual Variables

	Perceived English Proficiency	Perceived Reading Speed	Reported Stress Level	Age
Total Scores on Recall of Movie Elements	.566**	.456**	.004	.356**
Sig. (2-tailed)	.000	.000	.947	.000
N	300	300	300	300

** Pearson correlation coefficient significant at the 0.01 level

The Table 14 indicates the correlation coefficient values between the total recall scores of movie detail and four other individual variables, namely, perceived English

proficiency, perceived reading speed, reported stress level, and age.

The correlation coefficient between total scores on recall of movie elements and perceived English proficiency was .57, indicating a positive, moderately high, significant relationship between the variables (null hypothesis rejected at the 0.05 level) – an alternate hypothesis states that there was a significant relationship between these two variables. This means that the higher the rating on perceived English proficiency, the better the performance on recall of movie elements.

The correlation coefficient between total recall scores of movie detail and perceived reading speed was .46, indicating a positive, moderate, significant relationship between the variables (null hypothesis rejected at the 0.05 level) – an alternate hypothesis states that there was a significant relationship between these two variables. This means that the higher the rating on perceived reading speed, the better the performance on recall of movie elements.

The correlation coefficient between total recall scores of movie detail and reported stress level was .004, indicating a negligible, insignificant relationship between the variables (null hypothesis retained – there was no significant relationship between the total recall scores of movie detail and reported stress level, at the 0.05 level).

The correlation coefficient between total recall scores of movie detail and age of respondents was .36, indicating a positive, moderately low, significant relationship between the variables (null hypothesis rejected at the 0.05 level) – an alternate hypothesis states that there was a significant relationship between these two variables. This means that the older the respondents, the better their performance on the total

recall scores of movie detail.

Simple Regression Analysis

Since there are three individual variables significantly correlated to the total scores on recall of movie elements, the researcher wanted to further investigate the predictability of the main variable in the context of these three individual criterion variables. A simple regression analysis tool (stepwise method) was utilized for this purpose. This statistical analysis would indicate the unique contribution of each of the individual variables in explaining the variances in the total scores on recall of movie elements. It would also indicate the combined common variances that exist between the total scores on recall of movie elements and the three individual variables.

Table 15

Stepwise Regression Analysis Model Summary

Model	*R* (combined correlation)	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	Sig. *F* Change
1	.566(a)	.320	.318	2.81692	.320	.000
2	.647(b)	.418	.414	2.61009	.098	.000
3	.660(c)	.436	.430	2.57365	.018	.002

a Predictors: (Constant), I think that I have a high English proficiency compared to other Chinese students

b Predictors: (Constant), I think that I have a high English proficiency compared to other Chinese students, what is your age

c Predictors: (Constant), I think that I have a high English proficiency compared to other Chinese students, what is your age, I feel that I have a high reading speed compared to other persons

The Table 15 indicates that perceived English proficiency accounts for 32% of the variance in the total recall scores of movie detail, whereas perceived reading speed accounts for 9.8% of the variance in the total scores on recall of movie elements, and finally, age accounts for 1.8% of variance in the total scores on recall of movie elements. Collectively, perceived English proficiency, perceived reading speed, and age accounts for 43.6% of the variance in the total scores on recall of movie elements in the sample Chinese students used for the purpose of this study. The remaining 56.4% of the variance in the total recall scores of movie detail in the sample was not accounted for in this study. In other words, there were many other factors impacting the performance of Chinese students on recall of movie elements during the time of data collection.

Section 3: Additional Analysis of Items

The researcher also looked at how often the participants regularly see movies with subtitles, how happy they rate themselves, the English proficiency in the parents of the students, and how fashionable they think they are, to see if these factors also affected total recall scores among Chinese students.

Table 16

Total Recall Scores and Frequency of Seeing Subtitled Movies Using Pearson's Correlation

		OSS	TRS
How often they regularly see movie with subtitles (OSS)	Pearson Correlation	1	.298*
	Sig. (2-tailed)	.	.000
	N	300	300
Total Recall Scores (TRS)	Pearson Correlation	.298*	1
	Sig. (2-tailed)	.000	.
	N	300	300

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

Table 16 clearly shows that there was a low, positive relationship (0.298) between perceived frequency of seeing a movie with subtitles and total recall scores among Chinese students at the 0.05 level.

Table 17

Total Recall Scores and Happiness Using Pearson's Correlation

		HCP	TRS
I feel that I have more happiness compared to other persons (HCP)	Pearson Correlation	1	.173*
	Sig. (2-tailed)	.	.000
	N	300	300
Total Recall Scores (TRS)	Pearson Correlation	.173*	1
	Sig. (2-tailed)	.000	.
	N	300	300

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

Table 17 shows that there was a negligible to low, positive relationship (0.173) between perceived happiness and total recall scores at the 0.05 level.

