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# English Language Learners' Perceptions of Employing a Social Annotation Tool to Promote Peer Support, Engagement with the Text, and Reading Comprehension

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# English Language Learners' Perceptions of Employing a Social Annotation Tool to Promote Peer Support, Engagement with the Text, and Reading Comprehension

by

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of the requirements for the degree of
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## DEDICATION

To my family for their unwavering support.

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AEQ: Achievement Emotions Questionnaire

CALL: Computer-Assisted Language Learning

CMC: Computer-Mediated Communication

CMC 1.0: First Generation of Computer-Mediated Communication

CMC 2.0: Second Generation of Computer-Mediated Communication

EAP: English for Academic Purposes

EFL: English as a Foreign Language

ELL-RES: English Language Learners' Reading Emotions Scale

ELL-REI: English Language Learners' Reading Engagement Inventory

ESL: English as a Second Language

IELTS: International English Language Testing System

L1: First Language

L2: Second Language

SA: Social Annotation

SAT: Social Annotation Tool

VPN: Virtual Private Network

## ABSTRACT

International students in English-medium higher-education programs read various texts from different fields in English throughout their studies. Many students find reading for academic purposes less enjoyable which, in turn, has a negative effect on their engagement and reading comprehension. Collaboration through social annotation tools may transform the process of meaning-making into a social activity. The extant literature focuses on its impact on comprehension and learners' attitudes. To add to the literature and understand remote learners' experiences, I explored international students' perceptions of employing a social annotation tool on promoting their peer interactions, reading engagement, and comprehension in a hybrid EAP class. Participants were 14 international students from China, Russia, Vietnam, Panama, Kuwait, Bahrain, Spain, Kyrgyzstan, France, and Kenya. They enrolled in an EAP course, which involved making research, producing papers, and delivering presentations in various academic genres with appropriate academic language use. For five weeks, participants found web articles to complete their research for an annotated bibliography assignment in four groups of three and one group of two. They read those articles by using an annotation tool as a group. I collected participants' background information, annotations, and their responses to an open-ended post-study survey, and ELL-RES and ELL-REI surveys. I collected five sets of weekly journal logs and conducted two sets of interviews with ten volunteering participants at the beginning and end of the task to uncover potentially differing perceptions in time. I employed reflexive thematic coding to explore the data. The use of the social annotation tool facilitated peer interactions and peer support through various interactional patterns to engage in discussions, evaluate the credibility of data,

identify, paraphrase, and summarize the ideas they planned to incorporate in their writing. Most participants seemed to have cognitive, behavioral, and emotional engagement with the reading. They also engaged in deep reading practices and used annotations as an outline to review the texts, but they did not work on vocabulary collaboratively.

# CHAPTER 1: INTRODUCTION

## Background of the Study

When intellectuals from various fields such as education and business talk about the distinctive features of the 21st century, they often tend to emphasize the importance of engaging in collaboration with the use of analytical and critical thinking skills. The new generations need to be equipped with the skills to explore and analyze the relevant information necessary to solve problems or create new things rather than simply storing bits of knowledge in a passive manner. In the past, education policies were framed by the foundations of behaviorism. Individuals needed to retain the available knowledge if they wanted to be rewarded in tests, exams, or professional lives. The classroom practice involved the use of positive and negative reinforcement to encourage desired behaviors as well as positive and negative punishment to manage behavioral issues affecting students' learning experience in some contexts around the globe. Teaching approaches and curricula often relied on presentation of a wide range of information by the teacher and underestimated the role of important elements such as learners' interests and teaching strategies to initiate and maintain their willingness to learn.

Nowadays, the need for innovative individuals has been a prevalent trend across many industries. Recitation of facts used to be enough to survive in the job market; however, critical thinking soon became a requirement in the modern world where creativity and collaboration are important keys to success. To some extent, this change might have been the result of the shift in the way people have access to knowledge. The digital age made it easier to reach and share knowledge thanks to the reduction of costs of technology for professional life, education, and

entertainment. The rise of the internet, search engines, and affordable devices made it convenient to retrieve information that people once had to memorize. This shift is present with learning theories and teaching approaches as well. What matters now is to be able to think critically and create something new based on the existing ideas, theories, and inventions rather than passively reiterating them.

Constructivism has challenged behaviorist approaches to education by putting forward the idea that individuals construct meaning in their minds in unique ways (Piaget, 2013; Vygotsky, 1978). Practitioners relocated themselves from the center of the classroom towards the outer circle and a student-centered approach gained importance for active learning (Dunlap & Grabinger, 1996). Teachers began considering what students bring into the classroom and hoped to build upon that through authentic problem-solving tasks that reflected the complexity of the environment students would face at the end of the learning process (Savery & Duffy, 1995).

Aside from creating learning environments conducive to active involvement of learners in the learning process, educators need to create tasks that are meaningful for real-life experiences in connection with learners' needs. In the case of higher education settings, reading is an essential skill for the attainment of academic achievement. Adult learners in undergraduate programs need to process a great number of texts during their course of study. The act of reading for these students needs to result in comprehension instead of merely decoding words they see in these texts. There is a correlation between international higher-education students' academic achievement and their reading abilities (Neumann et al., 2019). However, a great majority of students begin their undergraduate studies underprepared in terms of their reading comprehension skills (Mendelman, 2007). In order to support these learners' academic achievement, explicit instruction of techniques and metacognitive strategies may be necessary.

When it comes to second language (L2) learners, they need to not only comprehend the texts they read, but also acquire novel words along with field-specific new terminology. They also need to employ certain strategies to find relevant or key information within the texts they read. Researchers have already investigated L2 literacy focused on metacognitive reading strategies namely planning, monitoring, and evaluating strategies students employ before, during, and after the reading activity (Muhid et al., 2020; Zhang & Seepho, 2013). Others explored the factors affecting reading comprehension (Hudson, 1982; Koda, 1989; Leeser, 2007; Guo, & Roehrig, 2011) and vocabulary acquisition (Al-Seghayer, 2001; Yun, 2011; Eckerth, & Tavakoli, 2012), respectively.

Language teachers who adopt modern approaches to learning such as social constructivism (Piaget, 2013; Vygotsky, 1978) centralize the position of the learners in the classroom. Regardless of the age or proficiency level, they aim to create lesson plans where learners actively engage in meaning-making by inquiring, collaborating, analyzing, and critiquing. Even though it is relatively easier to actively involve learners in the process of gaining productive skills (writing and speaking), the instruction of receptive skills (listening and reading) poses some challenges to teachers when they want to involve the learners into the learning process. There are still many classroom settings in which learners write down notes as they listen to teachers' remarks in a passive manner.

In the contexts of reading through computer-assisted language learning (CALL), researchers focused primarily on readily available glosses provided by the instructor. Glosses with either pictures or videos were more effective for vocabulary learning than text-only annotations (Plass et al., 1998; Yavuz, 2007). Students with different strengths of intelligences or with different preferences were able to support their own comprehension when they had an

option to support the textual input in their preferred mode. This way, personalized learning became a possibility. Additionally, in-text annotations yielded better results than pop-up annotations (Chen & Yen, 2013; Chen, 2016). Having the annotations in the margins rather than at an external site requiring an access on-demand may be a more effective way to support readers.

When learners actively participate in the reading process, they engage in a dialogue with the reading text. At times it may involve other readers as well. Through digital social reading, learners use online tools to share their thoughts about a text (Blyth, 2014). During this dialogue, they may underline, circle, highlight certain parts of the text, and add notes. Annotations make it easier to comprehend the texts and retrieve information (Hoff et al., 2009). They also contribute to learners' vocabulary acquisition (Tseng et al., 2015). Paper-based and digital annotations in first language (L1) have certain benefits for learners as their vocabulary expands and they gain a deeper cultural understanding of the target texts (Chen & Chen, 2014). However, some readers may not always be aware of employing such techniques while they read.

In the past few decades, computer-assisted reading annotation systems have emerged for the purpose of helping readers comprehend digital texts (Belz, 2004; Mendenhall & Johnson, 2010; Johnson et al., 2010; Wolfe, 2008). As online instruction becomes more and more prevalent in the aftermath of COVID-19 measures, remote and online settings constitute a remarkable portion of reading activities of learners. Tools and techniques to emulate social elements of learning into online reading settings may not only help teachers create learner-centered lessons, but also facilitate learners' reading comprehension and vocabulary acquisition. Utilizing social annotation tools (SAT) in the L2 classrooms help students conduct a closer

reading of reading texts and help instructors foster a more open learning community (Thoms & Poole, 2018).

According to the affective model of reading, motivation, emotions, and attitudes have an impact on the students' decision to read and therefore their comprehension processes (Matthewson, 1994). In other words, affective factors influence the way students approach the reading texts. Wigfield and Guthrie (1995) identified intrinsic and extrinsic factors influencing reading motivation. The former are curiosity, involvement, and challenge. The latter are competition, recognition, and grades. In addition, they added a social aspect of reading motivation referring to compliance to the rules and social reasons. Given the relationship between affective factors and students' reading comprehension, it is possible to argue for a relationship between their academic achievement and attitudes toward reading.

The introduction of internet and computer-mediated communication in educational settings made it possible for learners to carry out expressive talk in a written format which has its affordances such as providing an opportunity for relatively less-confident or less-proficient students to take their time to produce a written response. Today, computer-mediated communication offers additional possibilities: learners across the world who do not share the same physical environment may interact with each other to solve problems, construct meaning, and express themselves in a variety of ways. The affordances of novel technology for computer-mediated communication allow teachers to design efficient language learning settings for remote learners by facilitating collaboration while employing language skills.

## Statement of the Problem

According to Open Doors Report on Educational Exchange, 914,095 international students enrolled in US higher education programs in 2020-2021 academic year (Institute of International Education, 2021). Regardless of their L1, many students struggle in their initial semester of their undergraduate program as they need more advanced reading skills and the knowledge of the available supporting resources to complete their course assignments. This challenge may be more common with international ESL learners as they not only adjust to the requirements of undergraduate course work, but also read complicated content in their second language. Research shows that students have better comprehension and vocabulary retention in situations where the reading materials are interesting or the students are motivated (Baker & Beall, 2009; Grabe, 2014; Grabe & Stoller, 2018). It may not always be possible to offer reading materials that students perceive interesting in college-level courses; however, instructors may employ certain techniques and strategies to enhance students' external motivation.

In many modern learning settings guided by social constructivism, learners have become active participants in constructing meaning through their interactions among themselves as well as with the learning materials. Collaboration and critical thinking have become vital qualities for the modern job market as well. Meanwhile, on-screen reading has gradually become a major daily activity, especially for young adults who were born during the digital era. Computer-assisted language teaching practices have focused on the affordances of digital materials and tools for efficient meaning negotiation and vocabulary retainment. Furthermore, the recent rise of remote and online learning in the aftermath of COVID-19 led teachers and students to participate in online classrooms all around the world. Teachers found themselves in situations where they

had to find ways to simulate the affordances face-to-face settings provide in terms of peer interaction and collaboration.

