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Exploring Metacognitive Online Reading Strategies of Non-Native English-Speaking Translation Students

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EXPLORING METACOGNITIVE ONLINE READING STRATEGIES OF NON-NATIVE ENGLISH-SPEAKING TRANSLATION STUDENTS

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Dissertation Abstract

Exploring Metacognitive Online Reading Strategies of
Non-Native English-Speaking Translation Students

International students, a growing population in US universities, need to possess excellent reading skills in order to succeed. American universities also benefit from admitting students who do not require remedial English classes. Reading online has become an integrated part of college education, which requires students to have additional skills. Awareness and usage of online reading strategies, known as metacognitive online reading strategies, are proven tools to enhance reading skills in online environments.

The purpose of this mixed-method study was to investigate the metacognitive online reading strategies employed by highly proficient non-native English-speaking graduate students of Translation, Interpretation and Language Education at Middlebury Institute of International Studies to find out the types of reading strategies students report using, and how they use them when reading an academic text online on a laptop. Two conceptual frameworks were employed to analyze the data: metacognition theory and metacognition model.

Quantitative data were collected from 46 students through the Online Survey of Reading Strategies (OSORS). Qualitative data were obtained through recording think-aloud sessions with six volunteers who individually read a TOEFL practice passage and said what they thought as they read the passage.

The quantitative findings revealed that students used most of OSORS strategies in the three categories or Global strategies, Problem-solving strategies, and Support strategies. They used problem-solving strategies the most and support strategies the least. The qualitative data analysis revealed that students used most of the strategies that were relevant to the reading task. Moreover, they gave precedence to focusing and maintaining a steady reading pace over other strategies, and bundled related strategies to understand difficult text. Strategies such as slowing the speed of reading, rereading, reading aloud, and guessing meanings were activated together. Data also showed that they students decided on using various computer skills depending on their reading needs, engaging in a parallel metacognitive processing to their reading. Finally, the participants valued reading as part of their career, and made comments on contents of the passage in relation with the real world. Thus, comprehension was not the last step in the metacognitive process, internalizing and remembering the new information was.

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented to and accepted by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education. The content and research methodologies presented in this work represent the work of the candidate alone.

Shayesteh Zarrabi	December 10, 2015
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Dr. Sedique Popal	December 10, 2015
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Dr. Emma Fuentes	December 10, 2015
Dr. John Bansavich	December 10, 2015

DEDICATION

This dissertation is dedicated to all who encouraged me to pursue my doctoral degree. Without your support, the completion of this work would not have been possible.

To my parents, my late father Dr. Aslan Zarrabi and my mother Dr. Zivar Amani, my sister, Dr. Shirin Zarrabi, and her beautiful daughters who tirelessly encouraged this goal: You were with me every step of the way.

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CHAPTER I: RESEARCH PROBLEM

Reading is one of the main means of communication, and the ability to read is a fundamental indicator of literacy in the world. For second or foreign language learners, reading is an essential skill to have (Bista, 2011; Carrell, 1989; Eunseok & Chen, 2014; Huffman, 2014). Reading is a complex mental activity that is much more complicated than looking at lines of words and thinking about their individual meanings. It is a multilayered cognitive activity to master, because the brain has to process multiple linguistic systems such as phonology, morphology, syntax, semantics, and pragmatics while recalling world knowledge systems such as culture, society, history, politics, and other contextual knowledge (Wolf, 2007).

Educators have discussed the importance of having reading skills for a long time (Afflerbach, Pearson, & Paris, 2008), but only a few decades ago did they begin to investigate the role of cognition in reading comprehension (Garner, 1987; Goodman, 1967; Grabe, 2010). Rereading difficult texts, slowing down the speed of reading, skimming through the text, remembering cultural and social contexts beyond the text, and so on are the cognitive strategies that help readers comprehend texts; but according to Anderson (1991), being aware of these cognitive strategies is not enough to achieve reading comprehension. It also matters how readers employ these strategies and how they evaluate their effectiveness as they are reading. The thought processes involved in these cognitive strategies are defined as metacognitive reading strategies (Anderson, 2003; Mokhtari & Reichard, 2002; Mkohtari & Sheorey, 2002). Metacognitive reading strategies are the self-monitoring and self-regulating thinking processes the reader uses to choose among various reading strategies based on given contexts and purposes. Such

processes enable readers to make conscious decisions about whether the chosen cognitive strategies contribute to comprehension or need to be changed (Anderson, 2003; Guo & Roehrig, 2011; Van Keer & Vanderlinde, 2010).

Translators are a group of lifelong second language learners whose reading skills have not been adequately researched, even though their careers depend on reading (Washbourne, 2012). They take on a variety of translation projects ranging from political speeches, contracts, and website pages to restaurant menus and birth certificates (Giles, 2009). Reading is a major component of translation competence, which is an ultimate objective of translation training (Atari & Radwan, 2013). Research on proficient readers to identify the strategies they choose and when and how they use them has been helpful for second language teachers in assisting their students to improve their reading skills (Mokhtari & Sheorey, 2002).

Statement of the Problem

The average second language learners' reading ability is well below that of native readers, and this can create barriers in the academic progress of second language learners (Anderson, 2003). There is significant evidence showing that non-native readers need metacognitive strategies to analyze and interpret a wide scope of contexts found in sources such as poetry, novels, magazines, and newspaper articles (Poole, 2011). Readers who do not critically evaluate the text while reading are more likely to fail to relate the text information to prior knowledge and achieve comprehension (Schraw & Bruning, 1999). The Internet has added new challenges for language learners, because reading electronic texts that contain hyperlinks and hypermedia is not the same as reading conventional, linear prints; a person who is proficient when reading on paper is not

necessarily equally proficient when reading online (Coiro & Dobler, 2007; Henry, 2006; Incecay, 2013). Although some of the reading strategies are transferrable from reading on paper to reading online (Coiro, 2011a), learners need to learn additional strategies to successfully understand the written material on the Internet (Coiro & Dobler, 2007). More research on online reading is needed to successfully train second language learners to move from reading on paper to reading online, because the design of electronic texts, as opposed to texts on paper, can be nonlinear (Zenotz, 2012). There is also a lack of adequate research regarding online as opposed to offline metacognitive reading strategies that take into account the characteristics of the online environment and a variety of contexts (Anderson, 2003; Incecay, 2013; Kim, 2011). In the modern world, technology skills and the use of the web are the basic tools for learning and studying in academia (Berkowitz, 2002).

Background and Need for the Study

Enhancing language learners' reading skills

Metacognitive reading strategies play an important role in developing language learners' autonomy to take charge of enhancing their learning skills (Farahian & Farshid, 2014). Despite the overwhelming number of studies on various aspects of second and foreign language reading, there is very little research on the metacognitive strategies of learners with different educational or cultural backgrounds, and in particular on the strategies of non-native English speakers (Alsheikh, 2002; Eunseok, 2014). Research on metacognitive reading strategies contributes to the training of English instructors (Jiuhuan & Newbern, 2012) because the teachers' and the students' awareness of the importance of effectively using reading strategies contributes to the students'

development of strategic reading competence (Kuru Gonen, 2014). Anderson (2003, p. 2) emphasized the role of teachers in monitoring the acquisition of reading strategies by non-native language learners:

> With strengthened reading skills, learners of English tend to make greater progress in other areas of language learning. Reading should be an active, fluent process that involves the reader and the reading material in building meaning. Often, however, it is not. The average learner's second language reading ability is usually well below that of the first language. This can impede academic progress in the second language. English language teachers and learners face many challenges in the classroom.

Using cognitive and metacognitive reading strategies can also enhance performance on reading tests (Phakiti, 2006). Other studies revealed that a significant number of second language students were not aware of metacognitive reading strategies and that instructors simply assumed that student knew the strategies and automatically applied them (Atari & Radwan, 2009; Auerbach & Paxton, 1997; Pakzadian & Moinzadeh, 2012; Schofield, 2012). According to these studies, teachers were also unaware that metacognitive reading strategies could explicitly be taught to students. Research on the metacognitive reading strategies used by skilled readers is needed to contribute to the body of knowledge and to use the findings in training both teachers and learners.

Using translation in language teaching

Not many language classes around the world use translation as a language learning activity (Malmkjaer, 2010). Recently, this perspective has started to change, and it is now agreed that learners' use of their first language can sometimes facilitate learning (Cook, 2010; Karimian & Talebinejad, 2013; Liao, 2006). Still, there is a need for more studies that bring the two fields of translation and language teaching together (Malmkjaer, 2010). Unlike the early-20th-century method of grammar-translation, the

modern theories of translation view translation as a communicative and cognitive process rather than a word-for-word replacement (Boullata, 2014). The cognitive processes of translation into the first language (L1) automatically occur when learners, particularly beginners, read in a second language (L2); so it seems legitimate to incorporate the translation of authentic materials in FL classrooms and use its learning potentials (Leonardi, 2010). Not only could translation activity contribute to language learning, but studies on translation students as language learners might also contribute to both translation studies and language teaching. Translation students are advanced language learners who need to learn a variety of topics in their working language. Reading plays an important role in learning a language. Moreover, translation itself is a process of reading in one language and rendering the text in another language. Translation is a process of rendering from a source language into a target language. Reading for translation goes beyond the immediate, thoughtless act of finding the words or structures of a target language (TL) that match the words or structures of the source language (SL). The building of meaning is crucial in reading for translation purposes (Anderson, 2003). According to Eysteinsson (2006), reading for translation is a special process because the translator enters a world that lies beyond the written text itself and has to create a path for that world to open doors in the translation as well. Washbourne (2012) mentions the pitfalls of surface reading by novice translators and provides a list of ways to teach translation students to develop a translation reading competence. The author's design incorporates metacognitive reading strategies at its core. Washbourne (2012, p. 51) also calls for more research on translation students:

> Reading research, both theoretical and applied, remains underexplored in translation studies. Some areas that may prove fruitful for translation trainers and

> educators include error analysis (schema-driven [assimilation, developmental] miscues; schema-forming [accommodation] miscues) and empirical testing of self-report research instruments, for example, the MARSI (Metacognitive Awareness of Reading Strategies Inventory). Such instruments may shed light on global, problem-solving, support reading strategies modified for translation trainees.

Preparing for digital reading

Digital devices continue to be used as educational tools. The Internet is an open educational resource that enables educators to freely share and adapt the available knowledge for educational purposes, and plays a major role in developmental challenges of all societies in the 21st century (Annand, 2015). According to Auer (2014), with the advent of technology in education, digital reading materials have increasingly been used in the classroom and more students today are using mobile devices as learning tools. This creates a need to investigate the effects of technology on reading for different groups of learners, including second language learners. According to Foasberg (2014), there is a specific lack of research on populations of heavy readers such as translators. Different populations in different contexts may have different approaches to digital reading. In a study, readers mentioned several advantages and disadvantages of reading both online and on paper (Ackerman & Goldsmith, 2011). Some studies have suggested that reading on screen encourages readers to skim a text to find specific information rather than going into depth, and as a result online reading has reduced the readers' comprehension (Herold, 2014). Other researchers, such as Coiro and Doblers (2007), showed that online reading creates opportunities for readers to apply their background knowledge and use inferential reading strategies. More studies can shed light on the future of digital reading. According to Fuller and Sedo (2014), digital technologies can connect future readers in ways that educators have just started to recognize but still cannot fully anticipate. Not

only do digital devices continue to become more powerful, digital native learners who were born in this digital age think and process data differently from previous generations (Yagci, 2014). More studies on online reading strategies are needed to train teachers about younger students who were born at the time personal computers were common (Coiro & Dobler, 2007; Leu, Kinzer, Coiro, & Cammack, 2004). Language educators should be aware that language learners who grew up using a certain level of technology think and behave differently from previous generations and have different needs (Reilly, 2012). More translation courses are integrating digital technology into their programs and are deepening the relationship between translation and technology (Bacalu, 2013).

Purpose Statement

The purpose of this two-phase mixed-method study is to explore the use of metacognitive online reading strategies by translation students who are not native speakers of English. The study seeks to find out which strategies they use the most, which ones they use the least, and what the overall distribution of their strategy use is among the three main metacognitive online reading strategies defined by Anderson (2003). The study also explores how the students employ metacognitive online reading strategies by investigating what they think while reading an online text and what they do on the computer. A triangulation approach will be employed, and the collected data will be analyzed both quantitatively and qualitatively. The first phase of the study focuses on what strategies students report they use in general when reading online. The second phase follows a think-aloud protocol: Students read a text online and say what they think. The purpose of this phase is to delve into how translation students actually employ metacognitive online reading strategies and use the Internet while reading. The data from

the two phases will reflect how a group of advanced second language readers employs metacognitive reading strategies in a digital environment.

Research Questions

This study will investigate the following questions:

1. What types of metacognitive online reading strategies do the non-native English translation students report using?
    a. What is the distribution of the reported strategies among the three categories of global strategies, problem-solving strategies, and support strategies?
    b. What strategies are used the most, and what strategies are used the least?
2. How do the non-native English-speaking translation students employ the metacognitive reading strategies when reading online?

Theoretical Framework

This study is based on Flavell's (1979) metacognitive theory and Anderson's (2002) model of metacognition. According to Flavell (1979), two main factors play a fundamental role in the comprehension process: metacognitive knowledge and metacognitive experience. Metacognitive knowledge is knowledge about the factors that interact to affect the course and the outcome of cognitive processes. Metacognitive knowledge enables each person to determine the nature of a task and the way to approach it. It also enables a person to prioritize tasks and then apply various strategies to reach the desired goals.

Metacognitive experiences are conscious cognitive or affective experiences that accumulate as a result of various cognitive processes. Flavell (1979) proposed that in any cognitive process, the mind perceives and monitors the cognitive process based on the

interactions between metacognitive experiences and metacognitive knowledge, the goals that the person sets for the task, and the actions or strategies that are employed to accomplish the task.

Anderson (2002) expanded the metacognition theory into a metacognition model. Metacognition in his model is divided into five components: (a) planning and getting ready for learning, (b) selecting certain learning strategies for the situation, (c) monitoring the effectiveness of the strategy used, (d) orchestrating the different strategies that were chosen, and (e) evaluating the overall strategy use. Anderson (2002) further suggested that the five components interact with each other and are not in a linear relation. For the second language learning process, the learner might consider more than one component at a time.

Flavell's (1979) theory and Anderson's (2002) model were chosen for this study because they lay out principles that are useful in examining metacognitive reading strategies. Based on these principles, Mokhtari and Sheorey (2001) developed the Survey of Reading Strategies (SORS), and Mokhtari and Reichard (2002) created the inventory for metacognitive awareness of reading strategies (MARSI). Anderson (2003) designed the Online Survey of Reading Strategies (OSORS) based on SORS. In fact, OSORS is very similar to SORS, but Anderson (2003) believed that whereas many strategies used for reading printed texts could be adopted to read online texts, reading online integrates other search activities that would not be possible in print environments. These instruments have been widely used in second language reading research.

Delimitations and Limitations

The participants to this study were translation students who received high reading grades in the TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing System) prior to joining the Graduate School of Translation, Interpretation, and Language Education at the Middlebury Institute of International Studies (MIIS) in Monterey. The various translation programs emphasize on one of the following eight languages: Arabic, Chinese, French, German, Japanese, Korean, Russian, and Spanish. The participants in this study were non-native English speaking students at the graduate school of translation. For the qualitative part of this study, the reading passage that the researcher chose for think-aloud sessions was a TOEFL reading practice passage on a TOEFL practice website. The participants had access to the Internet.

One limitation of this study is the selection of the participants. The assumption of the study is that the participants were advanced readers in their second language, based on their score in the TOEFL and IELTS reading tests. A high TOEFL reading score, however, might not accurately reflect the participants' ability to read. On the other hand, the findings of this study might be generalizable to the current students, but it may not apply to all advanced non-native English readers from different backgrounds. Moreover, the participants could have acquired their reading strategies through explicit instructions, which the average second language learners might not have received.

Another limitation is the instrument used for this study. The instrument employed for the quantitative portion of this study was Anderson's (2003) Online Survey of Reading Strategies (OSORS). This instrument was designed in 2003, when social media was not as popular as it is in 2015. The survey lacked questions on readers strategies used

when using social media. Moreover, mobile technology has made advancements in the past decade and the survey does not include reading on mobile devices. Moreover, the reading passage in the study did not contain any linked text in the passage, while many webpages include video clips, comments section, and linked pictures and texts.

Significance of the Study

The study of metacognitive online reading strategies in a well-known translation school, the Middlebury Institute of International Studies in Monterey, can contribute to two fields of language education and translation studies. According to Malmkjaer (2010), translation and language learning are similar cognitive processes. The two fields have been separated in the past, but it is now time to bring them back together given the expansion of global exchanges and the need for translation. It is time to treat translation as a fifth language skill next to reading, writing, listening, and speaking. Nowadays, translation companies are swamped with requests from companies that need quick, digitally delivered translations for various purposes such as business or immigration services. More translation training programs are needed to train translators. Because reading is a main component of translation, research on online reading can help trainers and educational systems prepare their trainees for today's demanding global markets. Research on translators' reading practices can empower readers as translators and translators as readers, allowing us to better approach reading as an interactive process (Washbourne, 2012).

Furthermore, studying advanced readers provides clues for instructors of English as a second language (ESL) or English as a foreign language (EFL) on how to teach strategies that can help their students improve their English and literacy skills (Jiuhuan &

Newbern, 2012). This study does not delve into best teaching practices, but according to Mokhtari and Sheorey (2001), awareness of different metacognitive and cognitive reading strategies enhances text comprehension. This study can inspire language learners and language teachers to incorporate the metacognitive online reading strategies that the participating translation students used in understanding a text. The present research can also contribute to second language education because it focuses on online reading, which nowadays has become part of educational activities. The Internet plays a major role in determining today's academic and business success; not only because of its speed in providing information, but also because of its potential to retrieve and store information, to assist with problem-solving (Freidman, 2005), and to offer instant connection and interactivity.

Finally, this research can help advance social change because translation has emerged as an inseparable component of global business and global migrations. Many children grow up translating for their parents, and many people study a second language for the purpose of becoming a translator (Malmkjaer, 2010). The hope is that translation and language educators will join forces and continue to collaborate toward a deeper understanding of the role of language in connecting people in an era of globalization. It can also contribute to a better understanding of the brain and of its cognitive powers in relation to languages.

Definition of Terms

Communicative translation: A form of translation that is faithful to the source language (SL) but is not a literal rendering in the target language (TL). It transfers the

cultural content of the SL to the TL more freely to the advantage of the readers (Newmark, 1991).

Digital natives: Learners who are in constant contact with digital media, and therefore have different abilities, preferences, and attitudes toward learning in comparison with previous generations (Prensky, 2001). They are also called the Net generation or the Google generation (Yagci, 2014).

EFL: English as a foreign language; it indicates learners who learn English outside an English-speaking country.

ESL: English as a second language; it indicates learners who learn English in an English-speaking country in which they live.

FL: Foreign language; it refers to the language that students learn outside the country where it is spoken.

Global strategies (GLOB): Plans to manage the overall reading process, such as considering the purpose of reading the text and previewing its length (Mokhtari & Sheorey, 2002).

L1: Language learners' first language, usually the mother tongue.

L2: Language learners' second language, usually the language they are learning.

Lifelong learning: Self-directed learning through various resources, particularly digital resources, to gain knowledge on particular subjects while also developing the skill to locate the information needed (Henter, 2014).

Metacognition: A thinking process about thinking, or reflective processes such as planning, selecting, monitoring, orchestrating, and evaluating strategy use (Anderson, 2002).

Online reading: The act of reading a variety of sources on the Internet, independently or with a partner. The reading sources can be self-selected or chosen by teachers or researchers. The purposes of reading online include acquiring knowledge, synthesizing information, or being entertained (Coiro, 2012). The term emphasizes the act of reading while being connected to the Internet, and it is slightly different from digital reading, which focuses on reading on digital devices like computers or mobile devices rather than on paper (Herold, 2014).

Online reading strategies: Reading strategies that readers adopt to read a text that is online and partly differs from the offline or printed version. For example, the reader can search for more background information while reading a text online (Anderson, 2003).

Problem-solving strategies (PROB): Reading decisions, such as adjusting the reading speed for difficult parts, and decisions to reread or guess the meaning from the context (Mokhtari & Sheorey, 2002).

SL: Source language, or the language a text is translated from.

Support strategies (SUP): Activities that can help with reading, such as taking notes, using a dictionary, and underlining or highlighting the key parts (Mokhtari & Sheorey, 2002).

TL: Target language, or the language the text is translated to.

Summary

Reading is an important skill for language learners. Cognitive approaches to reading as a mental process have become very popular among researchers over the past few decades. Research indicates that reading in a first language is different from reading

in a second language. Language learners who are advanced readers in their first language may not be advanced readers in their second language. Many language instructors assume that their students automatically transfer reading strategies from their first language; they might also not know that reading strategies are teachable. Language learners can learn reading strategies and take charge of employing different strategies while they are reading. Advanced readers know various reading strategies (cognitive strategies) and can monitor their use as reading proceeds (metacognitive strategies).

The Internet is changing the face of education. Nowadays, people read online on a vast range of topics and for different purposes. Reading on a screen that may contain hyperlinks, videos, and images is different from reading on paper. Online reading requires a new set of cognitive and metacognitive reading strategies that lead the reader to comprehension (Coiro & Dobler, 2007; Henry, 2006; Incecay, 2013).

The purpose of this study is to examine the types and frequencies of metacognitive online reading strategies used by translation students at the Middlebury Institute of International Studies in Monterey (MIIS) and how they actually employ them when reading an academic text online. These non-native advanced readers of English have obtained high scores on standardized tests such as TOEFL and the IELTS and are getting master's degrees in a prestigious school. The goal of the study is to find out how this advanced group of non-native English readers, who have received some translation training, uses reading strategies to comprehend an academic text online.

CHAPTER II: REVIEW OF THE LITERATURE

Ever since computers have become popular in education, researchers have been interested in how technology affects reading practices. Researchers such as Anderson (2003), Coiro and Dobler (2007), Incecay (2013), and Vilhelmina and Uzpaliene (2013), among others, have examined a wide variety of issues related to online reading: for example, online readers' behaviors (Kymes, 2007, Laiw, 2009), teachers' perception of students' abilities (Atari & Radwan, 2009), and online reading strategies instruction (Zenotz, 2012). Most studies have focused on either native English speakers or beginner or intermediate English learners (e.g., Henter, 2013; Incecay, 2013; Kim, 2011; Nosratinia, Saveiy, & Zaker, 2014). There is still little research on more proficient readers who read online in a second language (Foasberg, 2014). Translators are another group of readers whose online reading has not been explored. According to Washbourne (2012), reading research, both in theory and application, is still underdeveloped in translation studies. More research can provide a better understanding of what can help learners become more proficient readers in the digital era. Exploring translators' reading skills in online environments is important because the translation business keeps growing due to globalization and world migrations. The world is shrinking as a result of faster and more widespread interactions in different languages on the web.

Overview

This chapter focuses on the literature that has explored the main subject areas of this study and is divided into four sections. The first section discusses the emergence of language learning strategies, metacognition, and metacognitive reading strategies. The second section addresses translation as a growing academic field and considers the

business side of it. The third section discusses the relationship between language learning and translation and their contributions to one another. The fourth section covers digital literacy and students' technology abilities.

Language Learning Strategies

Language learning strategies (LLSs) were brought to wide attention in the 1970s and have remained a subject of interest and controversy among many researchers (Griffiths & Oxford, 2014). There are several definitions of them. One definition, by Oxford (2003), is that they are tools that help learners shape their understanding, retention, and use of learned information; plan for a language task; evaluate learning; analyze the meaning of word; and hundreds of other strategies to enhance the learning experience. Research on the strategies employed by good language learners (O'Malley & Chamot, 1990; Oxford, 1990; Rubin, 1975; Stern, 1975; Wenden & Rubin, 1987) led to the concept of metacognition. Metacognitive strategies in second or foreign language learning are defined as combinations of what individuals think and the actions they take accordingly to enhance their proficiency in the second language and to improve their linguistic and communicative competence (Varshney &Banerji, 2012). Although initially researchers focused on differentiating high proficiency learners from low proficiency learners based on their use of learning strategies (Rubin, 1975; Stern, 1975), it turned out that metacognition and LLSs are naturally occurring strategies that are practiced by all learners in many different ways — although it is true that the frequency of use of LLSs is closely correlated with the level of proficiency the learners achieve (Green & Oxford, 1995). Oxford (1990) emphasized the role of metacognition or awareness of strategy use as a greater factor influencing the utilization of LLSs. Studies on the effects of students'

active awareness of LLSs have proved the value of metacognition in language teaching and learning (Chi-Him, 2013).