Table 18

Total Recall Scores and English proficiency of Parents Using Pearson's Correlation

		EPP	ORS
English proficiency in the parents of the students (EPP)	Pearson Correlation	1	.172*
	Sig. (2-tailed)	.	.000
	N	300	300

Total Recall Scores (ORS)	Pearson Correlation	.172*	1
	Sig. (2-tailed)	.000	.
	N	300	300

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

Table 18 reveals that there was a negligible to low, positive relationship (0.172) between English proficiency in the parents of the students and total recall scores at the 0.05 level.

Table 19

Total Recall Scores and Fashionable Using Pearson's Correlation

		HFT	ORS
How fashionable they think they are (HFT)	Pearson Correlation	1	.247*
	Sig. (2-tailed)	.	.000
	N	300	300
Total Recall Scores (ORS)	Pearson Correlation	.247*	1
	Sig. (2-tailed)	.000	.
	N	300	300

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

Table 19 shows that there was a low, positive relationship between how fashionable they think they are and total recall scores for Chinese students, with r=0.247 (p=0.000) at the 0.05 level.

CHAPTER V

Discussion

The main purpose of this research was to study the difference in the total recall scores of movie detail between a group of Chinese students who watch a foreign movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, as well as their visual recall scores and dialogue recall scores across the subtitled and dubbed groups.

This chapter was organized into the following sections:

1. Summary of the Findings
2. Discussion of the Findings
3. Conclusions
4. Limitations and Recommendations

Summary of the Findings

The findings could be summarized as follows:

1. There was a significant difference in the total recall scores of movie detail between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the $p < 0.05$ level.

2. There was a significant difference the visual recall scores of movie elements

between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the $p < 0.05$ level.

3. There was a significant difference in the dialogue recall scores of movie elements between a group of Chinese students who watch the movie with subtitles and another group of Chinese students who watch the movie in a dubbed version, at the $P < 0.05$ level.

4. There was a significant difference between male and female Chinese students on total recall scores at the $P < 0.05$ level.

5. The relationship between total recall scores of movie detail and perceived English proficiency was .57, indicating a positive, moderately high, significant relationship between the variables.

6. The relationship between total recall scores of movie detail and perceived reading speed was .46, indicating a positive, moderate, significant relationship between the variables.

7. The relationship between total recall scores of movie detail and reported stress level was .004, which was not significant at the 0.05 level.

8. The relationship between total recall scores of movie detail and age of respondents was .36, indicating a positive, moderately low, significant relationship between the variables.

9. Using a simple regression analysis, perceived English proficiency accounted for 32% of the variance in the total scores on recall of movie elements, whereas

perceived reading speed accounted for 9.8% of the variance in the total recall scores of movie detail, and finally, age accounted for 1.8% of the variance in the total recall scores of movie detail. Collectively, perceived English proficiency, perceived reading speed, and age accounted for 43.6% of the variance in the total recall scores of movie detail in the sample of Chinese students used for the purpose of this study.

Discussion of the Findings

In this study, the findings showed that there was a significant difference in the total recall scores of movie detail between a group of Chinese students who watched the movie with subtitles and another group of Chinese students who watched the movie in a dubbed version. For the mean of total recall scores, the dubbed group was found to be higher than that of subtitled. The researcher could not find any literature mentioning which version produces a better understanding of a film (between total recall scores on subtitled and dubbed.) but, in this study, the researcher found Chinese students who watched the movie with subtitles scored significantly lower in the recall of movie elements compared to their counterparts, namely Chinese students who watched the movie in a dubbed version. It can be said that those Chinese students who watched the movie in its dubbed version understood the movie better than those students who watched the movie with subtitles.