The intersection of these shifts calls researchers to investigate the affordances of computer-assisted collaborative reading in the second language classroom. In this context, much has been said about learners' or instructors' attitudes and reading comprehension in English as a Foreign Language (EFL) (Chang & Hsu, 2011; Liu & Lan, 2016; Lo et al., 2013; Yang & Lin; 2015), Spanish (Thoms & Poole, 2017; 2018), Chinese (Thoms et al., 2017), and French (Blyth, 2014) classrooms. Despite my efforts, I was not able to locate any research on the implementation of social annotation (SA) tools in hybrid or online settings for English for Academic Purposes (EAP). Moreover, the analysis of learners' attitudes mostly involved the usefulness, helpfulness, challenges of collaborative reading with social annotation tools. Thus, there is a gap in research on the emotions and reading engagement of L2 learners when they collaborated through social annotation tools.

Collaborative online reading through SA tools may indeed offer a platform for international students to point out what they want to know, share what they know, underscore crucial ideas, and have a conversation on the content of the reading materials. Some of the studies on the use of these tools reported an increase in reading comprehension (Chen et al., 2014; Yang & Lin, 2015) and positive attitudes (Chang & Hsu, 2011; Lo et al., 2013; Nor et al., 2013) when students used SA tools as they read the assigned texts. As favorable emotions may positively influence students' comprehension, it is worthwhile to investigate international students' emotions when they engage in reading activities in ESL in online collaborative settings. Exploring their reading engagement could portray how learners maintained or lost their interest in the reading task while annotating in groups. Furthermore, examining the ways international

students interact with each other through SA tools while reading in ESL may provide practitioners and researchers alike with information about their implications.

**Purpose of the Study**

Marek and Christopher (2011) found that undergraduate students perceived their courses less enjoyable and instructive when they had a requirement to read textbooks. Students' existing negative perceptions toward reading activities may negatively impact their reading abilities in turn. Some higher education institutions in the US offer mandatory courses designed specifically for international students with a particular English proficiency level who recently enrolled in undergraduate and graduate programs. These courses aim to familiarize students with the American higher education practices and equip them with the academic skills enabling them to succeed in their programs, which could prepare them for the job market in turn. Reading and writing skills account for a considerable component in such courses. In the end, students with upper-intermediate and advanced reading proficiency, the common student profile in these courses, may become efficient readers who can utilize textual clues and scan the text to locate information relevant to their tasks rather than using a dictionary for each vocabulary or reading long articles in their entirety which are only partially helpful for their purpose. Furthermore, they may need to produce well-organized written arguments when they write papers for their future courses. Such preparatory courses aim to provide them with skills and strategies they can use to become better readers and writers.

As the extent of online learning settings increases in higher education levels, the number of synchronous and asynchronous online courses preparing international students for their academic programs increased as well. The online format of these courses may be challenging for instructors to emulate the social benefits of face-to-face courses. Computer-mediated

communication (CMC) has many affordances for second language acquisition (SLA) (Blake, 2000). By engaging in online collaboration using CMC, students can share their knowledge, negotiate meaning, ask for help, and confirm their understanding. CMC through SA tools may be an effective way to facilitate reading tasks since students work on assigned texts without needing to save different versions of the text. They can use functions such as highlighting, underlining, adding comments, adding pictures and links, and sometimes drawing. This way, when they need to review texts, they have access to their annotations potentially emphasizing confusing or significant pieces of information.

Against the backdrop of these reasons, I aim to investigate the impact of using SA tools on achievement emotions of international students with ESL studying in a US higher education institution. Students need to read extensive texts in their programs; tools promoting a positive attitude toward reading tasks may well increase learner engagement and comprehension. As noted earlier, there is a lack of research on such an inquiry of using SA tools in online or hybrid higher-education settings for learners of ESL. Accordingly, I aim to demonstrate specifically the perspective of international students taking a hybrid course to see if it is similar to those studying English in EFL settings, those studying Spanish or Chinese. In other words, I plan to contribute to the existing research by conducting inquiry in a unique learning setting.

Positive emotions to reading task enhances comprehension in EFL (Hamedi et al., 2020). After collecting data on students' reading emotions for learning tasks facilitated by a SA tool, I intend to show whether participants displayed positive emotions that may enhance their comprehension. Following that, exploring their engagement with reading contributes to the existing literature and informs instructional design on creating tasks while considering their possible engagement with reading.

The annotation logs in the social annotation tool demonstrate the various ways adult international students with ESL interacted with each other and the text through SA tools. Such information will inform higher education instructors about the potential for online collaboration during reading tasks. It shows how these students communicated with each other when they collaboratively read a text online. It also shows their most common ways to annotate a given text. The interviews support these data by providing the reasons for students' input and their perspectives on the roles of particular annotation types in their understanding.

As students in higher education programs tend to have a vast amount of reading requirements, involving them into the process of co-constructing meaning may offer them certain benefits in terms of noticing textual features and enhancing comprehension. Exploring students' perceptions on the use of SA tools provides new insights into students' perspectives and how SA tools enable them, or do not enable them, to have a voice on the content of the reading materials. Students' perception of peer support, reading engagement, and comprehension using SA tools informs practitioners and suggests future research directions for L2 reading.

**Research Questions**

In this study, I examine adult international learners' perceptions of using a social annotation tool in a hybrid ESL context on their peer support and interactions, reading engagement, and reading comprehension. The following *a priori* research questions guided this study:

(1) In what ways do the study participants perceive employing the social annotation tool promoted their peer support and interactions while reading a text?

(2) In what ways do the study participants perceive employing the social annotation tool promoted their engagement with reading?

(3) In what ways do the study participants perceive employing the social annotation tool promoted their reading comprehension?

**Significance of the Study**

Web 2.0 technologies enable instructors to integrate micro-level social networks with various functions into their classes. Given the increasing demand on online instruction as a result of the COVID-19 pandemic, a plethora of applications gained popularity to simulate traditional face-to-face classrooms. Concerning online reading activities in particular, it is a challenge for some instructors to ensure learner engagement. SA tools may remedy the situation as they invite users' input on a given text, thereby allowing them to become active participants in a conversation throughout the reading task. Moreover, these tools foster a sense of community among students (Bateman et al., 2006) and facilitate groupwork (Novak et al., 2012).

There has been some research on the use of SA tools in higher education settings (Johnson et al., 2010; Hwang et al., 2007; Kawase et al., 2009, Samuel et al., 2011). That body of research mainly examined students' attitudes and how the use of SA tools influenced their comprehension. Hwang et al. (2007) found increased motivation and interaction as well as achievement. Johnson et al. (2010) found better outcomes in terms of reading comprehension in the experimental group. Kawase et al. (2009) implemented an information search task in which students using SA tools found the relevant information significantly faster than those who did not. Many studies even showed students having a positive attitude toward using SA tools for reading tasks (Kawase et al., 2009; Samuel et al., 2011).

The available research on the use of online collaborative reading through SA tools informs and contributes to the field of higher education. Yet there is a lack of research on understanding whether international students in hybrid settings would perceive a benefit from

such collaborative reading activities in terms of peer support, reading engagement, and comprehension. This study addresses this gap. It shows how these students interacted with each other or the text and what they thought about their participation in these interactions. It also demonstrates their perceptions of their reading engagement and their annotation moves with respect to reading comprehension.

**Positionality and Axiological Stance**

Richards (2022) considers a researcher's axiological values to be situated in multidimensional experiences and beliefs impacting how a researcher forms *a priori* questions, determine data sources, analyze the data, and devise conclusions. Therefore, addressing these values in this research inquiry is necessary to portray the driving force behind my decisions and interpretations as a researcher. The reasons behind my motivation to explore social annotation use are two-fold: (1) the benefit I attributed to my previous experiences with online opinion exchange and (2) the need to facilitate learner-centered reading tasks that became a challenge with the increasing presence of online instruction after COVID-19.

I did not experience social annotation use as a student. However, whenever I watched a movie or a TV show I liked a lot, I took part in online discussions through forums and Reddit. I enjoyed reading about other viewers' interpretations, theories, and reactions. I discovered Easter eggs, references to pop culture, or sometimes scientific concepts when other people pointed them out. At times, it was I who noticed a key detail and shared it with others. I also read some opinions that were in conflict with mine. In such cases, I took a closer look and became aware of other ways to analyze the same content. Prioritizing a certain character's position over the other characters led to contradicting judgments. Some viewers were more sensitive about inequality and violence than others and they shared their critiques. These written conversations enriched my

understanding of the content and increased my awareness to consider different points of view. My feeling of enjoyment increased as I was not the only one who was compelled to talk about how much I liked or disliked the characters' choices. It made me feel connected in a small community and the viewing experience became better with this feeling. I think learners would benefit from having a similar sort of enjoyment and being a part of a community when they shared their perspectives and identified ideas worth revisiting as they read for academic purposes. I also think I became more cognizant of the possibility to see the same thing in a different light as a researcher.

I have heard many remarks by English language teachers on the difficulty of providing an environment for learners to actively participate in the learning tasks. Reading tasks were no exception. I became motivated to investigate how learners interacted with each other and the text while being physically apart. Social annotation tools have the potential to simulate face-to-face classroom discussions during reading. Peers are able to point to words, sentences, or paragraphs and let each other see what they knew and thought about the text. Such conversations are essential for social constructivist learning environments where the teacher is a facilitator for learners' active involvement in the meaning-making process. This is why I was motivated to explore how learners collaboratively read in small groups by using the tool *Hypothesis*.

A research paradigm is a lens made of abstract beliefs and principles shaping the researcher's perception of the world (Lather, 1986, as cited in Kivunca & Kuyini, 2017, p. 26). There are some underlying philosophical assumptions guiding this study. My epistemological and axiological stance aligns with social constructivism and interpretivism because I believe researchers are part of the research. Therefore, research is a subjective effort to understand phenomena through a researcher's unique lens reflecting experience. There is no single reality;

multiple realities exist as a result of subjective meaning construction. Those meanings, driven by historical and cultural norms, undergo negotiation through interactions among individuals(Creswell & Poth, 2018). As the researcher, I intend to explore the complexities of participants' meaning construction by examining their interactions and the conditions surrounding these constructions. Of note here is that my own subjective meaning construction and past experiences are part of the process of interpreting participants' interactions. Therefore, in the next section, I will address my background to better situate my worldview.

**Reflexivity**

Reflexivity is the "turning of the researcher lens back onto oneself to recognize and take responsibility for one's own situatedness within the research and the effect that it may have on the setting and people being studied, questions being asked, data being collected and its interpretation." (Berger, 2013, p. 2). By addressing previous experiences, backgrounds, and views, the researchers acknowledge how their research design was shaped. Forming *a priori* research questions, access to participants, data collection and analysis procedures are not independent of their situatedness. In this section, I describe how I may be positioned while conducting this study.

