

The Impacts and Educational Implications of Online Reading for English Language Learners

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Abstract

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The purpose of this thesis is to analyze the current issues of online reading and English as a Second Language (ESL) literacy education. The major research format is a critical literature review. The information will be mainly collected from previous research reports and empirical studies. First of all, the rationale of the study will be introduced. The background information of new literacies theory and English Language Learners (ELL) will be presented. Next, the theoretical basis of new literacies will be analyzed. The emphasis will be the definition and features of online reading. In addition, there will be analysis about ELL students' learning characteristics. This section will consist of statistical reports and empirical studies of ELLs. Based on the learning characteristics, the challenges for ESL teachers in integrating online reading elements in classroom teaching will be discussed. Furthermore, the educational implications will be critically evaluated and presented. The limitations and future research recommendations will also be illustrated.

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The Impacts and Educational Implications of Online Reading for English Language Learners

Introduction

With the fast development pace of innovation and technology in the 21st Century, literacy is entering a transformational era. The definition of literacy is expanded from a traditional view to a broadened perspective (Coiro, 2003). The information and communication technologies (ICTs) expand literacy activities (International Reading Association, 2009). The concept of literacy is defined beyond general paper-based text and integrated with more diverse and interactive elements (International ICT Literacy Panel, 2002). As a core section in ICTs, the Internet technology brings new features and trends to literacy education (Coiro, 2003).

With new experiences of literacy activities, there are both opportunities and challenges for ELL students. Since the communication via the Internet becomes easier, students have enriched sources of information and efficient communication. In this thesis, I would like to study how the Internet-based literacy education can affect the connection between first language (L1) and second language (L2) and facilitate ELL students' English language reading comprehension.

The focus issue of this thesis is online reading. Online reading brings both advantages and difficulties to ELL students and instructors. On one hand, there will be new elements positively facilitating students' reading activities. The text and design present a different experience compared to traditional reading on plain prints. On the other hand, there are difficulties for ELL students to adapt to reading in second language online.

Based on previous research studies, I would like to address the following theme

questions in this thesis:

1. What are the definition and new features of online reading?
2. What are ELL students' reading strategies and skills? How do ELL students apply the reading strategies and skills in reading activities?
3. What are the challenges faced by ESL teachers in literacy education?
4. What can be the educational implications of online reading for ESL researchers and practitioners?

Review of Related Literature and Projects

Rationale for the study

The development of the Internet is one of the core technological highlights in the 21st Century (Leu, O'Byrne, Zawilinski, McVerry, & Everett-Cacopardo, 2009). According to the research analysis, there are three main trends of sociocultural forces in the society which affect the research studies of new literacies (Leu, Kinzer, Coiro, & Cammack, 2004). First of all, the rapidly growing global economic forces facilitate the effective implementation of the ICTs. Next, in various social aspects, study and work will need more efficient technological tools such as the Internet in connection with each other. Based on the economic needs, the development of technology is important for ICT progress. In addition, public policies advocate the support of new literacies. A lot of national governments have enacted policies towards the promotion of new literacies education and teacher training (Leu et al., 2004). Overall, the economic, technological, and political forces affect shaping the new literacies development. In this section, the background information of the new literacies theory and ELL students' learning characteristics will be introduced.

Background of the New Literacies Theory

The New Literacies theory is a dual-level theory (Leu et al., 2009). On the macro perspective, the uppercase level (New Literacies) defines a more general and broader concept of the literacy issues based on ICTs (International Reading Association, 2009; Leu et al., 2009). The literacy activities are conducted with digital technology and communications tools (International ICT Literacy Panel, 2002). The literacy activities deal with information access, management, integration, evaluation, and creation (International ICT Literacy Panel, 2002). On a more specific perspective, the lowercase level (new literacies), refers to a particular aspect or a disciplinary focus (Leu et al., 2009).

The Internet-based literacy is one important section in the new literacies theory. There are a variety of expanded and new features from the Internet, including but not limited to diverse resources, new reading formats, and enriched literacy choices (Coiro, 2003). Facing new trends, the literacy experiences on the Internet are becoming an essential topic for educational researchers and practitioners.

The concept of the Internet-based new literacies is constructed on reading and writing activities on the Internet and integrated with the features of the Internet (Leu et al., 2009). The literacy activities happening on the Internet are not only related to technological progress, but also related to literacy strategies and skills. Defining the Internet as a literacy issue will facilitate the integration with content-area instruction in school education (Leu et al., 2009). The Internet-based literacy strategies and skills need to be acquired together with subject knowledge (Leu et al., 2009).

