A Study of ESL Students' Perceptions of Their Digital Reading

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ABSTRACT

While research has increasingly been focused on second language reading, it has primarily been centered on how the learner interacts and decodes printed text. However, there has been minimal research conducted on how the English language learner processes web text, navigates the Internet, or evaluates and comprehends what he/she is reading through the use of digital literacy skills. The intention of this study was to gain insight into the online reading strategies of English language learners in order to explore if there was a need for the English as a Second Language (ESL) profession to teach digital literacy in the language classroom. The present study examines the metacognitive online reading strategies of intermediate and upper intermediate ESL students. Data were drawn from the researcher's observation notes, interviews with the participants, group discussions, and participant journals. The research methodology for the study was interpretive and qualitative. The findings suggest that language learners engage in characteristically different reading practices and strategies when reading web text and that there is a need for digital literacy skills to be taught in conjunction with the development of traditional literacy skills in the target language.

INTRODUCTION

It is not altogether surprising that digital technology has not had the same profound impact on language teaching as it has had in other subject areas. Because of the performative, rather than declarative, nature of language learning, the culture of teaching ESL tends to follow its own methods of teaching English and moves outside the circle of core subjects, such as math, history, or science. This discrete position, however, does not deflect the need for ESL teachers and students to be digitally literate, especially considering the literacy "metamorphosis" that digital technology is creating and the change in reading cultures from printed text to web text. Further, technology has provided the language classroom with numerous tools to help teach language beginning with Comenius' pictured "phonics" in 17th century books to the use of Edison's photographic recordings in the 19th century to utilizing BBC produced DVDs in this new century.

Recent research conducted in the field of second language education has for some time suggested that technology can enhance the language learning process (Gee and Hayes, 2011; ACT, 2004; CEO Forum, 2001). Web pages, for example, have the potential to increase the

volume of comprehensible input (Krashen, 1985). Research has also shown that language learners are motivated to spend more time reading online than offline because they find web text more interesting and stimulating than the artificial or non-authentic information found on the printed page of language course books (Nginye, 2011). Carrier (1997, p.282) observes that prolonged exposure to the authentic language, such as that found on web pages, appears to be quite beneficial to the learner.

Moreover, to be considered fully literate in the 21st century, a person must be able to collect, evaluate, and use digital resources to problem solve and make informed decisions. Warschauer and Healey (1998) note that in a world of information, search strategies are essential, and a student needs "the ability to respond and adapt to changes rather than training in a single way to approach a task" (p. 57). In addition, the increasing use of digital libraries promotes digital reading and forcing students to move beyond the realm of paper-based texts (Armstrong and Warlick, 2004; Brown, 2001; Parrot, 2003). Bruce (2003) expands on this point by contending that with the "proliferation of information needed for academic purposes, students are exposed not only to conventional text presentation but also to electronic texts" (Bruce, p.2). ESL teachers, as a whole, need to expand literacy skills to encompass online reading in order to meet the current needs of their language learners.

Thus, the challenge for second language learners is not only to develop and strengthen their ability to effectively use English but also to acquire the digital literacy skills that will allow entrance into the social, academic, and workforce environments of the 21st century (Kasper, 2000). The global job market in particular seeks applicants who not only possess strong critical thinking skills but who are also digitally literate and technologically savvy.

The Internet can be seen as a key means for the ESL learner to participate in both the target language society and his/her native language culture. In addition, both web and digital reading skills can serve as a means of student empowerment. Solomon, Allen, and Resta (2006) support this view by asserting that "…technology prepares individuals in a democratic society to express their unique talents and fulfill their personal potentials. Much of technology's empowering capacity rests in the natural creative talents of people themselves" (p.444). Consequently, if one of the key responsibilities of an ESL student is to succeed in the world beyond the classroom, then ESL educators are now placed in the position of providing the student with literacy skills ensuring the ability to negotiate and critically engage with the numerous texts, modalities, and technologies that exist beyond the classroom.

As the ESL classroom makes the necessary transition from its traditional print-focused literacy teaching methods toward a digital text environment, its teachers, as well as the profession itself, must connect with the digital age by examining how second language learners perceive different text types and what cognitive processes and strategies they employ to comprehend what they are reading.