**I am an international student in the USA.** I came to the USA for graduate studies and I have plans to go back to my country, Turkey, after graduation. I have seen how higher education may differ across countries. I needed to understand and adapt to academic conventions and rules in the USA. For example, I perceived a focus on process-oriented assessments and tasks related to real-world conditions. I also gained familiarity with resources within my reach gradually. I developed friendships with people from a diverse variety of backgrounds. I had a chance to understand some cultures better as I had conversations with them. I sympathized with other

international students a lot because we had similar concerns stemming from unfamiliarity with laws, rules, legal procedures, and limitations. I also experienced the swift change to remote instruction as a student when COVID-19 first emerged. I recognized a need for instructional technology to bring remote learners together and allow them to talk about learning materials and collaborate with each other. This need seemed crucial for reading tasks because the most widely known tools for remote instruction such as *Zoom* and *Google Suite* applications facilitated interactive environments mostly for listening, speaking, and writing, whereas reading tasks relied on individuals' own cognitive efforts in isolation from their peers. Social annotation use sparked my interest as a potential means for evoking discussions on the texts among international learners like me.

**I am multilingual.** I was born and raised in Turkey and my first language is Turkish. I have a lot of experience being a language learner. I learned English and French as foreign languages in formal educational settings for many years. I also spent some time in France and USA, which enhanced my competence in these languages in many aspects. In addition, I took beginner courses in German and Spanish. Lastly, I have been self-learning Korean through textbooks, podcasts, language learning apps, and exposure to the language in TV shows. My long-term experiences in learning English and French, which I describe in the next paragraphs, shaped my perspective on language teaching.

Authentic pop-culture materials in the target language and my interactions with learners from other countries had a big influence on my language learning experiences. I formed my first association with the English language through the cartoons I watched such as Tom and Jerry, Bugs Bunny, and Red Kit. They often contained English words written on objects that were displayed. I never heard how they were pronounced so I would just read them the way I read

Turkish words. When our updated curriculum introduced English as a school subject for 5th graders, I was confused by the inconsistency between the spelling and pronunciation of English words. I often relied on memorization because I was not able to see shortcuts that would work all the time. English seemed to be a hard language with all sorts of oddities. Nonetheless, I was excited about learning it. In the following years, I tried to take advantage of opportunities to practice English while also communicating with people around my age. I had lots of international penfriends some of whom have kept in touch with me for more than two decades. I studied at a Turkish university where the medium of instruction was English. I have lived in the USA for seven years. Reviewing the early stages of decoding English words helps me understand what total beginner students could be going through when they enroll in a beginner-level English course. First connections could be overwhelming but being aware of potential hardships they may face and scaffolding the instructional activities might help them develop positive attitudes.

I also took French classes for eight semesters during my bachelor's studies because specializing in a foreign language besides English was a requirement. Authentic reading materials in French motivated me to practice reading and increased my confidence in my language proficiency level. I enjoyed reading French comic books like Astérix and Tintin. Upon graduation, I went to Paris as a language assistant so that I could improve my French proficiency. I never felt I mastered the French language entirely, but I was amazed at how fast my reading, listening, and speaking skills improved in France. Immersing in the language through authentic resources in my areas of interest increased my willingness to read. Spending time in a country where the target language is the dominant language while interacting with native speakers in different social contexts like school, banks, hospitals, grocery shopping, and informal meetings

helped me improve my language proficiency and construct my knowledge of societal norms or tendencies. Through this experience, I recognized the benefit of participating in conversations in the target language.

**I am a language teacher.** I have taught English to adult learners in Turkey and the USA for nine years in higher education settings. Based on these teaching experiences and the learning experiences I mentioned above, I developed some beliefs on language teaching. To begin with, I think some applications and online resources are useful for language learning. However, teachers need to consider their efficiency, relevant standards, and learning objectives that the learners need to gain before picking the appropriate technology. Furthermore, I try to provide a safe environment for discussion, incorporate questions leading to critical thinking, and encourage students to actively speak out their ideas in the classroom so that their engagement and language skills could improve. I also believe in the importance of giving goal-referenced feedback that shows the students whether they are on track or they need to make some changes. Facilitating collaboration and the use of self-regulated learning strategies are critical for teaching higher education students since these are necessary qualities for their success in their studies. I try to create a fun learning environment. I like using jokes to reduce anxiety and increase enjoyment. I have a lot of board games and when I make a lesson plan, I sometimes think about aligning learning objectives with board game mechanisms. This way, learners engage in the negotiation of meaning using target grammatical structures for a purpose with entertainment value. Lastly, I believe in using authentic materials for learners with intermediate and advanced proficiency. This belief mostly stems from my experience in learning languages.

**I am a researcher.** I am in the process of developing my academic identity. Besides literature, my students' feedback on my teaching evokes my insights into what I need to explore

further. I also associate with the social constructivist perspective. There could be multiple realities out there. The reality that I construct is not independent of the social, historical, and cultural contexts around me. The reality that the research participants perceive is also depended on those contexts. I did not have any relationships with the participants prior to this study. My contact with them was strictly limited to the scope of the social annotation task. Even though I am aware that my background, experiences, and worldview shape my interpretations, I am open to listening to others so that I could understand how they perceive things from their perspectives. To maintain a fair understanding, I conducted repeated interviews with the participants. I triangulated the data to confirm, complement, or modify my interpretations. I also spread the data collection across a timespan so that I could represent their ongoing perceptions holistically. I kept a research journal to keep track of data collection in addition to adding memos regarding each interview. When two participants skipped the interview, I contacted them once to see if they needed rescheduling. They told me we could reschedule them for the same day and joined the meeting. Some participants did not submit weekly journal entries for some weeks. I did not exclude these participants from the study because I gathered plenty of data related to their perceptions through other sources.

**Definition of Terms**

In this section, I provide the definitions of about two dozen terms I employed in this study.

*Achievement emotions* are emotions related to achievement activities or achievement outcomes during a class, practice activities, and tests (Pekrun, 2006).

*Achievement emotions questionnaire* (AEQ) is a validated instrument to measure individuals' class-related emotions, learning-related emotions, and test emotions (Pekrun et al., 2011a, 2011b).

*Computer-mediated communication (CMC)* refers to the exchange of expressions through two or more computers with a network connection (Warschauer, 1997).

*Collaborative reading* occurs when the reader interacts with at least one other reader within a socially contextualized form of reading (Kiili et al., 2012).

*Critical skills for reading comprehension* are "(a) recognizing discourse structure and discourse signaling in texts; (b) applying comprehension strategies at an appropriate standard of coherence; (c) synthesizing and evaluating information through strategic processing; (d) monitoring comprehension as well as setting and changing goals for reading" (Grabe, 2009, p. 57).

*English for Academic Purposes (EAP)* refers to English language programs designed to enhance international students' academic reading, writing, listening, and speaking skills to prepare them for higher education.

*English as a second language (ESL)* refers to the English that individuals learn and speak in contexts and countries whose predominant language is English.

*English as a foreign language (EFL)* is the English that people learn and speak in contexts whose predominant language is not English.

*English Language Learners' Reading Emotions Scale (ELL-RES)* is a validated adaptation (Hamedi et al., 2020) of the AEQ to measure English learners' reading emotions regarding enjoyment, boredom, and anxiety.

*English Language Learners' Reading Engagement Inventory (ELL-REI)* is a validated adaptation (Hamedi et al., 2020) of math and science engagement scale and it measures cognitive, behavioral, and emotional engagements for reading in L2.

*IELTS* is an abbreviation for the International English Language Testing System. It is a standardized test to assess non-native speakers' proficiency of English language. There are two types of IELTS - General and Academic. Both address the four skills: reading, writing, speaking, and listening.

*Interaction* refers to any communicative activity between learners with minimal or no teacher participation (Philip et al., 2014).

*Reading* is "the process of using reading, writing, and oral language to extract, construct, integrate, and critique meaning through interaction and involvement with multimodal texts in the context of socially situated practices" (Frankel et al., 2016, p. 7).

*Reading comprehension* is the process of decoding written text and activating prior information to construct an understanding of the writer's message (Grabe, 2009).

*Reading engagement* refers to being motivated to read, displaying strategic approaches, being socially interactive and knowledgeable when readers construct meaning from the text (Guthrie et al., 2012).

*Reading motivation* refers to "goals, values, and beliefs with regard to the topics, processes, and outcomes of reading" (Guthrie & Wigfield, 2000, p. 405).

*Social annotation* refers to "the use of collaborative technologies to help students draw meaningful connections to texts in-line alongside their peers, practice the strategies of academic writing in-context" (Brown & Croft, 2020).

*Social annotation tools* are online tools that a group utilizes to make comments, highlight, and sometimes draw on the same text. These tools save the annotations in real-time on a single copy of the shared text.

**Organization of the Dissertation**

In Chapter 1, I introduce the background of this study by presenting a brief summary of the available research, the statement of the problem, the purpose of the study, the research questions guiding this study, and the definition of key terms. In Chapter 2, I provide the theoretical framework and review the literature on the use of social annotation tools. In Chapter 3, I present the research design by providing information on the context of inquiry, participants, treatment and instructional technologies, data collection, and data analysis procedures. In Chapter 4, I report the findings resulting from the data analysis and discuss them by referencing the theoretical frameworks and the existing literature. Finally, in Chapter 5, I summarize the study findings, address the limitations, conjecture the pedagogical implications, offer future research recommendations, and share my final thoughts.

**Chapter Summary**

In this chapter, I first discussed the background of the study, the statement of problem, and significance of this study in addressing the gap in research through the characteristics of context of inquiry and the data sources. I then described my positionality and axiological stance followed by my reflection on my background. Thereafter, I introduced the purpose of this study: exploring adult international students' perceptions of their peer support and interactions, their reading engagement, and comprehension whilst using a social annotation tool in a hybrid context for EAP. I also listed the definitions of the major terms and concluded the chapter by describing the organization of the dissertation.

# CHAPTER 2: LITERATURE REVIEW

Through this study, I intend to explore the perceptions of adult ESL learners on their peer support and interactions, engagement with reading, and comprehension as they participate in online collaborative reading through a social annotation tool. This chapter has three purposes: (1) to introduce the theoretical framework of the study, (2) to introduce the pertinent instructional technology on L2 reading, and (3) to provide a literature review on using social annotation tools for language learning. The theoretical framework guides this study through a review of relevant learning theories and the construct of motivation regarding SLA and reading engagement. The section on instructional technology for L2 teaching reading introduces the ways systems, tools, and resources facilitate L2 reading. There is an emphasis on computer-mediated communication since this study examines its use. Finally, the literature review focuses on the use of social annotation tools in various language learning contexts and its implications for reading comprehension and students' attitudes to these tools.