The findings also showed that there was a significant difference in the visual recall scores of movie elements between the two groups of Chinese students. The mean scores for recall of visual elements were found to be higher for the dubbed than the subtitled

group. The research also showed that there was a significant difference in the dialogue recall scores of movie elements. The mean recall of dialogue elements was found to be little higher with the dubbed than the subtitled group. According to Grignon, Lavaur, and Blanc (1999), they found the memory for visual elements would be better in dubbed versions than in the subtitled version. They also found the questions dealing with the dialogue gave rise to better performance than the questions focusing on visual elements in the subtitled version. Thus, they found the memory for visual and dialogue elements for the film sequence depended on the version viewers were provided with. But for this research, the result showed the dubbed group consistently gave higher scores than the subtitled group for recall, whether overall or visual or dialogue elements. Unexpectedly, although there was both higher recall scores for visual and dialogue elements for the dubbed version than subtitled, there was more differences between subtitled and dubbed groups on total recall scores for visual than total recall scores for dialogue (6.16 and 4.77 vs. 4.25 and 3.75), at a significance level of .00 for visual but .04 for dialogue. It appears that the students who watch the movie with subtitles pay more attention to reading the subtitles and may miss more visual elements than the dubbed group. This does not coincide with Holmqvist's research (2000), who reported that the amount of time spent on reading subtitles was calculated to be less than five percent of the time was spent on reading subtitles. It may be that the language difference between English and Chinese causes significantly more interference in recall.

The findings also showed that there was a significant difference between male and female Chinese students on total recall scores. The mean total recall scores for females

was found to be higher than for males, both dubbed or subtitled groups. This may be because there was a higher perceived English proficiency for females than males leading to a higher total recall scores for females. According to empirical research, it has been shown that women tend to provide memories with detailed, interpersonal and personal events (Davis, 1999; Merriam & Cross, 1982; Ross & Holmberg. 1990; Thorne, 1995 -- as cited in Nisbett, 2004). Theorists argue that multiple societal influences lead women to focus on social connectedness and men to focus on individual agency and autonomy (Gilligan, 1992; Cross & Madson, 1997). In this research, perhaps the females focused on more social connectedness, and detailed interpersonal / personal events in the movie, resulting in a higher total recall score for females than males, especially as the movie "The longest Yard" focused on relationships to a considerable degree.

For the relationship between recall of movie detail, age and individual variables (perceived English proficiency, perceived reading speed, and reported stress level), the results showed that a positive, moderately high, significant relationship between total scores on recall of movie detail and perceived English proficiency and perceived reading speed. The relationship between recall of movie detail and reported stress level indicated a negligible, insignificant relationship between the variables. The relationship between total recall scores of movie detail and age of respondents indicated a positive, moderately low, significant relationship between the variables. Using a Simple Regression Analysis, the researcher showed a further investigate that perceived English proficiency accounts for 32% of the variance in the total recall scores of movie detail,

whereas perceived reading speed accounts for 9.8% of the variances in the total recall scores of movie detail, and finally, age accounts for 1.8% of variances in the total recall scores of movie detail. Ramez's research (1996) mentioned a growing acceptance among younger generations for subtitles, proposing it is because they are better readers and increasingly have a higher basic knowledge of English and thus prefer to hear the original dialogue. This research also found that perceived English proficiency can be a strong factor that influenced total recall scores on the test. The perceived reading speed also influenced the total recall score on the test. The means that students who have a higher perceived English proficiency or perceived reading speed performs better on recall after seeing a subtitled movie, although overall performance was still better using the dubbed version. Age can also influenced total recall scores on the test, with age increases linked to higher scores. This may reflect differences in education level and cognitive ability across ages, as well as exposure to the English language. Collectively, perceived English proficiency, perceived reading speed, and age accounts for 43.6% of the variances in the total recall scores of movie detail in the sample Chinese students used for the purpose of this study. The remaining 56.4% of the variances in the total recall scores of movie detail in the sample is not accounted for in this study. In other words, there were many other factors impacting the performance of Chinese students on recall of movie detail during the time of data collection, although cognitive overload as a result of reported stress does not appear to be one of them.

This research also looked at several other factors which might influence total recall scores on the test. In summary, it can be concluded that the four factors (how often they

regularly see movie with subtitles, how happy they think they are, perceived English proficiency in the parents of the students, and how fashionable they think they are) also had a relationship with total recall scores, but all the relationship were negligible to low or low. The youth period is the time for education and employment training, followed by the establishment of an early career. An essential goal of this period is for an individual to develop an identity that comprises both unique personal attributes and important social roles and categories (Kagitcibasi, 1996). This study proved these individual factors can have some influence but not so much on the level of recall (hence understanding) of foreign films.

Conclusions

Historically, China only offered dubbed version of foreign films this had changed and both subtitled and dubbed versions were usually available. However, it appears that dubbed versions were more effective than subtitles for older generations. The researcher, herself, found that subtitles disappear too quickly and this supports the significant finding of perceived English proficiency, reading speed and recall scores. Also. Nisbett (1999), reported that Chinese people focus on the context to a large extent. As a result, dubbed versions influenced better recall, although this may be changing with the younger generation (currently, high seniors school) and fashion trends.