As a step toward such awareness, this study investigates the reading behaviors of ESL learners with a focus on how language learners draw upon their own strategies while transitioning from a printed text to a web text environment. The study not only broadens an understanding of the literacy practices of the ESL learner in online reading, it also underscores the need for reading strategy awareness training within the ESL classroom so that second language learners can meet the new literacy demands of the 21st century. In addition, possible factors that support or complicate a language learner's ability to comprehend, search, and evaluate online information are explored.

REVIEW OF LITERATURE

This review presents the themes that relate to this study. First, second language reading theory is reviewed. Next, the environments of printed text and web text are examined. Finally, the strategies the language learner initiates to read web text are discussed.

Second Language Reading

It is important to note that the relationship between L1 and L2 reading cannot be easily or neatly explained by one particular model or theory because the reading process is cloaked within the reader's mind, making it a silent and internalized activity that does not lend itself to the tangible and known. However, there are basic elements that researchers believe influence the second language learner's ability to read in the target language. Karim (2003) observes: "reading in both first and second language context includes the reader, the text, and the interaction between the reader and the text" (p.49). This interplay between the language systems requires the language learner to draw upon knowledge of context, form, and linguistic schema (Singhal, 1998) as well as to engage in multiple cognitive processes to construct meaning from the text (Horiba, 1996). Moreover, Fitzgerald (1995), drawing upon findings from research done in the United States on ESL students, concluded that there is a close link between L1 and L2 reading because the second language learner will enlist L1 reading knowledge to comprehend what he/she reads in the target language. Arguably though, there is a dividing point in which L2 reading fundamentally distinguishes itself in terms of processes that are uniquely tied to the second language learner's reading experience. These processes, which have been the focus of much research, include translation (Kern, 1994) and cultural differences (Parry, 1996). In addition, Koda (1996) considers that the key variable that sets L2 reading apart from L1 reading is the fact that it involves two languages, which makes it a cross-linguistic process. Still, the cross-linguistic process appears tied to L1 knowledge, which the language learner will use along with various reading strategies to facilitate reading in the target language (Karim, 2003). This application of L1 knowledge to L2 acquisition is commonly referred to as "language transfer" (Lado, 1957, p.57). Benson (2002) contends that transfer occurs "consciously, as a deliberate communication strategy, where there is a gap in the learner's knowledge or unconsciously either because the correct form is not known or because, although it has been learned, it has not been completely automatized" (p.69).

The complex phenomenon of transfer is the core of two main positions on the relationship between L1 and L2 readings: the Linguistic Interdependence Hypothesis (LIH) and the Linguistic Threshold Hypothesis (LTH). Both acknowledge the existence of transfers, but they have opposing views as to when transfer occurs during the L2 reading process (Bernhardt, 2005; Grabe, 2009).

Researchers that support the LIH believe language learners transfer their reading competence in their first language over to reading their second language. On the other hand, researchers that back the LTH suggest that the ability to read a second language is dependent upon language learners first developing their second language reading skills in order to trigger their first language reading knowledge.

Text: From the Printed Page to the Monitor Screen

Frechette (2002) notes that digital technology "…will alter our very conception of basic terms such as reading, writing, and text" (p.3). Therefore, it is important to examine the effect that the transition from printed text to web text has on the way a language learner reads and interprets text. Before continuing, it is essential to define what is meant by "text." Siitonen (1996) defines text as "an organized group of codes formed into words which generate meaning" (p.1). A more modern interpretation might include that text is an expression or communication, which is neither fixed nor tangible. The interactive, multimodal text found on a digital page, for example, goes beyond expressing semantic and pragmatic content words to generate music, movies, photos, and graphic images. Thus, with the advent of the digital page comes a need to develop new ways of reading and thinking because, while both teachers and students are acquainted with the intricacies of printed or paper-based reading, they, as a whole, may be quite unfamiliar with web-based reading (Pressley, 2001).

Birkerts (1994, p.128) compares book text and on-screen text to a painting versus a photograph—the painting is of the natural world and on-screen text is an artificial reproduction. Birkerts (1994, p.155) asserts that printed text is real and "verifiable" and that text on a screen "is a manifestation, an indeterminate entity both particle and wave, an ectoplasmic arrival and departure...[that] once dematerialized, digitalized back into storage, into memory, cannot be said to exist in quite the same way [as printed text]." The implication here is that the reader enters a reading landscape where text becomes more temporal and uncertain than it does with printed text.