## Theoretical Framework of the Study

### Social Constructivism

Social constructivism is a learning theory whose foundations involve cognitive constructivism (Piaget, 1969) and sociocultural theory (Vygotsky, 1978). According to cognitive constructivism, individuals cannot passively adopt knowledge when they encounter it. They need to build it through the schemata they developed following previous experiences. This view posits that learning is effective if the individuals create artifacts they deem meaningful. Meanwhile, Vygotsky (1978) emphasized the role of learners' interactions in learning. He coined the term

*zone of proximal development (ZPD)* to describe learners' achievements beyond their current potential as a result of interactions among themselves, the teacher, or both. This concept refers to the difference between learners' actual level of development and the potential level of development guided by adults and/or peers through problem-solving and collaboration.

Social constructivism makes certain assumptions about the nature of learning. First of all, knowledge is a social construct (Prawatt & Floden, 1994). It is a product of learners' collective efforts to make meaning. Second, learning occurs when students actively participate in tasks. Learners are not merely passive recipients of knowledge who reiterate the materials or the content teachers present. They make certain interpretations of knowledge as a result of cognitive processes that depend on their experiences as well as the social, cultural, and historical contexts around them. Lastly, cognitive challenges are opportunities for learning as they constitute the setting for collaboration in which learners actively interact to solve a problem or make meaning.

Teachers guide and facilitate learning activities in social constructivist view (Bauersfeld, 1995). Contrary to traditional approaches to teaching, social constructivism does not consider teachers as the ultimate experts who would transfer knowledge to passive learners. Instead, it centralizes learners' roles in their learning through team collaboration and social interaction involving the use of prior knowledge. To encourage that, teachers design and facilitate socially engaging learning activities such as discussions that provide learners with opportunities to question and exchange their interpretations or prior knowledge. Another example would be facilitating problem-solving tasks. Peer collaboration occurs as learners make research, collect information, or create products that are guided by a common goal with shared responsibility. Such learning activities, however, may not be effective in large classes (Biggs, 1998) due to the difficulty in providing teams with guidance and participation opportunity.

Vygotsky's (1987) work underscored the importance of studying the interconnectedness among dynamic, physical, social, cultural, natural, and historical systems. Language is acquired through processes and interactions at the center of these systems (Mahn, 2012). This may mean that research design needs to account for a rich description of the interactions among these systems at a given educational setting. Studying a particular second language acquisition (SLA) topic in its isolation may not be meaningful enough without painting an overall picture of the issue at hand.

Simina and Hamel (2005) developed a framework for computer-assisted second language acquisition through social constructivist approach. They argued that cognitive and sociocultural roots of social constructivism approve of computer use in SLA settings because it has the potential of enabling learners to construct the target language knowledge through interaction with the materials in addition to collaboration and social interaction with each other. They also discussed that learners' L1 would play a role in their SLA because their L1 is part of their prior knowledge through which they interpret L2. Then, they proposed that learners interpret reading and listening input in an environment encouraging collaboration with negotiation of meaning. Following that, they produce output in written and spoken form. They defined the ideal socio-constructivist CALL environment as follows:

> First of all, it is learner-centered, meaning that the learner is free to make his or her own interpretations. It also promotes authenticity through context-rich and experience-based activities which enables learners to associate new with prior knowledge. Moreover, social interaction is crucial for the sharing of multiple representations, reflection and monitoring and it provides the opportunity for negotiation. Finally, it embeds scaffolding for the

manipulation of the learner's attention to form and meaning and for collaboration to achieve the construction of knowledge. (p. 224)

Within the scope of qualitative research, social constructivism is a philosophical worldview with an emphasis on exploring the complexity of views, which are the products of interactions with other individuals through cultural and historical norms (Creswell, 2009). In other words, the researchers examine how interaction takes place by taking into account the specific dynamics in the setting. They also acknowledge their own cultural, historical, and personal experiences' roles in their interpretations because the way they process participants' interactions is not independent of how they have been interacting with specific contexts themselves.

**Collective Scaffolding and Peer Interactions**

Wood et al. (1976) built on Vygotsky's (1978) zone of proximal development concept and described scaffolding as the procedures and efforts enabling the learner to achieve a goal initially beyond their capacity. They considered scaffolding an important component in educational settings to guide students towards independence in performing the target skill. In other words, they believed that teachers could create learning environments where students would work with a more knowledgeable other (MKO) to improve their skills and knowledge through tasks with a gradually increasing difficulty. Scaffolding may contribute to preventing negative emotions in the learning experience by gradually increasing learners' responsibility and the tasks' level of complexity.

Hill and Hannafin (2001) reviewed the literature and identified four components of scaffolds in resource-based learning environments: (1) conceptual scaffolds, (2) metacognitive scaffolds, (3) procedural scaffolds, and (4) strategic scaffolds. The first one, conceptual

scaffolds, refers to helping the learner with defining things and it may include mechanisms such as mapping relationships among concepts and simplifying definitions. Metacognitive scaffolds encourage learners to check their current knowledge and their purpose so that they fill the gap in between. Procedural scaffolds guide the students about the consecutive requirements of the task. Finally, strategic scaffolds provide the learners with alternative ways to perform the task.

Donato (1994) expanded the concept of scaffolding. He argued that learners, too, could guide each other through *collective scaffolding*. In other words, scaffolding did not exclusively have to be limited to teacher roles. Learners can facilitate their own learning when they mutually exchange assistance among each other and collect the resources necessary for their goals**.** Collective scaffolding did not necessarily involve an expert/novice relationship as there was not an obvious expert. Ohta (2001) suggested that learners could improve their skills not only when they interact with a more knowledgeable other; but also, when they were paired with less knowledgeable ones as well. Storch (2002) examined pair work in a writing project in terms of learners' equality (i.e., level of contribution) and mutuality (i.e., engagement with their peers' contributions). She created a model with four patterns of interaction on the basis of these two qualities (Figure 1). These patterns were collaborative, dominant/dominant, passive/dominant, expert/novice. She concluded that collaborative and expert/novice quadrants pair work involved co-construction of knowledge about the language.

Oxford (1997) considered interaction as "personal communication, which is facilitated by an understanding of four elements: language tasks, willingness to communicate, style differences, and group dynamics." Similarly, Philp et al. (2014) described peer interactions as "any communicative activity carried out between learners, where there is minimal or no participation from the teacher. This can include cooperative and collaborative learning, peer

tutoring, and other forms of help from peers." (p. 3). They distinguished collaborative learning and cooperative learning on the basis of the degree of engagement with peers' contributions toward a common goal. The former is more likely to involve learners into sharing their thoughts and responding to their peers. The latter does not assume mutuality or working together even if they try to achieve the same goal; they can distribute and adopt certain tasks or responsibilities to reach their aim. Moreover, Oxford (1997) associated cooperative learning with positive interdependence, accountability, and teamwork. When it comes to collaborative learning, she emphasized the concepts zone of proximal development, cognitive apprenticeship, and scaffolding.

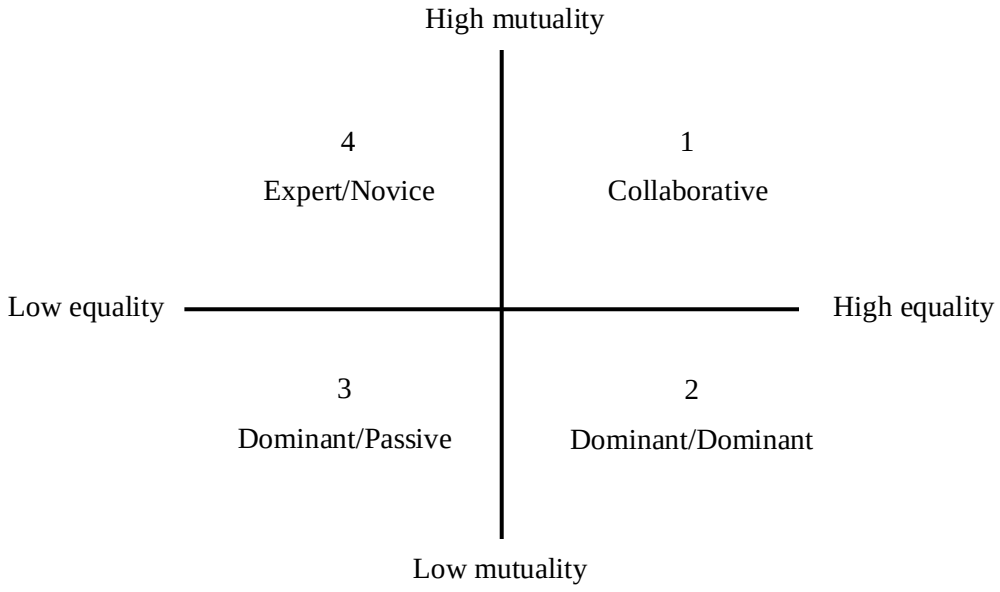


**Figure 1.** A Model of Dyadic Interaction

*Note. Reprinted from Storch, 2002, p. 128 with permission.*

Ehly and Topping (1998) examined peer-assisted learning and concluded that provision of opportunities for rich interactions played a role in attaining learning outcomes. They suggested that interactions could include "pooling of information, agreements, questioning,

clarification and elaboration, and giving feedback; it may also involve conflict and argument, disagreements, challenging, and defending. Probably a mix of these interaction types is desirable for maximum benefit." (p. 37) They also highlighted the importance of encouraging learner reflection following the interactions.

Foster and Ohta (2005) investigated whether the frequency of meaning negotiation moves such as comprehension checks, confirmation checks, and requests for clarification were adequate indicators of learners' collaboration. They concluded that these moves were not adequate to represent collaboration behaviors because learners may still focus on form and assist each other while rewording their thoughts to create comprehensible and correct statements for their peers. In other words, even though meaning negotiation moves suggested collaboration among learners, the lack thereof did not mean that learners did not engage in collaborative behaviors since their attempts at creating clear and correct output may have precluded meaning negotiation and their output may still have assisted their peers. This could be especially pertinent to collaboration tasks entailing written communication because the learners would have some time to compose and edit their output.

### Collaborative Reading

Kiili et al. (2012) define collaborative reading as a socially contextualized form of reading during which the reader interacts with at least one other reader. Collaboration may occur at different phases of the reading activity including the post-reading phase; however, this review focuses on the collaborative activities transpiring while learners read and respond to a given text jointly and simultaneously in an attempt to construct meaning together. Collaborative reading practices engage learners in interactive tasks including, but not limited to, clarifying, commenting, inquiring, and confirming. It is grounded in sociocultural theory since it centralizes

the interactions between readers to create meaning. In other words, learners engage in an intersubjective meaning-making process by sharing contextual knowledge and participating in social interactions for the purpose of reaching a joint understanding (Suthers, 2006) of the text. Collaborative reading is inherently a social process involving learners with varying abilities to partake in dialogue among each other to co-construct information.