Fahim and Noormohammadi (2014) provided an example of the use of language learning strategies by examining undergraduate students in various medical fields in their English classes and by comparing high achievers with low achievers. The study revealed that there is a direct relationship between the student's achievements and their LLSs. High achievers were more sophisticated in the variety of strategies they used, whereas low achievers used fewer strategies and avoided unfamiliar strategies. The metacognitive and cognitive abilities were also directly related to the use of LLSs. The high achievers tended to be more social and communicative and to use more metacognitive strategies, whereas low achievers had more anxiety and used fewer metacognitive strategies.

Students' use of various LLSs depends on many factors and conditions. Oxford (2003) believed that there are no good or bad LLSs; rather, any particular strategy can be more or less useful to a particular student under a certain condition. The student controls these conditions, and it is the student who decides what strategy out of hundreds fits the situation best. Depending on the learning goal, the student decides if the strategy to be used is (a) relative to the task to be accomplished, (b) relative to other strategies applied to the task, and (c) relative to the overall learning style of the learner. Overall, current discussions of LLSs cover the cognitive, metacognitive, and social aspects of the strategies learners use. The notion of metacognition (the thinking about cognitive processes) has further contributed to our understanding of the use of LLSs.

The emergence of metacognition models

Metacognition became a distinct topic of discussion in educational psychology and second language education in the 1980s and 1990s. Earlier, Flavell (1976) had introduced the concept of metacognition to indicate one's intentional and active monitoring of the received information and other cognitive processes related to concrete goals or objectives. Influenced by Jean Piaget, Flavell (1976) categorized the knowledge children try to gather into three types: knowledge of person, task, and strategy. He pointed out that children learn to identify situations that should be remembered for the future; then they learn to store information that is related to a problem at hand and that needs to be solved so that the information can be readily recalled. Finally, they learn to systematically search for information that can further help solve the problem even though there is no urgent need. Flavell (1979) further elaborated on metacognition and offered a model of cognitive monitoring in which he proposed that cognitive enterprises occur through four classes of interrelated phenomena: (a) metacognitive knowledge, (b) metacognitive experiences, (c) goals, and (d) actions or strategies. According to Flavell (1979, p. 906), "metacognitive knowledge is that segment of your (a child's, an adult's) stored world knowledge that has to do with people as cognitive creatures and with their diverse cognitive tasks, goals, actions and experiences."

Metacognition continued to become a topic of education research. O'Malley and Chamot (1990) defined it as a higher-order skill related to the interactive processes of planning, monitoring, and evaluating with the goal of succeeding in learning. Anderson (2002) applied metacognition to language learning context and called metacognition an essential skill that could be taught to the students. Anderson (2002) provided a model of

metacognition for second language learners based on five components: preparing for learning, selecting and using learning strategies, controlling strategy use, coordinating the use of various strategies, and evaluating strategy use and learning. The components are not to be viewed as separate stages; similar to what Flavell (1979) proposed, they interact with each other, and teachers can help language learners think how to combine various strategies to take control of their learning. Pintrich (2002) uses Flavell's (1979) model and proposes three types of metacognitive knowledge: strategic knowledge, knowledge about cognitive tasks, and self-knowledge. Strategic knowledge is the students' awareness of various learning strategies, such as memorizing or guessing the meaning based on context. Knowledge about cognitive tasks includes the ability to categorize tasks based on their difficulty level and on the kind of cognitive strategy they require; in other words, a student knows not only what strategies are available but also when to use each strategy and why. Self-knowledge is the student's metacognitive knowledge about how much they know, what strategies they usually use to do tasks, and how well they can perform a task (self-efficacy). Pintrich (2002) proposes that metacognitive knowledge could be incorporated more formally into language teaching and testing, and he suggests that teachers should ask their students to talk about their metacognitive strategies and then evaluate the students' awareness and understanding of the metacognitive strategies.

There is a clear consensus among researchers that a key to successful language learning is metacognitive knowledge — that is, thoughts on how to control learning, selecting study strategies, monitoring the learning process in different states, and analyzing the effectiveness of the learning strategies and changing them according to tasks and personal needs. In fact, students can be trained to develop these metacognitive

skills (Coiro & Dobler, 2007). A stronger emphasis on developing learner-centered environments and autonomous learning will call more attention to language learning strategies. Among these strategies, reading strategies have received a lot of attention in the field of reading research. Because reading is a major skill in first and second language learning, good readers' strategies can provide invaluable insights into the nature of reading comprehension and how it could be taught (Stevenson, Schoonen, & Glopper, 2003).

Nosratinia, Saveiy, and Zaker (2014) studied 143 EFL learners majoring in English translation on their self-efficacy, metacognitive awareness, and language learning strategies. The results showed that metacognitive awareness was the best predictor of language learning strategies, and that having positive beliefs in metacognition and adjusting learning strategies might result in higher grades. In another study, Bozorgian (2014) investigated the impact of metacognitive instruction on EFL intermediate learners' listening skills. The 30 participants received instruction over eight weeks. During each 50-minute sessions, the teacher walked the students through five stages: planning/predicting, first verification, second verification, final verification, and reflection. These five stages corresponded to the metacognitive strategies of planning, monitoring, and evaluation. The teacher taught students what to do in each of the five stages. In the planning stage, students predicted the type of information and possible vocabulary of the listening practice after knowing about the topic. In the first verification stage, listeners noted the primary information and compared it with their peers. In the second verification stage, students corrected their first understandings and the most pertinent details. In the final verification stage, students listened for the information they

could not decipher and discussed it. In the final reflective state, based on the discussion of the strategies used to compensate for what was not understood, the students wrote the goals for the future listening activities. IELTS listening practice tasks were used to track the participants' listening performance. The students also completed a metacognitive awareness questionnaire while engaging in listening tasks. The results revealed that the students improved their listening skills after they had received instruction and learned about metacognitive strategies. Metacognitive strategies are useful not only for listening, but also for reading.

Metacognitive reading strategies

Metacognition in reading is the same as metacognition in general. Grabe and Stoller (2002) defined metacognition in reading as the awareness of one's cognitive abilities and the control of such abilities when engaging in a reading task. The metacognitive awareness in reading includes a variety of skills. Recognizing the more important parts of a text, adjusting the reading speed based on the text's difficulty, using context clues, skimming, previewing, formulating questions, translating, and taking notes are all examples of such skills. The control or self-regulation of these skills includes deciding what strategy to use for different reading tasks and checking the effectiveness of the strategy and the way it contributes to reading comprehension. The metacognition-aware reader can also adjust the way they employ the strategies when these are not leading to comprehension as reading proceeds. Anderson, Thiede, and Therriault (2003) believed that the metacognitive skills are not activated one after another in a linear way; rather, they interact with each other. They divide metacognition into "five primary components: (a) preparing and planning for effective reading, (b) deciding when to use

particular reading strategies, (c) knowing how to monitor reading strategy use, (d) learning how to orchestrate various reading strategies, and (e) evaluating reading strategy use" (Anderson, Thiede, & Therriault, 2003, p. 10). Mokhtari and Sheorey (2002) distinguish three main metacognitive reading strategies: global reading strategies, problem-solving strategies, and support strategies. Global reading strategies are the readers' plans in reading, their purpose for reading, their reviews of the text, and the type of techniques they want to use. Examples of problem-solving strategies are adjusting the reading speed, rereading the complex sections, and guessing the meaning of new words. Support strategies facilitate the reading, such as using a dictionary or making notes and highlighting the text.

Today the Internet is an important source of reading. One example is dissertation writing. Whereas writing a dissertation in the past meant spending hours in a library and browsing books to find the pertinent information, nowadays the entire library is online, so one can visit the library any time of the day and let the search engines find keywords in thousands of books and articles. Anderson (2003) investigated the online reading strategies of 247 L2 readers, both EFL (53%) and ESL (47%) learners, to see if different environments have an effect on the use of metacognitive online reading strategies. For this study, Anderson adapted the survey of reading strategies (SORS) developed by Mokhtari and Sheorey (2002); the metacognitive online reading strategy survey (OSORS) has been used in several studies ever since (Incecay, 2013; Jafarigohar & Khanjani, 2014; Ostovar-Namaghi & Noghabi, 2014; Zenotz, 2012). Anderson (2003) developed 38 items to measure metacognitive reading strategies, subdivided into the three categories of global reading strategies (18 items), problem-solving strategies (11 item), and support

strategies (9 items); then, he focused on the online reading strategies all L2 readers reported using and on the differences between the reading strategies of ESL and EFL students. The participants in the study engaged in various online reading tasks and then during the last 10 minutes of class they took OSORS. The results indicated that both beginners and intermediate students used a vast variety of strategies included in the three main categories, whereas there was no significant difference between the EFL and the ESL groups. Anderson (2003) called for more research on a wide variety of learners. One group of life-long language learners is translation students. In the recent decades, translation has been rapidly growing as an academic and business field, as proven by the fact that leading online corporations such as Google and Facebook find it necessary to provide machine translations as part of their services to millions of people worldwide.

The Need for Translation

Translation has received a lot of attention in the past decades. Many factors have contributed to the increasing need for translation in business and to the study of it, such as globalization, immigration, and other political and economic events. Globalization can be described as the spreading of systems (mainly economic) across the world. The new systems that globalization introduces in different regions of the world do not remain the same when they reach their destinations. The systems already in place in the target locations change shape and adapt to the new systems. Translation makes the travel of these systems possible; at the same time, translation evokes new symbolic associations in the target language that redefine the original concepts. The study of translation therefore can help our understanding of the localization and globalization processes (Czarniawska, 2012). Immigration across the globe is another factor that makes translation a necessity.

Finally, political and economic events such as the collapse of communism in the Soviet Union as a superpower, have changed the balance of power in the world (Bassnett, 2011) and further fueled the demand for translation and second language education.

In the United States, the American Translators Association (ATA) was founded in 1959 and it continues to function with various conferences, local charters, and activities; as of February 2015, the association had 11,000 members in more than 95 countries (http://www.atanet.org/aboutus/history.php/). In Europe, translation constitutes a major aspect of the daily communication among member countries and is considered inseparable from the issue of immigration and the building of relations among the countries in the European Union (Wolf, 2014). In Canada, immigration issues have led to the emergence of many translation and interpretation (T&I) schools even within the administrative departments of the government (Gile, 2012). Other countries in the world have also joined in to respond to the global need for translations. On major translation websites such as proz.com one can see that many translation companies or individual translators conduct their business from regions other than Europe, Canada, or the United States.

Translation is a growing field of study and is in demand in the expanding global economy. Immigrants who do not speak the language of their country of destination has prompted countries such as the United States to pass laws on the right of non-English-speaking people to use translation services free of charge in places such as hospitals and courts. As corporations expand their businesses to the remotest areas of the world, they need to introduce their products in the local language to maximize sale and profit. Whatever its purpose, it is now obvious that translation requires skills and training for a

variety of situations and contexts. Bilingualism is no longer enough for translation or interpretation. Linguistic, technical, legal, and other factors have made translation a very technical task (Giles, 2009). Associations have come together to share and discuss issues related to translation, and universities have responded to the new market needs by activating translation courses to train future translators.

The emergence of translation studies

Translation studies found their way to academia in the 1980s (Bassnett, 2011). The diffusion of the Internet, particularly at the end of the 1990s, took the business of translation and the study of it to new levels. The use of emails as a common way of communicating in the business world has eliminated the need for the translator to be on site. For example, now translators can receive a translation job through the email, work on it from home, email it back, and be paid online.

Translation has also become a separate field of study in many universities (Malmkjaer, 2004). Prior to the 1970s, translation was not an academic field or discipline. It was not a highly regarded literary work either; rather, it was considered merely a copy of the original text that had lost much of the original form and content during the process of translation. Translation was a poorly paid and underappreciated task, to the extent that even universities preferred not to count their academic translations as publications (Bassnett, 2011). Yet, it is important to note that translations have existed since the time empires conquered new territories and religion travelled across the land; what is recorded as translation theory goes back to the translation of the Bible or of classic poetry and drama. As Snell-Hornby (1988, p. 7) states, “Translated texts from everyday life were studies, if at all, merely as specimens of language at a given stage of

development, and traditional philology did not concern itself with translation theory." The interest in the study of language, however, affected the attitudes towards translation. Language studies bloomed in the 1950s and 1960s, consolidating linguistics as an academic field. Eugene Nida's book, titled *Toward a Science of Translating* (1964), introduced translation as an academic field and led to the publication of other scholarly work on translation. Theories on language learning, linguistics, and translation continued to come out during the 1970s, 1980s, and the 1990s, when the media explosion brought translation studies and practices to the forefront of many academic institutions who responded to the needs of the new global business.

According to Bassnett (2011), there are no signs that the interest for translation studies will decrease during the 21st century. Various journals, books, and articles on translation theory and practice continue to be published; multiple translation and interpretation associations continue holding meetings and conferences; and in academia, translation courses continue to appear and attract students. From China to Brazil, from Austria to Iran, and in many other countries, universities establish translation and interpretation courses, either combined or separate, and private lessons of translation and interpretation attract students aiming to enter the business.

Translation studies have begun to be offered in more universities across the world during the 1980s and 1990s, and research on translation and university courses have started to grow out of the field of literary translation. The American Translators Association (ATA) provides a list of translation schools whose standards are approved by the ATA's Education and Pedagogy Committee. In addition to translation schools, community translation organizations and ATA chapters also offer translation and

interpretation courses. In California, for example, the Northern California Translators Association offers various workshops on translation, interpretation, translation software, and the business side of translation.

Translation studies today are divided in several subfields, such as translation business management, localization, machine translation, audiovisual translations, interpretation, and other fields that focus on particular aspects of translation and its interdisciplinary functions (Doorslaer & Gambier, 2010). Translation majors often offer courses on both text translation and interpretation. In general, translation studies include both translation and interpretation. By definition, translation refers to the act of rendering written a text, which is usually done by translator's producing a written version of the source language (SL) in the target language (TL). Written translations of books, articles, or pamphlets are examples of translation. Interpretation, on the other hand, is the oral rendering of the spoken language from the SL into the TL. Interpretation can be simultaneous, meaning that the translator translates while the speaker is speaking, or consecutive, meaning that the speaker waits for the translator to translate what has just been said before continuing to speak. Consecutive interpretation is common in doctors' offices or in courts. There are other variations of translation that universities might offer training in, such as sight translation, which means translating a written text orally in the TL for an audience. An example of translation courses that cover both translation and interpretation can be found at the Middlebury Institute of International Studies (MIIS), where this research was conducted. With the growing influx of immigrants in need of legal and medical interpretation, colleges also offer interpretation certification programs or programs to prepare candidates for the ATA certification exam.

Translation and Language Teaching

The main purpose of learning a foreign language in the early 20th century was to be able to read literature in another language and to translate it. The grammar-translation method, which was developed in Prussia in the early 18th century (Malmkjaer, 2010), was a common language teaching method in Europe in the earlier decades of the 20th century. The grammar-translation method was copied from the method used to teach Latin and Greek and was applied to other languages. Students were translating the literary work word by word under the supervision of the teacher. The teacher would use the SL to explain the grammar of the TL. Grammar points were illustrated in an example sentence, and students followed the example for more practice. No oral production was expected from the students. With the rise of structuralism in the early 20th century, the shortcomings of the grammar-translation method began to surface, and the method was banned from the language class. Structuralism originated from the work of Swiss linguist Ferdinand de Saussure and was developed by Leonard Bloomfield in the 1930s and the 1940s. Structuralism treats language as a system of structurally related elements and structure; in this view, the grammar-translation method failed to account for the structural relations of the two languages, which could be compared and contrasted with each other. Comparing and contrasting the two language structures could predict what parts of the TL would be easier for the learner to learn and which parts would be more difficult, and the teaching materials could be changed accordingly.

Since the decline of the grammar-translation method and the emergence of structuralism, language education has developed several other teaching methods. Other fields such as linguistics, sociology, and psychology have heavily influenced this

development. Linguistics has continued to propose new descriptions of language structure, such as the idea of generative grammar, which proposes that children learn languages not by mimicking the existing language structures but by generating new structures of their own. Moreover, fields such as sociology and psychology have advanced new theories of learning. Psychology has gone beyond the stimulus-and-response learning theory to suggest that children learn from their peers. Findings in sociology have encouraged linguists to study language use by gender and by various classes of people in society.

Some other developments drastically transformed the way language teaching was approached. One notion that emerged in the 1980s and 1990s was that of the student-centered learning approach as opposed to teacher-centered approach. In a student-centered approach, students are in charge of their own learning, and the teacher plays the role of a facilitator that creates an effective learning environment for the students to learn on their own. This notion was in contrast with the traditional way of teaching. Traditionally, the teacher would speak most of the time and the students would listen and receive directions from the teacher. In a student- or learner-centered approach, the teacher also provides plenty of feedback on students' works and guides them in their use of strategies to achieve high levels of learning (Bista, 2011). Another important event was the introduction of technology in the language classroom, which further promoted learning opportunities for students both inside and outside the classroom — even though language learning outside the classroom is a relatively new phenomenon that needs more investigation (Doyle & Parrish, 2012). Another development that has transformed language teaching and learning was the emergence of new theories of language

acquisition that assume an innate ability for language acquisition and propose the communicative nature of language learning (Chomsky, 1965; Halliday, 1975).

At the same time that these theories were transforming linguistics and language teaching, parallel theories were changing the translation field; however, the earlier disconnect between the fields barred their reunion. Nida, a founder of modern translation theories, claimed that his ideas preceded Chomsky's groundbreaking theory of generative grammar. In fact, Nida too had noticed the shortcomings of translations that adhered to form, literal meaning rendering, and mere technical accuracy (Gentzler, 2001). However, according to Gentzler (2001) the two fields of linguistics and translation studies did not come together smoothly. Some translation scholars questioned the usefulness of Chomsky's theory, whereas others proceeded to form translation theories around the model provided by Chomsky.

Translation has departed from the old methods and has transformed under the influence of other fields, including anthropology, psychology, and newer fields such as women's studies, cultural studies, and postcolonial studies (Gentzler, 2001). Translation is also being reintroduced as a language teaching methodology for language educators (Harden, Harden, Witte, & National University of Ireland, 2009; Leonardi, 2010; Malmkjaer, 2010). However, second language educators' perception of translation as the grammar-translation method that was used in the early 20th century needs to be changed. According to Gentzler (2001), the new translation theories are the product of two main changes from the word-for-word approach. The first is the shift from source text–oriented theories to target text–oriented theories, which means a stronger consideration of the reader of the translation; the second is the inclusion of cultural factors in the translation to

transfer as much meaning from SL to TL as possible. These two fundamental changes are very similar to the two changes in language teaching described above as the emergence of learner-centered teaching and of a communicative approach to language acquisition.

What are some of the difficulties of bringing translation back in the language classroom? Malmkjaer (2010) argues that many second- and foreign-language educators still view translation with skepticism, although translation activities within a communicative approach can benefit second- and foreign-language learners. Some of the reason for skepticism, according to Malmkjaer, are: (a) Translation will reduce the time the learner spends on the four main skills of reading, writing, listening, and speaking, which are the focus of second- or foreign-language programs; (b) Translation is an unnatural process whereas language learning is a natural process (e.g., children internalize language by being exposed to it daily); (c) Translation misleads students into thinking there is only one way of expressing an idea in the language they are learning; (d) Translation blocks students from thinking in their TL without the interference of the SL. In response to these concerns, Malmkjaer (2010) argues that: (1) Translation is a process of both reading and writing or listening and speaking (in oral translation cases); therefore, translation in fact uses all these skills and integrates them; (b) An increasing number of bilingual immigrant children across the world grow up translating for their parents; translation in today's world has become a natural process because the number of bilingual children is now exceeding the number of monolingual children; (c) In the process of translation, the practitioner soon realizes that there are few simple one-on-one relationships between the languages; in fact, translation raises the students' awareness that ideas can be expressed in different ways in the two languages; (d) The nature of

translation is to bring languages side-by-side, and coping with language switch is valuable practice for students who may eventually become translators due to the growing need for translations in a globalized world, and particularly in the immigration destination countries.

Expanding on the benefits of translation in second- or foreign-language learning, Leonardi (2010) argues that the major language testing systems such as TOEFL and IELTS still test students based on structuralism theories that break language knowledge into modules of listening, reading, writing, and speaking. Leonardi (2010) argues that there should be also a module for translation, particularly in Europe where the need for translation skills is high. Hentschel (2009) mentions brain studies that show that the brain restores vocabulary in both L1 and L2 in similar ways; and that it is beneficial to use the way students remember words in their L1 in training them to remember L2 vocabulary. In addition, Hentschel argues that because the mind inevitably creates connections between L1 and L2 vocabulary, even the despised word-for-word translation method can help students learn the new vocabulary.

Tavakoli, Ghadiri, and Zabihi (2014) examined the effect of translation on the writing ability of Iranian beginner EFL learners. The participants were asked to perform two writing tasks: (a) writing directly in English and (b) writing in their language, Persian, and then translating the text into English. The participants were also asked to provide a retrospective verbal report of their attitudes toward the two modes of writing. The results showed that although translation might have been helpful for some learners, it was not necessarily an effective strategy in the absence of other instruction. However, the findings also showed that the process of writing in English was not also a process of

thinking in English. In fact, 75% of the participants reported that they “often” or “always” thought in Persian and mentally translated their thoughts in English while writing. The researchers concluded that teachers should incorporate translation strategies in writing classes and explicitly teach students how to employ the translation strategy in writing, particularly for planning and organizing their texts.

In order to incorporate translation as a supplementary activity in language teaching classes, Leonardi (2010) proposes a pedagogical framework composed of three main parts: pre-translation activities, translation activities, and post-translation activities. One or more of the following activities should be included in language classes. Pre-translation activities include brainstorming, vocabulary preview, and anticipation guides. Translation activities include reading, speaking and listening, writing, literal translation, summary translation, parallel texts, retranslation, grammar explanation, vocabulary building, cultural meditation, and intercultural competence development. Finally, post-translation activities include written or oral translation commentary, written or oral summary of SL and TL contents, and written composition about other related topics in both SL and TL.

Some of these activities overlap with metacognitive strategies. For example, anticipation activity in pre-translation is similar to anticipation and guessing as a metacognitive strategy that precedes reading. Summarizing and vocabulary building are other metacognitive strategies that occur while reading; and the development of intercultural competence parallels the metacognitive strategy of awareness. Leonardi (2010, p. 120) summarizes the need to incorporate translation in language teaching as follows:

Translation is a useful learning tool, which allows learners to better understand a text and analyse it through the use of logic. Translation stimulates thoughts and encourages efforts while requiring the same lexico-grammatical knowledge as in any FL course. Translation teaches students how to develop flexibility and decision-making strategies, which in turn, strengthen students' confidence in both L2 reception and production. Translation allows an in-depth analysis of both L1 and L2 thus strengthening comprehension, which is at the core of any FL course. Translation is natural and is embedded in any act of communication.

Leonardi (2010) also argues that translation activities are not meant to replace current language teaching methodologies, but should rather be used as reinforcement activities, because they support the four traditionally taught skills. In summary, translation scholars are trying to call the language educations attention to translation as a language-teaching tool, and that in modern times language teaching is a tool for the ultimate goal of translation. They also want to change the mindset of language educators that translation theory has changed in the past century following the advancements in cognitive science. Like language teaching, translation theories have developed to view translation as a social activity. New theories of language teaching are comparable to new theories of translation. For example, language teaching's communicative approach (CA) is comparable to postcolonial translation theory. CA asserts that language learning is a social act for the purpose of communication and that the learners' interpretation of concepts depends on their background knowledge (Butler, 2012). CA encourages learner autonomy in learning rather than depending on class instructions, and proposes that students' exposure to various authentic language materials comprise the framework of learning. Translation study's postcolonial theory also proposes that translation is a communication tool and is meaningful when the contexts and backgrounds of the two languages and cultures are taken into consideration. Postcolonial translation theory is one of the modern translation theories that were developed after the 1960s and 1970s. This

theory includes the postcolonial era issues as factors to be considered in translation. Postcolonial translation theory can be a holistic theory to explain the goals of translation in modern times as well as those of language learning.