One of the most apparent, if not overtly obvious, differences between printed text and web text is in the way its presentation is engineered—stapled or bounded sheets of paper versus the physically inflexible frame of a monitor screen. Upon closer scrutiny, a number of very clear distinctions can be seen between printed text, which is a medium drawn from a culture of simplicity in terms of the text's message being followed from page to page, and web text, which is rooted in a more complex culture of illuminated text that requires the reader to possess some degree of digital knowledge to navigate. Further, printed text is mainly a solitary experience, whereas web text, by way of web publishing tools such as the blog, permits a person to open a dialogue with the writer and other readers by leaving comments.

L2 Strategies to accommodate the reading environment

The exploration of L2 web text reading strategies is limited because researchers are only beginning to examine this area of literacy. The available research that found that ESL learners target different reading strategies toward specific reading environments can be divided into three processes, which reflect the three types of key metacognitive processes that are considered essential for successful reading (Anderson, 2002; Sheorey and Mokhtari, 2001; O'Malley and Chamot, 1990). These three processes are the Planning Strategies (Combination of Global and Problem Solving Strategies); Advanced Organization, Monitoring Strategies (Combination of Problem Solving Strategies and Support Strategies); and Self-evaluation Strategies (Support Strategies).

Within the Planning Strategies process, during which learners decide how they will engage with the text they will be reading, previous studies discussed in the review (e.g. Nielsen, 2006; Grabe and Stoller, 2002) confirm that ESL learners assign select roles, such as reading for

purpose and reading for pleasure, to what they read in either a print or online environment. For example, for research purposes, recent studies (e.g. Bodomo, Lam, and Lee, 2003; Coiro, 2003; Kasper, 2000) show that English language learners feel online text serves them better than printed text. In these studies, the learners gave two reasons for this preference—it was quicker and easier to find the information they were seeking online than in a book or library, and they felt that the Web provided them with instant and more plentiful resources than a print environment did. These findings are also consistent with research conducted by Poole and Mokhtari (2008), which revealed that students preferred the expediency and ease that researching online provided. However, for pleasure reading, studies, such as Tseng (2007), show that second language learners prefer to read from print on paper, particularly books. This preference was because of the familiarity that the learners felt with books as well as a reduction in eyestrain that they attributed to the readability of the printed page.

With respect to setting a purpose for reading, findings show that proficient second language readers engage in purposeful reading in both online and print environments (Mesgar, Bakar, and Amir, 2012; Tercanlioglu, 2004).

More significant evidence of different planning strategies for online reading versus print-based reading can be seen in additional studies (e.g. Grabe and Stoller, 2002; Sheorey and Mokhtari, 2001). Findings from these studies suggest that second language learners do not read web text word by word as they were inclined to do with printed text but instead use skimming and scanning techniques for web text. A possible explanation for this tendency may be attributed to habit in that second language learners find skimming and scanning the best reading practice for engaging with text in a web-based environment. Moreover, this habit may be linked to the eye discomfort the learners often report feeling when reading intently online (Mercieca, 2004). Previous studies have shown that readers do not read lengthy onscreen text (Johnson, 2013; Tseng, 2008; Mercieca, 2004). These studies identified eyestrain from staring at a monitor screen as an incentive for students to scan what they are reading online in an attempt to minimize the number of words their eyes have to read.

Another strategy ESL learners engage in when reading online, noted by Krashen (Krashen as cited by Rodriguez and Ramos, 2009) and Sutherland-Smith (2002), is the "surf" technique (Callister and Burbules, 1996). This strategy permits the learner to skim the text to identify key words, phrases, or links without diligently reading line by line. The choice of the "surf" technique to read web text may be attributed to the learners' desire to search through a large volume of information in a short period of time to avoid being overwhelmed by it.