Vygotsky (1978) theorized that cognitive development is a result of social interaction during which individuals learned and internalized concepts. Klingner et al. (1998) introduced collaborative strategic reading approach in order to help English language learners acquire academic English and learn content at the same time. Their approach incorporated cooperative learning and instruction of reading comprehension strategies in a framework grounded by Vygotsky's (1978) theory. Cooperative learning allows room for interaction among learners. On the one hand, these opportunities for peer interaction may lead to acquisition of academic English (Jacob et al., 1996). On the other hand, their interactions may be rendered ineffective if they cannot respond to each other's request of assistance. Therefore, it is important for teachers to observe the cooperation process closely to maximize the effectiveness of cooperative learning by making sure that some of the learners take the role of more knowledgeable other during the interaction. Presley et al. (1996) identified some participant behaviors decreasing the quality of interactions during cooperative group work: dominating the conversation, providing too brief responses, and diverting off topic. This is why Jacob et al. (1996) encouraged teachers to monitor groups closely and make adjustments in procedures if they notice patterns of problematic behaviors.

Collaborative strategic reading (Klingner et al., 1998) enhances reading comprehension of English language learners (Khonamri & Karimabadi, 2015). It involves students in small

groups with using four strategies to help one another's comprehension: (1) previewing their prior knowledge and predicting the content of the passage, (2) identifying difficult words and concepts in the passage, (3) restating the most important idea of a paragraph or a section, and (4) summarizing what they learned and creating useful questions to revise the key points (Klingner & Vaughn, 2000). The first strategy is applicable to the pre-reading stage, second and third strategy is for during reading stage, and last strategy is for post-reading stage. During their study with fifth-grade students, a great majority of which spoke Spanish as their L1, Klingner and Vaughn (2000) instructed the whole class on the use of the four strategies above. Once they became familiar with the strategies, they formed groups of 6 or 7. The researchers made sure to include at least two high-achieving students and two limited English proficient students in each group. Until the students were comfortable with collaborative strategic reading, the researchers provided them with cue cards that reminded them of helpful questions and that assigned them different roles: leader, clunk expert, announcer, encourager, and timekeeper. The authors found all members of the groups to achieve vocabulary measures but learners with limited English proficiency did not benefit from the learning activity as much as the rest. The authors thus underscored the importance of teachers' care at structuring the process and monitoring students' interactions.

### Control-Value Theory of Achievement Emotions

Achievement emotions are emotions arising from the prospects of achievement outcomes as well as emotions related to learning activities (Pekrun et al., 2011). They may emerge during a class, practice activities, and tests. Emotions are in three-dimensional groups in accordance with their object focus, valence, and the degree of activation (Pekrun, 2006; Pekrun et al., 2002). Valence refers to the distinction between positive and negative emotions such as enjoyment and

boredom. According to the control-value theory (Pekrun, 2006), achievement emotions develop parallel to the extents of control individuals feel regarding an activity, and the value they attach to the outcome of these activities (Pekrun et al., 2011b). For instance, students may feel enjoyment when they feel they are in control of a learning activity in addition to valuing the activity outcomes such as getting a certificate.

It is possible to argue for a resemblance between achievement emotions the control and goal aspect of Wigfield and Guthrie's (1995) reading motivation model. The control-value theory of achievement emotions is more comprehensive in its scope since it includes not only pre-activity and outcome-based emotions but also process-based emotions. It means that control-value accounts for the emotions learners experience while they participate in the learning activities along with their attitudes toward the activities prior to their participation as well as the value they attach to the prospective outcomes of the activities. Learners exhibit preconceptions and experience some feelings for certain learning activities based on the value they attach to the learning outcome and their anticipations about their performance (Table 1). In addition, they experience certain emotions arising from the progress and nature of the learning tasks. Finally, they exhibit feelings arising from their performance outcomes.

Achievement Emotions Questionnaire (AEQ) is an instrument that measures learners' emotions within the control-value theory framework. Pekrun et al. (2011a, 2011b) developed it to assess class-related emotions, learning-related emotions, and test emotions. AEQ measures (1) activity emotions (enjoyment, boredom, and anger), (2) prospective outcome emotions (hope, anxiety, and hopelessness), and (3) retrospective outcome emotions (pride, relief, and shame). In addition to this classification of emotions, AEQ categorizes emotions based on their valence as (1) positive activating (enjoyment, hope, pride), (2) positive deactivating (relief); (3) negative

activating (anger, anxiety, shame), and (4) negative deactivating emotions (hopelessness, boredom).

**Table 1**

*The Control-Value Theory: Basic Assumptions*

| | Appraisals | | |
|---|---|---|---|
| Object Focus | Value | Control | Emotion |
| Outcome/Prospective | Positive (Success) | High | Anticipatory Joy |
| | | Medium | Hope |
| | | Low | Hopelessness |
| | Negative (Failure) | High | Anticipatory Relief |
| | | Medium | Anxiety |
| | | Low | Hopelessness |
| Outcome/Retrospective | Positive (Success) | Irrelevant | Joy |
| | | Self | Pride |
| | | Other | Gratitude |
| | Negative (Failure) | Irrelevant | Sadness |
| | | Self | Shame |
| | | Other | Anger |
| Activity | Positive | High | Enjoyment |
| | Negative | High | Anger |
| | Positive/Negative | Low | Frustration |
| | None | High/Low | Boredom |

*Note.* Reprinted from Pekrun (2006, p. 320) with permission.

Research on emotions in academic settings mainly focused on test anxiety (Schutz & Lanehart, 2002). Nevertheless, there have been some studies that investigated the relationship between emotions through a broader lense and academic performance. For example, Pekrun et al. (2011a) found a positive relationship between positive emotions such as hope and enjoyment and academic performance. They also argued for the negative impact of negative emotions such as boredom on students' intrinsic motivation, self-regulation, and performance. Similarly, Villavicencio and Bernardo (2013) found enjoyment and pride to be positive predictors of

academic achievement in the form of grades since these emotions manipulated the relationship between achievement and self-regulation. Pekrun et al. (2017) investigated adolescent students' math performance and their emotions. There was a reciprocal relationship between emotions and achievement. Positive emotions were positively related to academic performance. Unsurprisingly, academic performance was positively related to positive emotions.

### Second Language Reading Motivation, Emotions, and Engagement

Gardner (1985) described motivation as a concept involving four aspects: a goal, effortful behavior, a desire to reach the goal, and favorable attitudes toward an activity. It is a crucial factor impacting learning. In its broad sense, motivation is a construct responsible for the reasons behind people's decisions to do an activity, the length of the period they are willing to maintain that activity, and the extent of their efforts to pursue it (Dörnyei, 2000). Its presence enhances the extent of individuals' efforts, increases how much time they spend on a given activity, and promotes desirable emotions toward the activity. Research in various disciplines and educational domains (Dörnyei, 1994; Dörnyei, 2019; Mori & Calder, 2015; Nicholls, 1979; Pintrich, 1999; Ryan & Pintrich, 1997), including the reading domain, has investigated the role of motivation.

Wigfield and Guthrie (1995) investigated elementary school students' reading motivation in L1 and found eleven motivational components under three categories (Table 2). Furthermore, Guthrie and Wigfield (2000) defined reading motivation as "individual's personal goals, values, and beliefs with regard to the topics, processes, and outcomes of reading" (p. 405). The literature investigating second language reading motivation (Dhanapala & Hirakawa, 2016; Kim, 2011; Mori, 2002; Takase, 2007) is primarily grounded in motivation frameworks for L2 learning motivation as well as reading motivation in the first language (L1).

**Table 2**
*Components of Reading Motivation*

| **Competence and Reading Efficacy** | **Achievement Values and Goals** | | **Social Aspects of Reading** |
|---|---|---|---|
| Reading efficacy<br>Reading challenge<br>Reading work avoidance | ***Intrinsic Motivation*** | Reading curiosity<br>Reading involvement<br>Importance of reading | Social reasons for reading<br>Reading compliance |
| | ***Extrinsic Motivation*** | Competition in reading<br>Reading recognition<br>Reading for grades | |

Mori (2002) investigated whether or not foreign language reading motivation differed from L1 reading motivation. She designed her study on the basis of Wigfield and Guthrie's (1995, 1997) reading motivation theory and concluded that there were close resemblances between L1 and L2 reading motivation, particularly in terms of intrinsic and extrinsic factors associated with the value of the reading.

Guthrie and Wigfield (2000) described engagement in reading as motivated and strategic interaction with the text and claimed it correlated with individuals' reading comprehension. Fredericks et al. (2004) suggested reading engagement to be constructed by cognitive, emotional, and behavioral components. Cognitive engagement referred to the involvement of learning strategies to understand the text while emotional engagement meant the emotional reactions to the reading activity. Lastly, behavioral engagement was described as academic involvement with the texts. Engaged readers were readers who were motivated to read, displayed strategic

approaches, socially interactive, and knowledgeable when they constructed meaning from the text (Guthrie et al., 2012).

According to this perspective, reading engagement is closely related to learners' intrinsic motivation and their cognitive abilities needed to participate in strategic interaction with the text. High levels of intrinsic motivation may prolong the amount of time learners are willing to remain on the reading task. This increase may yield improved reading comprehension (Dolezal et al., 2003). In addition to intrinsic motivation and strategic interaction, Guthrie et al. (2004) acknowledged the social aspect of the reading engagement in the form of social interactions. Finally, Guthrie et al. (2012) predicted electronic text to be motivating on the basis of its affordances such as autonomy, efficacy, and value attributed by the learners and they recommended researchers to investigate this premise.

Respecting reading emotions, through the guidance of the control-value theory of achievement emotions (Pekrun et al., 2011a), Hamedi et al. (2020) examined how anxiety, enjoyment and boredom affected EFL learners' reading comprehension. They chose these three emotions only as learners exhibit specifically high levels of enjoyment instead of anxiety or boredom under optimal reading conditions (McQuillan & Conde, 1998). They created English Language Learners' Reading Emotions Scale (ELL-RES) (see Appendix B) by adapting the AEQ (Pekrun et al., 2011a). They selected 18 items from AEQ that are relatively more pertinent to reading activity in English. They validated their adaptation through confirmatory factor analysis. In the same work, they also adapted Wang et al.'s (2016) math and science engagement scale in order to measure cognitive, behavioral, and emotional engagement for reading. Their English Language Learners' Reading Engagement Inventory (ELL-REI) (see Appendix C) has also 18 items validated through confirmatory factor analysis.

In this study, I explored participants' perceptions regarding reading engagement on the basis of the review above. This exploration had the purpose of demonstrating whether the use of the social annotation tool promoted cognitive, behavioral, and emotional engagement. I also sought to understand how participants felt during learning because emotions of boredom, anxiety, and enjoyment would be indicators of their willingness to keep reading.