Limitations and Recommendations

The sampling in this study was limited by sample size, with only 50 students per

age group and simple experimental conditions. Further studies can be done by expanding the size of the sample, using more diverse populations (e.g. in occupation, more individual factors, etc.), and also can be done by expanding the types and size of questions.

Another limitation was in the administration of the questionnaires. The questionnaires were given to the audience as a group, after viewing the movie. As such, the researcher could not control for the behaviors of the students, such as possible copying or quick responses in order to leave the cinema. Future studies would benefit from giving verbal instructions prior to administering the questionnaire and maybe a little gift (e.g. pencil) upon completion.

Another limitation was in the design of the questionnaires. The questionnaire gave only 16 questions for visual and dialogue items. Future studies would benefit from providing more questions and also give more types of items (e.g. logic questions) in order to measure more variables. Additionally, the design of this study was a simple XO one. For a more rigorous experimental design, an $X_1OX_2O + X_2OX_1O$ design would provide stronger results.

Based on the findings and conclusions of this study, the following recommendation is offered it is recommended that the viewers themselves select which kinds of the versions of the film sequence (i.e., dubbed, subtitled) that is better suited to them across a perceived English proficiency, perceived reading speed, although first consideration should be for a dubbed version if for educational, counseling, and training videos applications.

REFERENCES

Anderson, J. R. (1976). *Language, Memory and Thought*. Mahwah, NJ: Erlbaum.

Atkinson, R., & Shiffrin, R. (1968). Human memory: A proposed system and its control processes. In K Spence & J Spence (Eds.), *The psychology of learning and motivation: Advances in research and theory* (Vol. 2, pp. 18- 21). New York: Academic Press.

Baddeley, A. (1988). *But what the hell is it for*? In M. M. Gruneberg, P. E. Morris, & R. N. Sykes (Eds.), *Practical aspects of memory: Current research and issues* (Vol. 2, pp. 1-18). New York: John Wiley & Sons.

Beckner, V., Tucker, D., Delville, Y., & Mohr, D. (2006). Stress facilitates consolidation of verbal memory for a film but does not affect retrieval. *Behavioral Neuroscience, 120,* 518-527.

Bruner, J. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.

Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor analytic studies.* New York: Cambridge University Press.

Cohen, D., & Gunz, A. (2002). *As seen by the other....: The self from the "outside in" and the "inside out" in the memories and emotional perceptions of Easterners and Westerners*. Unpublished Master's manuscript, University of Illinois, USA.

Cohen, S., and Williamson, G. M. (1988). Perceived Stress Scale (PSS). In Fischer, J. & Corcoran, K (Eds.), *Measures for clinical practice and research* (Vol. 2, pp. 561-562). England: Oxford University Press.

Costanzo. P. R. (1992). External socialization and the development of adaptive

individuation and social connection. In D. N. Ruble, P. E. Costanzo, & M. E. Oliveri (Eds.), *Social psychology and mental health* (pp. 55-80). New York: Guilford.

Cross, S. E., & Madson, L. (1997). Models of the self: Self-construals and gender. *Psychological Bulletin, 122* (1), 5-37.

Damon, W. (1983). *Social and personality development.* New York: Norton.

Dale. J. L. (1993). *The guide to meetings and presentations.* Retrieved on September 19, 2007, from http://www.chips.navy.mil/archives/07_Sep/PDF/PowerPoint_Presentations.pdf.

Davis, P. J. (1999). Gender differences in autobiographical memory for childhood emotional experiences. *Journal of Personality and Social Psychology, 76,* 498-510.

Deutsch, J. A. & Deutsch, D. (1963). Attention: Some theoretical considerations, *Psychological Review, 70,* 80-90.

D'Ydewalle, G., Praet, C., Verdaillie, K., & van Rensbergen, J. (1991). Watching subtitled television: Automatic reading behaviour. *Communication Research, 18,* 650-666.

D'Ydewalle, G., van Rensbergen, J., & Pollet, J. (1987). Reading a message when the same message is available auditory in another language: The case of subtitling. In J. K. O'Regan & Lév-Schoen (Eds.), *Eye Movement: from physiology to cognition* (pp. 313-321). Amsterdam: North Holland.

Franciscus, D. (1858). Attention. Retrieved on March 7, 2008, from

http://en.wikipedia.org/wiki/Attention.

Gilligan, C. (1992). *In a different voice: Psychological theory and women's development.* Cambridge, MA: Harvard University Press.

Grignon, P., Lavaur, J., & Blanc, N. (1999). *The effect of subtitles on film understanding.* Montpellier, France: Montpellier University pess.