As the Internet continually develops, the theory is updated and fulfilled in a gradual

pace as more research topics are included in new literacies studies (Leu, 2000). Therefore, there will be broader and deeper research aspects integrated in the new literacies theory. The Internet-based new literacies theory indicates that literacy activities do not simply represent an end point or a certain period of reading and writing skills. Instead, literacy will be a dynamic and continuing process with integrated new changes (Leu, 2000). Additionally, the changes of the Internet-based literacy will not only be a technological issue, but also an important educational issue for learners and teachers (Leu, 2000). Literacy education needs to be linked to the rapid changes of technology.

Information about English Language Learners

As a rapidly growing group, the English language learners (ELLs) have become an important section among the school-age population in the United States (Klingner, Boardman, Eppolito, & Schonewise, 2012). The concept of ELLs refers to the students whose first language is not English or who are in the process of learning English (Klingner et al., 2012).

According to the National Center for Education Statistics (2013), the percentage of ELLs increased in 2010-11 compared to the data in 2002-03 (See Appendix A). The data from 2010-11 showed that there were approximately 4.7 million ELLs studying in public schools, accounting for 10% of total public school students (National Center for Education Statistics, 2013). In 2002-03, there were 4.1 million ELLs, accounting for 9% of the total public school students (National Center for Education Statistics, 2013). Specifically, eight states reported that there were 10% or more of ELLs studying in public schools – Oregon, Hawaii, Alaska, Colorado, Texas, New Mexico, Nevada, and California (National Center for Education Statistics, 2013).

Based on the statistics, there is an increasing ELL base in public schools in the United States. Overall, it is important for public school educators to work on ESL literacy programs in order to improve ELL students' English language proficiency.

From the 2002-11 data (See Appendix B & Appendix C), the reading scores of the National Assessment of Educational Progress (NAEP) presented that 4th and 8th grade ELL reading performances were lower than the non-ELL performances (National Center for Education Statistics, 2013). There were achievement gaps (referring to the reading score differences between the ELLs and non-ELLs) between both 4th grade and 8th grade non-ELLs and ELLs (National Center for Education Statistics, 2013). From the graphs (See Appendix B & Appendix C), the achievement gap of 4th grade was 36 points, while the achievement of 8th grade was 44 points in 2011 (National Center for Education Statistics, 2013). There were no obvious decreasing trends of the achievement gaps during 2002-11, which indicated that the achievement gaps continued existing during this time period (National Center for Education Statistics, 2013).

The above information shows that the achievement gaps of reading performances between ELLs and non-ELLs become a major issue for reading education. The main objective of ESL reading education is to close the achievement gaps of English language reading performances between ELLs and non-ELLs. In this way, the ELL students are able to improve their English language proficiency.

At college level, the U.S. News data showed that in 2010 there were more than 600 universities and colleges in the United States providing ESL programs to ELLs (Hopkins, 2011). According to Hopkins (2011), there were 14 colleges or universities where more than

5% of the students graduated in 2010 had taken the ESL programs during undergraduate study (See Appendix D). The college level ESL programs aimed at improving ELLs' English language proficiency. The ESL programs provided ELLs practical opportunities to apply English in both academic and communicational settings. Reading comprehension is one of the main sections in college ESL programs (Hopkins, 2011). At the college level, the content of literacy becomes broader, more academic and professional (Hopkins, 2011). Through the ESL programs, the students could not only enhance academic English abilities, but also better adapt to the campus life and practical daily communications in the United States (Hopkins, 2011). Therefore, it is indicated that ESL literacy education is an essential section for ELL students at college level.

The Importance of Researching on New Literacies Issues for ELLs

There are previous empirical studies that discussed how ELL students behave in the online reading process and applying online reading in literacy education. The research studies analyzed ELL students' cognitive development, reading strategies and skills in online reading (Al-Shehri & Gitsaki, 2010; Goldman, Braasch, Wiley, Graesser, & Brodowinska, 2012). In addition, some studies discussed the methods to efficiently help second language learners improve vocabulary and reading proficiencies (Loucky, 2007; Ridder, 2002). Other research studies focused on the education policy perspective promoting the Internet-based literacy as a section in literacy education (Drew, 2012; Leu et al., 2009).