**Reading Comprehension in English as a Second Language**

Goodman's (1967) whole language approach considered reading a psycoholinguistic guessing game in which the reader utilizes a system of cues to make meaning. He argued that efficient readers processed written information through semantic cues, syntactic cues, and graphophonic cues. Additionally, experiences and texts coming from real life have an important role in whole language approach because learners socialize in a manner similar to the way they use language in their real lives (Brockman, 1994). Students' purposes for learning rather than teachers' are crucial, because incorporating students' needs is likely to contribute to students' motivation. Moreover, this approach focuses on the creating meaning and using students' existing knowledge instead of lack thereof (Brockman, 1994). Such a position centralizes students' role in learning and encourages teachers to facilitate learning. This view emphasized the role of immersing students in rich reading environments rather than explicit instruction of phonics. On the contrary, Hempenstall (2006), who worked in the field of psychology, opposed the idea of viewing reading as a product of contextual prediction and argued for teaching explicit phonemic awareness. Even so, Goodman's (1967) emphasis on facilitating comprehension as well as decoding and providing readers with abundant opportunities to read is still a well-maintained position in many reading programs today.

A contemporary definition of reading competency in its broadest sense involves "understanding, using, reflecting on and engaging with written texts, in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society" (PISA, 2009, p. 23). Additionally, this notion refers to cognitive competencies such as decoding, word recognition, noticing textual features, and awareness of the strategies for processing texts. Frankel et al. (2016) make a distinction between literacy and reading. They define literacy as "the process of using reading, writing, and oral language to extract, construct, integrate, and critique meaning through interaction and involvement with multimodal texts in the context of socially situated practices" (p. 7) and they consider reading as a continuously developing constructive process that needs to be fluent, strategic, and motivated. On the other hand, sociocultural perspective considers reading as a social skill constructed by interaction of learners; not a series of skills to be mastered (Liaw & English, 2017). These definitions are pertinent to the purposes of this study because they directly encompass study participants' involvement with constructing meaning and, importantly, engaging in interactions with multimodal texts in a social context.

Despite the similarities between L1 and L2 reading processes such as representation (identifying words in the mental lexicon), unification (combining words to form clauses and text), and control (revising the existing lexical and syntactic processes), adult L2 reading processes may involve more working memory (Verhoeven, 2017). That need may be connected to certain characteristics of learners such as the age of first exposure to the L2 and proficiency level of the reader (Sebastian et al., 2011). L2 learners tend to have a smaller L2 lexical inventory than their own L1 which can impede their reading comprehension (Verhoeven, 2000).

Furthermore, they exhibit less frequent links between the L2 lexical items compared to those who speak the same language as L1 (Vermeer, 2001).

In today's modern world, individuals face many situations in which they need to interact with a wide range of media to construct and create meaning during their daily lives. The New London Group (1996) coined the term 'multiliteracies' as a pedagogical approach emphasizing linguistic diversity and diverse modes of expression. Cummins (2006) affirmed that some teachers falsely assume students' proficiency in their L1 to be unrelated to their literacy in the dominant language and their course of education. In the meantime, Bernhardt and Kamil (1995), Brisbois (1995), and Carrell (1991) had considered the role of L1 literacy in L2 reading comprehension. In order to understand and facilitate L2 reading instruction, they examined the impacts of vocabulary, grammar, and L1 literacy. They determined the L1 literacy to account for about 15-20% of reading comprehension. In this regard, the multiliteracies approaches underscored the benefits of having learners integrate their cultural and linguistic backgrounds into the process of creating multimodal texts with various digital media. These benefits included enhanced skills at relatively conventional aspects of literacy for L2 learners (Stein, 2000). In other words, when the instruction of reading incorporates media such as texts, photos, or videos from students' real-world experiences and goals, L2 learners' reading skills in academic genres may improve. As Frankel et al. (2016) posited, "If literacy is social practice, then its value is indexed by the authenticity and utility of the tasks students perform in schools. Specifically, tasks will be valued to the degree they engage students in practices that are authentic to life beyond school—in workplace, community, neighborhood, and home settings." (p. 13).

Snow (2002) defines reading comprehension as a process of extracting and constructing meaning simultaneously during a three-dimensional phenomenon involving the text, the reader,

and the activity within a large sociocultural context. She considers reading comprehension as a microdevelopmental process with three microperiods: pre-reading, reading, and post-reading. She also acknowledges the macrodevelopmental aspect of reading comprehension since the reader gains cognitive development and experiences with challenging texts over time. In other words, the learner benefits from both the individual reading process and a sum of distinct reading processes. After defining the conceptual environment surrounding reading comprehension, she categorizes characteristics affecting comprehension as follows: the reader, the text, the activity, and the context. She posits that readers' cognitive capacities, motivation, and different types of knowledge may be influential on comprehension. Then, a text's vocabulary, syntactic features, and content may have an important role as well. I believe these variables are particularly pertinent to L2 reading since vocabulary and grammar are building blocks of language. Next, the reading activity refers to the motivational factors such as readers' purpose, interest, prior knowledge. It also includes decoding, semantic processing, and monitoring. The consequences of reading are part of the variables in reading activity. Finally, Snow (2002) argues that the characteristics of learning environment such as the use of technology and the types of literacy activities can impact learners' attainment of comprehension abilities. These factors are indeed relevant for L2 reading.

In the earlier stages of theoretical views on L2 literacy, interactive approaches to L2 reading posited that reading occurred as a result of a synergy between printed words and learners' prior knowledge and experiences (Anderson, 1999). Two types of aids came into play: top-down and bottom-up supports. On the one hand, employing top-down supports involved readers' past experiences and schemata in order to aid in their understanding. Providing readers with opportunities to activate their prior knowledge through pre-reading activities might enhance

their comprehension of texts in their L2. On the other hand, bottom-up supports were structural or lexical supports helping readers decode the texts. For instance, glossing and teaching grammatical structures would support reading comprehension by filling in the gaps in readers' background knowledge. Macaro (2003) argued for using top-down and bottom-up supports simultaneously for a maximum level of achievement. Activating prior knowledge, introducing certain words and allowing opportunities for grammatical gains could lead to better L2 reading comprehension.

In the meantime, the motivational aspect of L2 reading gained interest among researchers aiming to understand the factors impacting L2 learners' reading comprehension in its entirety since individuals' values, goals, and beliefs may have an impact on the effort they are willing to make on utilizing either top-down or bottom-up supports. Wigfield and Guthrie (1995) identified the components of L1 reading motivation. Building on that, Mori (2002) found L2 reading motivation to be similar to L1 reading motivation, especially in terms of intrinsic and extrinsic motivation. Intrinsic motivation had a positive relationship with the amount of reading in Takase's (2007) and Tercanlıoğlu's (2001) studies. Even though Takase (2007) and Ölmez (2015) did not find a significant relationship between participants' reading comprehension and motivation, Dhanapala and Hirakawa (2016) found that only extrinsic motivation had an impact on L2 reading comprehension. Clearly, there is a need for more research investigating the relationship between L2 reading motivation and comprehension to gain more insights.

An interactive and multiliteracies view guides this study as reading texts with different modes (i.e., annotations) reflecting students' own backgrounds will incorporate top-down (e.g., background knowledge) and bottom-up (e.g., glossing) supports whose necessity will be identified by the students themselves. Additionally, social constructivism (Vygotsky, 1962,

1978) views learning to take place in environments allowing learners to engage in dialogues to construct meaning. This is why this study focuses on examining an online reading environment believed to facilitate learners' communication with each other and the text as they assist each other to understand the reading text. If students have an opportunity to draw on their own prior knowledge, identify lexical items helping or impeding their comprehension, notice clauses outlining the text, add images or external links, they may help each other's understanding. As a result of these interactions, students' independence at L2 reading may increase in notable ways (Thomas & Poole, 2017).

**Instructional Technology for Teaching Reading in Second Language**

According to Liaw and English (2017) "reading in the digital age is not just about decoding text; it is also critically evaluating and co-constructing on the globally-connected information super highway" (p. 71). Both the permeation of the need for digital literacy and the affordances perceived by language teachers led to an upward trend in using instructional technology for teaching second language reading. Digital media has become an essential part of instructional technology in the last decade. Social networking and self-publishing tools have enabled instructional designers to enrich their resources. In the future, new devices as well as novel ways of information processing and sharing will emerge. Consequently, language teaching will witness innovations within the light of these new possibilities. For the purpose of reviewing possible uses of such technology in L2 reading classrooms, I will briefly examine the use of learning management systems, digital resources, mobile-assisted language learning, computer-mediated communication, and social media tools.

### Learning Management Systems

E-learning is a broad term used for instructional tasks involving electronic technology. As Dempsey and Van Eck (2018) stated, "for years, we have attempted to separate learning by modality (computer-based instruction, multimedia, blended and online learning), by geography (distance, face-to-face, hybrid), by time (synchronous versus asynchronous), and various combinations of each (e.g. blended-hybrid)" (p. 229). Instructional designers may utilize learning management systems (LMS) when their design involve various combinations of learning mentioned above. Learning management systems with face-to-face instruction may function as a facilitating tool for community communication after school hours or an inventory of reading materials assisting learners in completing required tasks and achieving learning objectives. Some LMSs allow the instructional designers to embed external tools, which may enrich the quality of interaction and information sharing. Furthermore, LMSs may bring individuals who are physically apart from each other together when they manage distance learning. LMSs usually allow teachers to design and create their own instructional plan and materials. Therefore, the way teachers use these systems may vary in accordance with learner profiles, learning objectives, institutional standards, and program-specific requirements. In all, LMSs may be useful for organizing the instructional activities, creating online libraries for learners, and facilitating online interactions.

### Digital Resources

Second language learners may struggle with comprehension when they encounter unknown words in the texts they read because vocabulary learning is a basic building block of language acquisition. Individuals assign meaning to the input they receive and create meaningful utterances as output largely through the choice of words they make. The advancement in the

technological resources for education manifested itself in the challenging task of vocabulary instruction as well. There have been a great number of Web 2.0 tools to promote vocabulary acquisition such as Quizlet and Memrise. Selecting the most suitable one for a group of learners is a challenge faced by many teachers. Promoting self-regulated language learners might enhance their vocabulary learning by familiarizing them with resources within their reach.

Digital dictionaries available on the web are common reference resources to overcome comprehension challenges caused by unfamiliar vocabulary or terminology. Two popular monolingual web dictionaries are the Merriam-Webster and the Oxford Learner's Dictionary. Most web dictionaries provide the reader with information regarding the lexical category of the word, its meaning, its pronunciation, and its use in example sentences. There are bilingual dictionaries as well, which second language learners favor (Koren, 1997). Ma (2014) suggests that vocabulary learning takes places through two sets of parallel processes each containing four stages. During the internal memory processes, learners perceive the word form, assess its meaning, build the word entry, and retrieve it. During the external processes, they discover the new word, obtain the word meaning, map the word meaning with form, and finally consolidate the word. This framework posits that a new word needs to be noticed by the brain either through visual or auditory cues. Once the brain notices the word, the meaning needs to be accessed from the mental lexicon which might occur by guessing the word's meaning or looking it up in a dictionary. In the next stage, the word needs to be established as an L2 lexical entry in the lexicon through repetition, imagery and so on. As the new word is retrieved from the lexicon for receptive or productive use, its memory trace will be reinforced (Ma, 2017, pp. 46-47). When language teachers design vocabulary learning tasks, there is need to offer opportunities for retrieval of these lexical items as a result of a variety of tasks so that the memory trace can be

strengthened. Wordchip and WUFUN are but two applications for learning lexical items. These applications provide language learners with contextualized implicit and explicit vocabulary learning. They do so by allowing the learners to go through four stages of vocabulary learning, stages which Ma (2017) described as follows: "meeting new items in context, accessing the meaning via lexical tools, mapping the word meaning and form, to receptive or productive use of the items" (p. 51).