Han, J., Leichtman, M., & Wang, Q. (1998). Autobiographical memory in Korean, Chinese, and American children. *Developmental Psychology, 34,* 701-713.

Harter, S. (1999). *The construction of the self: A developmental perspective.* New York: Guilford Press.

Hedden, T., Ji, L., Jing, Q., Jiao, S., Yao, C., Nisbett, R. E., & Park, D. C. (2000, April). *Culture and age differences in recognition memory for social dimensions.* Paper presented at the Cognitive Aging Conference, Atlanta, GA.

Holmqvist, K. (2001). Subtitling or dubbing? An investigation of the effects from reading subtitles on understanding audiovisual material. *Cognitive Science,* 61-80.

Hume, D. (1739/1882). *A treatise of human nature* (Vol. 1.). London: Longmans Green.

Kagitcibasi, C. (1996). Autonomy and relatedness in cultural context: Implications for self and human development. *Cross-Cultural Psychology, 36,* 403-422.

Kihlstrom, J. F. (1993). What does the self look like? In T. K. Srull & R. S. Wyer Jr. (Eds.), *The mental representation of trait and autobiographical knowledge about the self: Advances in social cognition* (Vol. 5, pp. 79-90). Hillsdale, NJ: Lawrence Erlbaum Associates.

Magliano, J., Dijkstra, K., Zwaan, R. A. (1996). Generating predictive inferences while viewing a movie. *Discourse Processes, 22,* 199-224.

Magliano, J., Miller, J., Zwaan, R. A. (2001). Indexing space and time in film understanding. *Applied Cognitive Psychology, 15,* 533-545.

Markham, P. & Peter, L. (2003). The influence of English language and Spanish language captions on foreign language listening / reading comprehension. *Educational Technology Systems, 31*(3), 331-341.

Merriam, S. B., & Cross, L. H. (1982). Adulthood and reminiscence: A descriptive study. *Educational Gerontology, 8,* 275-290.

McAdams, D. P. (1993). *The stories we live by: Personal myths and the making of the self.* New York: Morrow.

Miller, G. A. (1956). The magical number seven, plus or minus two: some limits on our capacity for processing information. *Psychological Review, 63,* 81-97.

Nelson, K. (1996). *Language in cognitive development: The emergence of the mediated mind.* New York: Cambridge University Press.

Niedenthal, P. & Kitayama, S. (1994). *The heart's eye: Emotional influences in percption and attention.* San Diego, CA: Academic Press.

Nisbett, R. (1999). The big difference between Eastern and Western cultures can be seen from how people form the two cultures look at objects differently. *Proceedings of the National Academy of Sciences (PNAS), 102*(35), 12,629-12,633.

Nisbett, R. (2003). *The geography of thought: How Asians and Westerners think*

differently .... and why. New York: Simon / Schuster.

Pillemer, D. B. (1998). *Momentous events, vivid memories.* Cambridge, MA: Harvard University Press.

Rame, M. (1996). *A potential untapped? Why dubbing has not caught on in the Arab world.* Retrieved on November 4, 2005, from http://www.tbsjournal.com/Archives/Fall05/Maluf.html.

Posner, M., & Raichle, ME. (1994). *Images of Mind.* New York: W. H. Freeman.

Ross, M., & Holmberg, D. (1990). Recounting the past: Gender differences in the recall of events in the history of a close relationship. In M. P. Zanna & J. M. Olson (Eds.), *Self-inference processes* (pp. 135-152). Hillsdale, NJ: Erlbaum.

Schacter, D. (1996). The brain, the mind, and the past. *Searching for Memory.* New York.

Singer, J. A., & Salovey, P. (1993). *The remembered self: Emotion and memory in personality.* New York: The Free Press.

Spiro, M. E. (1993). Is the Western conception of the self "peculiar" within the context of the word cultures? *Ethos*, *21*(2), 107-153.

Strayer, D. L., Drews, F. A. & Johnston, W. A. (2003). Cell phone induced failures of visual attention during simulated driving. *Journal of Experimental Psychology: Applied, 9,* 23-32.

Sueyoshi, A., & Hardisson, D. (2005). The role of gestures and facial cues in second language listening comprehension. *Language Learning, 55*(4), 661-699.

Thorne, A. (1995). Developmental truths in memories of childhood and adolescence.

Journal of Personality, 63, 139-163.

Wright, R. D. & Ward, L. M. (2008). *Orienting of attention.* Oxfordshire, England: Oxford University Press.

Zheng, Z. (2001). *Recognizing the difference between the Eastern and Western culture based on different ways of viewing things.* Retrieved on November 7, 2001, from http://www.pureinsight.org/pi/index.php?category=22&pg=2.