Postcolonial translation theory

Another reason for scholars such as Malmkjaer (2010) and Leonardi (2010) to demand that translation practice come back to the second- and foreign-language classroom is the need to connect language learners to the reality of the postcolonial world we live in, with its power struggles, wars, migrations, brain drain, developed countries' outsourcing businesses and so on. The postcolonial era started in the mid 20th century, when colonial countries gained their independence, and continued to take shape as politics and economy became global issues. Postcolonial studies deal with the way countries and people incorporate or reject the Western economic or political systems and find local solutions in response to major Western corporations taking over businesses on a global level. Postcolonial translation theory came out of cultural studies that suggested texts are heavily affected by the cultural, political and economic situations they are created in. According to postcolonial translation theory, the aim of translation is not merely to familiarize readers with the culture of distant countries they will probably never visit, but rather to make the target language readers experience the culture that is radically different, but it is inevitably affecting interactions in the world. The goal of postcolonial translation is to teach readers how to live with other cultures. Translation in this sense is a process of immersing oneself with humility in another life or world (Orsini & Srivastava, 2013). This goal is what many second- and foreign-language programs also pursue.

Translation theory has existed since the first translations in history, but it appeared in modern language discussions in 1983 (Gentzler, 2001). The 1980s and 1990s also mark the emergence of postcolonial studies (Orsini& Srivastava, 2013). Postcolonial translation theory is still in its infancy and deserves to be brought to the humanities — particularly to language fields such as linguistics and second-language education — as a new avenue for the integration of the humanities fields. Translation has been neglected and still is, to the extent that even translation students start their studies with the assumption that something always is lost in translation, and that the translated text will end up being inferior to the original (Bassnett & Trivedi, 2002). Part of this idea, according to Bassnett and Trivedi (2002), dates back to the time of the invention of print, when writers were introduced to the idea of copyright. Print made the reproduction of books much faster than hand copying; therefore, the writers viewed their original writing as superior to reproductions. The influence of behaviorism and structuralism during the early 20th century could be another contributing factor to the perception of translation as an inferior activity. Structuralism viewed each language as a stand-alone unit with a corpus of utterances, a static system with its own interconnected units. In this view, translation would merely be a reconstruction of an original text in a different system disconnected from its original units, and therefore an inferior product. Post-structuralism, particularly since the 1990s, has transformed this perception of translation as it has seriously criticized the assumptions of structuralism. Post-structuralism argues that language structures are subject to constant change due to wider global and cultural changes; within each language, some sociocultural constructions may either be acquired or disappear. Language is not a static system, and no text is original because it is

produced within specific historical, social, cultural, and political contexts (Culhaoglu, 2014).

For a long time, the role of translators in translation has been minimized. Translations were supposed to stay as loyal to the source language as possible, and translators had to be invisible in this transition. More recent theories of translation propose that translators just like authors of texts are affected by the context of situations they live in. In such a view, a translator is not invisible in translation (Venuti, 2000). The way each person translates a text, the cultural backgrounds they come from, and the contexts in which they comprehend the text all have an effect on the translation. Language learners can think about the differences between their translations and those of their classmates or other translators. As Bassnett and Trivedi (2002, p. 2) describe it:

> Translation is a manipulative activity that involves all kinds of stages in that process of transfer across linguistic and cultural boundaries. Translation is not an innocent, transparent activity but is highly charged with significance at every stage; it rarely, if ever, involves a relationship of equality between texts, authors or systems.

Translation scholars propose to bring the two fields of translation studies and language teaching together, so that translation is taught in second language classes, and findings from second language education be shared with translators as lifelong language learners. Translation is still affected by the way it was used during the colonial era, when it was at the service of colonization. According to Cheyfitz (1992), translation was at the core of European colonization and American imperialism. For example, La Malinche was a Native American woman who was a translator for the colonizers. Symbolically, she was a mistress at the service of Cortés, the colonizer, who was introducing the Aztecs to European "civilization" through translation. Europe was the "original," and the colonies

were the "copies" (Bassnett & Trivedi, 2002). If the original could not be completely transferred, it was only because of a bad translation.

As globalization, the new colonialism, spreads from the bigger economic and political powers to the third world, most translations are still from or into European languages and technology imbalances continues to deepen the digital divide between the rich and the poor. Whereas many advanced countries provide computers to many elementary schools, the students in third-world countries may only be able to use them in the university's computer labs. Protesting the growing gap between rich and poor countries, some grass roots activists insist that translation from and into European languages should be banned or restricted in order not to perpetuate the colonizing process. The reality is globalization continues to grow, migrations still take place and economy controls the survival of countries on the international level. In such circumstances, learning about other countries and cultures is a must for both poor and rich countries. To understand the interactions among nations, people need to understand various viewpoints. According to Homi Bhabha (1994, pp. 38–39), a pioneer in postcolonial studies, translations (in any language) can create an in-between space to bring us out of restricted mind frames that we might have grown up with:

> We should remember that it is the "inter" – the cutting edge of translation and renegotiation, the in-between space – that carries the burden of the meaning of culture. It makes it possible to begin envisaging national anti-nationalist histories of the "people." And by exploring this Third Space, we may elude the politics of polarity and emerge as the others of ourselves.

Postcolonial studies can expand with the contribution of other disciplines and provide new perspectives on human interaction and power struggles. According to Harding (2009), modern academic fields such as gender studies, postcolonial studies, and

science and technology studies should deeply engage with each other to point toward a better future for all.

Digital Literacy

The widespread use of the Internet and mobile devices is changing global society from a literary to a digital one. Digital literacy according to National Broadband Plan (NBP) in March 2010, it is a variety of cognitive and technical skills to use technology to find, evaluate, create, and communicate information (Clark & Visser, 2011). According to Rivoltella (2008), the introduction of information and communication technologies (ICT) is transforming society because of three factors. The first factor is the speed of information exchange, which has transformed traditional ways of connection. Emails are now a common medium of communication and can transfer images and text in seconds. The second factor is that virtual communication can be asynchronous. For example, an email can be sent at any time of the day, not only during business hours; online course instructors can upload their materials and students can access them at any time. Friends can be engaged in text-message conversations for hours without following the rules for phone or in-person conversations (which usually involve turn taking and non-stop talking). The third factor is the diffusion of social networks such as Facebook, YouTube, Twitter, etc., particularly important for the young generation who use social media to participate actively in group or community conversations.

Educators should consider the speed of communication, virtual asynchronous presence, and social networks in designing teaching materials. At the same time, they need to educate their students on the new communication technologies. Wesch (2013) found that although teachers might assume that their students are all active users of

media, only 4% of his students at Kansas State had edited and published a video on social media sites. Moreover, although almost all of his students had used Wikipedia before, less than 10% of them knew what a wiki was and how it worked. A very small percentage knew what an RSS feed is or how to use a social bookmarking service that could help them conduct online research and sharing information with their peers. Wesch (2013) concluded that the so-called digital natives were good at entertaining themselves online but were not familiar enough with online education tools and did not know how to identify high-quality materials. Therefore, knowing about the available media is not enough. Students need to be taught to move from information literacy to participator literacy — which indicates the students' knowledge of how to use technology effectively to learn and how to avoid redundant and unwanted situations such as having their online accounts hacked, or wasting time on unrelated websites.

Some decades ago, when television was the primary medium of communication, critical thinking courses taught students to criticize what they saw and heard. Today, critical thinking is not enough as people are no longer just recipients of media, but rather are active participants in shaping them. Examples of active participation are amateur videos on social media that go viral and attract millions of viewers who then participate in an online discussion. In the past schools had only one TV and teachers had to schedule their class to use the school TV. Today, students sometime even have their own laptops in class, and may continue to use their laptops at home for their school projects and to participate in the class online discussions (Kuechel, 2013). Media communication is no longer one-way, and critical thinking is essential and important, though not enough (Wesch, 2013). Students' privacy could be at risk in an online environment, and students

themselves could be in danger. Educators are looking for ways to limit potential dangers such as inappropriate video content in the classroom; however, students need to be taught to use the media safely. Social media continues to add new features, and students should be prepared to participate in global conversations and share knowledge (Kuechel, 2013). Students today are part of the global interactions. They are required to participate in online group discussions as part of their study assignments. According to Moore and Grisham (2015), the new literacy culture requires students to read through a massive amount of information and to engage in collaborative conversations, and their learning takes place through expressing and revising their understandings through communication with others. Educators need to update their knowledge of digital literacies because technology continues to reshape the behavior of learners. According to Villanueva, Ruiz-Madrid, & Luzon (2010), the influx of various information technologies (e.g. hypertext, multimedia, and interactivity) results in the growing emergence of new literacy practices where autonomy has to take center stage. Autonomous learning enables students to access learning sources on their own, unlike the traditional methods where teachers were the speakers in the class while students listened and took notes. New developments in technology continue to reshape the concept of the autonomous learner. As Benson (2013, p. 840) puts it:

> Early work on autonomy, for example, placed a high priority on the collection and provision of resources through self-access and on programs to train learners in their use for self-directed learning. Learner control was, in effect, both institutionalized and other-initiated. The advent of digital literacies, however, means that autonomous language learning is more likely to be self-initiated and carried out without the intervention, or even knowledge, of language teachers.

An example of a self-initiated language project that Benson (2013) provides is the collaborations between a Brazilian video producer working with Japanese animations and

Japanese online fans providing English translations for Japanese animations in subtitles. Benson (2013, p.841) further described these work and play digital practices as:

> Although they often involve language learning, they are not necessarily engaged in it for this purpose and they are a more or less natural consequence of the growth of global web services such as fan fiction, image and video sharing, and social network sites.

Despite all the advances in digital technologies, however, the educational potential of the Internet is faced with limitations. According to Villanueva, Ruiz-Madrid, and Luzon (2010), there is a lack of pedagogical models for language learning and teaching. Students and teachers do not have adequate experience with online language environments and have a perception that face-to-face classrooms are better learning environments than online classes. There are unsafe learning environments where students' personal information could be exposed to outsiders. Moreover, digital devices increasingly change into newer versions with added features; apart from the learning curve this implies, a problem is the educators' lack of experience with transferring the educational environment from one platform to another.

Translators, as life-long language learners, have a particular need to develop online language learning skills to be able to learn on their own. They need to become digitally literate about search tools and the Internet security issues, and also contribute to the online knowledge sources. Wikipedia as a free information site keeps growing with more translations. Translations are also freely offered on all major social media, made either by an increasingly refined machine or by the global community. Translation, in fact, is one way language learners can autonomously learn a new language online in a new communicative way, in an ongoing global conversation.

Summary

Metacognitive online reading strategies have attracted education researchers for the past few decades. Advancements in educational psychology have showed that learning is a complex cognitive activity. Flavell (1979) introduced metacognition as the running engine behind the way readers monitor their use of cognitive knowledge, and claimed that proficient readers are both aware of various reading strategies and able to use them effectively, whereas low-performance readers might be aware of reading strategies but not know how to use them.

Flavell (1979) divided metacognition into three sub-categories: strategic knowledge, knowledge about cognitive tasks, and self-knowledge. Based on metacognition theory, proficient readers are aware of reading strategies, can categorize strategies and recognize which one they need, and are able to assess their reading ability. Mokhtari and Sheorey (2002) identified three main metacognitive strategies: global strategies, problem-solving strategies, and support strategies. Anderson (2003) developed an online survey of reading strategies based on this model.

Grammar-translation was an earlier language teaching method. It was later banned from language teaching because it came to be regarded as a barrier discouraging learners from thinking in their second language (Malmkjaer, 2010). With the evolution of second-language theories during the past century, translation is now considered a cognitive activity with communicative purpose. Translation scholars (Leonardi, 2010; Malmkjaer, 2010; Tavakoli, Ghadiri, and Zabihi, 2014) propose that using translation activities is beneficial to second-language learners. Therefore, language educators and translators should cooperate more to bring these two related fields closer together.

Reading, language learning, and translation are all affected by technology. The Internet is creating new communication paradigms, such as blogging or leaving comments through social media, with continuous online presence through mobile devices (Rivoltella, 2008). Human adoption of technology, however, is a process. Digital natives might be good at using their gadgets for entertainment but may not be aware of online educational tools and might be unable to identify high-quality materials (Wesch, 2013). Students are encouraged to read online sources to improve their language skills, but they also need training on which online features are beneficial and which ones are not (Kuechel, 2013). The Internet is also becoming increasingly interactive. Education needs to enable digital readers to be not only critical thinkers but also quick and efficient decision makers. Readers are now in real-time interaction with the texts they are reading, and this requires the application of effective metacognitive strategies to achieve comprehension.

CHAPTER III: METHODOLOGY

Restatement of Purpose

The purpose of this two-phase mixed-method study is to explore the use of metacognitive online reading strategies by non-native English-speaking translation students. The study investigated the strategies students used the most, those used the least, and the overall distribution of strategy use. The study also explored how the participants employed reading strategies while reading an online text. The quantitative and qualitative data were collected concurrently, over the period of one month, during the spring semester of 2015. The first phase of the study focused on gathering quantitative data on the type and frequency of the metacognitive online reading strategies used by the non-native English-speaking students of translation. Phase two focused on obtaining qualitative data through think-aloud sessions with randomly selected participants. The data from the two phases reflect what metacognitive strategies were employed quantitatively and qualitatively in an online environment. The research questions for this study are:

1. What types of metacognitive online reading strategies do the non-native English-speaking translation students report using?
    a. What is the distribution of the reported strategies among the three categories of global strategies, problem-solving strategies, and support strategies?
    b. Which strategies are the most used, and which ones are used the least?
2. How do the non-native English-speaking translation students employ the metacognitive reading strategies when reading online?

Research Design

This research employs a mixed-method approach. A mixed-method research design requires the collection of both quantitative and qualitative data and the analysis and comparison of the findings. The use of both qualitative and quantitative data harnesses the strength of both methods. The quantitative data yield numbers for statistical analysis and reveal the magnitude of patterns. Quantitative studies rely on gathering large amount of data to generalize a phenomenon based on existing relationships (Creswell, 2008). On the other hand, the qualitative data provide a deeper understanding through interviews and open-ended questions. Zacharias (2012) describes qualitative research as research that seeks to understand an already existing phenomenon, focuses on small number of participants, relies on participants' words or stories, and categorizes the data according to emerging themes to describe the phenomenon. According to Creswell (2013, p. 4), a mixed-method research design benefits from the use of both qualitative and quantitative methods:

> Mixed methods research is an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks. The core assumption of this form of inquiry is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research program than either approach alone.

In particular, this study used the triangulation type of mixed-method design, which is also known as concurrent or parallel type. In this design type, the researcher collects both quantitative and qualitative data concurrently or simultaneously over a certain period of time. Creswell (2013, p. 219) described the triangulation design as follows:

> In this approach, a researcher collects both quantitative and qualitative data, analyzes them separately, and then compares the results to see if the findings confirm or disconfirm each other. The key assumption of this approach is that both qualitative and quantitative data provide different types of information — often detailed views of participants qualitatively and scores on instruments qualitatively — and together they yield results that should be the same.

During data analysis, the two databases collected through qualitative and quantitative methods were first analyzed separately and then brought together. Creswell (2013) explains that in a side-by-side comparison, the researcher first reports the statistical results from the quantitative data analysis and then discusses the themes emerging from the qualitative data. The discussion of the qualitative data either confirms or disconfirms the statistical results. This study used a side-by-side comparison for the discussion of the findings. The findings from the two methods should converge, show inconsistencies, or be complementary (Creswell, 2008). The study follows the QUAN-QUAL model described by Roberts (2010) in which quantitative and qualitative data are equally weighted and are also collected concurrently.

Research Setting

According to Creswell (2013), purposeful sampling is the intentional selection of individuals or research sites to learn about or understand a central phenomenon. In order to understand advanced language learners with a background in translation, the site chosen for this study is the Middlebury Institute of International Studies (MIIS) in Monterey, California. MIIS is a prestigious school offering many majors in humanities with an international focus. Diller (2012) lists MIIS as one of the leaders in higher education for offering very unique programs that train global thinkers. The degree programs include business, management, conflict resolution, translation, interpretation, and language teaching. MIIS's translation program is one of the top programs in the

United States and offers Master's degrees in translation from and to English for seven languages: Chinese, French, German, Japanese, Korean, Russian, and Spanish.

The MIIS translation program requires non-native English-speaking students to have received overall TOEFL scores of at least 100 (score 25 for reading) or overall IELTS score of at least 7.5 (score 7.5 for reading). In addition, the applicants are required to take an early diagnostic test by submitting two translations, an abstract, two essays, and an oral assessment recorded in the language of their study. The translation programs allow the students to decide their major at a later stage of their education; new translation students do not choose their specialty upon entering the institute but are able to immerse themselves in the study of translation and then choose their specialty at the beginning of their second year. All first-year students are exposed to translation (written format), consecutive interpretation (the speaker pauses for the interpreter to translate what is said before moving on), and simultaneous interpretation (often called conference interpretation). After two semesters, the students and their academic advisors assess the students' strengths, weaknesses, and interests. Then, the student declares the chosen focus, which could be in translation, translation and interpretation, conference interpretation, or translation and localization management. The faculty members at MIIS are experienced translators who constantly contribute articles in scholarly journals, publish books with the university press, and are in demand as speakers in the field.

Participants

The participants for the study were non-native speakers of English enrolled in translation programs at MIIS. To obtain volunteers for the study, the researcher contacted the dean of the Translation Studies program via email and explained the purpose, method,

and timing for the study. The dean of the program expressed interest and support for the study and referred the researcher to the IRB board at the MIIS to obtain the preliminary permissions. After the permissions were obtained, the dean sent out an email to all non-native students enrolled in the translation program and invited them to participate in the study in April 2015. The volunteers filled out the Online Survey of Reading Strategies (OSORS) using a Google form. A total of 46 students took the survey. Three responses contained unanswered questions (completion rate = 93%). The registrar office at the MIIS indicated that in fall 2014 and spring 2015 academic year, the age range of the students was 21—66, with 34% male students and 66% female students. The total number of students enrolled in this period was 479, and the number of non-native English speakers across the eight translation programs was 132. The non-native English speakers distribution in the translation programs is shown below.

Table 1

Distribution of Non-Native English Speakers in Translation Programs

Program	**Total Students**	**Non-Native Speakers of the Language**	**Native Speakers (Non-Native English Speakers)**
Arabic	49	48	1
Chinese	107	26	81
French	55	54	1
Japanese	38	31	7
Russian	45	36	9
Spanish	151	141	10
Korean	20	5	15
German	14	6	8
Total	**479**	**347**	**132**

The response rate to the online survey was 34.84%, since 46 out of 132 non-native English speakers responded to the survey. This reflects a 90% confidence level and a 10% margin of error when applying normal distribution of 50% to calculate the optimum sample size. The dean used their school email address to invite students to take the survey; the researcher assumes all 132 non-native English speakers received the email from their dean.

For the second phase of the study or the think-aloud sessions, the translation studies dean again emailed non-native English-speaking students in translation courses. They were invited to contact the researcher directly to set up an appointment. Although students were getting close to their finals in late April 2015, six students emailed the researcher and volunteered for think-aloud sessions. The volunteers were two male and four female students. According to Coiro and Dobler (2007), smaller number of participants provide more focused analysis when the phenomenon is relatively unexplored, as is the case with online reading strategies, because smaller samples are more likely to provide clearer directions for future research. The six think-aloud sessions' participants made appointments to meet in a quiet space in the school on different days over a period of two weeks. The sessions lasted from 35 minutes to an hour. The think-aloud participants' backgrounds are described in the next chapter.

Human Subjects Protection

Permissions to conduct this study were granted by both the University of San Francisco's Institutional Review Board for the Protection of Human Subjects (IRBPHS) and the Institutional Review Board at the MIIS. Participants who volunteered for this study signed two consent letters, one from USF and the other from MIIS. The survey link

created in Google did not record any personal information from the respondents. Furthermore, the dean of the translation studies agreed to email students the link to the online survey and reiterated in the email that the participation was voluntary and it would not affect students in any way regarding their studies at MIIS. The mail also specified that a lack of participation would not affect the students' status by any means. The consent letters from both institutes explained the purpose and methodology of the research. Additionally, each participant in the think-aloud session was informed that the data would remain confidential and would only be used for the purpose of writing this dissertation. Moreover, they were told that they could withdraw from the study at any time without any penalty. Finally, the researcher used numbers and pseudonyms to identify the participants.

Sources of Data

The data for this study were obtained from different sources: the MIIS website, Anderson's (2003) online reading strategies instrument, Alsheikh's (2002) questionnaires on students' background, Coiro and Dobler's (2007) questionnaire on online reading habits, and the data from think-aloud sessions.

The information from the MIIS website included the requirements for admission to a MIIS translation program. Applicants are required to provide high TOEFL or IELTS scores, submit a translation sample, and prove a minimum of six months of in-country experience using a second or third language. According to the website, translation students are expected to regularly read high-quality newspapers such as the New York Times or Wall Street Journal, become computer savvy, strengthen their general knowledge, improve their analytical skills, and become lifelong learners.

The Online Survey of Reading Strategies (Anderson, 2003) was another source of data collection. Anderson (2003) adapted this survey from the Survey of Reading Strategies designed by Mokhtari and Shoerey (2001) to incorporate the online reading element as opposed to reading on paper. The SORS is an instrument to evaluate the use of metacognitive strategies in academic reading. The SORS itself was based on another metacognitive reading strategy survey, the Metacognitive Awareness of Reading Strategies Inventory (MARSI). Mokhtari and Reichard (2002) designed SORS to measures three categories of reading strategies: global reading strategies (13 items), problem-solving strategies (8 items), and support strategies (9 items). The OSORS measures the same categories but includes more questions to cover online reading. The OSORS has 18 items for global strategies, 11 items for problem-solving strategies, and 9 items for support strategies. The reliability report for MARSI according to Guan, Mason, Meng, and Roehrig (2011, p. 8) is as follows:

> Several statistics were computed to examine the reliability of the MARSI and the internal subscale correlations. Cronbach's alpha coefficients were computed for the entire set of 30 items (α= .77). Cronbach's alphas also were computed for the Global Reading Subscale (α= .75), for the Problem-solving Subscale (α= .73), and for the Support Reading Subscale (α= .88) in order to obtain estimates of internal consistency reliability for each subscale.

Anderson (2003) reported the reliability of OSORS as follows: The Cronbach's alpha for the overall OSORS was .92. The reliability for each of the three subsections was .77 for global reading strategies, .64 for problem-solving strategies, and .69 for support strategies. The reported reliabilities establish that OSORS is a reliable instrument for assessing the metacognitive online reading strategies of foreign language learners (Anderson, 2003). The OSORS has been used in various studies of metacognitive online

reading strategies, including Incecay (2013), Kim (2011), Ostovar-Namaghi and Noghabi (2014), and Vaičiūnienė and Užpalienė (2013).

The researcher created an online survey to be emailed to all potential participants. Using the reliable, free, and user-friendly Google service, the researcher typed in all 38 items of the OSORS instrument in Google Forms. Having a Google account is all that is required to use the service. In the Google Forms environment, compiling the survey is easy using the preexisting survey-making features. All 38 OSORS items use a Likert scale of one to five. Google Forms has many different options to collect the responses researchers need to elicit from participants, such as Likert scales, multiple choices, or lengthy written responses.

Google Forms facilitates data processing as well. Not only do Google surveys protect the participants' identities by not requiring any names, they also list numerical responses in an Excel sheet. The researchers can then use the statistical features of Excel sheets for quantitative data analysis.

The qualitative data were obtained by following a think-aloud (TA) protocol. The TA protocol has become a common tool for researchers to explore the process of reading in recent decades. According to Sprainger, Sandral, and Ferrari (2011), tests are insufficient to understand how learners actually comprehend the text, but the TA processes open a window into students' thinking. The TA protocol is an effective tool to determine the extent of the students' awareness of comprehension strategies and how they help them as readers. Sprainger et al. (2001, p. 33) illustrate the TA process as follows:

> During a student think aloud the student reads an unseen text, supported by an open conversation with the teacher. The student is encouraged to verbalize his/her

> thinking as they read and interpret the text. The role of the teacher is primarily that of observer. Teacher prompts are generally open ended and designed to nudge the student's thinking, e.g., *What are you feeling? What are you thinking now?* Further probing questions may also be utilized, as part of the follow up conversation once the reading is complete. For example, *What can you tell me about Smudge's dad? I'm wondering what you think makes someone a good reader?*

According to Incecay (2013), the TA protocol is one of the most effective methods to learn about the participants' thoughts and actions during the writing and reading processes. The TA protocol was also used in previous studies on second language, such as Feng and Mokhtari (1998) and Afflerback (1995), to measure cognitive reading process and metacognitive tools through which readers monitor their comprehension. The TA protocol, according to Pressley & Afflerbach (1995), is in general beneficial to language learners because it requires readers to stop to think about the text and to be more engaged in their reading.