Additionally, e-books, videos, photos, pictures, animations, audio may support comprehension by aligning instructional materials with different learning styles. According to cognitive theory of multimedia learning (Mayer, 2005), combining words with relevant pictures and organizing them through prior knowledge leads to meaningful learning. Based on this theory, Alkhasawneh et al. (2012) suggested that students who use verbal and pictorial channels simultaneously could achieve better at reading comprehension than those who use only one channel. Reviewing multimedia annotations, Liontas (2001) suggested teachers to be cognizant of individual differences in learners in an effort to provide readers with visual and auditory aids while making reading strategy training available for everyone.

### Mobile-Assisted Second Language Reading

Mobile-assisted language learning is under the umbrella of computer-assisted language learning (Bateson & Daniels, 2012). Its distinction comes from the nature of the medium through which language learning takes place: mobile devices, tools developed for mobile devices, and materials presented by mobile technology. The interconnectedness of everyday life and mobile device use has been an appealing area of instructional design. Applications aiming to support vocabulary learning by allowing students notice new words and structures in context, to annotate

on the text, text-to-speech software, dictionaries, SMS are some of the mobile tools for L2 reading instruction (Liaw & English, 2017).

Mobile-assisted language learning tools for second language learning increased the amount of reading (Lin, 2014) and reading achievement (Lin, 2014; Oberg & Daniels, 2013). Immersing learners in text-rich environments may lead to more engagement and practice, which in turn contributes to their reading competence. Tai (2012) and Oberg and Daniels (2013) found an increase in students' attitudes toward language learning when students engaged in mobile-assisted reading. Kim (2014) found a significantly better reading comprehension among students who discussed reading materials via mobile devices compared to the group who did not.

**Computer-Mediated Communication**

The introduction of local computer networks and the internet made it possible for individuals to communicate in novel ways. Computer-mediated communication (CMC) is a process of exchanging knowledge or self-expressions through two or more computers connected to each other via a network. The use of chatrooms, blogs, or e-mails are some examples of CMC tools. CMC found itself a platform in language teaching settings in various ways: text-based mediation, many-to-many communication, synchronous discussion, time-and-place-independent communication, one-to-one distant exchanges, many-to-many distant exchanges, and hypermedia information and student publishing (Warschauer, 1997).

When computer-mediated communication (CMC) first arose in L2 learning contexts around three decades ago, its features were less diverse than today. First-generation CMC (CMC 1.0) tools enabled learners to share a physical location to communicate with each other simultaneously via a local network. These tools were predominantly text-based during the initial stages of CMC until the addition of audio, pictures, and video. Recently, Web 2.0 tools made it

possible to create communities of learners interacting with non-static content without requiring them to share a local network.

The first generation of CMC (CMC 1.0) tools relied on text-based mediation in its early years (Chun, 2011, p. 669). The traits of CMC 1.0 tools enabled individuals to execute written communication through interconnected computers. The mediating agent, computers, allowed them to reconsider, edit, store, and retrieve their interactions. Writing functioned in a similar way to speech during these interactions (Warschauer, 1997). The CMC 1.0 tools evolved in time and later audio-visual components became part of the communication (Chun, 2011, p. 669). The second generation of CMC (CMC 2.0) tools involved social networking components. Individuals exchanged ideas through texts, audio, and video in social networks asynchronously and synchronously (Tables 3 and 4).

Compared to paper-based collaborative writing tasks, CMC has certain advantages. For instance, participants are able to exchange output and input in a relatively faster manner. Compared to activities through speech, CMC is convenient for learners to take some time before they compose their response (Sproull & Kiesler, 1991). Kroonenberg (1994) found students to express their arguments more (Kern, 1995) and with better quality (Warschauer, 1996) when they participated in chatroom discussions.

CMC provides learners with an environment favoring the learners' emotional state. Krashen's (1985) Affective Filter Hypothesis argues for the increased language learning benefits of exhibiting low-level anxiety and strong motivation. Research investigating the affective impacts of CMC found that CMC enhanced learners' motivation and lowered their anxiety (Beauvois, 1995; Kelm, 1998; Meunier, 1998). Moreover, Meunier (1998) suggested that learners' L2 anxiety levels decreased in the CMC setting while they exhibited increased

creativity and willingness to take more risks. CMC enables students to present their ideas without the need for permission from the teacher and this creates the opportunity to be heard especially for students who may hesitate from sharing their insights due to personality traits (Warschauer, 1997). This may lead to increased cooperation among students (Balester et al., 1982). They may work together towards the goal of meaning-making with a sense of community and audience.

**Table 3**

*Types of CMC 1.0*

| **CMC 1.0** | | | |
|---|---|---|---|
| Asynchronous CMC 1.0 | | Synchronous CMC 1.0 | |
| Text-Based<br>Emails<br>Bulletin Boards<br>Forums | Audio-Visual Based<br>Audio-Boards | Text-Based<br>Instant Messaging<br>Chat<br>Multi-User Interactive Games | Audio-Visual Based<br>Audio-Conferencing<br>Video-Conferencing |

*Note.* Reprinted from Chun (2011, p. 670).

Many-to-many CMC resembles to a face-to-face oral group discussion; however, it consists of different dynamics in terms of some aspects such as turn-taking, interruption, balance, and decision-making (Warschauer, 1997). CMC does not underscore status differences, and this may promote a balanced participation in the discussion across different groups of races, genders, socioeconomic status (Sproull & Kiesler, 1991). Students may feel less intimidated to compose their messages when the participants are not able to access information about their backgrounds.

**Table 4**

*Types of CMC 2.0*

| CMC 2.0 | |
|---|---|
| Asynchronous CMC 2.0 | Synchronous CMC 2.0 |
| Text, Audio, Video<br>Blogs<br>Wikis<br>Podcasts<br>Vodcasts<br>YouTube | Text, Audio, Video<br>Chatbots<br>Virtual Worlds<br>Massively Multiplayer Games<br>Intelligent CALL |
| Twitter<br>Facebook<br>Instagram | |

*Note.* Adapted from Chun (2011, p. 670).

In addition to its affective benefits, CMC may constitute a platform for attaining language learning outcomes. Warschauer (1996) found students to use more complicated structures during online conversations than face to face (FTF) exchanges. Beauvois (1998), Kern (1995), and Salaberry (2000) found increased grammatical competence of learners in synchronous CMC 1.0 settings. Blake (2000) asserted that L2 Spanish learners primarily participated in meaning negotiation moves to clarify lexical confusions. Sotillo (2000) found the discourse functions in CMC to be similar to those in FTF classrooms. Learners in various CMC environments (Lee, 2001, 2002; Smith, 2003) implemented certain communication strategies to negotiate meaning, help each other, compensate, display politeness, and use fillers to bridge the gap between ideas through participating in expressive talk together to connect prior knowledge with new ideas. Oral competence of learners improved as a result of written CMC activities (Abrams, 2003; Blake,

2009). Finally, Lee (2010) suggested that blogging, a CMC 2.0 tool, improved adult learners' writing fluency and increased their motivation.

Despite the many affordances CMC provides, there are some challenges when language instructors integrate it into the learning environment. The procedures to observe and participate in the CMC may be complicated. In addition, hostile language may negatively affect the communication (Janangelo, 1991). The abundance of text-based messages in CMC may lead to cognitive overload and cause the learners to ignore reading their groupmates' messages (Moran, 1991). Intercultural differences and cultural preconceptions may hinder distant CMC (Kramsch & Thorne, 2002).

Finally, some researchers (Abrams, 2001; Chun, 1994; Kern, 1995; Warner, 2004) have investigated CMC from a sociolinguistic perspective. Chun (1994) examined learners' interactive competence as they participated in CMC 1.0, referred to as computer-assisted classroom discussion in the study. She suggested that learners played an active role in managing the discourse with the freedom to propose a new topic, asking for additional information, and commenting on others' ideas. Students' roles were centralized as opposed to teacher's and it resulted in more opportunities for communicative practice. Kern (1995) investigated learners' use of discourse functions. He compared the amount and features of the discourse produced by French students engaging in written CMC and face-to-face oral conversation. He found that students formed two to four times more sentences in the CMC setting than they did in the oral discussion. The communication occurred among students which decentralized the teacher in the CMC condition. Even though students favored CMC over the oral discussion, instructors were cautious about it. Abrams (2001) argued that learners may adopt various roles as participants of CMC. She compared learners' roles across a synchronous CMC writing environment and a

paper-based one. She found that in both conditions, learners adopted the roles of the speaker, respondent, scolder, creator of in-group identity; however, learners acted as the attacker, challenger, supporter, and joker only in the CMC setting. Warner (2004) suggested that CMC may enhance L2 awareness through language play. She emphasized the non-referential aspect of the communication in the CMC and recommended SLA researchers to investigate language play as a conventional use of language.

### Social Media Tools for L2 Reading Instruction

The widespread use of social media across various age groups arouse interest among people with various roles in educational institutions. School staff use social media applications to spread announcements, share important events, market their programs, and create a sense of community. Some teachers use these applications to present small but regular chunks of information related to the learning objectives of the courses they teach. Moreover, teachers can use these tools to generate and facilitate conversations among learners to confirm the attainment of learning objectives or diagnose the need for supporting learning tasks. Additionally, social media tools may enable teachers to curate authentic materials for a particular group of learners. Despite these possibilities, integrating social media tools into instruction has some challenges such as prioritizing learning objectives rather than using the tools, ensuring learners' privacy, avoiding intellectual property infringement, and accessibility (Dennen, 2018).

Social media may facilitate reading instruction in various ways. Through text-friendly social media tools such as Facebook groups, teachers can create a platform to immerse students with a wide range of reading materials and encourage students to have a conversation about them. Another possibility is to use audio-visual content to teach phonics. Text, visual, or audio-visual content on social media may offer lexical support for second language reading.

Microblogging tools like Twitter or communication tools such as WhatsApp may provide learners with an opportunity to engage in short and quick reading and writing tasks in the target language. Through those tools, learners can submit their requests for clarification, share their opinions, or confirm their understanding.