Based on previous studies, I would like to connect the Internet-based literacies with ELL students. As there are more Internet-related learning tasks existing in schools and daily life, there will be more Internet technological elements integrated in ESL literacy education

in the future. In this way, it becomes very important to apply the Internet-related technology in literacy education in classroom teaching. The concept of Internet-based literacies may be a potential channel for ELL students to improve their English language reading abilities (Kasper, 2000). During the Internet-based literacy process, students may be able to develop their learning potential and construct their online learning knowledge web (Coiro & Dobler, 2007). The interactive Internet features and enriched online information can positively affect ELL students' reading comprehension (Park & Kim, 2011). Students can have more opportunities to apply English literacy knowledge in the online learning setting. Therefore, investigating ELL students' online reading issues will be beneficial to ESL literacy education in the long term.

Definition of Online Reading

Online reading refers to the reading activities happening in the unbounded context environment on the Internet (Coiro, 2003; Coiro, 2012; Massey, 2014). The unbounded context means the context without boundaries or with boundaries which have no clear definitions (Massey, 2014). According to Coiro (2012), an open context environment can engage readers in communicating and creating connections with the online information. Thus, online reading is conducted in an unbounded context environment (Coiro, 2012; Massey, 2014).

Different from general paper-based reading formats, online reading is based on an interactive and multimedia network. Readers not only face plain text online. Instead, there are a variety of elements integrated in the online reading activities. When reading online, readers are expected to implement different reading strategies and skills (Leu et al., 2009). Online

reading is considered as an active self-directed process by readers (Coiro & Dobler, 2007).

New Features of Online Reading

Based on research studies on new literacies of online reading, there are expanded features compared to traditional reading on print text. The core expanded aspects are considered as the text, the activity, the reader, and the sociocultural context (Coiro, 2003).

Online Reading Text

The main features of text in online reading include nonlinear, hyperlinks and hypertext, multimedia, interaction, and communication (Coiro, 2003; Coiro, 2012). With these characteristics, the online reading content and format become more dynamic and different from general paper-based reading.

1. Nonlinear

Reading on the Internet is defined beyond plain prints and contains multiple elements. Readers will face various sources and choices when they read the text online. The reading path is no longer a single channel, but a self-designed nonlinear route (Al-Shehri & Gitsaki, 2010). In this personalized reading route, every reader or learner may have a unique reading experience (Coiro & Dobler, 2007). In the unbounded text environment, readers can direct their own reading paths and modes so that they are able to design and construct different versions of the reading text (Coiro & Dobler, 2007; Massey, 2014).

2. Hyperlinks and Hypertext

These elements are the important components of online reading text. The hyperlinks and hypertext can direct readers to multiple reading paths (Al-Shehri & Gitsaki, 2010).

Different from general paper-based reading, hyperlinks and hypertext connect different

reading sections and make the reading passages more dynamic (Schmar-Dobler, 2003). When clicking on different links, readers can choose different options actively based on their needs (Coiro, 2003). Moreover, the webpages with hyperlinks and hypertext also provide readers more reading resources (Massey, 2014). Readers will be able to broaden their reading content on the Internet (Coiro, 2003).

3. Multimedia

As discussed, the online reading text is more than plain printed text on paper or screen (Coiro, 2003; Coiro, 2012; Massey, 2014). There are different visual and audio multimedia elements embedded in the text (Coiro, 2003). The colors, texture, and the movement of the text can make the reading experience vivid (Park & Kim, 2011). Multimedia elements are often linked with hyperlinks, which makes the reading process more diverse (Park & Kim, 2011). Readers can experience the reading content from different perspectives, such as listening to the music, watching videos, and clicking on slides (Hamston, 2006). The dynamic multimedia elements can help facilitate reading comprehension (Hamston, 2006; Park & Kim, 2011). The media sections usually serve as supporting or complimentary materials for the reading paragraphs (Coiro, 2003). Thus, the reading content will be enriched and easier for readers to understand.

4. Interaction

When readers are reading the text, they can click on each icon or webpage link to view more information (Coiro, 2003). The media information and flash windows can offer readers interactions with the reading content. The interactive elements make the reading process more proactive compared to traditional paper-based reading mode (Wilson & Stacey,

2004). Readers not only gather information from the reading text, but also need to create new ideas and respond to the text (Massey, 2014). Because readers can take the initiative in the online reading process, the connections between reading content and interactions become more organic (Coiro, 2003).

5. Communication

The definition of communication is extended on the Internet. First, the communication on the Internet is multi-directional (Wilson & Stacey, 2004). There are no certain top-down modes or geographical restrictions (Garrison & Anderson, 1998). The Internet users can communicate with each other based on their own preferences and needs. It is also available for users to communicate with more than one person at the same time. During online reading, readers are able to share their opinions with different peers.