In a study on second language learners' metacognitive reading strategies, Alsheikh's (2002) employed the TA process to collect qualitative data on how Arab students learning English read academic texts in Arabic and in English. First, he read a sample academic text and verbalized his thoughts while reading it; then he let the participants practice until they felt comfortable with the process. Finally, he gave them the actual text to read and asked them to talk about it while reading. For this study, the chosen texts were TOEFL sample texts taken from a TOEFL practice website for graduate students (the link to this website can be found in Appendix I). The researcher chose a TOEFL sample text because TOEFL tests are designed to measure the potential reading ability of graduate students to predict their academic success in graduate school.

Data Collection Procedures

Prior to the beginning of the research, the nature of the study and the timeline for data collection was discussed with the dean of the translation programs. The school administration fully supported the study, and the school secretary helped the researcher post a notice on a Facebook page of the MIIS student group. The researcher administered the study in two phases. Phase one included sending out a link to the Online Survey of Reading Strategies (OSORS) to non-native English-speaking students. The second phase consisted of six think-aloud sessions with the participants. The sessions included recording the students' readings as well as having them fill out a background information questionnaire, originally designed by Alsheikh (2002), and a questionnaire on online reading habits designed by Coiro and Dobler (2007).

Online survey of reading strategies

It was important to design an online survey that was reliable, easy to use, and professional in design. The first step was to search online and look into online survey tools. The search was narrowed down to Survey Monkey and Google. Survey Monkey had many useful features, but it seemed a little confusing and it required the payment of a monthly membership fee. The Google survey was easy to use, clear in design, and free of charge. Different fonts and colors were used to replicate the same order of questions and responses on a Likert scale of the original OSORS survey. Google Forms automatically sends an email to the creator of a survey any time a new person fills out a form. The responses can then be seen on a Microsoft Excel sheet, which makes the data analysis much easier given the variety of statistical functions Excel is equipped with. The Excel sheet assigns each survey question to a column, and the participants' responses to each

question are listed in different rows in the column. Also, Google Forms maintains the anonymity of the respondents; it records no names and no one but the creator of the survey can access the data through a password.

Once the IRB permissions were granted, the translation school dean sent out an email to all students directing them to the Google survey and encouraging their participation. The head of each department also sent additional emails to encourage students to fill out the online survey and questionnaire. The researcher also posted the link on the Facebook page of MIIS students. The researcher kept track of the responses on the Excel sheet and posted it on the MIIS Facebook page three more times until a total of 41 responses were collected.

Think-aloud protocol

A total of six students volunteered to participate in the think-aloud (TA) sessions. The first five students expressed their interest by sending an email to the researcher, and one student asked a classmate to also participate in the study. Before meeting with each participant individually, the researcher downloaded the Screencast-o-matic software on her computer and tested the program. The freeware records voice as well as mouse and keyboard activities. Since the study required participants to access the Internet, the school provided a guest password to the school network. Each meeting took place in a quiet area within the school. After the initial greetings, the researcher explained the process to each participant and gave them USF and MIIS consent forms to sign. The next step was to fill out background information and online reading habits forms. While participants were filling out the forms, the researcher would go online to find the desired reading passage and to set up Screencast-o-matic for recording.

For the TA recordings, the researcher first explained to the participants how Screencast-o-matic works and what it would record. To demonstrate the TA process, the researcher first went online to the site containing sample TOEFL texts. Showing students the practice page, the researcher demonstrated the TA process by reading aloud a passage titled "Building Stonehenge: A New Timeline Revealed." Here is an example of the researcher demonstrating the TA process:

> OK, I see the title. It is about Stonehenge. I know it is an old collection of stones in England and no one knows who made it. I am going to read the first paragraph aloud because I want to read slowly and hear myself. You don't have to read it aloud, but tell me what you think as you read silently. So, the text says: "Ancient people probably assembled the massive sandstone horseshoe at Stonehenge more than 4,600 years ago, while the smaller bluestones were imported from Wales later, a new study suggests." OK. I picture ancient people in my head, but not ancient people in caves. I picture Vikings in my head. Now, it says a massive sandstone horseshoe. I didn't know the stones were made of sand, but the words are not separate like sand and stone. So maybe sandstone is something else. Yes, it really looks like a horseshoe. Vikings had horses. You see them in movies too. The next part says the place is very old, and it has small bluestones. Now I am curious about bluestones, because Stonehenge is not blue. So, I open another window on my computer and I type in "bluestone" in the URL because it is set to Google search. I see the Wikipedia link and I click it because I can get good information here. Here is the page, and oh, there is a picture. I am just going to read the caption because it starts with the word "bluestone." Look! It says that bluestone is just a type of stone found in Wales. OK, it makes sense because the text says these stones were brought to Stonehenge from Wales. I don't know how they did it in those times, maybe the article explains it later.

All participants said they were familiar with the TA process because they had practiced it as part of a class activity. They observed that TA had helped them enhance their reading and listening comprehension. One student mentioned that she had used the Screencast-o-matic software before for her translation class project, and one student said he needed such a program for his class and was happy to have found one. In each session, when the participant was ready, the researcher clicked on the next page on the website, which contained a passage titled "Surprise! Empire State Building Switches to LED," and

started the Screen-o-matic program for recording. The laptop was turned so that each participant would have the full control of it. At the end of the session, the recording was saved. The participants then answered questions regarding their background, following the model designed by Alsheikh (2002), and their online reading habits, following the model designed by Coiro and Dobler (2007).

Data Analysis

The research questions that guide this study are:

1. What types of metacognitive online reading strategies do the non-native English-speaking translation students report using?
    a. What is the distribution of the reported strategies among the three categories of global strategies, problem-solving strategies, and support strategies?
    b. Which strategies are the most used, and which ones are used the least?
2. How do the non-native English-speaking translation students employ the metacognitive reading strategies when reading online?

Quantitative data

The researcher analyzed the quantitative and qualitative data sets separately. The quantitative data were gathered and analyzed using means and standard deviations for the 46 responses to each question. Pookcharoen (2009) followed these same steps in the analysis of OSORS responses from 111 Thai students studying English as a second language. The OSORS survey comprises 38 questions, each of which belongs to one of the three categories of global strategies, problem-solving strategies, and support strategies. Each question could be answered by choosing a number from one to five. According to Anderson (2003), the numbers correspond to the following statements:

"1" means I never or almost never do this
"2" means I do this only occasionally
"3" means I do this sometimes (about 50% of the time)
"4" means I usually do this
"5" means I always or almost always do this.

It should be noted that the mean and standard deviation analysis for each item is different from the scoring guideline Anderson (2003) provided for the analysis of his designed survey. Anderson's (2003) scoring guideline is designed to interpret each individual's reading strategy use. The scoring and interpretation guide, however, have been used to score and interpret groups of students as well (e.g. Incecay, 2013; Kim, 2011; Pookcharoen, 2009). The scoring and interpretation guideline can be found in Appendix D of this dissertation after the survey.

Anderson (2003) suggests the final scores of each individual survey to be evaluated according to the following scale. This scale measures the strength of readers in their use of reading strategies:

- High use of strategy if the average is 3.5 or higher;
- Moderate use of strategy is the average is 2.5 to 3.4;
- Low use of strategy is the average is 2.4 or lower.

The scale shows where the participants collectively stand in terms of reading strategy use.

The results of the quantitative data analysis answered the first research question as well as its sub-categories through descriptive statistics and frequency distributions.

Qualitative data

The qualitative data were gathered at the same time as the quantitative data. The qualitative data analysis began with the transcription of the TA sessions for each

participant and the explanation of the mouse and screen activities recorded during each session. A coding process was established to describe each participant. The data were analyzed based on the model developed by Mokhtari and Sheorey (2002), who distinguished three main categories for metacognitive reading strategies. These three main categories were extracted from previous literature, such as Mokhtari and Reichard's (2002) Metacognitive Awareness of Reading Strategies Inventory (MARSI) and the principle of metacognition described by Flavell (1976). The three main categories used to analyze the qualitative data are:

1. Global reading strategies: These strategies enable readers to carefully plan their reading, for example by determining the purpose for the reading and previewing the text.

2. Problem-solving strategies*:* These strategies enable readers to work directly with the text to solve problems while reading, like adjusting the speed of reading and guessing the meaning of unknown words.

3. Support strategies: These strategies enable readers to find support mechanisms, such as using dictionaries or highlighting texts.

Data on the participants' backgrounds and online reading habits were also compared to find similarities and common habits among the participants. The results of the qualitative data analysis answer the second research question.

Background of the Researcher

The researcher has been working for the past eight years as a foreign language teacher for adult learners. Prior to teaching, she was working in a translation agency as a project manager for both translation and interpretation projects in a variety of languages. Since 2000, the researcher has been active in translation and interpretation projects as an

independent contractor. The researcher is a member of the American Translators Association (ATA) and has published in the Northern California Translators Association (NCTA) publication *Translorial.* She also has a certificate in graphic design and has worked on desktop publishing translation projects. She has recently designed *farsifix.com,* a website dedicated to teaching Persian in an interactive online environment.

The researcher obtained her Master's Degree in Translation Studies from the University of Edinburgh, UK, following a Master of Arts in Linguistics obtained from the Azad University of Tehran, Iran. The researcher's thesis in translation studies focused on developing a guide for translators to facilitate the reading of a translation by providing more background information (e.g., cultural and contextual information) in footnotes and endnotes, rather than either adding it to the translation or leaving it out. Her MA thesis in linguistics focused on facilitating reading by computers by developing a guide for text-to-speech conversion of Persian words based on the phonological and morphological rules of the Persian language. Ever since she obtained her certificate in graphic design, the researcher has developed an interest in using technology to develop systems that facilitate language learning and contribute to the autonomy of the language learner.

CHAPTER IV: FINDINGS

This chapter reports the results of the data analysis for the research questions that guide this mixed-method study. To answer the first research question and related subquestions, the researcher collected quantitative data using the Online Survey of Reading Strategies. This survey has been widely used in second-language research, as explained in the previous chapter. Anderson (2003) designed this survey based on previous reading strategies surveys and provided guidelines for data interpretation. The data were analyzed using descriptive statistics and Anderson's (2003) guidelines. To answer the second research question, the researcher collected qualitative data using a think-aloud protocol during one-on-one sessions. The think-aloud sessions were held to elicit data from the participants on how they employed online metacognitive reading strategies to comprehend an academic TOEFL practice reading passage online. Background information was also collected using a questionnaire that Alsheikh's (2002) had designed for a similar study of a doctoral degree in second language education. Additionally, the participants provided data on their online reading habits by responding to Coiro and Dobler's (2007) questionnaire. The think-aloud data were transcribed and then examined using content analysis. Additional analysis was done on the participants' use of keyboard, mouse, and online resources.

This chapter first analyzes the quantitative data to answer the first research question and subquestions, and then it reports the themes emerged from the qualitative data in response to the second research question along with the participants' backgrounds and online habits.

Quantitative Analysis

The first research question and related subquestions are:

1. What types of metacognitive online reading strategies do the non-native English translation students report using?
    a. What is the distribution of the reported strategies in the three categories of global strategies, problem-solving strategies, and support strategies?
    b. What strategies are used the most, and what strategies are used the least?

This question was investigated using Anderson's (2003) Online Survey of Reading Strategies (OSORS), which has been widely used for second-language reading strategy research (e.g., Eghlidi, Abdorrahimzadeh, & Seyed, 2014; Incecay, 2013; Kim, 2011; Pookcharoen, 2009). The survey comprises 38 items. For each item, respondents can choose one of five options on a Likert scale going from "I never or almost never do this" to "I always or almost always do this." "Never" has a numerical value of one and "always" has a value of five. The participants took the survey using Google Forms, and the responses were saved on a Google Excel sheet. The Excel sheet reported all the questions in row number one and listed the answers in each column under each question. Thus, each row on the Excel sheet represented the answers given by each participant and each column represented all the answers given to a specific question. Using the statistics tools available on Google, all means and standard deviations for each OSORS question were calculated and saved under the corresponding column. Unanswered questions were taken out of the data set. The table below shows the means and standard deviations for the responses to each of the 38 OSORS questions.

Table 2

Means and Standard Deviations for Each OSORS Item (N = 46)

Reading Strategy	***M***	***SD***
1. I have a purpose in mind when I read online.	3.45	0.97
2. I participate in live chat with other learners of English.	3.57	1.2
3. I participate in live chat with native speakers of English.	3.42	1.2
4. I take notes while reading online to help me understand what I read.	1.70	0.69
5. I think about what I already know to help me understand what I read online.	4.15	0.85
6. I first scroll through the online text to see what it is about before reading it.	3.85	1.01
7. When online text becomes difficult, I read aloud to help me understand what I read.	2.85	1.12
8. I analyze whether the content of the online text fits my reading purpose.	3.01	0.75
9. I read slowly and carefully to make sure I understand what I am reading online.	3.77	0.98
10. I review the online text first by noting its characteristics like length organization.	3.32	1.14
11. I try to get back on track when I lose concentration.	4.17	0.89
12. I print out a hard copy of the online text then underline or circle information to help me remember it.	1.92	1.23
13. I adjust my reading speed according to what I am reading online.	3.90	0.96
14. When reading online, I decide what to read closely and what to ignore.	4.02	0.53
15. I use reference materials (e.g., an online dictionary) to help me understand what I read online.	4.14	0.63
16. When online text becomes difficult, I pay closer attention to what I am reading.	4.28	0.70
17. I read pages on the internet for academic purposes.	3.72	1.16
18. I use tables, figures, and pictures in the online text to increase my understanding.	3.47	1.14
19. I stop from time to time and think about what I am reading online.	3.61	0.86
20. I use context clues to help me better understand what I am reading online.	4.42	0.73

21. I paraphrase (restate ideas in my own words) to better understand what I read online.	2.66	0.94
22. I try to picture or visualize information to help remember what I read online.	3.82	1.02
23. I use typographical features like bold face and italics to identify key information.	3.35	1.21
24. I critically analyze and evaluate the information presented in the online text.	3.57	0.90
25. I go back and forth in the online text to find relationships among ideas in it.	3.28	1.16
26. I check my understanding when I come across new information.	3.82	0.99
27. I try to guess what the content of the online text is about when I read.	3.29	1.27
28. When online text becomes difficult, I re-read it to increase my understanding.	4.17	0.83
29. I ask myself questions I like to have answered in the online text.	2.60	1.22
30. I check to see if my guesses about the online text are right or wrong.	2.71	1.27
31. When I read online, I guess the meaning of unknown words or phrases.	3.76	0.76
32. I scan the online text to get a basic idea of whether it will serve my purposes before choosing to read it.	3.89	1.11
33. I read pages on the Internet for fun.	3.71	1.08
34. I critically evaluate the online text before choosing to use information I read online.	3.70	1.25
35. I can distinguish between fact and opinion in online texts.	4.29	0.69
36. When reading online, I look for sites that cover both sides of an issue.	2.58	1.16
37. When reading online, I translate from English into my native language.	2.14	0.83
38. When reading online, I think about information in both English and my mother tongue.	4.04	0.95

The responses shown in the table above reflect the participants' varying degrees of usage of each strategy. The means of individual strategy items ranged from a high of 4.42 to a low of 1.70. The strategy in question number 20 ("I use context clues to help me better understand what I am reading online") was the most frequently reported strategy ($M = 4.42$). The next highly used strategy was number 35 ("I can distinguish between fact

and opinion in online texts"; *M* = 4.29). Number 16 ("When online text becomes difficult, I pay closer attention to what I am reading") was the third most used strategy (*M* = 4.28). The least reported strategies were number 4 ("I take notes while reading online to help me understand what I read"; *M* = 1.70); question number 12 ("I print out a hard copy of the online text then underline or circle information to help me remember it"; *M* = 1.92); and question number 37 ("When reading online, I translate from English into my native language"; *M* = 2.14).

The three categories of global strategies, problem-solving strategies, and support strategies are randomly arranged in the OSORS survey. The table below brings the items belonging to each category together to demonstrate to what extent the students used the strategies related to each category. The global strategies category has 18 items, the problem-solving strategies category has 11 items, and the support strategies category has nine items. To ensure more clarity and an easier comparison between categories, the questions are shortened to convey the main point. In a similar study, Pookcharoen (2009) also shortened the OSORS questions in the tables showing the results of the data analysis.

Table 3

Reported Strategy Use by Category (N = 46)

Global Reading Strategies (GLOB subscale)		
Questions	*M*	*SD*
1. Have a purpose in mind when reading	3.45	0.97
2. Live chat with other learners of English	3.57	1.21
3. Live chat with native speakers of English	3.42	1.20
5. Using background knowledge to understand text	4.15	0.85
6. Scrolling through text before reading	3.85	1.01
8. Analyzing the content for purpose of reading	3.01	0.75
10. Reviewing text's length and organization first	3.32	1.14
14. Deciding what to focus on and what to ignore	4.02	0.53
17. Reading online for academic purposes	3.72	1.16
18. Using tables and pictures for more understanding	3.47	1.14

20. Using context clues to better understand the text	4.42	0.73
23. Using bold face and italics for key information.	3.35	1.21
24. Evaluating the information in the online text.	3.57	0.90
26. Checking understanding with new information.	3.82	0.99
27. Guessing the content while reading	3.29	1.27
30. Checking if guesses were right or wrong	2.71	1.27
32. Scanning text before for the purpose	3.89	1.11
33. Reading online for fun	3.71	1.08
Total	*3.59*	*1.02*
Problem-solving Strategies (PROB subscale)		
Questions	*M*	*SD*
9. Reading slowly and carefully to understand	3.77	0.98
11. Trying to refocus when losing concentration	4.17	0.89
13. Adjusting reading speed	3.90	0.96
16. Paying more attention to difficult text	4.28	0.70
19. Stopping to think about the content	3.61	0.86
22. Visualizing information to remember better	3.82	1.02
28. Re-reading for more understanding	4.17	0.83
31. Guessing meaning of unknown words	3.76	0.76
34. Critically evaluating the text before using it	3.70	1.25
35. Distinguishing between fact and opinion	4.29	0.69
36. Looking for sites and cover both sides of issues	2.58	1.16
Total	*3.82*	*0.91*
Support Reading Strategies (SUP subscale)		
Questions	*M*	*SD*
4. Taking notes to help in understanding	1.70	0.69
7. Reading aloud when text is difficult	2.85	1.12
12. Printing a copy to underline information	1.92	1.24
15. Using references like online dictionary	4.14	0.63
21. Paraphrasing to better understand	2.66	0.94
25. Going back and forth to find relationships	3.28	1.16
29. Asking myself questions about text	2.60	1.22
37. Translating from English into my native language	2.14	0.83
38. Thinking in both English and my mother tongue	4.04	0.95
Total	*2.81*	*0.97*

As the table indicates, the participants reported that they used problem-solving strategies the most ($M = 3.82$), global strategies the second most ($M = 3.59$), and support strategies the least ($M = 2.81$). According to the results interpretation guidelines, an average higher than 3.5 indicates high use of strategy; averages between 2.5 and 3.4

indicate moderate use of strategy; and an average of 2.4 or lower indicates low use of strategy. Overall, the averages in the three categories are above 2.5, indicating moderate to high usage.

The table below summarizes the participants' high, moderate, or low strategy use in each of the three subcategories. There are 18 questions in the global strategies category, 11 questions in the problem-solving category, and nine questions in the support strategies category.

Table 4

Frequency of Strategy Use in Each Subsection

Subcategory	**High Usage**	**Moderate Usage**	**Low Usage**
GLOB	10	8	0
PROB	10	1	0
SUP	2	4	3
Total (*N = 38*)	22	13	3

The table reveals the usages in each category. The participants reported high usage of 10 out of the total 18 strategies in the GLOB category (56%), of 10 out of 11 strategies in the PROB category (91%), and of 2 out of 9 strategies in the SUP category (22%). They reported moderate usage of 8 out of 18 strategies in the GLOB category (44%), of 1 out of 11 strategies in the PROB category (9%), and of 4 out of 9 strategies in the SUP category (44%). Finally, neither GLOB nor PROB categories had averages that indicated a low usage of the related strategies (0%). In the SUP category, by contrast, 3 out of 9 strategies (33%) had low usage.

The table also reveals how many strategies on the survey were highly, moderately, or scarcely used. Overall, 22 out of 38 total strategies (58%) on OSORS showed high usage, 13 out of 38 strategies (34%) showed moderate usage, and 3 out of 38 strategies (8%) showed low usage. Therefore, on average the participants reported

high usage of more than half of the OSORS strategies. Also, they reported no low usage of either global or problem-solving strategies. The next table illustrates the OSORS items arranged from the most used to the least used strategies reported by the average participant.

Table 5

Reported Strategies from the Most Used to the Least Used

Questions	**Strategy**	***M***	***SD***
20. Using context clues to better understand the text	GLOB	4.42	0.73
35. Distinguishing between fact and opinion	PROB	4.29	0.69
16. Paying more attention to difficult text	PROB	4.28	0.70
11. Trying to refocus when losing concentration	PROB	4.17	0.89
28. Re-reading for more understanding	PROB	4.17	0.83
5. Using background knowledge to understand text	GLOB	4.15	0.85
15. Using references like online dictionary	SUP	4.14	0.63
38. Thinking in both English and my mother tongue	SUP	4.04	0.95
14. Deciding what to focus on and what to ignore	GLOB	4.02	0.53
13. Adjusting reading speed	PROB	3.90	0.96
32. Scanning text before for the purpose	GLOB	3.89	1.11
6. Scrolling through text before reading	GLOB	3.85	1.01
26. Checking understanding with new information	GLOB	3.82	0.99
22. Visualizing information to remember better	PROB	3.82	1.02
9. Reading slowly and carefully to understand	PROB	3.77	0.98
31. Guessing meaning of unknown words	PROB	3.76	0.76
17. Reading online for academic purposes	GLOB	3.72	1.16
33. Reading online for fun	GLOB	3.71	1.08
34. Critically evaluating the text before using it	PROB	3.70	1.25
19. Stopping to think about the content	PROB	3.61	0.86
2. Live chat with other learners of English	GLOB	3.57	1.2
24. Evaluating the information in the online text	GLOB	3.57	0.9
18. Using tables and pictures for more understanding	GLOB	3.47	1.14
1. Have a purpose in mind when reading	GLOB	3.45	0.97
3. Live chat with native speakers of English	GLOB	3.42	1.20
23. Using bold face and italics for key information	GLOB	3.35	1.21
10. Reviewing text's length and organization first	GLOB	3.32	1.14
27. Guessing the content while reading	GLOB	3.29	1.27
25. Going back and forth to find relationships	SUP	3.28	1.16
8. Analyzing the content for purpose of reading	GLOB	3.01	0.75
7. Reading aloud when text is difficult	SUP	2.85	1.12
30. Checking if guesses were right or wrong	GLOB	2.71	1.27

21. Paraphrasing to better understand	SUP	2.66	0.94
29. Asking myself questions about text	SUP	2.60	1.22
36. Looking for sites that cover both sides of issues	PROB	2.58	1.16
37. Translating from English into my native language	SUP	2.14	0.83
12. Printing a copy to underline information	SUP	1.92	1.20
4. Taking notes to help in understanding	SUP	1.70	0.69

Of the ten most frequently used strategies, five (50%) are problem-solving strategies, three (30%) are global strategies, and two (20%) are support strategies. Of the ten least frequently used strategies, on the other hand, seven (70%) were support strategies while only two (20%) were global strategies and one (10%) was a problem-solving strategy. Note that only the first three items among the least frequently used strategies reflect a low usage or an average below 2.5. In fact, the next seven items in the least frequently used strategies had an average between 2.5 and 3.4, corresponding to moderate usage. On average, the participants reported using 92% of the strategies either highly or moderately (i.e., the means are above 2.5), and only 8% of the strategies, in the support category, showed a low usage (i.e., means below 2.5).

The table below shows the most frequently used and the least frequently used strategies side by side for better comparison. The most frequently used strategies are arranged in a descending order from top to bottom. Similarly, the least frequently used strategies column starts with the least frequently used strategy at the bottom and ascends to more frequently used strategies. It should be noted that the reported least frequently used strategies do not have any averages below 1.70. The third least frequently used strategy, translating into my native language, has an average of 2.14. It is only 0.36 short of moderate usage. It is worth comparing proficient translation students with other proficient second or foreign language learners on the usage of this strategy.