Beyond the Planning Strategies, past studies (e.g. Tseng, 2008, Coiro and Dobler, 2007; Dalton and Strangman, 2006; Sheorey and Mokhtari, 2001) have revealed that second language learners use metacognitive Monitoring Strategies when reading online and the printed page. These strategies center upon various comprehension monitoring techniques that learners use to evaluate their understanding of the text they are reading and in the way they implement these strategies to comprehend parts of the text they do not understand. Findings from studies (e.g. Liu, 2005; Mercieca, 2004; Lynch, 2001) indicate differences between the comprehension monitoring strategies that language learners use when reading print on paper and text online—specifically in the way in which learners pay significantly closer attention to the content presented in printed text opposed to web text. The implication here is that reading printed text, such as a book, is linear and therefore static and as a result one often pauses to think about what he/she has read (Liu, 2005). In addition, previous studies (e.g. Greenfield, 2009; Miall and Dobson, 2001) suggest that human concentration cannot remain centered when engaged in online

reading because hypertext contributes to a distraction factor while printed text provides focus for cognitive processes and reflective thinking.

The final metacognitive process of self-assessment studies (e.g. Al-Amrani, 2007; Coiro, 2003; Hauptman, 2000) indicates that language learners self-assess their ability to navigate through print and web text formats. For example, the language learner's degree of satisfaction on succeeding in his/her online reading goals is based upon how well he/she adapts to nonlinear, nonhierarchical, and nonsequential construction of web-based text (Al-Amrani, 2007); however in printed text, the learner appears to measure his/her reading success by how well he/she can navigate through the more linear, hierarchical, and sequential composition of printed text (Hauptman, 2000).

From the evidence reviewed it can be concluded that second language learners do use different strategies faced with the demands and affordances of the web-based reading environment. Moreover, Internet usage by both ESL and mainstream students has shown a steady increase over the past decade (Liu, 2005) and as a result studies are showing that students are not only transferring their print reading strategies over to online reading practices, but are also developing new strategies to comprehend web text (Armstrong and Warlick, 2004; Anderson, 2003b; Parrot, 2003).

METHODOLOGY

Participants

The site under study was at a private language school within an urban area of the State of Virginia located in the United States. At the time of the study, the school had 230 full-time morning students and 145 full-time evening students, all of whom attended classes five days a week. This particular school was selected because it provided a sufficient population of ESL students for a sampling.

The school's student population was ethnically, culturally, and linguistically diverse. The students were all adult learners of English as a second language between the ages of 18 and 59. All were enrolled in English language classes at a beginner, intermediate, or upper-intermediate level. The majority of students were either from Middle Eastern countries or from countries in Central or South America. There were a minority of students from Russia, the Ukraine, Spain, Ethiopia, Japan, China, and Korea. The instructors and staff at the school came from various cultural backgrounds.

The participants were selected by means of a convenience sampling process (Bryman, 2008), providing a better alternative to a random sampling which lends itself to large-scale research initiatives (Auerbach and Silverstein, 2003).

The participants in the study, including eight ESL learners, agreed to participate over a period of two months. There were seven females and one male. The participants' ages ranged from 18 to 38. All eight participants had Internet access on and off campus so each could seek out online reading resources and material. Pseudonyms identify each participant in the study.

Instrument

The study was designed to answer the research questions through three sources of data: observation, interviews, and student journal entries. Observation was conducted during a series of reading workshops created for the study participants, which helped the researcher to explore the reading processes of ESL students in both paper text and digital text. The workshops were held in a seminar classroom, which contained eight seats around a large circular table. Information was shared with the students via handouts, PowerPoint presentations, and notes written on a whiteboard located in the front of the classroom. The workshops were held after the students' morning classes. The researcher was the workshop facilitator, allowing him to observe the students during the workshops.

Procedure

The analysis of the data for this study followed the principles presented in the work of Tesch (1990), establishing ten core principles and practices in qualitative analysis. A strategies framework was used in the coding process to assist with identifying patterns in the data and to help establish categories by which the remaining data could be coded.

The patterns found within the data generated the themes for this study. Auerbach and Silverstein (2003, p.38) define a "theme" as "an implicit topic that organizes a group of repeating ideas." The framework of coding for this study was theoretically grounded in an inductive approach, permitting the identified themes to be strongly linked to the data themselves (Patton, 1990). While the method of analyzing the data was one of constant comparison and contrast, the researcher also looked for irregularities, which constitutes an important aspect of educational research (Delamont, 1992).

The qualitative data were coded according to themes, based upon the strategy usage. As a result, the patterns in the participants' reading behaviors became the focus of the analysis. The codes used for the interview data were subsequently used for the observation notes and journals.