APPENDIX A

QUESTIONNAIRE

Please circle the number that indicates how you feel for each item.

Section A

1. What is your gender? ◯ Male ◯ Female (Please select one)

2. What is your age? [ ] Years Old

3. What is your grade in your school (university)? [ ]

4. I think that I have a high English proficiency compared to other Chinese students.

1 2 3 4 5 6 7

strongly disagree strongly agree

5. I feel that I have a high reading speed compared to other persons.

1 2 3 4 5 6 7

strongly disagree strongly agree

6. How often you watch movies using subtitles?

1 2 3 4 5 6 7

never very often

7. I felt tired before the movie ("The Longest Yard") started.

1 2 3 4 5 6 7

strongly disagree strongly agree

8. I feel that I have more happiness compared to other persons.

1 2 3 4 5 6 7

strongly disagree strongly agree

9. I think that my parents have a high English proficiency compared to my peer's parents.

1 2 3 4 5 6 7

strongly disagree strongly agree

10. I think I am more fashionable than my peers.

1 2 3 4 5 6 7

strongly disagree strongly agree

11. In the last week, how often have you felt nervous and "stressed"?

1 2 3 4 5 6 7

never very often

12. In the last week, how often have you found that you could not cope with all the things that you had to do?

1 2 3 4 5 6 7

never very often

13. In the last week, how often have you felt difficulties were piling up to high that you could not overcome them?

1 2 3 4 5 6 7

never very often

Section B

Instructions: Please complete the following 20 questions after watching the film.

1. Why was Paul Crewe arrested?

A Drunk driving B Corruption C Fighting D Stealing

2. What did the warden use to threaten Paul Crewe to force him to lose the match on purpose?

A Force B Extend the sentence C Other prisoners' safety D Charge of murdering the Caretaker

3. What did the prisoners put on the Caretaker's tomb?

A Bible, McDonald's, Flower, Uniform, Running shoes

B Bible, McDonald's, Running shoes, Stop watch, A photo

C Bible, Whistle, McDonald's, A photo, Flower

D Bible, McDonald's, Stop watch, A photo, Whistle

4. Which position did Paul Crewe play in this football match?

A Quarterback B Center C Running Back D Wide Receiver

5. Is there a fragment in which the players play football in the mud during the whole film?

A Yes B No

6. What did warden say to prisoner's team in changing room, before competition?

A Don't escape B Don't retaliate against the guard's team

C Enjoy the competition D Don't hurt the guards

7. What were the uniform colors of the prisoner's team and the guard's team?

A Prisoner's team-black; Guard's team-white B Pioneer's team-white; Guard's team-black

C Prisoner's team-black with some red; Guard's team-white with some black

D Prisoner's team-black with some white; Guard's team-white with some reds

8. What is the name of Prisoner's team?

A Mean machine B Good boy C Winner D Prisoner's

9. Where the competition broadcasted from?

A Prison B High school in countryside C Famous playground D University

10. Why did Paul Crewe decide to win in this competition?

A Avenge Caretaker B It was worth it, even if he will be imprisoned for all life

C He thinks prisoner's team should win

D He did not want to lie

11. What is the scores between Prisoner's team and guard's team after first half?

A 15:15 B 14:15 C 14:14 D 15:14

12. How prisoner got the last year's competition video of the guard?

A Bribe guard B Paul Crewe told the secretary to get this video

C Prisoner put medicine into the guard's glass

D Prisoner stole this video in the evening

13. What is uniform number of Paul Crewe?

A 14 B 16 C 12 D 18

14. What is Paul Crewe's girl friend name?

A Lena B Lisa C Eva D Daisy

15. How did Paul Crewe punish the unfairness of the referee?

A Hit the referee using a ball B Tell the warden C Tried hard and didn't consider the judge D Stopped the competition