Table 6

Most Frequently and Least Frequently Used Strategies

Most Frequent	**Least Frequent**
GLOB 20. Using clues to understand	SUP 4. Take notes to understand more
PROB 35. Tell between fact and opinion	SUP 12. Print a copy to underline
PROB 16. Pay attention to difficult text	SUP 37. Translate Eng. to my language
PROB 11. Refocus the lost concentration	PROB 36. Look for sites for both sides
PROB 28. Re-read to understand more	SUP 29. Ask myself questions
GLOB 5. Use background knowledge	SUP 21. Paraphrase to better understand
SUP 15. Use online dictionary	GLOB 30. Check guesses were right
SUP 38. Think English and my language	SUP 7. Read aloud when difficult
GLOB 14. Decide to focus or ignore	GLOB 8. Analyze content for purpose
PROB 13. Adjusting reading speed	SUP 25. Look to find relationships

Summary of Quantitative Analysis

The tables and numbers above show that this group of proficient readers reported a great degree of focus and a variety of mental activities while reading. In response to the first research question, the data show that MIIS translation students reported employing all three categories of global strategies, problem-solving strategies, and support strategies. The data on the distribution of use answered part *a* of this question. The data reflect that the students make a high or moderate use of global strategies and a high use of almost all of the problem-solving strategies. Support strategies are also highly or moderately used.

The second part of the first research question investigated which strategies are the most and the least used. The means obtained for the most and least frequently used strategies show that using context clues to comprehend the main ideas, differentiating between fact and opinion, and paying attention to difficult text are the most used strategies, whereas taking notes while reading, printing a copy, and translating to the mother tongue are the least used.

Qualitative Findings

The second research question was:

2. How do the non-native English-speaking translation students employ the metacognitive reading strategies when reading online?

The qualitative research question aimed at exploring the participants' actual uses of metacognitive online reading strategies while reading an academic text online. Six students from the school of translation at MIIS volunteered to participate for this phase of the study after they had filled out the online survey of reading strategies. They met individually with the researcher for a think-aloud session at the school of translation at MIIS. The duration of the sessions ranged from 35 to 60 minutes. The participants read an online TOEFL practice passage titled "Surprise! Empire State Building Switches to LED" and stated their thoughts while reading. The following section presents the qualitative findings. First, the descriptive analysis of the participants' background information and their online reading habits are presented. After that the findings of think-aloud session that were obtained through content analysis of the sessions' recordings are discussed.

Participants' background information and online reading habits

Two male and four female students who had taken the OSORS participated in this phase of the study. Their ages ranged from 22 to 30. Gina and Alma (all names used are pseudonyms to protect the participants' identities) were born in China and their mother tongue was Mandarin. Tammy was born in Japan and was a native Japanese speaker. Rita and Leo were born in Brazil and their mother tongue was Portuguese. Nile was born in the Republic of Korea and his mother tongue was Korean. All six participants said they

felt most proficient in their mother tongues than in other languages. Their length of stay in the United States varied from nine months to seven years, but they did not come to the United States with no English. They had studied English for extensive periods of time outside the United States, ranging from 10 years to 21 years. Table 7 summarizes the participants' demographic information, including their names, ages, genders, countries of birth, and years of study of English, and their length of residence in the United States.

Table 7

Demographic Characteristics of the Six Interviewees

Name	**Age**	**Gender**	**Native of**	**Years Living in the U.S.**	**Years Studying English**
Tammy	29	F	Japan	2	16
Gina	24	F	China	7	21
Alma	22	F	China	¾	14
Nile	27	M	Korea	2	10
Leo	25	M	Brazil	2	15
Rita	30	F	Brazil	2	15

The participants were in either the first year or the second year of their graduate programs. The graduate programs offered by the school of translation are: translation, conference interpretation, and translation and interpretation. All students stated that they were already familiar with the think-aloud process, because it was practiced in their classes. The participants' overall TOEFL scores prior to being admitted to MIIS ranged from 109 to 118 out of 120. Their reading scores ranged from 25 to 30 out of 30. One participant had taken the IELTS test with an overall score of 7.5 out of 9, and her reading score was 8 or 8.5 out of 9. The participants' GPAs ranged from 3.4 to 4.0. Each participant is described in more detail below.

Tammy was from Japan. She had been living in the United States for two years but had started studying English 16 years ago. Tammy was in her first year of the translation and interpretation program. Her GPA was 3.67. She had taken the IELTS test to comply with the MIIS admission requirements. Her overall score was 7.5 and her reading score was either 8.0 or 8.5 (she could not remember the exact score). She said that she used Mandarin on a daily basis to talk to her family and in translation. She rated herself 4 out of 5 in listening, speaking, reading, and writing in English. When she was asked what particular problems she faced when reading in English, she stated that long sentences and complex structures could be difficult for her. She said that she did not have any problems reading in her mother tongue. She had also completed several translation projects from English to Mandarin as part of her studies.

As far as her online reading habits are concerned, Tammy said that she liked reading online and spent between one to three hours per week checking the email, chatting, using Facebook or Twitter, and reading websites to learn about a topic. She listed her other online activities, from more frequent to less frequent, as follows: browsing webpages, using search engines, playing games, and downloading. She rated herself "very good" (the maximum score) on questions asking if she understood what she read online, knew where to go online to find what she wanted, and if she could explain out loud to someone what she was thinking while searching and reading on the Internet. She said she used Google as a search engine and rated herself "very good" in her ability to use it. Her favorite websites were Facebook and the New York Times, and she usually read online at home. She observed: "The Internet makes knowledge available at my

fingertips! I hate to say this, but I don't know what I would do without it" (Reading habits questionnaire, April 6, 2015).

Gina was from China and her mother tongue was Mandarin, but she also knew Cantonese. She had been living in America for 7 years but started learning English 21 years ago. She was a student of conference interpretation and was in her first year. Her GPA was 4.0. She scored 118 out of 120 on the TOEFL test and 30 out of 30 on the reading portion of the TOEFL test. She stated that she talked in Mandarin to her family on a daily basis and also used it for translation projects. She considered herself highly proficient, or level 5 on a scale of 5, in listening, speaking, and reading in English, but she gave herself a 4 out of 5 in writing in English. She took a class on translation of texts and had previous experience translating for friends. Like Tammy, Gina said that long and complex English structures and classic English literature are challenges for her when reading in English. As far as reading in Mandarin is concerned, Gina said that other than some new expressions she had not heard since she left China seven years ago, she had no problems.

Gina liked reading on the Internet. She mentioned that she spent between one to three hours per week on e-mail, chat rooms, and social media, and the same amount of time per week searching for a topic using Google. Her other online activities, from most to least frequent, were: reading websites to learn about a topic, browsing webpages, downloading, and playing games. She also rated herself "very good" at understanding what she read online, finding information, and using a search engine; but she rated herself "just OK" in explaining her thoughts out loud while searching and reading on the Internet. Her favorite websites were Facebook and YouTube, and she usually read at

home. She said she also used the Internet to watch her favorite music clips and to keep in touch with her family.

Alma was another Chinese participant who had only 9 months of experience living in the United States, although she had studied English for 14 years. She was in the first year of the translation and interpretation program. Her TOEFL score was 110 out of 120 and her reading score was 25 out of 30. She spoke Mandarin every day with family, friends, and teachers. She also read the news and books in Mandarin. On a scale of 5, she rated herself 5 or highly proficient in listening, speaking, and writing in English, but only 4 in reading. She explained that her problems when reading in English were unknown words or long and "densely packed" sentences. She stated that she did not have particular difficulties reading in Mandarin, although some genres of literature could possibly be hard to understand. She had studied English in college and had no previous translation experience except for the classes she was taking at MIIS.

Alma stated that she did not like reading on the Internet. Nonetheless, she spent between one to three hours per week reading websites to learn about a topic, and the same amount of time on her second online activity, searching for a topic using Google. She said her other activities, in descending order, were: browsing websites, downloading, using email or social media, and playing games. She rated herself "very good" at understanding what she read online and finding information, but "just OK" at using a search engine and at explaining to someone what she thought while reading on the Internet. Her favorite sites were the New York Times and Google. She mentioned: "I use Google for an initial search and branch off depending on what I find" (Reading habits questionnaire, April 8, 2015).

Nile had lived in the United States for two years after leaving South Korea. He had been studying English for 10 years and was in his second year of the translation and interpretation program. His GPA was 3.4, and he had received a TOEFL score of 109. His reading score on the TOEFL test was 25. He also spoke Portuguese as his third language. He talked to family and friends in Korean everyday and also read the news and engaged in translation and interpretation activities for his classes in his mother tongue. He gave himself a 5 or high proficiency in reading, but 4 in listening and writing and 3 in speaking. He stated that English idioms, complicated sentence structure, and lack of background information made reading in English difficult for him. He could not think of any difficulties when reading in Korean.

Nile said he liked reading online and he spent more than three hours per week on email and social media. He spent between one to three hours per week searching for a topic using Google. His other activities, in order, were: browsing webpages, reading websites to learn more about a topic, playing Internet games, and downloading. He rated himself very good at understanding what he read online, figuring out where to find what he needed, using a search engine, and explaining to someone what he thought while searching and reading online. He usually read online at home and his favorite websites were Wikipedia and Reddit. About his online reading habits, he said:

> It was a little hard to separate out the different activities listed in the first question. It's more like I start out googling stuff, but then get sucked into reading what I find, and that leads to new searches.... It's not like I spend three hours a week on the actual Google website (Reading habits questionnaire, April 10, 2015).

Leo had left Brazil for the United States 22 months before our meeting. He had studied English for 15 years, and his major at MIIS was translation. He was in the second year of his graduate studies. His grade point average was 3.97 and his overall TOEFL test

score was 111. His reading score on the TOEFL was 29 out of 30. Other than his native Brazilian Portuguese, he spoke French and Spanish. He used Portuguese on a daily basis to talk to friends and family, for his translation classes, and to read the news and books. He gave himself a 5 out of 5 in reading but 4 in listening, writing, and speaking in English. He stated that his problem when reading in English was an insufficient knowledge of advanced vocabulary. He was almost finishing his MA degree and had extensive translation experience.

Leo also stated that he did not like reading online. However, he spent more than three hours per week searching for a topic using Google, and more than three hours using the email and social media. His other activities, in order, were: browsing, reading websites to learn more on a topic, downloading, and playing Internet games. He felt "just OK" in understanding what he read online and figuring out where to find what he wanted, but "very good" in using a search engine—mostly Google. He usually read in school. His favorite sites were Google and Amazon. He mentioned: "I often watch free TV and download free ebooks to my kindle. I also search for information on new books" (Reading habits questionnaire, April 14, 2015).

Rita was also from Brazil. She had been in the United States for only 2 years, but she had studied English for 15 years. She was a second-year translation major with a GPA of 3.8. Her overall TOEFL score was 110. She was not sure, but she thought she had got 30 on her reading test. She spoke in Portuguese on a daily basis with her family. She gave herself only a 3 out of 5 in reading, listening, and writing, but she thought her speaking in English would deserve a 5. She mentioned her difficulties when reading in

English were longer sentences, verb tenses, word connotations, and subtle differences between words.

Rita liked to read online and spent between one to three hours per week using email and social media. She spent less than one hour weekly searching for a topic using a search engine (Google). Her other activities, in order, were: reading websites to learn about a topic, downloading, browsing, and playing online games. She felt she was "very good" at understanding what she read online, finding information, using a search engine, and explaining out loud her thoughts while reading and searching on the Internet. She did most of her online reading in school and her favorite websites were Facebook and YouTube. She also mentioned she used the Internet daily, even if only to listen to music on YouTube while she did her chores at home.

In sum, all participants stated that they used their native language everyday to talk to family members and friends, translate, and to keep up with the news. They perceived themselves to be proficient in English, but they were aware of possible difficulties in reading in English because of unknown vocabulary, long and complicated sentences, and lack of background information. They were mostly confident about their full proficiency in reading in their native language, but they acknowledged they might not know all aspects of their native language, such as literary expressions or new words.

The online reading habits of the participants had many similarities. They spent between one to three hours or more using the email and social media, and one to three more hours to search for different topics to read. Although, in reality they might spend more than that because many young people have social media apps on their cellphones, and although they are not using it all the time, they will receive notifications. Also, this

information was elicited in April. It is very close to the end of the semester and students might have spent more time on studying. Therefore, the responses could be different in another month of the year, or in reality. Other similarities were participants' reported confidence mostly in using Google search engine as 'very good', understanding what they read online, and explaining to someone else their thoughts while reading and searching. They reported that Google search results were starting points for them to search the web more and read to learn about a topic. They also used the Internet for music, movies, and games. Although they spent most of their online time on academic activities, they used the Internet for fun as well.

The coding process

The coding process started with the transcription of the participants' statements recorded using the Screencast-O-Matic software during the think-aloud (TA) sessions. The uses of keyboard and mouse were also noted in the transcriptions. The researcher then identified the strategies mentioned by each participant using the categories of global, problem-solving, and supportive strategies defined by Anderson (2003). Each category includes multiple strategies, as specified in Anderson's (2003) online survey of reading strategies. The researcher highlighted each statement that matched any of the 38 OSORS items and assigned the related strategy number to the statement. To ensure the inter-rater reliability of the findings, a colleague of the researcher with translation and language teaching background was trained to code transcripts according to OSORS guidelines and 95% agreement was sustained. Disagreements were discussed and resolved. After the coding process was completed, the researcher looked for the use of each strategy in the three categories of global strategies, problem-solving strategies, and support strategies.

The strategy use was compared with the use reported in the quantitative data obtained from the online survey. Finally, the researcher analyzed the uses of metacognitive strategies based on the general theoretical framework.

Participants' uses of global, problem-solving, and support strategies

The TA transcripts showed that the participants used 13 out of 18 global reading strategies. These global strategies were: "Using context clues," "Using background knowledge," "Deciding what to focus on," "Checking understanding with new information," "Having a purpose in mind when reading," "Scrolling through text before reading," "Analyzing the content for purpose of reading," "Evaluating the information in the text," "Using tables and pictures for understanding," "Using boldface and italics for key information," "Reviewing text's length and organization first," "Guessing the content while reading," and "Checking if guesses were right or wrong."

The six global strategies that the participants did not use were: "Live chat with other learners of English," "Live chat with native English speakers," "Scanning the text before for the purpose of reading," "Reading online for academic purposes," and "Reading online for fun." Most of these strategies, however, were not relevant to the TA session. For example, the participants did not engage in any online chat on the researcher's laptop. The same is true for going online to find an academic text or reading for fun. As for the strategy "scanning the test before," the researcher had already chosen the online text for the participants, and therefore there was no need for the participants to scan webpages and find a different text. On the other hand, the online reading habits data reveal that the participants do use these strategies when at home or in school. Overall, the

data show that the students constantly employed global strategies during the TA session. What follows is a discussion of each of the used strategies.

Using the context clues for better understanding was a commonly used strategy. Alma said: “I don’t know ‘edifice’ but it is probably a building and it is very old. So they probably renovated this building” (TA session with Alma, April 8, 2015). Another example is Leo’s use of context to figure out what the word “test” meant. He said: “OK, here is the test again. So now I know what test is about. It is like a secret test to attract as few people as possible” (TA session with Leo, April 14, 2015).

Using background information was another global strategy mentioned by Gina and Rita. Gina said: “So the LED system is eco-friendly cause it says it cuts energy consumption by more than half” (TA session with Gina, April 7, 2015). Rita also stated: “I guess this passage is about technology and sustainable development” (TA session with Rita, April 17, 2015).

Deciding what to focus on was a major strategy that all participants used in multiple occasions. All participants were very focused on reading the text and followed the contents of the article closely from beginning to end. Tammy said: “This is a random word I don’t know but I feel like checking it online, but this is quite random actually. I don’t always look up the words that I don’t know while I am reading online” (TA session with Tammy, April 6, 2015). In several occasions, Alma occasions mentioned that she did not know the meaning of the word and smoothly moved on to read the rest of the sentence without pausing to think about possible meanings. Nile stated: “I don’t quite understand, but I seldom check the words if I don’t know them” (TA session with Nile, April 10, 2015).

The participants were checking their understanding with new information and clearing up ambiguities more than they were pausing whenever the sentence structure was ambiguous or they did not know the meaning of a word. For example, Leo was confused about "digital combinations of ripples, sparkles, sweeps and strobes," a description of the new arrangement of LED lights on the Empire State building. He did not stop to look up the meaning of the words or to reread the paragraph. Instead, he kept on reading until finally he got a general idea and said: "It is talking about before the lights were changed. The lights had only 10 colors" (TA session with Leo, April 14, 2015). Similarly, Gina slowed down her reading but did not stop to look every word up. She continued reading until she said: "So compared to conventional lights, LED has more colors" (TA session with Gina, April 7, 2015).

The participants used the strategy of having a purpose in mind when reading. The researcher had established at the beginning of the TA sessions that the purpose of this reading was to check on the participants' thought processes, and they were fully aware of this purpose. However, they made comments that explained they were also aware of the purpose of the TOEFL passage: testing by multiple-choice questions. Tammy said:

> So if I am doing casual reading if it were an article for a science course, I roughly got some background information, and this is new vocabulary of my day. As translators we are trying to accumulate our knowledge as well as vocabulary, so reading something, I try to get some information off of it or some new words. So, yeah but I am done with the whole article. I did it like a casual reading like what we do every day. So it is not an exam not a test, so I was not too fussy about it. (TA session with Tammy, April 6, 2015)

Similarly, Leo explained: "If I am just reading online I will definitely not look up anything. If I am doing the test, I think I should look up something" (TA session with Leo, April 14, 2015).

Scrolling through the text before reading was another global strategy students used, together with reviewing the text for length and organization. Even before the reading started, the researcher opened a similar TOEFL text to demonstrate the TA process. The participants had a chance to see the length of the TOEFL passage and the webpage characteristics, including font size and the use of space. This might have given them good information about the text they were about to read. Except for Rita, all participants scrolled down the text quickly. Gina made sure she could use the mouse on the researcher's laptop right after reading the title of the passage.

The participants analyzed the content for the purpose of reading and they evaluated the information in the text. They kept paraphrasing the passage and making comments on the contents to prove their comprehension to the researcher. They were aware of the LED lights efficiency beforehand and they mentioned this efficiency as they read. An example is provided by Rita, who was not convinced that testing LED lights on the west side of the Empire State would be any less secretive than testing them on any other side. She evaluated the information and said: "Oh, so they didn't want to leak the image they were going to show, but I wonder why the other side wouldn't have a camera trained on them" (TA session with Rita, April 17, 2015).

The TA text did not have any pictures or tables, but participants looked for images when they went online to check for the meaning of words. For example, regarding why the LED lights test was done on the west side of the Empire State building, Rita said: "I am thinking of the geography of NY and why it is facing west. I am guessing it is because it has the least audience" (TA session with Rita, April 17, 2015). Then, she went to the browser and typed "New York" in the search box. From the results page, she

clicked on the Google map of New York, zoomed in, and tried to locate the Empire State building. Another example is Alma's typing of the word "supplant" in Google search. The definition of the word showed up in a box, and her attention was drawn to the box. She read the definition and that was enough for her to get the meaning and go back to the text to continue reading.

Using boldface and italics for key information was another global strategy participants used. When participants saw quotation marks they adjusted their speed to read faster, because those were the opinions of the people involved in installing the LED lights and were not as important as the key information in the text. Gina swept through the LED lights managers' short quotes and said that their purpose was to show more details. Similarly, Nile said: "I think I skip. And when I look at LED I think of energy efficient, and I skip colors [of the lights] and the quotes. I pay more attention to who said it" (TA session with Nile, April 10, 2015).

The participants paid attention to capital letters that indicated proper names and did not read every letter in the names. Leo said: "Ok, someone says that due to size of it, this actually can be used in other ways, like aircraft, aircraft warning signals" (TA session with Leo, April 14, 2015).

Another global strategy participants used was guessing content. For example, Rita read the title about switching to LED lights and guessed that the passage was about technology and sustainable development (TA session with Rita, April 17, 2015). Another example is when Alma did not make any comments on the words "R&B music." When the researcher asked her if she knew what R&B is, she said: "Yeah, R&B is… I am not

sure. It is a type of music. Yeah, it is like technical stuff" (TA session with Alma, April 8, 2015).

The participants checked if their guesses were right, as they read more content. The researcher observed that the tone of voice changed from doubtful to confident as participants read more content and their initial guesses were confirmed. If their guesses were not right, the tone of voice still reflected their new confidence in learning the fact. They did not look back to see why they had made a wrong guess.

The analysis of the problem-solving strategies showed that the participants used all of the 11 strategies included in this category. The strategies are: "Reading slowly and carefully to understand," "Trying to refocus when losing concentration," "Adjusting reading speed," "Paying more attention to difficult text," "Stopping sometimes to think about the content," "Visualizing information to remember better," "Rereading for more understanding," "Guessing meaning of unknown words," "Critically evaluating the text before using it," "Distinguishing between fact and opinion," "Looking for sites and cover both sides of issues."

When the text was too difficult for the participants and they thought it contained key information, they reread it and slowed down their reading speed. They pronounced each word out loud and if the meaning was still too difficult to understand, they made a guess and moved on. For example, Tammy was taking more than one minute to say what she was thinking about. When the researcher asked her what she was thinking, she explained:

> At the beginning, not the first paragraph, there is some content I was not understanding easily. That was not easy to understand, so I went back and read it again slowly. Yes, after I got that idea solved I kept reading. (TA session with

Tammy, April 6, 2015)

The problem-solving strategy of rereading and reading slowly was more obvious at the beginning of the article. As the participants got the main idea from the article, their reading speed increased. They were also stopping less often to clarify ambiguities as long as they got the general ideas.

The researcher did not observe any loss of concentration as the participants were reading. They were constantly engaging with the text, reading, paraphrasing, making comments, and expressing their interaction with the text. Tammy was a little distracted because she was going to meet her professor after the TA session and sometimes she could hear her professor talking in his office across the hall. Still, she finished reading the entire passage because she thought it was a good reading for her as a translator.

The participants did not lose concentration when they went online to look up the meaning of a word. They went to an already opened browser, typed the word they were looking for in the search box, and immediately went back to the text to read on and get more information. Only after they had finished reading the entire sentence did they check the meaning of the word in the search results. When the researcher asked Nile if he was reading the sentences slower or twice or if he was thinking of looking up the words, he said:

> Yeah, I read them twice and sometimes I lose the logic of passage and I want to reread the passage and find the connection to what was the previous passage. [Hmmm] I don't quite understand but I seldom check the words if I don't know. (TA session with Nile, April 10, 2015)

Rita said that the interruption to look at the map of New York caused her to lose her place in the passage. She looked less focused immediately after that: She read slower,

made longer pauses to say what she was thinking about, and her comments were shorter than before.

At the end of her reading, Rita wanted to see images of the Empire State building with its new LED lights. She went to the browser and searched for images. Also, Gina at the beginning of her reading said: "OK, so from this title, I first imagine the Empire State building, and I have been there so I can picture it" (TA session with Gina, April 7, 2015).

The analysis of the support strategies revealed that the participants used 5 out of 9 strategies in this category. These strategies were: "Reading aloud when text is difficult," "Using references like online dictionary," "Paraphrasing to better understand," "Going back and forth to find relationships," and "Asking myself questions about text." The unused support strategies were: "Taking notes to help understanding," "Printing a copy to underline information," "Translating from English into my native language," "Thinking in both English and my mother tongue."

The characteristics of the TA session excluded the possibility to read from a hard copy. The participants did not ask for any scratch paper to take notes, nor did they use another file for this purpose. However, they hovered the mouse over the lines constantly and they kept scrolling the text up to the eye level. Leo said: "Sometimes I even have to use a pen because I am more used to reading on paper" (TA session with Leo, April 14, 2015). Tammy also said: "When I read online in general I notice I don't like to read at the bottom half of the screen so I like to keep the text at the upper above. I always move my arrows" (TA session with Tammy, April 6, 2015).