Additionally, there are diverse communication formats of online reading. When reading on the Internet, there are communicative functions associated with the reading process such as chatting, comments, and sharing (Park & Kim, 2011). Readers can share their ideas, perspectives, files, and multimedia elements and apply the new features of the Internet to communicate online (Park & Kim, 2011). These functions can help readers better comprehend the text.

Online Reading Activity

With new features of text, the online reading activity requires new reading skills and strategies (Leu et al., 2007). Problem-solving purposes, using search functions to locate information online, and critical evaluation are important aspects which are special for online reading (Leu et al., 2007). Besides, the knowledge of using the Internet is a key step to

successful online reading. The operational skills of the Internet are considered as preconditions for the online reading activities (Massey, 2014). Studies have shown that prior knowledge of the Internet is more important than prior knowledge of subject-areas for students in online reading (Coiro, 2011). Because the learning process on the Internet requires practical operation skills and technological sense, the students who know how to operate the Internet functions are able to obtain useful information online. In this way, they can learn more effectively online even if they do not have rich subject-area knowledge.

On the other hand, basic reading skills and strategies in reading print text, such as comparing, concluding, and analyzing, play a fundamental role in online reading comprehension (Al-Shehri & Gitsaki, 2010). These reading skills and strategies are beneficial for reading comprehension in the long term. It is crucial for students to learn how to transform the relevant knowledge from print text reading to online reading activities (Goldman et al., 2012). Based on the interactive features of online reading, the basic skills and strategies will be integrated with new reading experiences.

Therefore, in online reading activities, it is important to acquire Internet technological knowledge, general reading skills, and reading strategies. The combination of technological and literacy knowledge can help readers complete the reading activities more effectively and efficiently.

Reader's Disposition, Motivation, and Self-Efficacy

Online reading activities can help enhance readers' learning motivation (Coiro, 2003; Solomon, 2002). The online reading process can help readers find out their reading interests and provide them with more reading options and resources (Kasper, 2000). The readers are

able to play a proactive role during the online reading process (Coiro, 2003). In this way, the technology-related literacy process has positive impacts on readers' self-esteem (Solomon, 2002). Through online reading study, the readers become more confident in facing difficult learning challenges (Coiro, 2003). Readers with a more positive disposition will be able to manage different reading tasks (Coiro, 2012). The increased self-efficacy can also help students improve their Internet reading strategies and skills (Coiro, 2012).

Therefore, the relationship between the reader and online reading is mutually beneficial. Online reading can have positive impacts on readers' attitudes and motivation, while motivated readers will further progress in online reading (Coiro, 2012; Kasper, 2000).

Sociocultural Context

Social, cultural, and historical contexts play important roles in shaping the changing nature of literacy (Leu et al., 2004). In this way, the sociocultural contexts are highly reflected in literacy activities. For literacy education, it is essential for teachers to integrate literacy instruction with sociocultural factors since they strongly influence on literacy instruction.

Particularly, online reading has an enriched sociocultural context base (Coiro, 2003). With the abundant information available online, it is more convenient for readers to shape their learning process from a more globalized and diverse perspective (Park & Kim, 2011). During the learning process, learners' identities are also gradually affected by the social and cultural forces. In this interactive online reading process, readers construct their identity in reading activities (Lightbown & Spada, 2006). The external interactions and communications are digested and reflected in readers' internal cognitive activities (Lightbown & Spada, 2006).

Especially for ELL students, by integrating funds of knowledge and second language knowledge, there are new elements added to the students' identity in the sociocultural perspective (Valdes, Capitelli, & Alvarez, 2011). They accumulate knowledge on the social and cultural context connotations.

The Internet brings the reading process to a more socialized environment. The interactions between the reader and the text, the feedback provided from the Internet, and the multiple reading directions enhance the reading experiences (Coiro, 2003). The communication between readers' sociocultural backgrounds and the global world will be more frequent and effective. Thus, readers' knowledge and motivation can be highly enriched and facilitated.

In summary, the definition of online reading extends literacy activities. There will be closer connections between the text, the reading activity, the reader and the sociocultural context. For ESL education, the Internet can be a useful tool in improving students' language and literacy skills.

Characteristics of ELL Students in Reading Activities

With the rapid development of the information and communications technology, ELL students face more choices and challenges in literacy education. The previous research studies discuss the learning features of ELL students. In this section, I would like to synthesize and focus on the important perspectives of the new literacies study.