16. What is the gift that Paul Crewe gave to his girl friend?

A Special gift B Clothing C Car D I-Love-You gift

APPENDIX B

问卷调查

请根据你的感觉圈出以下你认为适当的号码

第一部分

1 你的性别：○ 男 ○ 女

2 你的年龄： _____ 岁

3 你在学校（大学）的年级是 ： _____

4 对比其他中国学生，我认为我有更高的英语技能？

1 2 3 4 5 6 7

非常不同意 非常同意

5 对比其他中国学生，我认为我有更快的阅读速度？

1 2 3 4 5 6 7

非常不同意 非常同意

6 你使用电影字幕看电影有多频繁？

1 2 3 4 5 6 7

决不 总是

7 在电影开始之前，我感觉很累？

1 2 3 4 5 6 7

非常不同意 非常同意

8 对比其他人，我认为我更加乐观？

1 2 3 4 5 6 7

非常不同意 非常同意

9 对比同龄人的家长，我认为我的父母有更高的英语技能？

1 2 3 4 5 6 7

非常不同意 非常同意

10 对比同龄人，我认为我更加时髦？

1 2 3 4 5 6 7

非常不同意 非常同意

11 上个星期以来，你感觉到的压力和紧张有多频繁？

1 2 3 4 5 6 7

决不 总是

12 在上个星期的所有事情中，多久你能感觉到必须去做但又不能应对的事情？

1 2 3 4 5 6 7

决不 总是

13 上个星期以来，多久你能感觉到困难堆积如山且无法跨域？

1 2 3 4 5 6 7

决不 总是

第二部分

说明：请在看完电影以后，完成下列 20 个问题

1 保罗.克鲁因为什么而被拘留？

A 醉酒驾车　　B 美式橄榄球赛中放水　　C 斗殴　　D 偷窃

2 监狱长用什么威胁克鲁故意输掉比赛？

A 武力　　B 延长服刑　　C 其他狱友的安全　　D 谋杀总管罪名

3 囚犯在总管的墓葬上都放了什么？

A 圣经，麦当劳，花，队服，跑鞋

B 圣经，麦当劳，跑鞋，跑表，一张照片

C 圣经，哨子，麦当劳，一张照片，花

D 圣经，麦当劳，跑表，一张照片，哨子

4 保罗.克鲁在美式足球赛中担当什么位置？

A 四分卫　B 中锋　C 跑卫　D 外接手

5 整部影片中是否有一段在泥泞中打美式足球的片段？

A 有　　B 没有

6 在比赛之前的更衣室里，监狱长对囚犯说了些什么？

A 不要脱逃　B 不要报复警卫队　C 享受比赛　D 不要伤害警卫

7 比赛中囚犯队和警卫队的队服各是什么颜色的？

A 囚犯队黑色，警卫队白色　　B 囚犯队白色， 警卫队黑色

C 囚犯队黑色略带红色，警卫队白色略带黑色　　D 囚犯队黑色略带白色，警卫队白的略带红色

8 囚犯队的队名？

A 狠角色　B　好男孩　C　胜利者　D　囚犯队

9 比赛在哪里进行现场直播？

A 监狱　B　乡间一所高中　C　著名的体育场　D　大学

10 保罗.克鲁是怎样决定一定要赢得比赛的？

A 为总管报仇　B　即使一辈子坐牢也值得　C　他认为囚犯队应该赢

D 他不想说谎

11 上半场结束，囚犯队和警卫队的比分是？

A　15:15　B　14:15　C　14:14　D 15:14

12 囚犯怎样拿到警卫队去年比赛的录像的？

A　贿赂警卫　B　保罗.克鲁告诉秘书拿这个录像　C　囚犯把药放进警卫的杯子里　D　囚犯在晚上偷了录像

13 保罗.克鲁的球衣是几号？

A　14　B 16　C 12　D 18

14　保罗.克鲁的女朋友叫什么名字？

A　莲娜　B　丽莎　C　伊娃　D　戴茜

15 保罗.克鲁怎样解决裁判的不公平？

A　用球砸向裁判　B　和裁判谈判　C　更加努力比赛，不顾及裁判

D　停止比赛

16　保罗.克鲁给女朋友的礼物是什么？

A　特别礼物　B　衣服　C　车　D　“我爱你”礼物

APPENDIX C: Summary of Descriptive Data for Demographic Variables		N=300 Total Recall Scores		N=150 Total Recall Score on Subtitled		N=150 Total Recall Scores on Dubbed		N=300 Total Recall Scores on Visual		N=300 Total Recall Scores on Dialogue		Subtitle N=150 Visual		Subtitle N=150 Dialogue		Dubbed N=150 Visual		Dubbed N=150 Dialogue	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Gender	Male	8.51	3.37	7.74	3.64	12.00	3.06	4.91	2.00	3.60	2.20	4.29	1.97	3.45	2.46	5.78	1.69	3.80	1.80
	Female	10.31	3.23	9.46	4.04	13.22	2.70	5.92	1.87	4.36	2.03	5.34	2.15	4.12	2.45	6.41	1.49	4.55	1.63
Age	12-15 years	7.87	3.05	6.40	2.84	11.74	3.00	4.87	1.83	3.00	1.86	4.00	1.56	2.40	1.97	5.74	1.66	3.60	1.54
	16-18 years	9.69	2.94	8.92	3.43	12.98	2.56	5.60	2.17	4.09	1.97	4.76	2.33	4.16	2.28	6.44	1.63	4.02	1.62