No participant said that they were what language they were thinking in, but they did not say a word in their native languages during the sessions. According to Hentschel

(2009), the brain forms connections between the first language and the second language and it uses these links when recalling vocabulary. Also, no participant translated anything into native language. One reason for not using these two strategies could be that the participants knew the researcher did not speak their native language. However, Oxford and Burry-Stock (1995) mentioned that high-proficiency readers avoid translation because it slows them down to go back and forth between a native language and target language. Vu, Luu, and Luu (2014), also found that low-proficiency readers used the strategy of translation into their native Vietnamese language significantly more than high-proficiency readers. In this study, the researcher asked the participants at the end of the TA session if they had thought in their native language. All participants considered the question for a second before responding that they had not. Rita explained: "When I do translation, it is a whole different story, but when I read, I don't really" (TA session with Rita, April 17, 2015). The only tangible reference to native language was when Gina looked up "timpani drums" in a Chinese dictionary. She explained she did that because as a translation and interpretation student, she wanted to know the equivalent, also because it would be important to use it in the future when communicating with native speakers. She said:

> I wonder if there is a Chinese word. Because I think for the students like us who come to the US sometimes we accept, like, first hand from English; we don't … we accept first hand from English. Then it is difficult communicating with our parents. It is like, "Oh we learned about this," and they say, "What is it?" "I don't know, I have never heard about it in Chinese." (TA session with Gina, April 7, 2015)

All the participants used the already opened Firefox browser to look up some of the words they did not know. They did not use any particular dictionary, and in almost all cases the first Google search result was good enough for them. Alma clicked on a

Merriam Webster dictionary link when her Google search brought it up. However, she explained:

> Usually, you know, if it is not such an important word, like this one, I just use Google translate because you can translate into my native, but if it is a verb or if it is kind of phrases; and shows up in different meaning in different context, I will look up the original meaning see how many meanings it has. (TA session with Alma, April 8, 2015)

All the participants read part of the passage aloud, particularly when the text was difficult. Reading aloud usually came together with other strategies such as slowing the reading speed, rereading, asking questions, and making guesses using background information or context clues. The participants kept on reading even though they did not fully comprehend a particular concept. If the idea became clear to them later, they confidently paraphrased the concept for the researcher and sometimes made comments on the content. If the idea was still unclear, they moved on without losing their focus on reading. Alma demonstrated an uninterrupted interaction with the text, as she said:

> [Reads aloud slowly] Yeah, yeah, so. It is very energy efficient and the light is very good cause it is more bright and I would understand "vibrancy" like more bright and more color than the old lights. I don't know what "floodlights" is, and I don't care cause apparently that's kind of old model of lights. [Reads aloud; rereads] Ok, "drum-sized," I didn't get it. It is like drum size "round lenses," so why suddenly lenses? 'Cause that is something to do with cameras. "That had to be changed every so often," so it is probably a piece of glass. Yeah, so, it means that it broke easily too so it is better to change to LED system. (TA session with Alma, April 8, 2015)

Nile put more emphasis on other concepts from the same passage. However, both participants clearly showed that they understood the main idea that the new LED lights were tested secretly before they were shown to people as a surprise:

> [Reads words aloud] apparently the secret test worked. [Reads aloud] No image. Oh, it is about David Copperfield. He worked with radio. [Murmurs words] It is about conserving energy maybe. [Murmurs words] They use the LED light on the building in NY to be more environmental friendly. [Murmurs words] Oh, they

> reuse the old light and put it in new building. So it is not energy efficient! [Smiles]. They use the old light for new purpose. (TA session with Nile, April 10, 2015)

The strategy of "asking myself questions" was usually accompanied by "making guesses about the text" and, later, "checking if my guesses were right." The following examples illustrate how these strategies were used one after another. Alma said: "[Reads aloud] yeah, so it is another day and I don't know what spectacular view from. Where the spectacular view? Yeah, and a vacant space and reconstruction, oh, so it is looking from new building" (TA session with Alma, April 8, 2015). In this example, Alma asks herself a question about "spectacular view." Without going back to see if the information was there and she missed it, she continued reading. She found her answer when she got to the keywords "vacant space" and "reconstruction."

Nile also asked himself a question and made a guess:

> I am wondering why there are putting so many songs. They quote so many lyrics. That is a little confusing to me. I am trying to find the connection between the songs and the light. Maybe they want to show the face of modern NY by quoting the songs. (TA session with Nile, April 10, 2015)

Nile was not sure about the songs played from the Empire State building. He guessed that the songs reflected the modernization of the building while looking for information that either confirmed or rejected his guess. In some cases, the participants just acknowledged they did not know a concept or a word without making any guesses. Gina explained that even a wrong guess did not matter much: "I don't usually look up except for the time when I really really need to find the meaning, because I can kind of guess. And even if my guess is not correct, I can survive depending on the context" (TA session with Gina, April 7, 2015). She also explained that she skipped details that did not need guessing:

> As for the numbers, so for example, it was talking about the efficiency and those kinds of things like 16.7 million color possibilities, I am not going to remember those things, but I can always come back, so I just skip. (TA session with Gina, April 7, 2015)

The table below illustrates the global, problem-solving, and support strategy usage during the TA sessions. The left hand column lists the strategies; "G" stands for global strategy, "P" stands for problem-solving strategy, and "S" stands for support strategy. The right hand columns reflect whether the strategy was used or not during the TA sessions. If the strategy was used, the left column shows a "yes." If the strategy was irrelevant to the TA session, it is marked with "IR." For example, printing a copy was irrelevant to the TA sessions, because the participants were instructed to read from the researchers' laptop. Similarly, engaging in an online chat was far from the purpose of the TA sessions. However, it is possible that if the participants had known the researcher better, they might have asked to take notes or get a hard copy. Finally, the strategy of "thinking in both native language and English" was not observable because it can happen on an unconscious level. Therefore, it is marked "IM," meaning immeasurable.

Table 8

Strategies Used During Think-Aloud Sessions with Six Participants

Questions	**Used**
20. Using context clues (G)	Yes
35. Distinguish fact from opinion (P)	Yes
16. Paying more attention to difficult text (P)	Yes
11. Trying to refocus when losing concentration (P)	Yes
28. Re-reading for more understanding (P)	Yes
5. Using background knowledge to understand text (G)	Yes
15. Using references like online dictionary (S)	Yes
38. Thinking in English and my mother tongue (S)	IM
14. Deciding what to focus on and what to ignore (G)	Yes
13. Adjusting reading speed (P)	Yes
32. Scanning text before for the purpose (G)	IR
6. Scrolling through text before reading (G)	Yes

26. Checking understanding with new information (G)	Yes
22. Visualizing information to remember better (P)	Yes
9. Reading slowly and carefully to understand (P)	Yes
31. Guessing meaning of unknown words (P)	Yes
17. Reading online for academic purposes (G)	Yes
33. Reading online for fun (G)	IR
34. Critically evaluating the text before using it (P)	IR
19. Stopping to think about the content (P)	Yes
2. Live chat with other learners of English (G)	IR
24. Evaluating the information in the online text (G)	Yes
18. Using tables and pictures for understanding (G)	IR
1. Have a purpose in mind when reading (G)	Yes
3. Live chat with native speakers of English (G)	IR
23. Using bold face and italics for key information (G)	Yes
10. Reviewing text's length and organization first (G)	Yes
27. Guessing the content while reading (G)	Yes
25. Going back and forth to find relationships (S)	Yes
8. Analyzing the content for purpose of reading (G)	Yes
7. Reading aloud when text is difficult (S)	Yes
30. Checking if guesses were right or wrong (G)	Yes
21. Paraphrasing to better understand (S)	Yes
29. Asking myself questions about text (S)	Yes
36. Looking for sites on both sides of issues (P)	IR
37. Translating from English into native language (S)	IR
12. Printing a copy to underline information (S)	IR
4. Taking notes to help in understanding (S)	IR

Participants' metacognitive processes

The TA session participants' use of strategies agrees with Flavell's (1979) metacognition theory and Anderson's (2002) metacognition model. Flavell (1979) introduced metacognitive knowledge and metacognitive experience as two types of metacognitive strategy. Metacognitive knowledge is the stored knowledge about oneself, tasks, actions, and how they interact to affect the reading outcome. All participants showed that they possessed knowledge in each area, and they demonstrated their metacognitive knowledge in various ways. For example, Tammy said that the topic and purpose of reading changes her speed of reading. She also said that she perceived herself

as a translator, therefore it was important for her to read daily in order to increase her knowledge. Gina stated that she was enthusiastic about the topic because she had been to the Empire State building and enjoyed learning more about it. Alma said she was aware of her habits in looking up words. She said she uses Google Translate to translate into her native language unless she wants to learn more about the concept in English. Nile was aware that he would at times miss the logic of the passage when reading. Leo said that he would pay more attention to details if it were a test and the questions asked for details. Rita also had visited the Empire State building and connected with the passage. All participants listened very carefully to the explanation before they started their TA process. This activated the knowledge they had on reading strategies. Moreover, the participants had obvious knowledge of using a laptop, including the keyboard and the mouse; and knew how to navigate the Internet and switch between webpages and the online text. They also used technology strategies, i.e. copy-pasting words into the search box, rather than typing in the word. All of these reflect their metacognitive knowledge.

Metacognitive reading experiences are cognitive or affective experiences that occur during reading and respond to how well the reading is proceeding. The participants were very involved with the Empire State Building text. They made many affective comments on what they thought about the new eco-friendly LED lights and how the building authorities surprised the public with the new lights. They checked their understanding of the main ideas. After they got the main idea from each part, they wanted to move on and read the rest of the article without wasting time on small detail. While reading, they applied the reading strategies according to their reading needs. Overall, students followed what metacognition theory suggests readers do.

According to Anderson (2002), metacognition model has five interacting components that monitor how well the reading proceeds: preparing and planning, selecting and using strategies, monitoring strategy use, orchestrating various strategies, and evaluating strategy use. In this study, the researcher explained the goals of the reading to the participants. While the researcher showed a similar sample text to the participants, they had a chance to plan their reading. They also knew their session was not going to be longer than one hour. They estimated the length of the passage and that there would be no content questions after the reading. They decided what strategy to use depending on the text difficulty. They read slower and out loud when the text was difficult and they chose to reread when they evaluated that the text was important. Some decided not to slow down on quotations, because they did not value them as the main ideas of the passage. They orchestrated guessing meanings or the main ideas of the passage. What all participants shared was their undivided focus on the text. They were enthusiastic to read on to get more information and to express their understanding and personal opinion. Keeping focus was so important that they did not look up every word they did not know. Instead, they relied more on finding context clues to understand the general concept. As Anderson (2002) explained about orchestration of strategy use, weak and strong second language readers are different in that the strong readers have the ability to coordinate, organize, and make associations among the various strategies. The participants planned, selected, monitored, and orchestrated strategies while in each step they evaluated what they were doing and how the strategies helped with their comprehension.

Summary of Qualitative Findings

The data obtained from the TA aloud sessions with six participants answered the qualitative question of the study. The participants showed constant usage of a variety of reading strategies based on Anderson's (2003) online metacognitive strategies survey. In accordance with Flavell's (1979) metacognitive theory, the participants had both metacognitive knowledge and metacognitive experience. They knew their reading habits, the tasks and the goal of reading, as well as how to employ the reading strategies to monitor their understanding in a way that served both the goal of the session and their own future — as indicated by their commitment to increase their knowledge as future translators and interpreters.

The technological component of the TA sessions and the online reading habits questionnaire brought up other themes not included in Anderson's (2003) Online Survey of Reading Strategies. The participants had extensive experience with online environment that supported their reading process. For example, the participants used the cursor to follow the lines they were reading. They used copy-paste in search box instead of typing out words. These activities support reading comprehension but they are not on OSORS. Moreover, the OSORS items on chatting with native and non-native English speakers was very relevant in 2003, but social media is a major communication tool in 2015, and OSORS needs to be updated and ask questions on readers uses of social media. The findings also suggest that metacognitive theory (Flavell, 1979) and metacognitive model (Anderson, 2002) can be expanded to include advanced readers process of bundling strategies, and also their post-reading thoughts on what they just read would in the context of the real world.

CHAPTER V: DISCUSSION, RECOMMENDATIONS, IMPLICATIONS, AND CONCLUSION

This chapter consists of six sections. The first section provides a summary of the study including the need for the study, purpose, research questions, theoretical rationale, and methodology. The second section presents a summary of the quantitative and qualitative findings. The third section compares the findings of this study with prior research. Section four provides recommendations for future research, and the fifth section suggests implications for practice. The last section is the conclusion.

Summary of the Study

A few decades ago, educators started to investigate the role of cognition and metacognition in improving reading comprehension. Following advancements in educational psychology, cognitive strategies were defined as general guidelines that enhance comprehension, and metacognitive strategies were defined as the reader's thoughts on how to employ cognitive strategies (Flavell, 1979; Garner, 1987; Goodman, 1967; Grabe, 2010). These strategies can improve reading comprehension in second or foreign language as well (Anderson, 2003; Mokhtari & Reichard, 2002; Mkohtari & Sheorey, 2002). Educators continue to emphasize the need for more research on reading comprehension, particularly in ever-changing digital environments (Bernhardt, 2003; Wesch, 2013). In an era in which literacy implies familiarity with digital environments, the Internet has become the main academic reading platform in many institutions (Auer, 2014; Herold, 2014; Zenotz, 2012). Several studies (Anderson, 2003; Atari & Radwan, 2013; Coiro & Dobler, 2007; Henry, 2006; Incecay, 2013; Pookcharoen, 2009) have examined second- or foreign-language reading in digital environments. The results of

these studies have highlighted that readers can transfer some but not all of their reading strategies from paper to the online environment. Also, they can transfer some but not all of their reading strategies from their native language to a second or foreign language. These studies also revealed that not only students but also teachers might not be aware of the nature and role of metacognitive online reading strategies, and they suggested that these strategies can be taught. There is a need to raise awareness among students and teachers about them because it can enhance reading comprehension.

The current study explored the use of metacognitive online reading strategies by non-native English-speaking translation students. The researcher chose this population because the number of translation courses is increasing in universities around the world due to a growing global demand for translation (Malmkjaer, 2010). With translation being increasingly used for daily communications, there is a need to reintegrate translation within language teaching. The two fields are closely related, but they have been wrongly separated from one another for many years (Leonardi, 2010; Malmkjaer, 2010). Not enough research has been conducted on the translators' reading skills even though their careers depend on effective reading comprehension (Washbourne, 2012). Moreover, there is a need for more research on populations with various types of educational or cultural backgrounds; in particular, little research has been done on non-native English speakers (Alsheikh, 2002; Eunseok, 2014). Some researchers, such as Incecay (2013) and Pookcharoen (2009), suggested that advanced readers employ a larger variety of cognitive and metacognitive reading strategies and with a higher frequency compared to low-performance readers. These studies recommended that more research on

advanced language learners' reading be carried out in order to determine what factors contribute to enhance reading comprehension.

The samples for this study were non-native English speakers who had received high scores on IELTS or TOEFL tests and who were studying translation in a prestigious translation school in Monterey, California. The study aimed to determine what metacognitive online strategies the participants reported using and how they actually used them when reading an academic text online. The research questions of this study were:

1. What types of metacognitive online reading strategies do the non-native English translation students report using?
    a. What is the distribution of the reported strategies in the three categories of global strategies, problem-solving strategies, and support strategies?
    b. What strategies are used the most, and what strategies are used the least?
2. How do the non-native English-speaking translation students employ the metacognitive reading strategies when reading online?

The theoretical frameworks informing the study were Flavell's (1979) metacognition theory and Anderson's (2002) metacognition model. The theory and the model posit that metacognition plays an essential role in achieving comprehension. Flavell (1979) proposed that readers' metacognition is comprised of metacognitive knowledge and metacognitive experience. Metacognitive knowledge is used to decide what the reading tasks are and what actions should be taken. Metacognitive experiences control the use of strategies as reading proceeds. This theory and model were chosen for this study because Flavell's (1979) theory of metacognition is the backbone of metacognition research and has been cited in many studies (Anderson, 2003; Atari & Radwan, 2013; Coiro & Dobler,

2007; Henry, 2006; Incecay, 2013; Pookcharoen, 2009). This research caused a major change in developmental psychology. Anderson's (2002) metacognition model expanded the metacognitive abilities to five components: planning and preparing for reading, deciding what cognitive strategy to use, knowing how to monitor the strategy use, orchestrating the use of various strategies, and evaluating strategy effectiveness. These components are intertwined rather than linearly connected. Based on this model, Anderson (2003) designed a widely used instrument in second-language reading research, the online survey of reading strategies (OSORS) for English learners. This survey was an adaptation of the metacognitive awareness of reading strategies inventory (MARSI) designed by Mokhtari and Reichard (2002). The OSORS also included questions on reading habits in an online environment, which MARSI lacked.

The methodology to carry out the study was a triangulation approach. Based on Creswell's (2013) guidelines, the researcher collected and analyzed both quantitative and qualitative data simultaneously to reach a deeper understanding of the strategies used by translation students. Based on the findings of the first phase of the study, the researcher provided a descriptive analysis of the participants' reports on their online reading strategies. The second phase of the study further explored the strategies the six volunteering participants used while reading an online academic text in think-aloud (TA) sessions. The researcher analyzed the data based on the theoretical framework, and new findings emerged from the qualitative data analysis.

Summary of Findings

Quantitative findings

The results from the descriptive analysis indicated that the translation students employed all items on the online survey of reading strategies. The frequency of use of these strategies, however, varied considerably. A total of 92% of the reading strategies showed a high or moderate usage among the participants, and 8% of the strategies had low usage. The analysis showed that 56% of the global strategies, 91% of the problem-solving strategies, and 22% of the support strategies were highly used. By contrast, 44% of the global strategies, 9% of the problem-solving strategies, and 44% of the support strategies were moderately used. No global or problem-solving strategy indicated a low usage, but 33% of the support strategies (i.e., three out of eight support strategies) showed low usage. The top five most used strategies were "using context clues to understand the text" ($M = 4.42$), "being able to tell between fact and opinion in the text" ($M = 4.29$), "paying more attention to difficult text" ($M = 4.28$), "refocusing the lost concentration" ($M = 4.17$), and "rereading the text for better understanding" ($M = 4.17$). The least used strategies were "taking notes to understand the text" ($M = 1.70$), "printing a copy to underline text" ($M = 1.92$), "translating from English into my native language" ($M = 2.14$), "looking for sites that cover both sides of an issue" ($M = 2.58$), and "asking myself questions while reading" ($M = 2.60$). These last two strategies actually showed not low usage but moderate usage, because their means were over 2.4.

Qualitative Findings

Overall, the qualitative findings of the present study showed a high usage of metacognitive online reading strategies among the six volunteering participants. The

results obtained through TA sessions, the background information questionnaire (Alsheikh, 2002), and the online reading habits questionnaire (Coiro & Dobler, 2007) revealed that the students had studied English for many years and used the Internet for academic and non-academic activities and spent many hours a week online. The analysis of data obtained during the think-aloud sessions revealed that the participants' metacognitive processes conformed to the metacognition theory (Flavell, 1979) and metacognition model (Anderson, 2003). As described in the theory and the model, the participants planned their reading, decided what strategies to use, knew how to monitor their strategy use, orchestrated their uses of strategies, and constantly evaluated their usage of reading strategies. The students' metacognitive processes also involved contextualization of the reading passage in the real world. This activity might help with remembering what they read in the future, which could be another metacognition process.

Four additional themes emerged from the qualitative data analysis. First, for the participants maintaining an undivided focus on the text and maintaining a steady pace of reading took precedence over using other strategies such as consulting a dictionary or reading all quotes in the text. Second, the participants bundled certain strategies in a group. For example, when the text was difficult and they could not comprehend the main idea of a sentence or a paragraph, they clustered "slowing down," "re-reading," and "reading out loud" together. Third, the participants had a strong knowledge of technology and also monitored and orchestrated their use of technology while reading. For example, when they looked up a word online, they did not wait for the buffering. They went back to their reading and checked back a few seconds later to read the meaning of the word. One student used Google map to learn about the contents of the passage in the context of

real world. Lastly, the participants read the text for purposes that went beyond the TA session. Tammy stated that it counted as her daily reading. Gina, Nile, and Rita were interested in the topic of eco-friendly energy mentioned in the passage.

Discussion

The quantitative findings presented in this study confirm and contribute to findings from previous research. Numerous studies on metacognitive reading strategies suggest that proficient readers are more aware of metacognitive online reading strategies than less proficient readers and employ the strategies extensively while reading (Atari & Radwan, 2013; Incecay, 2013; Pookcharoen, 2009). Think-aloud findings further uncover different and unexplored aspects of mental processes and add to the body of knowledge on how different readers approach and read a text (Coiro & Dobler, 2007; Kim, 2011). The findings also reflect the thought processes of a new generation of readers who are affected by and are part of shifting global economic, political, and technological scenarios, and postcolonial studies have suggested that literary works and people in this era are affected by new transcultural identities created by the new political, social, and economic paradigms (Bhabha, 1994).

This section presents a discussion of the research findings. The first section discusses the participants' approach to reading in the context of postcolonial era. The next section reviews the metacognitive model (Anderson, 2002) and suggests ways to expand it by adding a new component to the five existing ones. The third section offers a comparison of the quantitative and qualitative findings. The following section presents the findings of current and previous studies on the metacognitive online reading strategies of second- or foreign-language learners.

Reading in the postcolonial era

The postcolonial era started with the fall of colonialism and the subsequent shifts in political power and control around the world. In the following decades, traditional theories in the fields of humanities underwent some changes. Education theory, including on second- and foreign-language teaching, empowered students to learn on their own in what were called "student-centered environments," as opposed to the traditional models in which the teacher was the only speaker in the class. Translation theory argued that translations have both artistic and scientific value and are not just an inferior rendition of the original text; and postcolonial studies emerged to study how newly independent countries and cultures adapted dominant Western cultures and to look at the complexities of power relations and cultural governance. According to Johannessen and Ronning (2007), postcolonial studies continuously shift focus, because although different cultures choose and adapt from the dominant Western cultures, their identities change over time. Cultures distance themselves from what they used to be. Cultures are now more exposed to one another than any other time in history. Being transcultural is a new identity that does not necessarily belong to a specific geographical location. The co-presence of various cultures and the interactions between them constitute the object of cultural governance.

According to Johnston & Mangat (2012), the interaction between the reader and the text is affected by the cultural identities of both the author and the reader, particularly when the reader is reading a text in a second or foreign language. These authors argue that postcolonial literary texts are able to take readers from various cultural backgrounds to a space of cultural mediation, allowing them to experience cultural contents rather than

looking at them from a distance. As Bhabha (1994) puts it, it is not any particular traditional culture but the "in-between space" that carries the meaning of culture in this era.

The qualitative findings in this study confirm the suggestions of transcultural identity. The passage the researcher chose for the study, the topic of the passage, and the national origin of the researcher and the participants are all products of postcolonial times. The researcher chose the reading passage from a TOEFL practice site that any student from any country who is applying to British or American universities may come across on the Internet. The TOEFL practice site itself chose this text from the *New York Daily News* website, which probably has many readers, and the topic of the article, published in 2012, was the infamous Empire State building and its updates and technological advancements with LED lights.

Three participants in this study said that they had visited the Empire State building and were interested to learn more about it because they could visualize it and relate to it. They smiled as they said they had been to the Empire State building, therefore showing an instant personal connection with the text. Also, the article talked about Alicia Keys's singing coming from the radio when the lights came on as a surprise to the people of New York. All participants stated that they knew about the singer, and Armin even said he listened to her music. It should also be noted that the participants lacked some background information that a native English speaker born in the United States would probably have. For example, Rita did not know about Art Deco buildings and looked it up on Google pictures. Alma only knew R&B is a "type of music" but did not know

exactly what it meant. Gina looked up “timpani” or drum-sized old lamps on Google pictures, because she wanted to know if there was an equivalent in Chinese.

The transcultural identity of the participants also emerged in their statements about the contents of the passage. The article talked about new LED lights that the Philips Color Kinetics Company had installed on the Empire State building. The lights were not only beautiful and could have 16.7 million color combinations, but they were also energy efficient. The participants said that they appreciated that the building was conserving energy and they were amazed at the potentials of technology. The participants, who were from or lived in New York City, said it was important for them to see more places using technology to preserve the environment.

The data the present study collected on transcultural identity are limited. The researcher herself was 11 to 19 years older than the participants. The participants might have made more detailed statements to someone closer to their age and background or someone they knew. Also, the participants were very focused on the reading process. Therefore, they might have avoided talking about other issues related to the text, such as the corporations and personalities that had arranged for the light replacements. For example, Nile paused on “Philips Color Kinetics,” and looked up the word “Kinetics” online. It is not clear whether he was interested in the meaning of word or wanted to find out what the Philips Company does. Furthermore, the participants were aware of their need to constantly read as translators. Future interviews about their perceptions as translators could obtain more data on their transcultural identities and expand cognitive theories and our understanding of what readers think about when they read a passage in the postcolonial era.