During the initial coding process, descriptive coding (Saldana, 2009) was used in which a word or short phrase summarized the text and transcript. For the second and third coding processes, a pattern coding (Saldana, 2009) method helped to highlight emerging themes and to reduce the descriptive codes into manageable themes and constructs. These themes were simplified into metacognitive strategies based on Sheorey and Mokhtari's (2001) three categories: 1) global strategies (the learners' monitoring activities); 2) problem-solving strategies (actions of the learners when they are engaged directly with the text); and 3) support strategies (tools the learners use to aid comprehension, such as note-taking, highlighting key words or text segments, or using a dictionary). In addition to the codes identifying reading strategies, one category outside the realm of metacognitive application was added—Digital Literacy Education. This category became a central theme because it analyzed the participants' perceptions of digital literacy and whether it should be taught in conjunction with their English language learning.

Sub-themes (or themes in a theme), such as "attitude," "use," and "difficulty" were also introduced as part of the coding refinement process. The sub-themes helped provide structure to the three main themes and also proved useful in establishing a system of ordered groupings within the data.

RESULTS

Three sections delineate the results of this study. The first section centers on what the data reveals on the participants' reading preferences when engaged in reading either printed or web-based texts. The second section focuses on reading issues that emerged from the data. The final section reveals where the participants' digital literacy skills did not match their perceived competency.

The self-report activities indicated that the participants were active strategy users, using different strategies when reading on the web compared to reading a printed page. This conclusion is also supported in the findings showing that the participants assigned different reading roles to printed text and web text; different levels of engagement when reading print on paper and text on screen; varied strategy use to allow greater comprehension of web text; and the implementation of self-evaluation strategies to measure their success within specific textual environments. Moreover, the study's findings indicate that the participants drew upon more strategies to engage with web text than printed text. Thus, it seems that the learner must utilize additional strategies necessitated by the challenges posed in reading online text that are not essential for reading printed text.

Overall, the majority of the participants preferred to read ink print when they felt a need for in-depth or careful reading. The participants' preference toward either printed text or web text was affected by their reading purpose. For pleasure reading, all of the participants except one preferred to read the text in print. However, when engaging in research, the participants turned toward searching online as opposed to searching in a library or a book. There seemed to be two reasons for this—ease of access and time-saving considerations.

Effects created by text displayed onscreen affected the participants' attitudes toward reading online both positively and negatively. For example, text color and images attracted the participants and enticed them to read information posted on a web page. Headings in bold or colored font appeared to facilitate readability and to engage the reader. However, the "busyness" of web text displays, in terms of pop-up ads and flashing text, disturbed and annoyed the participants.

In addition, when reading either printed text or web text, all of the participants engaged in skimming and scanning techniques, often glancing over the main content of the text and then pinpointing select areas of the text that were of interest to them. When reading printed text, it was observed that the participants scanned the text first, noting its characteristics such as length and organization. This reading behavior might be attributed to the fact that printed text is less inclined to overwhelm a learner with information. The information within printed text was considered to be more trustworthy by nearly all the participants because of the fact-checking guidelines that paper-based publishers follow. Whether the participants read printed text more for ideas than details seemed to depend on their language level—the upper intermediate level participants tended to focus on the ideas when reading printed text, and the intermediate level participants showed a preference reading for details, taking a line by line reading approach because they were afraid that they might miss an important detail. This tendency did not hold true for the participants when they read web text. The determination by the participants as to who read for ideas or details in web text did not seem influenced by their language level but by their reading style.

Finally, it was also observed that multitasking was a common on-screen behavior that all participants engaged in. However, the participants' ability to effectively dual task or task switch should not be seen as a sign that they are digitally literate.

Perceived advantages and challenges of reading in a digital landscape

The one-click-away availability of an online dictionary, especially one that could provide multiple language translations and complete sentences, was an online learning tool that the participants found helpful and beneficial. Interestingly, the findings suggested that while the participants knew how to look up words in a printed dictionary, they were less inclined to do so when engaged in printed text. One possible reason for this tendency may be that it is faster and easier for the language learner to engage in online split second definitions than thumbing through page upon page of listed words and their meanings in a paper-bound dictionary. The participants considered the speed and ease of locating information online as one of the greatest benefits of online reading. However, this online boon was countered by the problems the participants had in determining what words to key into a search engine to find the information they were seeking.