	19 years and over	10.84	3.56	10.24	4.35	13.68	2.87	5.92	1.84	4.92	2.15	5.54	2.12	4.70	2.54	6.30	1.43	5.14	1.68
Perceived English Proficiency	Strongly Disagree	6.39	3.26	5.36	2.80	10.45	3.24	4.42	2.01	1.97	1.80	3.96	1.93	1.40	1.63	5.45	1.86	3.27	1.49
	Disagree	7.17	2.72	5.52	2.42	10.94	2.28	4.36	1.73	2.81	1.74	3.87	1.93	1.65	1.23	4.82	1.40	3.91	1.40
	Somewhat Disagree	9.10	3.14	7.86	3.23	12.44	3.17	5.11	1.81	3.98	2.08	4.21	1.89	3.67	2.06	5.93	1.30	4.26	2.10
	Neutral	10.31	2.32	9.94	2.56	13.83	1.90	5.17	1.67	5.14	1.60	5.30	1.69	4.65	1.58	5.00	1.71	5.83	1.40
	Agree	12.00	2.66	11.39	3.05	15.06	2.44	6.57	1.65	5.43	1.63	5.83	1.89	5.56	1.46	7.35	0.86	5.29	1.83
	Somewhat Agree	11.20	2.58	11.61	3.30	13.42	2.44	6.57	1.80	4.63	1.81	5.78	2.41	5.83	1.61	7.12	0.89	3.79	1.45
	Strongly Agree	11.76	2.23	11.92	2.87	14.29	2.20	6.62	1.61	5.14	1.90	5.58	1.98	6.33	1.87	7.35	0.70	4.29	1.73

		N=300 Total Recall Scores		N=150 Total Recall Score on Subtitled		N=150 Total Recall Scores on Dubbed		N=300 Total Recall Scores on Visual		N=300 Total Recall Scores on Dialogue		Subtitle N=150 Visual		Subtitle N=150 Dialogue		Dubbed N=150 Visual		Dubbed N=150 Dialogue	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Perceived Reading Speed	Strongly Disagree	6.81	3.05	4.75	1.57	10.93	3.26	4.52	1.77	2.29	1.99	3.69	1.66	1.06	1.18	5.40	1.45	3.60	1.84
	Disagree	7.72	3.04	5.15	1.41	11.84	3.00	4.59	1.56	3.13	2.06	3.62	1.04	1.54	1.05	5.26	1.52	4.21	1.87
	Somewhat Disagree	7.43	3.58	5.81	3.27	12.33	2.79	4.64	2.07	2.80	2.29	4.23	2.16	1.58	1.65	5.22	1.83	4.56	1.92
	Neutral	9.48	3.46	8.80	4.06	12.62	2.64	5.48	1.94	4.00	2.00	4.92	2.16	3.89	2.19	6.14	1.42	4.14	1.80
	Agree	10.98	2.48	10.81	2.69	13.65	2.73	6.15	1.93	4.83	1.62	5.33	2.29	5.48	1.33	6.71	1.44	4.39	1.67
	Somewhat Agree	11.25	2.82	11.44	3.03	13.10	3.14	5.82	1.74	5.43	1.69	5.67	2.00	5.78	1.52	6.10	1.20	4.80	1.87
	Strongly Agree	10.94	2.59	10.68	3.02	13.61	2.65	6.16	1.95	4.78	1.71	5.23	2.14	5.45	1.69	6.97	1.34	4.19	1.53
Reported Stress Level	4.00-8.00	9.35	4.10	5.36	1.97	10.35	2.42	5.40	2.15	3.94	2.55	3.87	1.25	1.49	1.46	5.59	1.46	2.82	1.13
	9.00-13.00	9.96	3.81	8.61	3.75	12.74	2.94	5.56	1.94	4.40	2.37	4.85	2.08	3.75	2.78	6.05	1.64	4.29	1.84
	14:00-18.00	9.08	3.14	10.92	3.70	13.80	2.63	5.05	1.96	4.03	2.00	5.29	2.54	5.63	1.69	6.67	1.09	4.65	1.58
	19.00-23.00	8.90	3.28	----	----	----	----	5.16	2.01	3.75	2.19	----	----	----	----	----	----	----	----
	24.00-28.00	10.34	2.22	----	----	----	----	6.38	1.45	3.96	1.50	----	----	----	----	----	----	----	----