Rethinking metacognitive process

Anderson's (2002) metacognition model suggests that in any reading process, readers employ five primary components that constantly interact with one another in order to achieve comprehension: (a) making plans for the learning, (b) selecting certain strategies for the situation, (c) monitoring the effectiveness of strategy use, (d) orchestrating the use of different strategies, and (e) evaluating the overall strategy use. Anderson (2002) illustrated the model by overlapping circles, and proposed that metacognition occurs at the intersection of all circles.

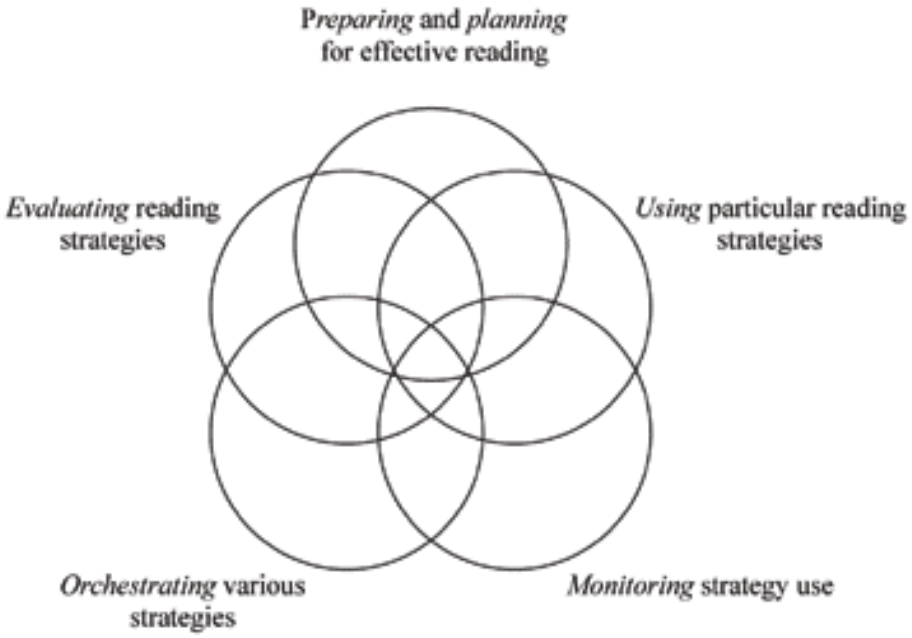

Figure 1: Metacognition model (Anderson, 2002). The circles represent the five primary components of metacognition.

Two findings of this study could expand the metacognition model and suggest new applications to teaching. One of the findings expands the definition of the "orchestration" component, and the other adds another component to the model.

Anderson (2002) defines the "orchestration of strategies" component as the simultaneous use of multiple strategies in the metacognition process. For example, the reader might constantly use context clues to guess the meaning of a concept and keep checking if the guesses were correct as the reading proceeds. What the current study can add to this definition is that apparently proficient readers have so much experience in using metacognitive reading strategies that they have already stored certain strategies together in a "bundle" in their mind and can activate them as a unit. For example, every time the participants in this study came across a difficult sentence at the beginning of a new paragraph, they always reread the sentence, slowed down their speed of reading, read it out loud, looked for keywords, and then tried to guess the meaning. It seems that for advanced readers some strategies can be activated together, and in a more automatic and unconscious way. An analogy could be to a good driver who automatically and unconsciously performs a series of actions when changing lanes. A novice driver, by contrast, has to think about the single strategies of looking in the mirror, checking the traffic, stirring the wheel, etc. Less proficient readers can also learn to activate strategies in bundles to solve certain problems. A more comprehensive metacognition model for reading can include the activation of bundles as part of the metacognitive processes.

A second finding that can add a separate component to the metacognition model was the participants' thought process on how to relate to the contents and add them to their knowledge base. Participants thought of the benefits of LED lights for the

environment and what technology can do. It seems that the metacognition process does not end with mere comprehension; rather, it ends with a strategy to remember what was read, just like the morale of a story that sums up the story at the end and makes it memorable. Figure below demonstrates the modifications to Anderson's (2002) model. It should also be noted that in Anderson's (2002) model metacognition happens at *the point of convergence* of all strategies, but if metacognition is any thinking about thinking (Anderson, 2002), then metacognition should *encompass* all strategies that interact within the entire metacognitive process. The findings in this study also suggested that reading process is more likely to start with planning strategy and end with remembering strategy.

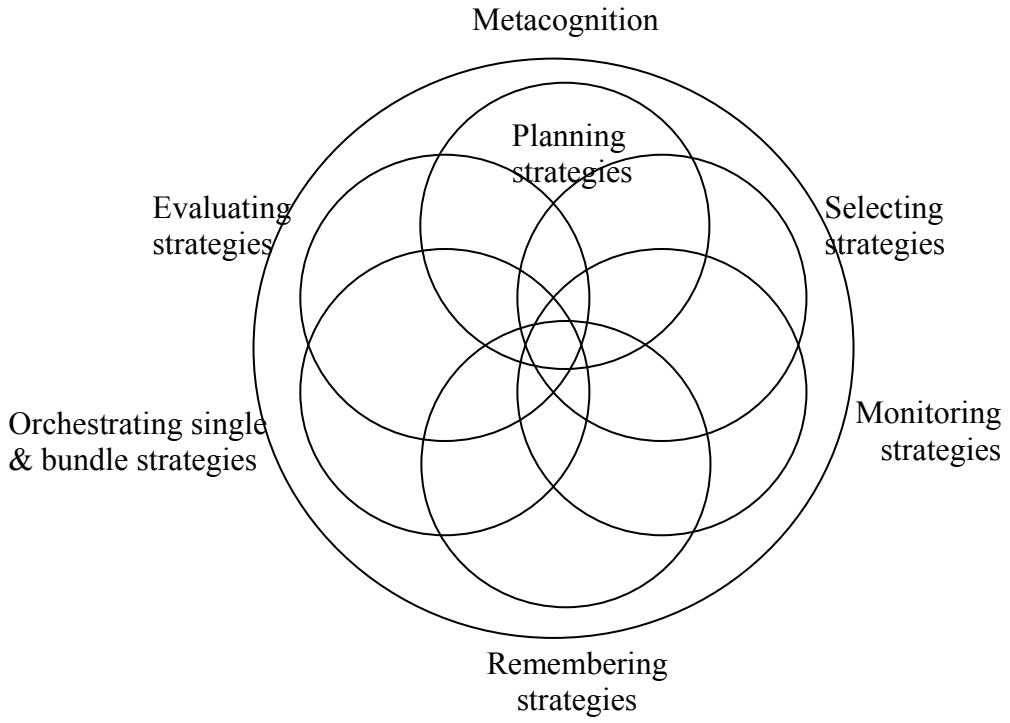

Figure 2: Metacognition model Revised. The circles represent the six primary components of metacognition.

More studies are needed to confirm the activation of certain bundles of strategies by various readers and for various reading purposes. Similarly, more research is needed

to explore how readers try to internalize the reading materials to better relate to them, relate them to the real world, and remember them for the future. Meanwhile, teachers can ask their students to practice using bundles of strategies to solve certain reading problems. Anderson (2003) provides the example of a class he observed in which the teacher asked the students to guess what would happen next in the passage and later check if their guesses were correct. Similarly, teachers can ask their students to think about how they can relate to the text and how they can remember it for the good of themselves, their community, and the world.

Findings of quantitative and qualitative data analysis

In this study, the use of metacognitive online reading strategies was first examined through the students' own reports via the online survey of reading strategies. The survey comprises 38 items measured on a Likert scale of one to five, one being "never" and five being "always." The descriptive analysis of the 46 responses from non-native English-speaking students revealed the following percentages: 58% for high usage, 34% for moderate usage, and 8% for low usage. The low-usage strategies were of three kinds: (a) printing a hard copy to read, (b) taking notes while reading, and (c) translating into native language while reading. It was no surprise to the researcher that the participants did not make use of printing and note taking, because now many young people in the U.S. read on the screens of various digital devices, where they can also highlight or copy-paste the text. The researcher found it surprising that students reported moderate usage of translation strategy, but it is consistent with findings of a research on graduate students by Eghlidi, Abdorrahimzadeh, and Sorahi (2014) that also reported moderate usage of the translation strategy. It is important to note that the purpose of the

think-aloud readings was checking participants' comprehension, not the ultimate translation of the text. One participant, Leo, stated that for him reading to translate would be totally different from reading to learn about a subject. Tammy also mentioned that reading for the purpose of answering test questions would be different for her than casual reading. This could be one reason for the low usage of this strategy among translation students. When the researcher was studying translation, it was constantly emphasized that translators should first read the text for the sole purpose of comprehension before making any attempts to translate it. This finding confirms that translation is a language skill that is different from the four modalities of reading, listening, speaking, and writing and that could have its own module on a standard language test such as TOEFL (Leonardi, 2010); similarly, translation teachers should help their students develop translation competence as a separate linguistic skill (Atari & Radwan, 2013).

The qualitative results converged with the findings of the quantitative analysis and provided more personal perspectives. During the TA sessions, the six participants demonstrated frequent use of a variety of global strategies, problem-solving strategies, and support strategies. Unlike the quantitative results, however, the qualitative results did not show all of the 38 OSORS strategies being used during the TA sessions. The purpose and nature of the TA sessions limited or excluded the usage of nine strategies, such as online chat, scanning webpages, or reading for fun. On the other hand, the participants extensively used the paraphrasing strategy, possibly because they were demonstrating to the researcher how they understood the text. They might not have stopped reading to paraphrase had they been reading in silence.

One mismatch between the quantitative and qualitative findings were that the qualitative results revealed that the participants spent between one and three hours or more than three hours per week on social media, email, and major websites such as Amazon, Wikipedia, Reddit, and Google. The quantitative data instrument, however, did not include any items related to reading on social media or major websites and no comparison could be made between the two sets of data.

All the participants demonstrated similar uses of technology. They all looked words up by typing the word in the search box rather than using an online dictionary. Moreover, they looked no further than the first page of Google search results to learn the meaning of the words they did not understand, unless the meaning made no sense in the context of the passage they were reading. Interestingly, if the computer did not show the search results instantly, the participants did not wait for the computer to buffer. They immediately went back to reading and came back to the Google search results a little later after they had finished reading a sentence or passage. This could mean they wanted to maintain their focus on reading, and waiting for the results would distract them from the main idea.

As mentioned in the previous section, four themes emerged as the most important from the analysis of the qualitative data: (a) maintaining focus, (b) selecting strategies and using them to solve a particular problem, (c) knowing and monitoring the use of technology alongside the reading strategies, and (d) interpreting the reading material in the context of the real world and also considering its impact on the self.

These themes conform to the general outlines in metacognitive theory (Flavell, 1979). According to this theory, metacognition happens at two different levels:

metacognitive knowledge and metacognitive experience. Metacognitive knowledge — consisting of knowledge of person, task, and strategy — leads readers to plan their use of strategies according to the task at hand and their personal preferences. During the TA sessions, the participants chose to focus on comprehension and keep a steady pace of reading. They selected, monitored, and orchestrated strategies to accomplish the task at hand. Metacognitive experiences are sequential processes that ensure comprehension has taken place. They include planning and monitoring cognitive activities, and checking the outcomes of the activities. Anderson (2003) expanded the scope of these processes in his metacognition model and claimed that they were not necessarily sequential but could be used at any time during the reading. Anderson's model breaks down metacognition into five components. The components suggest that a learner constantly (a) makes plans for the learning, (b) selects certain strategies for the situation, (c) monitors the effectiveness of strategy use, (d) orchestrates the use of different strategies, and (e) evaluates the overall strategy use.

The emerging theme of undivided focus follows the first and second metacognition model components suggesting that readers plan their reading and select a strategy for the situation. The participating translation students made plans when they started the TA session. The researcher told them the purpose of the session and showed them a text similar to the one that would be used during the session to show them how to do the TA process. Possibly, they chose the intense and undivided focus strategy because the researcher was sitting there, watching them, and recording them. One thing that the metacognition theory does not cover is that once a strategy is chosen, it might get precedence over other strategies and rule them out. In the case of this study, translation

students were well familiar with looking words up in dictionaries and with the need to expand their vocabulary knowledge. However, they chose to focus on understanding the overall meaning and maintaining a constant pace in reading the text. This automatically overwrote the strategies that interrupt focus, such as using a dictionary or scrolling the text.

The second emerging theme, selecting related strategies and using them to solve a particular problem, was almost identical to the third component of the metacognitive model. When the text was difficult to understand, the participants invariably slowed down their reading speed, read the text aloud, or reread the sentence. They also grouped the strategies of using a dictionary, guessing keywords to understand, and making guesses if the slowing down strategies did not work. This shift is also almost identical to component four of the metacognition model, which is monitoring the effectiveness of strategy use. Although the selection and grouping of strategies varied among the participants, it mainly followed the metacognition model.

The last theme, reading in the context of real world and understanding its impact on the self, is not quite explained by either the metacognitive theory or the metacognition model. It complies more with Rosenblatt's (1998) transactional theory or reader-response theory. The theory proposes that the meaning of any text depends on the readers' interaction with the words and on how they bring their own self, background information, experiences, attitudes, and understandings to the reading process. Transactional theory consists of the two components of aesthetic stance and efferent stance. Aesthetic stance refers to the reader's experiences and feelings from reading the text, while efferent stance is concerned with the information the reader takes away from the text. The participants

showed appreciation of the new eco-friendly LED lights on the Empire State building, which reflects their feelings or aesthetic stance in relation to the text. The participants' efferent stance was that they learned something new which might help them in their translation job.

Finally, the last emerging theme, comprehension in the context of the real world, verifies postcolonial translation theory. The theory holds that no text is original because it is produced within specific historical, social, political, or other time- and place-specific contexts (Culhaoglu, 2014). The participants started their reading by mentioning their knowledge of the Empire State building and continued by following the theme of modern LED lights and energy consumption. Postcolonial reading, like postcolonial translation, should be a process of immersing oneself with humility in another life or world (Orsini & Srivastava, 2013) to have deeper interactions with the text as well as the outside world. In postcolonial translation theory, the translation process starts with meaningful reading.

Current findings and previous studies

The current study examined non-native English-speaking translation students' reports of their own uses of metacognitive online reading strategies when reading online. Some of the findings in this study supported those of previous studies in the ways explained below.

First, both quantitative and qualitative analysis indicated that proficient second language readers used a large majority of the reading strategies with high or moderate frequency. These results were consistent with the findings in the literature (Coiro & Dobler, 2007; O'Malley & Chamot, 1990). In a study of proficient and less proficient second language learners, Pookcharoen (2009) found that the proficient group's use of

strategies was greater in terms of number and frequencies of strategies compared to the less proficient group. In this study of 111 native Thai students in different undergraduate majors in a university in Thailand, a TOEFL reading test was administered to separate proficient students from less proficient students. Results from the metacognitive online reading strategies (OSORS) and TA sessions in this study showed that the less proficient groups had difficulty regarding vocabulary, grammatical structures, text length and organization, and text evaluation. In addition, the less proficient readers' use of metacognitive strategies differed from the proficient students' in terms of frequency, number, and quality of use. Eghlidi, Abdorrahimzadeh, and Sorahi (2014) studied 50 Iranian graduate students in an English as a Foreign Language (EFL) major. The proficient students were very close to less proficient students in terms of their problems with vocabulary, grammatical structures, text length and organization, and comprehension. The OSORS survey results from the 50 participants revealed that the overall usage of metacognitive online reading strategies among the proficient students was a little higher than among the less proficient students.

Second, the current study's quantitative analysis indicated that support strategies (M = 2.81) had lower usage than global strategies (M = 3.59) and problem-solving strategies (M = 3.82). Eghlidi, Abdorrahimzadeh, and Sorahi (2014), Incecay (2013), and Pookcharoen's (2009) obtained similar results in that in their studies the usage of support strategies among the proficient and less proficient readers was lower than the use of global strategies and problem-solving strategies. However, in the TA sessions of the current study, the participants had high usage of two particular support strategies "paraphrasing" and "asking myself questions about the text." Similarly, Huang, Chern,

and Lin (2009) found that the use of support strategies surpassed that of global and problem-solving strategies when 30 EFL students read four online texts. In their study, two texts were at the readers' level and two were more challenging. The use of support strategies was more prominent during the reading of easier texts, but the participants employed more global and problem-solving strategies during the reading of the more challenging texts. An explanation for high usage of "paraphrasing" in the current study is that the researcher had told the participants that the purpose of the reading was to check their comprehension. Therefore, 'paraphrasing' was a purpose of the session.

Third, in the current study the participants used technology according to their reading needs. For example, they moved the curser under the passage lines on the screen as they would move a pen under the printed lines, or they looked the meaning of a keyword online. Coiro and Dobler (2007), Incecay (2013), and Kim (2011) also mentioned that the participants used a variety of online strategies such as scrolling through the text, clicking on the links, and using online reference materials. Coiro and Dobler (2007) argue that advanced readers can actually assemble knowledge in a more situation-specific manner with emerging technologies, while low-performance readers may not have the motivation, flexibility, and website navigation efficiency to adapt their strategy use to online reading contexts.

Finally, the current study revealed that determining the purposes of reading and planning for it were deciding factors in the use of reading strategies. Similarly, Kim (2011) found that high-proficiency readers tended to be more goal oriented. Kim (2011) also concluded that the goal of the reading determines the use of the reading strategies, therefore, teachers should avoid teaching individual reading strategies to students without

having a text. The purpose of the reading should be clear for the student to learn about the strategies that can be used to understand the text. Kim (2011) also suggests teachers should raise awareness of metacognitive online reading strategies among students and guide them to set goals for their reading. This will enable them to decide on and implement metacognitive strategies for their future readings.

Recommendations for Future Research

The first recommendation for future research concerns the format of the reading material. The current study showed to the participants a TOEFL webpage on a laptop. Laptops, however, are no longer the only digital devices that people read on. Mobile devices are very popular and offer an array of features. According to Herold (2014), some studies suggested that reading on screen encourages more skimming of texts to find specific information rather than going into depths of inferences, and it results in reduced reading comprehension. On the other hand, website designs may affect reading comprehension. Hyperlinks can take readers to many other websites from the original webpage. Coiro and Dobler (2007) believed that informational hypertext can influence comprehension; but studies of how hypertext promotes or demotes comprehension have remained inconclusive. It is worth examining the effect of the size and features of various digital devices on reading and the usage of metacognitive reading strategies.

The second recommendation for further research is to explore if advanced second language readers, particularly translation students, prioritize any reading strategies over the others when they determine the purpose of reading. In this research, one participant said she would have paid more attention to detail, had the passage been a reading test. Future research can explore to what extent the set of strategies readers choose depends on

the purpose of the reading and how they go about deciding on it. The prioritization is particularly interesting when hypertext and hypermedia make online reading a nonlinear process. According to Coiro (2011b), skilled readers have a problem-solving mindset when approaching online reading and this mindset prompts them to specify their purpose, anticipate challenges, and be flexible in the plans they make.

The third recommendation concerns the use of metacognitive reading strategies in the process of translation. The current study focused on online reading for comprehension, not for translation. Washbourne (2012) emphasizes that reading for translation forces the reader not only to look for sentence structures, but also to grasp the intended meanings, author's style, and many other layers that make reading for translation an act of interpretive realization. This deliberate reading is accompanied by a reconstruction of the text in another language. It would be interesting to see what metacognitive strategies are at work when translators switch between reading and writing, and from one language to another. In addition, translation software makes it possible for translators to visualize the source and target language side by side while they translate, to look up words within the software, and to create glossaries, among other possibilities. Research on reading strategies has much to offer to translation studies (Washbourne, 2012).

Finally, TA sessions can be conducted in the translation students' native language. In this study, the researcher was not a native speaker of the participants' native language. Participants spoke in English to express what they were thinking while reading. A native speaker of the participant's mother tongue, however, may do most of the thinking in both languages. In that case, the usage of the support strategy of thinking in

the native language will show high usage. On the other hand, the use of metacognitive online reading strategies will be revealed in the process of switching between the two languages. Further interview or discussions after TA sessions can also reveal readers' thoughts that they avoided explaining in detail during their reading. Postcolonial studies suggest the formation of new transcultural identities around the world. Readers interact differently with texts and future studies can shed more light on how proficient and less proficient readers' transcultural awareness can contribute to their reading comprehension.

Implications for Practice

The findings in this study have some implications for teaching, assessment, and digital literacy. From an instructional perspective, this study indicated that the non-native speakers of English in translation studies reported high and moderate usage of metacognitive online reading strategies. Translation instructors and second language teachers can monitor students' uses of strategies, make them aware of the uses of the strategies among their peers, and guide them to employ them. For instance, the TA sessions showed that the participants bundled several strategies together. They used "slowing the speed when text was difficult" together with "reading slowly and carefully," "rereading," and "reading aloud." Similarly, the participants "ignored unknown words" or "guessed the meaning" after they had "decided it was not a keyword." Translator trainers and language teachers can raise awareness among their students of these strategies. Additionally, teachers can educate themselves about the strategies and how their students use them. For example, the findings of this research indicated low usage of the support strategies of "printing out a hard copy" and "taking notes while reading." With the rise of digital literacy, it is possible that young people who have access to

technology are using paper less. They might also use underlining less or they might be using digital device features to take notes and highlight or bookmark what they need to review online. Translation trainers can also learn about their students' preferences in how they approach a text and educate themselves on their students' mindsets. Translation trainers can also monitor students' transcultural awareness and promote discussions of the cultural background of the text, the political and social situation it was written in, and the biography of the author as elements that affect reading comprehension and the translation process.

The findings also have implication for assessing students' reading strategies. With students from around the world entering American universities to study, the need for assessing the new students' knowledge of English has become a necessity. Universities not only demand Standard English test results such as TOEFL and IELTS from non-native English speakers, but they also diagnose students' English language development early in their studies and encourage self-assessment to ensure they are sufficiently competent in English to participate effectively in their university studies (Read, 2015). TA reading sessions provide good opportunities for less proficient non-native English speakers to observe how proficient non-native speakers achieve reading comprehension. Similarly, advanced students can mentor their peers by observing their TA aloud readings. Studies show that formative assessment and feedback have prevailing influences on student achievement; however, in many cases struggling students need further clarification on the feedback they receive from advisers and the colleges are unaware of it (Turner & West, 2013).

This study has implications for promoting digital literacy as well. The number of

online educational entities keeps growing, and more universities offer online courses for their students, upload their reading materials online, send links for extra reading to students, and require students to read each other's work and leave feedback for one another in these collaborative and nonlinear environments. New ways need to be developed besides teaching how to read on paper to integrate the new literacies of Internet reading into educational settings (Davis & Neitzel, 2012). The findings of this study can be part of the guidelines to prepare non-native English speakers for online universities. Many non-native English students may have no experience with digital devices, services, and norms that are on the other side of the digital divide.

Conclusions

The objectives of the study were accomplished through two research phases. In phase one, the researcher elicited the participants' reflections on their metacognitive online reading strategies by using Anderson's (2003) online survey of reading strategies. In phase two, the researcher observed and recorded six volunteers who read a passage designed for TOEFL reading practice on a website. By analyzing data from the two phases, the researcher explored the various reading strategies the participants reported using and actually used during the TA sessions.

As a result of this study, the following conclusions can be drawn regarding the uses of metacognitive online reading strategies among non-native English-speaking students of translation.

First, this study concludes that non-native English-speaking translation students reported using all of the metacognitive online reading strategies mentioned on the survey. The students reported high and moderate usages of strategies in the three categories of

global strategies, problem-solving strategies, and support strategies. The three support strategies of "taking notes while reading," "printing a hard copy from the online text," and "translating from English to native language while reading" were reported to have low usage.

Second, this study concludes that non-native English-speaking translation students employ a variety of metacognitive online reading strategies depending on the purposes of the reading. The purposes are what readers need and want to accomplish by reading. The purposes could be determined by external factors, such as the need to take a test, or by personal ones, such as reading for fun. In addition, readers may assign other purposes to the reading task, such as expanding their general knowledge, and then employ additional metacognitive strategies to fulfill those purposes as well. This finding verifies the metacognition theory according to which readers plan and prepare for reading. However, this study adds a further component to the five components of the metacognition model, and that is to determine the reading purpose.