Effectively using a search engine was one of the biggest challenges for the participants for two reasons—the first being the participants' lack of knowledge in how to successfully engage the search engine to scour the Net for information, and the second being the language barrier presented by the design of search engines for English speakers. The findings of this study showed that the participants engaged in what Callister and Burbules (1996) refer to as "channel surfing" in which learners search the Web randomly. Although the participants primarily used the Google search engine, the data showed that many of the participants drew upon a hit-or-miss strategy, selecting from the results with no overall sense of coherence.

The inability to effectively locate information online had some participants seeking solace in a print-based environment, allowing them to fall back on the traditional literacy skills they grew up with and knew well. On the other hand, the majority of the participants, despite their familiarity with finding information in a book, still preferred the Internet as a means of searching for information. They attributed this preference to a matter of time, which one participant summed up best in her journal reflection: "The Internet gives you quick access and information about certain things. It is like a city—if you know what you want and what you will find out it's a blessing to have it and you go straight into it."

The participants not only struggled with locating information online but also with the ability to read and navigate through web-based text. When reading text on a screen, they found it difficult to keep track of where they were when scrolling down. They also reported that they lost reading continuity due to the length of sentences when scrolling across. The multimedia features, such as music and video, as well as hyperlinks, were additional elements that contributed to feelings of distraction and being overwhelmed. Finally, the participants reported that they often found the sheer amount of information confronting them online intimidating. A plausible explanation for the problems the participants encountered when reading web text as well as the information anxiety they felt is no doubt directly related to an incomplete set of literacy skills that prevents them from taking control in how web text is presented to them and from managing the information they confront.

A closer examination of the results revealed that the participants identified hypertext as a key contributor toward overloading them with information and causing them confusion. More specifically, the unpredictability of hyperlinks was considered by the participants to be the most

cumbersome aspect of reading web-based text. This finding is in accord with research indicating that hypertext creates problems for the language learner because they are used to reading on paper and do not know how to read hypertext effectively (Tseng, 2008). For example, when confronted with a screen full of text peppered with hyperlinks to additional pages of information, the participants could determine if the link would be useful to them only by clicking the link. At the workshops and in their interviews, the participants stated that the more links they clicked, the greater was the potential to get entrapped in a web of information. A participant demonstrated this predicament on her laptop during one of the workshops. With each click of a hyperlink, the participant was provided with a web page of additional data. In a short time, she had created a long history of web pages, making it more difficult for her to return to her original point of interest. This finding seems aligned with research cautioning that although a hypermedia environment may provide learners with greater freedom in exploring different domains of knowledge, it may also create problems for them because they may not be able to construct knowledge from a large volume of information presented in a nonlinear and unstructured fashion (Eshet-Alkalai, 2004).

In addition, the participants reported that when reading hypertext, they were often taken further and further away from their reading goal. This problem would seem a logical outcome, considering the fact that ESL learners may not have the ability to handle the cognitive load of guessing words and complex grammar structures that a native speaker has and as a result may quickly click away through the hypertext links in the hope of making sense of what they are reading (McDonell, 2003).

Lastly, two hindrances that caused the participants to favor reading hard copy text over screen-based text included the negative viewing effects of web-based text and the inconvenience of the portability of display technology for online reading. The interview data showed that the participants had a tendency to print out lengthy articles that required extensive reading. This reading practice appeared to be directly linked to the eyestrain that the participants felt when reading web text. These findings are in accord with previous research, indicating a reader's preference to read information in detail from print rather than from web text (Abdullah and Gibb, 2006; Liu, 2005; Mercieca, 2004; Altun, 2000).

Misconceptions of digital proficiency

From what was observed at the workshops and from what the participants indicated in their interviews and journal entries, it appeared that the participants' digital literacy skills in terms of surfing the Web did equate to digital literacy in general. This was evidenced in one participant's account of how she assessed the accuracy of information posted on the web—"When I need to find something fast I use the Web and believe that the old information that appear there is correct except for the chats or blogs participants"—and in another participant's struggle to bookmark a website—"I have tried to bookmark, but I don't know how. Sometimes it doesn't work, so maybe I don't know how to do it." While the study showed that the participants had a basic knowledge of Web 2.0 tools and were quite familiar with social networking tools, the data also revealed that all of the participants lacked knowledge on how to access and evaluate online information. The participants' inability to effectively navigate the Web and assess the trustworthiness of what they read online was one of the biggest gaps in their digital literacy. For example, when the participants initiated an online search they would immediately go to Google, type what they felt were keywords, and then review the hits that came up. None of the