Scaffolding

From a scaffolding perspective, online reading resources provide students with new forms of support. According to Vygotsky's study (1978), the Zone of Proximal Development

(ZPD) refers to the difference between a learner's actual capacity and potential ability. The ZPD scaffolding is constructed on an expert-novice interaction relationship (Vygotsky, 1978). Based on the ZPD model, van Lier (1996, 2004) and Walqui (2010) propose that there can be an expanded ZPD model. The ZPD scaffolding not only appears within an expert-novice interaction, but also happens with equal peers, less capable peers and self-development (van Lier, 1996; van Lier, 2004; Walqui, 2010). Scaffolding is one of the main characteristics in ELL students' learning process. With the expanded ZPD model, the interactions become multidirectional.

The online reading process can be an example illustrating the expanded ZPD model (Wilson & Stacey, 2004). To some extent, online reading provides good opportunities for students to interact with both peers and teachers (Garrison & Anderson, 1998; Wilson & Stacey, 2004). In an online learning setting, learners and teachers are able to exchange knowledge and information in flexible modes (Garrison & Anderson, 1998). The directions of interactions can be multiple, such as learner-to-teacher, learner-to-learner, and learner-to-content (Garrison & Anderson, 1998). For instance, a student can communicate with a peer or a teacher about a reading paragraph in class. Meanwhile, the teacher can help the student scaffold the problems in this reading paragraph by interacting with the student on the Internet. The online scaffolding model can positively help learners construct their perspectives and communicate with different people on the Internet (Wilson & Stacey, 2004).

Strategic

From a strategic perspective, according to Al-Shehri and Gitsaki's study (2010), ELL students implement different reading strategies and skills in online reading activities

compared to general paper-based reading. Facing hyperlinks and hypertext, the students are able to transfer the knowledge learned in paper-based literacy skills to online reading (Al-Shehri & Gitsaki, 2010). They have the idea of distinguishing, selecting and synthesizing relevant knowledge when reading in the online literacy format on the computer (Al-Shehri & Gitsaki, 2010). The awareness of knowledge transfer can be beneficial for long-term study in Internet literacy education.

From Goldman and colleagues' research (2012), better learners have more proficient capabilities in reading strategies. These students are able to present enriched skills in selecting relevant information, evaluating reliable resources, as well as connecting with multiple sources. They know when to implement the correct skills to help them read on the Internet more efficiently.

Sociocultural

As discussed in the previous section, online reading is a sociocultural-based process. When learning L2 online, the enhanced context (Coiro, 2003) from online reading may reshape students' perceptions of the global world. The students will obtain rich information about the L2 sociocultural context and become familiar with the background knowledge of the reading text.

From ELL students' perspective, the students have diverse social, cultural, and historical backgrounds. Each student brings their funds of knowledge to the learning process (Moll, Amanti, Neff, & Gonzalez, 1992). While learning a second language, the students will exchange and compare background knowledge between L1 and L2. The information comes from a variety of channels. The information and knowledge exchange between the ELL

students and the Internet will be an important step for second language acquisition and closing culture gaps. Students will be able to have a more complete picture of the L2 culture. Thus, the connection between L1 and L2 sociocultural background knowledge can facilitate second language acquisition.

On the other hand, ESL educators should also pay attention to possible negative features of online reading to ELL students' background knowledge. The plentiful reading resources can also create a more heterogeneous context environment for students (Suárez-Orozco & Suárez-Orozco, 2001). The information online can be separated and discontinuous (Park & Kim, 2011). When the students are reading in L2 online, they may not be able to identify the needed information (Park & Kim, 2011). The information may direct students to different aspects and paths. Each student may receive different sociocultural background knowledge from the reading context. As a result, it may create more confusion and contradiction for their comprehension of the English language context.

Challenges of ESL Literacy Instruction in Integrating New Literacies Elements in Classroom Teaching

First of all, students' L2 proficiency has an impact on their reading comprehension and cognitive load (Al-Shehri & Gitsaki, 2010). The students with lower capability may spend more time on guessing the reading content on the Internet, so it will cost more cognitive load. In addition, the students who study in the same class may have different levels of L2 proficiencies (Al-Shehri & Gitsaki, 2010). This accumulates the difficulty of instruction. ESL teachers are facing the challenge with students' cognitive development of reading education (Al-Shehri & Gitsaki, 2010).