Third, the study concludes that non-native English-speaking translation students not only chose particular strategies for particular contexts, but they also grouped related strategies together and employed them in combination when comprehension was a challenge. This finding verifies the components of selecting, monitoring, and orchestrating strategy use in the metacognitive model.

Fourth, the study reveals that non-native English-speaking translation students chose the strategy of continuous focus as the primary strategy against which all other strategies had to be examined. Those strategies that interrupted the focus on reading the text became secondary to this primary strategy. For example, looking up words on

another webpage was dismissed when the unknown word was not a keyword. Similarly, too many guesses on obscure parts were dismissed because they would interrupt the continuity of reading. More research is required to determine whether readers choose one strategy or group of strategies over another for the purpose of reading.

Finally, the study concludes that the technology assists reading. There are various technology strategies that readers employ according to their reading needs. For example, the reader knows "typing the word in the search box" and "going to an online dictionary" are both strategies that can be chosen in different situations. In this study, the participants chose to focus on the reading passage the most, so they chose "typing the word in the search box" over "going to an online dictionary." They even did not "wait for the computer to show the search results" because they didn't want to disrupt their concentration on the text. "Using Google map" to find the location of the site that was discussed in the passage and "zooming in on the map" were other strategies the participants were aware of and employed. These strategies can be extracted as general digital strategies, and then be studied in conjunction with reading strategies. In other words, metacognitive digital strategies and metacognitive reading strategies can be combined in studies on digital reading.

This study should alert language teachers, translation instructors, and curriculum designers to the need to collaborate to carry out further research on reading in various digital formats and to bring all findings together for the benefit of future language learners and translators.

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APPENDICES

APPENDIX A
IRB APPROVAL LETTER FROM THE MIDDLEBURY INSTITUTE OF INTERNATIONAL STUDIES AT MONTEREY

Middlebury

Name
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Middlebury College
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April 6, 2015

Shayesteh Zarrabi
Department of Education at University of San Francisco
2130 Fulton Street
San Francisco, CA 94117

Dear Shayesteh,

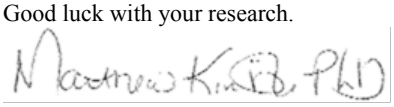
Your proposal (15116, Exploring non-native English speaking translation students' use of metacognitive online reading strategies.) was reviewed by the Middlebury Institutional Review Board (IRB) on April 3, 2015 through the normal process for an exempt proposal. Your proposal is now approved.

Please check http://www.middlebury.edu/academics/resources/irb/deadlines to ensure that you apply for renewal in time to prevent your approval from expiring.

If the project will run for longer than 12 months, you must renew this approval no later than April 3, 2016.

It is important that you inform the committee promptly should you encounter any unanticipated problems involving risks to subjects or others associated with your research. Please inform the committee when the study is completed and forward copies of publications or conference presentations based on this project to Eileen Brunetto, IRB Coordinator, MBH 412, for our institutional records.

Good luck with your research.



Matthew O. Kimble
IRB Chair
c: Dr. Jourdenais

APPENDIX B
IRB APPROVAL LETTER FROM THE UNIVERSITY OF SAN FRANCISCO

Protocol Exemption Notification

To: Shayesteh Zarrabi
From: Terence Patterson, IRB Chair
Subject: Protocol #411
Date: 04/02/2015

The Institutional Review Board for the Protection of Human Subjects (IRBPHS) at the University of San Francisco (USF) has reviewed your request for human subjects approval regarding your study.

Your project (IRB Protocol **#411**) with the title **EXPLORING NON-NATIVE ENGLISH SPEAKING TRANSLATION TRAINEES' USE OF METACOGNITIVE ONLINE READING STRATEGIES** has been approved by the University of San Francisco IRBPHS as **Exempt** according to 45CFR46.101(b). Your application for exemption has been verified because your project involves minimal risk to subjects as reviewed by the IRB on 04/02/2015.

Please note that changes to your protocol may affect its exempt status. Please submit a modification application within ten working days, indicating any changes to your research. Please include the Protocol number assigned to your application in your correspondence.

On behalf of the IRBPHS committee, I wish you much success in your endeavors.

Sincerely,

Terence Patterson,
Chair, Institutional Review Board for the Protection of Human Subjects
IRBPHS - Univeristy of San Francisco
IRBPHS@usfca.edu

APPENDIX C:
INFORMED CONSENT FORM
MIDDLEBURY INSTITUTE OF INTERNATIONAL STUDIES AT MONTEREY

Dear Participant,

You have been asked to complete this survey as part of a research project conducted by Shayesteh Zarrabi, a student at the University of San Francisco. The research project is called: *Exploring Non-native English Speaking Translation Students' Use of Metacognitive Online Reading Strategies.*

This study is designed to find out what strategies you employ when reading an online text. Your responses are entirely voluntary, and you may refuse to complete any part or all of this survey. This survey is designed to be anonymous, meaning that there should be no way to connect your responses with you. Toward that end, please do not sign your name to the survey or include any information in your responses that makes it easy to identify you. By completing and submitting the survey, you affirm that you are at least 18 years old and that you give your consent for Shayesteh Zarrabi to use your answers in her research. If you have any questions about this research before or after you complete the survey, please contact Shayesteh Zarrabi, szarrabi2@usfca.edu. If you have any concerns or questions about your rights as a participant in this research, please contact the Chair of the Middlebury College Institutional Review Board, Matt Kimble, at 802-443-5582 or irb@middlebury.edu.

Participant signature *Date*

APPENDIX D
INFORMED CONSENT FORM
UNIVERSITY OF SAN FRANCISCO

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Below is a description of the research procedures and an explanation of your rights as a research participant. You should read this information carefully. If you agree to participate, you will sign in the space provided to indicate that you have read and understand the information on this consent form. You are entitled to and will receive a copy of this form.

You have been asked to participate in a research study conducted by Shayesteh Zarrabi, a graduate student in the Department of International and Multicultural Education at University of San Francisco. This faculty supervisor for this study is Dr. Mohammad S. Popal a professor in the Department of Education at University of San Francisco.

WHAT THE STUDY IS ABOUT:
The purpose of this research study is to explore the type and extend of online reading strategies that advanced readers use while reading online. This study is about the thoughts on reading an academic text online and also the activities you initiate when you read online.

WHAT WE WILL ASK YOU TO DO:
During this study, the following will happen: first, you fill out a questionnaire on the languages you use daily, and questions on your age, sex, major, and previous English test score. Second, you will fill out a survey with 38 questions on your reading habits. Third, if you are interested in part II of the research, you will read a text online on my computer and speak about your thoughts while reading. You will be assigned a number, as your name or any form of your personal identity information are not needed for this study. Your voice and what you do on the computer will be recorded for further analysis.

The recordings will be transcribed. The analysis of the recordings include finding what common themes the participants bring up during their individual reading sessions. For example, thinking about the background information, choice of words , etc. The recordings and transcriptions will be archived after the completion of the research . The recordings will be destroyed one year after the completion of the study.

DURATION AND LOCATION OF THE STUDY:
Your participation in this study will involve filling out a questionnaire and a survey (5-10 minutes). If you are interested in participating in phase two, you will inform the dean to schedule a (15-20 minutes) session to read a text on my computer. The study will take place at the Monterey Institute of International Studies campus. The sessions will not be during your class times.

POTENTIAL RISKS AND DISCOMFORTS:
We do not anticipate any risks or discomforts to you from participating in this research. If you wish, you may choose to withdraw your consent and discontinue your participation at any time during the study without penalty.

BENEFITS:

You will receive no direct benefit from your participation in this study; however, the possible benefits to others include data on advanced readers strategies when reading online. Information from this study may benefit people who have difficulties in reading, the students who are preparing for reading tests, or training programs for reading teachers.

PRIVACY/CONFIDENTIALITY:

Because you will not be providing any information that can uniquely identify you (such as your name or student ID number), the data you provide will be anonymous.

COMPENSATION/PAYMENT FOR PARTICIPATION:

There is no payment or other form of compensation for your participation in this study.

VOLUNTARY NATURE OF THE STUDY:

Your participation is voluntary and you may refuse to participate without penalty or loss of benefits. Furthermore, you may skip any questions or tasks that make you uncomfortable and may discontinue your participation at any time without penalty or loss of benefits. In addition, the researcher has the right to withdraw you from participation in the study at any time. Participating or not participating in this study will not impact your standing in your classes or the program of study.

OFFER TO ANSWER QUESTIONS:

Please ask any questions you have now. If you have questions later, you should contact the principal investigator: Shayesteh Zarrabi szarrabi2@usfca.edu. If you have questions or concerns about your rights as a participant in this study, you may contact the University of San Francisco Institutional Review Board at IRBPHS@usfca.edu.

I HAVE READ THE ABOVE INFORMATION. ANY QUESTIONS I HAVE ASKED HAVE BEEN ANSWERED. I AGREE TO PARTICIPATE IN THIS RESEARCH PROJECT AND I WILL RECEIVE A COPY OF THIS CONSENT FORM.

_____

PARTICIPANT'S SIGNATURE *DATE*

APPENDIX E
ONLINE SURVEY OF READING STRATEGIES

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APPENDIX A
ON-LINE SURVEY OF READING STRATEGIES
Adapted from Kouider Mokhtari and Ravi Sheorey, 2002 by Neil J. Anderson

The purpose of this survey is to collect information about the various strategies you use when you read **on-line in ENGLISH** (e.g., surfing the Internet, doing on-line research, etc.). Each statement is followed by five numbers, 1, 2, 3, 4, and 5, and each number means the following:

'1' means that 'I **never or almost never** do this' when I read on-line.
'2' means that 'I do this **only occasionally**' when I read on-line.
'3' means that 'I **sometimes** do this' when I read on-line. (About **50%** of the time.)
'4' means that 'I **usually** do this' when I read on-line.
'5' means that 'I **always or almost always** do this' when I read on-line.

After reading each statement, ***circle the number*** (1, 2, 3, 4, or 5) which applies to you**.** Note that there are **no right or wrong responses** to any of the items on this survey.

Statement	**Never**				**Always**
1. I have a purpose in mind when I read on line.	1	2	3	4	5
2. I participate in live chat with other learners of English.	1	2	3	4	5
3. I participate in live chat with native speakers of English.	1	2	3	4	5
4. I take notes while reading on-line to help me understand what I read.	1	2	3	4	5
5. I think about what I know to help me understand what I read on-line.	1	2	3	4	5
6. I take an overall view of the on-line text to see what it is about before reading it.	1	2	3	4	5
7. When on-line text becomes difficult, I read aloud to help me understand what I read.	1	2	3	4	5
8. I think about whether the content of the on-line text fits my reading purpose.	1	2	3	4	5
9. I read slowly and carefully to make sure I understand what I am reading on-line.	1	2	3	4	5
10. I review the on-line text first by noting its characteristics like length and organization.	1	2	3	4	5
11. I try to get back on track when I lose concentration.	1	2	3	4	5
12. I print out a hard copy of the on-line text then underline or circle information to help me remember it.	1	2	3	4	5
13. I adjust my reading speed according to what I am reading on-line.	1	2	3	4	5
14. When reading on-line, I decide what to read closely and what to ignore.	1	2	3	4	5
15. I use reference materials (e.g. an on-line dictionary) to help me understand what I read on-line.	1	2	3	4	5
16. When on-line text becomes difficult, I pay closer attention to what I am reading.	1	2	3	4	5
17. I read pages on the Internet for academic purposes.	1	2	3	4	5
18. I use tables, figures, and pictures in the on-line text to increase my understanding.	1	2	3	4	5
19. I stop from time to time and think about what I am reading on-line.	1	2	3	4	5
20. I use context clues to help me better understand what I am reading on-line.	1	2	3	4	5
21. I paraphrase (restate ideas in my own words) to better understand what I read on-line.	1	2	3	4	5
22. I try to picture or visualize information to help remember what I read on-line.	1	2	3	4	5
23. I use typographical features like bold face and italics to identify key information.	1	2	3	4	5
24. I critically analyze and evaluate the information presented in the on-line text.	1	2	3	4	5
25. I go back and forth in the on-line text to find relationships among ideas in it.	1	2	3	4	5
26. I check my understanding when I come across new information.	1	2	3	4	5
27. I try to guess what the content of the on-line text is about when I read.	1	2	3	4	5
28. When on-line text becomes difficult, I re-read it to increase my understanding.	1	2	3	4	5
29. I ask myself questions I like to have answered in the on-line text.	1	2	3	4	5
30. I check to see if my guesses about the on-line text are right or wrong.	1	2	3	4	5
31. When I read on-line, I guess the meaning of unknown words or phrases.	1	2	3	4	5
32. I scan the on-line text to get a basic idea of whether it will serve my purposes before choosing to read it.	1	2	3	4	5
33. I read pages on the Internet for fun.	1	2	3	4	5
34. I critically evaluate the on-line text before choosing to use information I read	1	2	3	4	5

on-line.	
35. I can distinguish between fact and opinion in on-line texts.	1 2 3 4 5
36. When reading on-line, I look for sites that cover both sides of an issue.	1 2 3 4 5
37. When reading on-line, I translate from English into my native language.	1 2 3 4 5
38. When reading on-line, I think about information in both English and my mother tongue.	1 2 3 4 5

APPENDIX F
SCORING AND INTERPRETING GUIDELINES FOR THE SURVEY OF ONLINE READING STRATEGIES

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SCORING GUIDELINES FOR THE *SURVEY OF ON-LINE READING STRATEGIES*

Student Name: _____ Date: _____

1. Write the number you circled for each statement (i.e., 1, 2, 3, 4, or 5) in the appropriate blanks below.
2. Add up the scores under each column and place the result on the line under each column.
3. Divide the subscale score by the number of statements in each column to get the average for each subscale.
4. Calculate the average for the whole inventory by adding up the subscale scores and dividing by 30.
5. Use the interpretation guidelines below to understand your averages.

Global Reading Strategies (GLOB Subscale)	Problem Solving Strategies (PROB Subscale)	Support Reading Strategies (SUP Subscale)	**Overall Reading Strategies (ORS)**
1. _____	9. _____	4. _____	**GLOB _____**
2. _____	11. _____	7. _____	**PROB _____**
3. _____	13. _____	12. _____	**SUP _____**
5. _____	16. _____	15. _____	
6. _____	19. _____	21. _____	
8. _____	22. _____	25. _____	
10. _____	28. _____	29. _____	
14. _____	31. _____	37. _____	
17. _____	34. _____	38. _____	
18. _____	35. _____		
20. _____	36. _____		
23. _____			
24. _____			
26. _____			
27. _____			
30. _____			
32. _____			
33. _____			

_____ GLOB Score **/ 18**	_____ PROB Score **/ 11**	_____ SUP Score **/ 9**	____**Overall Score / 38**
_____ GLOB Average	_____ PROB Average	_____ SUP Average	____ **Overall average**

KEY TO AVERAGES: 3.5 or higher = High 2.5 – 3.4 = Medium 2.4 or lower = Low

INTERPRETING YOUR SCORES: The overall average indicates how often you use reading strategies when reading academic materials. The average for each subscale shows which group of strategies (i.e., Global, Problem Solving, or support strategies) you use most often when reading. It is important to note, however, that the best possible use of these strategies depends on your reading ability in English, the type of material read, and your reading purpose. A low score on any of the subscales or parts of the inventory indicates that there may be some strategies in these parts that you might want to learn about and consider using when reading (adapted from Oxford 1990, pp. 297-300).

Adapted from Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students reading strategies. *Journal of Developmental Education*, 25 (3), pp. 2-10.

Neil J. Anderson is a Professor in the MA TESOL program in the Department of Linguistics and English Language at Brigham Young University, Provo, Utah, USA. He also serves as the Academic Coordinator at the English Language Center. Professor Anderson's research interests include second language reading and writing, language learning strategies, teaching and learning styles, and classroom evaluation and testing.

APPENDIX G
STUDENT QUESTIONNAIRE ABOUT READING ON THE INTERNET

1. Do you like to read on the Internet? (circle one answer) Yes Sort of No

2. Please rank the following six activities in order of use from 1–6. Write a "1" beside the Internet activity you do the MOST, a "2" beside the activity you do second most, and so on, ending by writing a "6" beside the Internet activity you do the LEAST.

____ Playing interactive games on the Internet
____ Searching for a topic using a search engine
____ Reading certain websites to learn more about a topic
____ Using e-mail, Instant Messenger, chat rooms, Facebook, Twitter, other social media
____ Browsing or exploring lots of different webpages
____ Downloading music or software games

3. Find the activity you rated as "1" in question 2 and guess how much time you spend doing that activity in one week

Less than 1 hour Between 1 and 3 hours More than 3 hours

4. Find the activity you rated as "2" in question 2 and guess how much time you spend doing that activity in one week.

Less than 1 hour Between 1 and 3 hours More than 3 hours

5. How good are you at understanding what you read in books (stories, textbooks)? (circle one answer)

Very good Just OK Not so good

6. How good are you at figuring out where to go on the Internet to find what you want? (circle one answer)

Very good Just OK Not so good

7. How good are you at using a search engine to find what you want? (circle one answer)

Very good Just OK Not so good

8. When reading on the Internet, you are usually at . . . (circle one answer)

School Home Other_____

9. How comfortable would you be in explaining out loud to someone else what you are thinking while you are searching and reading on the Internet? (circle one answer)

Very good Just OK Not so good

10. Name two of your favorite Internet sites. _____ _____

11. How do you find something you are searching for on the Internet?

12. What else would you like to tell me about how you use the Internet?

APPENDIX H:
BACKGROUND INFORMATION QUESTIONNAIRE

1. Age: _____ 2. Gender: _____ 3. Country of birth: _____

4. Length of stay in U.S.: ___ 5. Years studying English: ___ 6. Major: _____

7. Year in major: 1st year_____2nd year _____ Other: _____

8. GPA: ____9. Overall TOEFL or IELTS score: _____ 10. TOEFL /IELTS READING score: _____ 11. What languages do you speak (other than English):

_____

12. What language are you most proficient in (A language)?

13. How often do you use your A language?

Every day _____Sometimes _____ Once in a while _____Never_____

14. For what purposes do you use your A language? (e.g. talking to family, translation, reading news)

_____

15. Where did you learn your A language: Outside U.S._____ In U.S. _____

16. On a scale of 1 to 5, rate your English proficiency. Circle your answer.

Language Skill	Low Proficiency				High Proficiency
Listening	1	2	3	4	5
Speaking	1	2	3	4	5
Reading	1	2	3	4	5
Writing	1	2	3	4	5

17. What particular difficulties, if any, do you face when you read in English?

_____

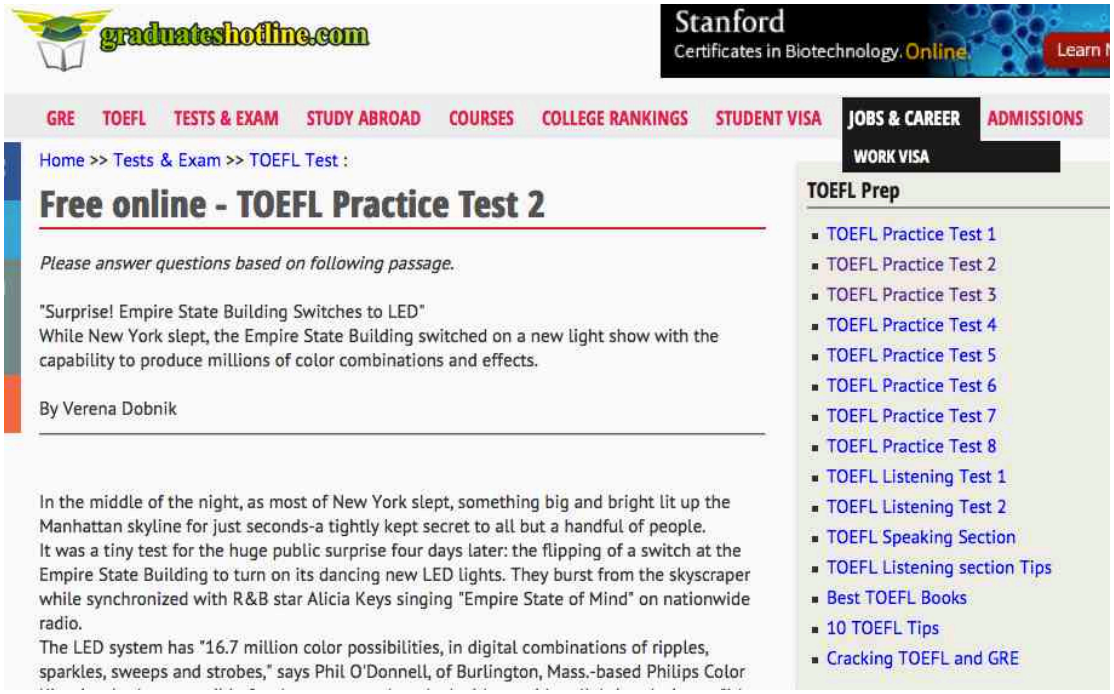
18. What particular difficulties, if any, do you face when you read in your A language?

_____

19. What is your experience in translation? (I took a class before, translated for a project, etc.)

_____

APPENDIX I
THINK-ALOUD READING TEXT



http://www.graduateshotline.com/sampletoefl2.html#.VZR3UaZeGf5
The entire article can be found here: http://www.nydailynews.com/new-york/empire-state-building-new-lights-article-1.1210071

Surprise! Empire State Building Switches to LED"
While New York slept, the Empire State Building switched on a new light show with the capability to produce millions of color combinations and effects.

By Verena Dobnik

In the middle of the night, as most of New York slept, something big and bright lit up the Manhattan skyline for just seconds-a tightly kept secret to all but a handful of people.

It was a tiny test for the huge public surprise four days later: the flipping of a switch at the Empire State Building to turn on its dancing new LED lights. They burst from the skyscraper while synchronized with R&B star Alicia Keys singing "Empire State of Mind" on nationwide radio.

The LED system has "16.7 million color possibilities, in digital combinations of ripples, sparkles, sweeps and strobes," says Phil O'Donnell, of Burlington, Mass.-based Philips Color Kinetics that's responsible for the system and worked with a resident lighting designer. "It's the sum of all possibilities - a huge palette. "The old lights came in only 10 colors.

From Manhattan and the Bronx to Staten Island and even New Jersey, "there were hundreds of thousands of people on the streets looking up, filming and videoing,

clustered on street corners," when the new lights came on, said Anthony Malkin, whose family controls the iconic Art Deco building.

In an interview with The Associated Press at his office, he glowed with pleasure describing Monday night's inaugural light show. Keys also sang "Girl On Fire" from her new CD.

After all, the 102-story skyscraper "has always been a symbol of what's possible in New York, and all the dreams that can come true in this city that never sleeps," Keys, a New York native, said before her performance, which was ready on tracks while she watched from a Manhattan studio.

Malkin and his technical team wanted to test the new lighting system with as few people noticing as possible and chose early Thanksgiving morning.

Good luck, in the middle of Manhattan, with people walking around even at 2:30 a.m. That seemed the best moment, after most bars close and before dawn.

"We decided to do it facing west, in very short bursts between 2:30 a.m. and 3 a.m., because we knew we didn't have a camera trained on us from there," Malkin said.

Apparently, the secret test worked. No images of the Empire State Building alight that night appeared anywhere, as far as Malkin knows. To stage the show, he worked with Clear Channel radio, which has 239 million monthly listeners in the United States.

The lights are part of a larger effort to modernize the 81-year-old edifice that is undergoing a more than half a billion-dollar renovation that includes making it "green." The computerized LED system will cut energy consumption by more than half, while delivering light and vibrancy superior to the old floodlights, which have huge timpani drum-size lenses that had to be changed every so often, O'Donnell said.

They may still have nostalgic value to some who watched them light up New York City for every special occasion from Christmas to the Fourth of July.

They were part of "the grande dame of the New York skyline, now state-of-the-art, but still stately," says Malkin, adding that the light show was "a gift we gave to the world, these lights. We don't get paid for this."

On a sunny Wednesday afternoon, with a spectacular view of the new World Trade Center and New York Harbor, a vacant space under reconstruction on the building's 72nd floor was filled with the retired floodlights, sitting side by side in long lines, veterans of years of New York weather. What will be done with them is also a secret - for now.

One old light will not be discarded in favor of a 21st century novelty: a red beacon - "half the size of a Volkswagen Beetle," as Malkin puts it - that serves as a warning signal for aircraft constantly flying over New York City.