participants attempted to initiate a search plan that would draw upon a variety of search engines other than Google. While this set practice of searching for information online can be attributed to drawing upon what is needed to get by, it can also be interpreted that the learner does not possess the skills to effectively search the Internet. Gilster (1997) notes that the final core competency of digital literacy is the development of search skills, which many students who are seen as digitally literate simply do not possess (Li and Ranieri, 2010).

The interview data and workshop observations revealed a further indication of the participants' naiveté about Google—none of the participants knew that Google collected information on them through their searches or how Google ranked its search listings. Additionally, all the participants were oblivious of the fact that Google search results can be successfully manipulated or that advertisers can pay for the privilege of being in the first ten hits of a search listing. Another central issue with the Googlization of everything is that it can cause a student to depend on Google too much (Vaidhyanathan, 2011). The danger here is that the language learner lets "Google" do the thinking for him/her.

The participants' very limited critical thinking skills may have contributed to the participants' blind trust in Google. This lack of criticality was highlighted in an interview statement made by a participant in which she remarked, "Online, [it] seems everything is already done. Everything is processed. Everything is already in line. So, you don't have to analyze it. Somebody have done it for you already." This revelation reflects similar findings made by other researchers, such as Kamil and Chou (2005), Jonassen (2000), Stimson (1998), Sutherland-Smith (2002), and Burke (2002), who also found that the ability to access information online did not equate to assessing it, and the ability to surf the Internet did not equate to strategically navigating it. Aside from three participants, whose journal entries indicated that they attempted to evaluate information by confirming its validity from two or more additional sources, the findings revealed that the rest of the participants demonstrated a superficial understanding toward searching the Web and seemed ill-equipped to evaluate the credibility of the information they encountered online. While this low use of online text evaluation by the participants was disturbing, it was not surprising. None of the participants indicated that they had ever been given the opportunity to develop their critical skills, therefore few of the participants showed any indication of questioning what they read online.

The participants' superficial online research skills may also be attributed to their own belief that their literacy skills were better than they actually were. Similar to what the EDUCAUSE (2006) researchers discovered in their study centered on students and information technology, several of these digitally savvy participants overestimated their actual skills, allowing their own overconfidence to make them blind to their shortcomings when engaging with online content. During one of the study workshops, a participant became defensive when the researcher asked the group if they felt they had the skills to effectively search and evaluate information on the Internet. She reproached, "Yes. We adults not children." Participants who displayed the most digital "hubris" also felt that it was not the role of the language teacher to teach digital literacy skills. This overconfidence in their abilities complies with past research in that "learners whose skills or knowledge bases are weak in a particular area tend to overestimate their ability in that area" (Kruger and Dunning, 1999, cited in Anderson, 2002). What this implies is that the students "don't know enough to recognize that they lack sufficient knowledge for accurate self-assessment" (Anderson, 2002, p.5).

Such a lack of criticality suggests 1) a student's Internet use does not equate to effective strategy use; and 2) students, especially those whom Prensky (2001) labels as digital natives

(Millennial generation) are not necessarily as digitally competent as they lead themselves and others to believe. Both of the above findings clearly distinguish a gap in the language learner's ability to search and evaluate information online and help to confirm that there is indeed a place for learning digital literacy in the ESL classroom.

The data analysis exposed other gaps in the participants' digital literacy, including:

1) A lack of knowledge of how to bookmark a web page;
2) A lack of planning strategies for making a web page easier to skim and scan by hiding unessential border areas or adjusting width or font sizes;
3) A difficulty in determining the legitimacy, accuracy, and reliability of information presented on a web page, although the participants' language level may have limited their ability to make such determinations;
4) A lack of knowledge in assessing the accuracy of information, for example, checking to see when a website or web page was last updated; and
5) A difficulty in differentiating between facts and opinions.