Vocabulary study is another challenge for ELL students. Since the context environment on the Internet is unbounded, there will be broader and more diverse resources and information presented to readers (Kasper, 2000). Moreover, because there are a lot of expository content on the Internet, the students need to be familiar with the instructional vocabulary in order to use the Internet features and functions (Schmar-Dobler, 2003). Therefore, in online reading, vocabulary is essential for reading comprehension (Loucky, 2007; Ridder, 2002). Using the Internet as a tool to help students improve second language vocabulary will be an important task for educators (Ridder, 2002).

Furthermore, teachers face the challenge of critically selecting suitable websites as reading resources for ELL students because the Internet layout and content have impacts on reading efficiency and effectiveness. According to Al-Shehri and Gitsaki (2010), the user-friendly content, familiar colors and media will help readers better comprehend the text. During the online reading process, students may not be able to search for or select reliable academic resources (Colwell, Hunt-Barron, & Reinking, 2013). Thus, teachers will need to be familiar with various Internet resources and guide students in selecting and evaluating resources.

The assessment issue is also a concern for Internet-based new literacies education. The main difficulty is lacking of relevant online reading comprehension proficiency assessments (Leu et al., 2009). According to the information, there is no relevant test on reading through search engines or critical evaluation in online reading in the United States (Leu et al., 2009). Some international tests, such as the Program for International Student Assessment (PISA) and the Program for the International Assessment of Adult Competencies

(PIAAC) have started to launch assessments about online reading comprehension skills (Leu et al., 2009). According to Coiro (2012), there are instruments such as the Dispositions of Online Reading Comprehension (DORC) which are related to assessing adolescents' online reading dispositions. The disposition surveys focused on students' reading interests, patterns, and attitudes (Coiro, 2012). These surveys can reflect students' reading abilities from a qualitative perspective. Under such situation, there is the need for conducting specific online reading assessment standards.

Educational Implications for ESL Researchers and Practitioners

As discussed, new literacies education should be regarded as a literacy issue rather than a technological issue (Leu et al., 2009). In this section, I would like to promote implementing online reading as a section in literacy education programs in public schools or colleges.

From the literacy education perspective, teaching basic literacy skills and strategies will be fundamental for online reading activities (Coiro, 2003). For ELL students, the literacy knowledge from traditional paper-based reading activities is an important base to be transferred to online reading. As mentioned above, successful transformation of the reading strategies and skills can be crucial to online reading comprehension. Teachers play an important role in this transitional process.

Additionally, vocabulary will be an instructional focus for online reading (Loucky, 2007). The instruction can integrate pre-class training and online vocabulary programs. Besides, constructing a connected vocabulary framework across different lessons will help students form an effective knowledge web.

Beyond the basic reading skills and strategies, there will be more specific new literacy components which need to be included in ESL literacy education for online reading instruction. First, facing multiple resources, literacy instructors should not simply introduce different sources and let students practice each single source. More importantly, teachers need to emphasize the interrelationships between different Internet sources (Goldman et al., 2012). Thus, students can develop their complete understandings of reading strategies and skills based on diverse reading sources.

In addition, teachers need to create a supporting learning atmosphere for students. Encouraging students to become active thinkers and learners will empower their motivation and interests (Coiro, 2003).

Moreover, critical information evaluation is a key aspect specifically for online reading (Coiro, 2003). Dealing with multiple resources, it is crucial for students to learn to identify the valuable and meaningful information (Coiro, 2003). Especially for ELL students, evaluating the information can not only help them better digest the content knowledge, but also benefit second language learning.

In the assessment aspect, the Internet-based new literacies elements should be reflected in the testing standards (Coiro, 2003). As the definition of literacy is expanded, there will be changes and new requirements for literacy measurement (Coiro, 2003). The assessment standards should focus more on the reading process in order to measure students' reading abilities of Internet-based literacy (Leu, 2001). It will not be a simple end point or learning level test, but a test of continuing developing literacy potential (Leu, 2001). Therefore, ESL researchers and educators may need to cooperate in working on the

assessment issues.

Furthermore, to some extent, the globalization trend of the Internet may help facilitate the teaching of sociocultural diversity (Leu, Karchmer, & Leu, 1999). Teachers can provide reliable and useful online resources to ELLs in order to help them accumulate English language sociocultural background knowledge. In this way, the students may be better engaged with the reading content and become more familiar with the L2 context.

On the macro perspective, policy reforms towards Internet literacy education should be advocated. New literacies need to be included in subject-area instruction (Leu et al, 2009). In this way, the content-area Internet literacy education will facilitate the integration of the technology and the classroom practice. Therefore, the schools, teachers and students will form a more positive attitude towards technology innovation. The Internet education will not only be a separate technological section, but more of an important element across different subjects (Leu et al., 2009). Students will be able to connect the content knowledge with the technological skills and stimulate their learning effectiveness.

Limitations and Recommendations for Further Research

Because the new literacies theory is developing, this literature review may not provide a complete analysis about online reading. The reviewed theories and empirical studies may only reflect some aspects of online reading.

Additionally, online reading is a personalized learning process. The learning mode may be different among readers and learners. The analysis and implications in this literature review may not be suitable for every ELL student. When integrating online reading elements in classroom teaching, the ESL teachers need to consider students' actual learning level and

personal interests.

For future research, there will be more topics and practices that educators and researchers can work on. First of all, the topic of ELL students' reading strategies and skills of online reading can be further studied. Through practical experiments of online reading tasks, researchers can track the online reading process of ELL students. This topic can better help ESL educators understand students' online reading and thinking behavior.

In addition, there can be more comparison studies about different online reading websites and resources. The resources can be categorized for different grade levels and subjects. The research studies will help ELL students better select useful resources in their reading comprehension learning.

Conclusion

As the Internet technology access to schools increases, researching on the new literacies theory becomes essential to educators. The previous research studies address the changing situation of literacy education. The technological innovation leads to the development of new literacies. Online reading, as one of the core aspects in new literacies, is an important reading format based on the Internet medium.

With diverse features of online reading, ELL students have different reading experiences compared to paper-based reading. The literacy education has been redefined to include more interactive elements. In the long term, there are positive potential impacts for ESL literacy education.

In the future, because of the policy and social support, there will be more focus on online reading. It is advocated that online reading instruction should be integrated in ESL

literacy education. The ESL educators can cooperate to work on instruction issues and assessment issues of applying the Internet-based new literacies in schools.

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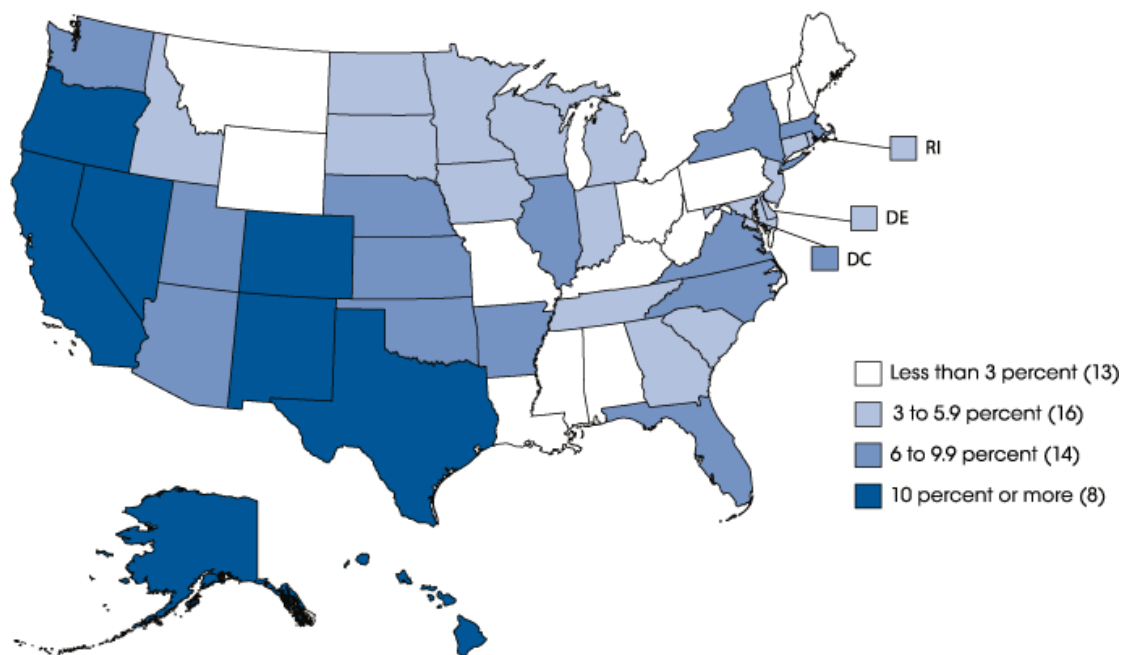
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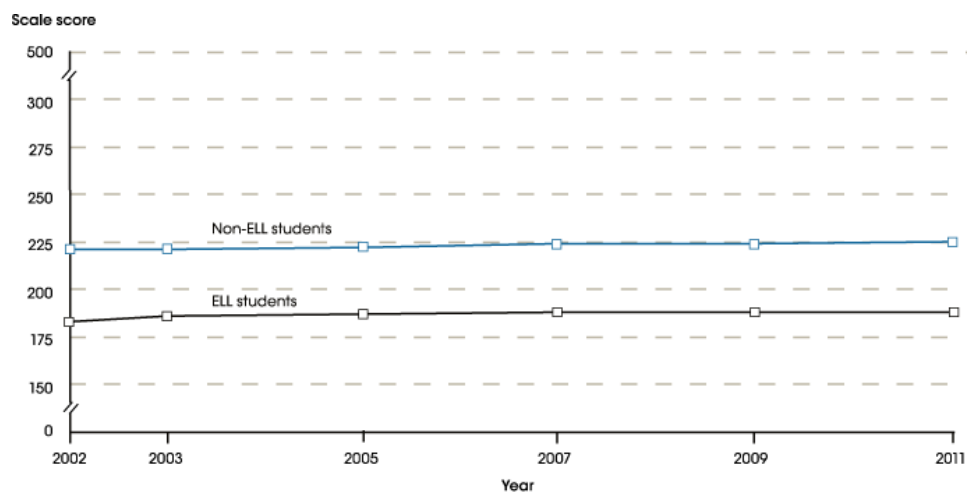
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Appendix A
Percentage of Public School Students who are English Language Learners (ELL), by State:
School Year 2010-11