CONCLUSION

The study's findings bear important pedagogical implications. First, there is a gap that needs to be filled between the teaching of traditional literacy reading practices and digital literacy reading skills in the ESL classroom. Undoubtedly, this is one of the greatest challenges that ESL profession programs now face because teaching reading strategies and meta-reading in both printed text and web text environments are an essential component of literacy instruction in the modern ESL classroom.

Second, the results show the participants' inability to use a wide range of web resources beyond Google and Wikipedia, their confusion in how to read and evaluate web text, their limited knowledge of effective online reading strategies, and their frustration in navigating through hyperlinks. These findings can provide useful information to improve pedagogical teaching practices. By understanding the shortcomings of the language learner's awareness and usage of strategies when reading online, teacher training modules can be developed to help guide ESL educators in how to best teach, model, and practice reading strategies that improve the learner's ability to search, access, and evaluate information online, as well as to adjust to the different types of text they are reading. The models for strategy instruction, discussed in literature review, can provide such a framework.

Third, from the other side, the study shows that the participants do apply appropriate strategies for reading paper-based and electronically generated text, such as reading for details and skimming and scanning. However, these skills are only enough for the learner to get by when reading online and thus need to be built upon and expanded. The implication here is pedagogical—ESL educators will need to continue to go beyond the strategies the learners already know and dig deeper to devise lessons that motivate and encourage students to develop, strengthen, and apply new critical reading strategies.

Finally, unlike the acquisition of traditional literacy skills, which made few demands on readers to upgrade their ability to read printed text, digital literacy is a process of lifelong learning (Pacific Policy Research Center, 2010). Technology continues along a fast track of changes, and what suffices as digital skills today will be considered insufficient and outdated

tomorrow. Educators in all fields can no longer depend upon what they currently know to carry them through the life of their career.

Reflecting upon what was observed in the study, several suggestions for future research are provided. The first suggestion concerns digital literacy instruction. While empirical research has shown that students benefit from explicit teaching of reading strategies (e.g. Dheib-Henia, 2003; Jenks, 2002), this study did not explore the effectiveness of the explicit digital literacy instruction in the ESL classroom. Future studies should be initiated to determine if digital literacy instruction is best taught as an integrated component of the language curriculum or separately through workshops or as a specialized course.

The second suggestion is related to ESL educators. As the findings suggest, it is important for ESL instructors to recognize the need to teach reading strategies for both printed text and web text environments because a learner's reading purpose influences the strategies used in a particular reading environment. ESL instructors who are experienced in teaching reading strategies in printed-based environments may lack the knowledge in teaching the application of strategies for online reading. Thus, more research is needed to help establish the key skills that an ESL educator needs to master in order to be competent enough to teach students how to meet the challenges of online reading and to what degree this digital reading knowledge should be taught to the language learner. In addition, future qualitative studies might focus on the relationship between students' perceptions and teachers' perceptions on reading.

The third suggestion relates to culture. Neither cultural nor gender variables were considered in this study. Both variables could affect the ESL learner's choice of reading strategy and perception of digital literacy and technology. It is important that future research examines the effect that culture and gender have on the language learner's printed text and web text reading behaviors in order to facilitate knowledge of how best to teach digital literacy to second language learners.

The final suggestion focuses on the use of hyperlinks. While this study did observe the way in which the language learner engaged in hyperlinks, it is not the central focus of the research. Thus, more research must be conducted to investigate how ESL learners interact with hyperlinks, especially in the context of their leisure reading as opposed to class assigned reading. Currently, there have been only a few studies regarding English as a second language in the sphere of web text reading strategies (e.g. Anderson, 2003a; Coiro and Dobler, 2007; Huang, Chern, and Lin, 2009). Therefore, additional research is needed to better understand if and how students are crossing the digital bridge by incorporating reading strategies to understand and cope with the nonlinear, non-sequential, interactive text that is part and parcel of on-screen reading. These future studies should use a combination of qualitative and quantitative research approaches to allow for closer examination of how student self-reports vary from his/her actual strategy usage.

The research from this study has contributed to knowledge in the field of ESL education by providing new insight into how the second language learner's e-reading comprehension processing and strategy use differs from traditional reading methods. Moreover, the findings of this study extend previous online reading studies by examining the way language learners pursue learning tasks outside the realm of the classroom. It is hoped that the knowledge gained from this study will provide a stepping stone toward a new line of research that focuses on the ESL learner's onscreen reading behaviors.

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