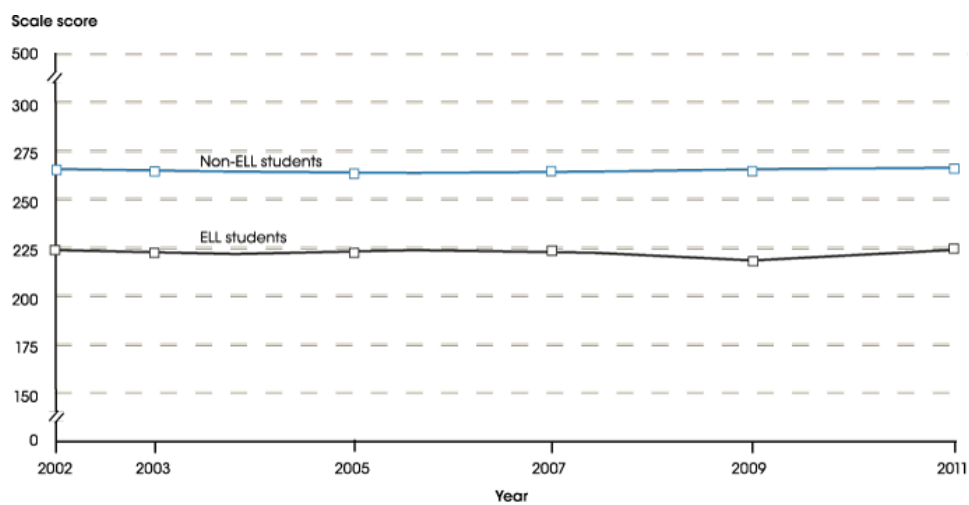
Source: https://nces.ed.gov/programs/coe/indicator_cgf.asp

Appendix B
Average Reading Scores of 4th-Grade Students, by English Language Learner (ELL) Status:
Selected Years, 2002-11



Source: https://nces.ed.gov/programs/coe/indicator_cgf.asp

Appendix C
Average Reading Scores of 8th-Grade Students, by English Language Learner (ELL) Status:
Selected Years, 2002-11



Source: https://nces.ed.gov/programs/coe/indicator_cgf.asp

Appendix D
Colleges with Highest ESL Participation Rates (2010)

School (State)	Percent of 2010 graduates who participated in ESL
Portland State University (OR)	10%
University at Buffalo—SUNY	10%
La Roche College (PA)	9%
Fontbonne University (MO)	8%
Marquette University (WI)	6%
Massachusetts Institute of Technology (MA)	6%
St. Cloud State University (MN)	6%
Bryant University (RI)	5%
Centenary College (NJ)	5%
Chatham University (PA)	5%
Crown College (MN)	5%
Tiffin University (OH)	5%
University of Bridgeport (CT)	5%
University of Tulsa (OK)	5%

Source:

<http://www.usnews.com/education/best-colleges/the-short-list-college/articles/2011/12/20/10-us-colleges-with-highest-esl-participation-rates>