**Literature on Using Social Annotation Tools to Enhance Reading Comprehension**

Social annotation (SA) tools may be defined as online tools allowing a group of users to work on a text without requiring them to share different copies of the same file as they make changes. Information sharing occurs instantly via an online Web 2.0 tool. SA tools enable readers to mark up the text simultaneously and share their annotations with their designated groups. Hylighter and eComma are examples of such tools. SA may enhance learners' engagement with the texts and reading activities. SA tools usually allow learners to add comments, ask and answer questions, add relevant supporting media, highlight in different colors, underline, and draw on a given text. The use of SA tools may enable readers to collaborate with each other to reach the goals of understanding the text and recognizing major textual features.

Collaborative reading through SA tools may enhance higher-order thinking on the text (Thoms & Poole, 2018). Students may achieve a deeper reading comprehension as a result of scaffolded tasks towards their ZPD with the help of MKO. In addition to enhanced comprehension, they may gain awareness about textual features through collaborative analysis and transfer this awareness to their writing skills. SA tools enable learners to interact with each other synchronously and asynchronously. Sizes of the collaboration groups may have an impact on the efficiency of the use of SA tools in reading classes. Mendenhall and Johnson (2010)

investigated the use of Hylighter and argued that students in small groups engaged in deeper understanding when they collaboratively analyzed the texts.

I found 14 studies exploring the use of SA tools in L2 settings (see Appendix G). The target languages in these settings are English (10 studies), Spanish (2 studies), Chinese (1 study), and French (1 study). The majority of these studies analyzed both qualitative and quantitative data (Table 5).

**Table 5**

*Number of Studies by Design*

| Study Type | Number of Studies |
|---|---|
| Quantitative | 5 |
| Mix-Method | 7 |
| Qualitative | 2 |

Various SA tools were used in the selected studies (Table 6). eComma was used in two studies (Blyth, 2014; Thoms et al., 2017) whereas Hylighter was used twice (Thoms & Poole, 2017; Thoms & Poole, 2018). Additionally, three studies explored Google Docs as a SA tool (Liu & Lan, 2016; Tseng & Yeh, 2018; Yeh et al., 2017). One study investigated the use of A.nnotate (Tseng et al., 2015), and the rest of the studies in the review pool examined researcher-created annotation tools.

Six key dependent variables were identified in the available literature (Figure 2). Seven out of the 14 studies investigated the relationship between reading comprehension and SA tools. Ten studies explored learners' attitudes and perceptions toward the use of SA tools. One study (Chen et al., 2016) investigated foreign language reading anxiety and a researcher-created SA

system. In addition, Liu and Lan (2016) examined learners' motivation and SA tools. Blyth (2014) explored the perceptions of four instructors teaching English or French regarding the affordances and challenges eComma poses. Reading comprehension and learners' attitudes often overlapped as key variables in the studies.

**Table 6**

*Number of Studies by the Annotation Tool*

| Social Annotation Tool | Number of Studies |
|---|---|
| eComma | 2 |
| Hylighter | 2 |
| Google Docs | 3 |
| A.nnotate | 1 |
| Researcher-created Tool | 6 |

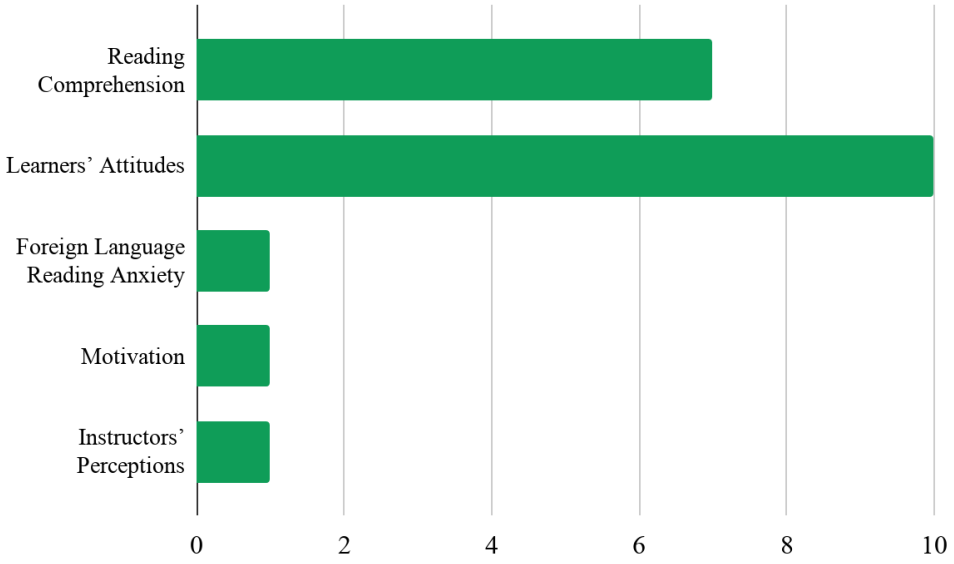


**Figure 2.** Number of Studies by the Dependent Variable.

Highlighting and underlining were the most common interactions between the readers and the text. Some SA tools allowed circling and free-writing in addition to typing. The use of a dictionary (Lo et al., 2013) and checking the translation (Chang & Hsu, 2011) were available in one instance each. When it comes to interaction among the learners, commenting was the most common, if not the essential feature of SA tools in this review. Chatrooms were present in Yeh et al.'s (2017) study using Google Docs. The collaboration often occurred through group discussions, asking and answering questions to the peers. Even though there were a number of different SA tools in the studies, their functions and features overlapped.

Chang and Hsu (2011) found their CALL system to have a significant and positive impact on EFL learners' reading comprehension. They also concluded that groups of two, three, and four yielded better results than the individual students' work with the system. However, groups of five did not produce the same favorable results. Lo et al. (2013) found that the experimental group had significantly better scores at the cued recall test and the free recall test aligning with Yang and Lin (2015). Chen et al. (2014) stated that the reading annotation ability of learners in the experimental group using their digital annotation system with self-regulated learning mechanisms significantly correlated with their reading comprehension. In some studies, comprehension improved in all groups, not just the experimental group (Chen et al., 2016; Yeh et al., 2017). Tseng and Yeh (2018) reported that low-achieving EFL students significantly improved their comprehension after they learned how to use reciprocal teaching strategies with SA ($t(21) = -6.49$).

Chang and Hsu (2011) reported that around 70% of the students on average felt that the CALL system was useful, easy to use, and acceptable. The participants in Lo et al. (2013) showed a positive attitude towards the researcher-created SA tool, Paragraph Annotator.

Students thought that SA tools helped their comprehension (Nor et al., 2013). They also wished for a user-friendly interface and a deeper level of conversation (Thoms et al., 2017). Finally, questioning was the most useful strategy followed by predicting, summarizing, and clarifying (Tseng & Yeh, 2018).

This review showed that SA tools were employed for collaborative reading activities in the target language across different levels both in terms of language proficiency and instruction level. Participants in some studies had low-proficiency in the target language, some studies examined intermediate learners, and some studies were in advanced second language settings. There were studies conducted in high school settings (Chen et al., 2014; Chen et al., 2016) undergraduate settings (Blyth, 2014; Chang & Hsu, 2011; Liu & Lan, 2016; Lo et al., 2013; Nor et al., 2013; Thoms et al., 2017; Thoms & Poole, 2017, 2018; Tseng et al., 2015; Tseng & Yeh, 2018; Yang & Lin, 2015; Yeh et al., 2017), and graduate settings (Blyth, 2014). Instructors thought that digital reading did not replace the traditional form of reading, but it transformed reading practices instead (Blyth, 2014). An experimental condition involved instructors in the collaboration process to provide the learners with guidance during which learners with low-level anxiety engaged in a higher number of annotation activity (Chen et al., 2016). Instructors and students used SA tools to identify key textual elements such as the main idea, supporting details, and the concluding sentence (Lo et al., 2013; Nor et al., 2013; Tseng et al., 2015). Thoms and Poole (2017, 2018) required students to read poems in Spanish, annotate the poems, and respond to each other at certain points in a week and considered the SA activity as a graded assignment. Writing summaries (Nor et al., 2013; Tseng et al., 2015; Tseng & Yeh, 2018; Yeh et al., 2017) and posting discussion entries (Yeh et al., 2017) were also part of the SA process in some cases.

Upon reviewing the available literature on collaborative online reading, reading motivation in L2, and CALL reading, I noticed the importance of (1) understanding what drives learners and maintaining their interest, (2) ensuring students' command of the target SA tool, (3) providing learners with a choice for their preferred reading aid, (4) structuring and monitoring the interaction among learners and the text, and (5) creating small groups.

**1) Understanding what drives learners and maintaining their interest**

Practitioners and researchers need to know what enhances learners' language learning process. Motivation is considered a key learner variable because it "is responsible for why people decide to do something, how long they are willing to sustain the activity, how hard they are going to pursue it" (Dörnyei & Ushioda, 2013). When students freely choose to enroll in a language class, they already have certain reasons and expectations driving them to make this decision. Instructors need to maintain students' willingness to make efforts for the pursuit of increasing their language skills. Such a willingness has a correlation with the nature of the emotions they experience during their involvement in the instructional tasks. In order to motivate learners, Dörnyei (2005, pp. 111-113) maintains four principles of teaching: (1) creating the basic motivational conditions, (2) generating initial student motivation, (3) maintaining and protecting motivation, and (4) encouraging positive retrospective self-evaluation. Basic motivational conditions refer to safe and supportive environment. Initial student motivation involves L2-related values, beliefs, attitudes, and the relatability of the learning materials. The third principle is about stimulating learners, promoting cooperation and self-motivating strategies. Finally, the last principle is for increasing learner satisfaction through feedback, meaningful rewards, and grades.

It is possible to increase reading engagement through instructional practices (Guthrie & Wigfield, 2000). Since positive activating and deactivating emotions are found to enhance academic performance, instructors and/or instructional designers may improve students' learning by designing tasks that learners deem valuable in accordance with their goals. Moreover, learning tasks need to be feasible in order not to cause negative deactivating emotions such as anger and hopelessness. Scaffolding may be an effective way to increase learners' engagement in the instructional activities by managing their emotions to avoid anxiety and to promote relief and pride.

When instructors design their reading materials in digital environments, they need to think about the profile of the learners and select a format that best supports their comprehension and vocabulary learning. Letting students interact with the text and each other rather than providing them with readily-available vocabulary glosses may give them a chance to use reading strategies such as using contextual clues to guess the meanings of unknown words. On the one hand, this may lead to increased reading engagement as the students are actively processing the text by putting effort into the task. On the other hand, there is also a risk for resulting in cognitive load by too many glosses. The instructional designer needs to select a text in students' proficiency levels in order to prevent both the cognitive load and negative deactivating emotions.

**2) Ensuring students' command of the target SA tool**

Instructors need to consider their students' digital literacy skills before making the decision of integrating an SA tool into their reading class. If the students do not have basic digital skills, they should not challenge them with information load that may interfere with their reading comprehension in the next stages. In addition to this, there is a wide range of SA tools available most of which offer similar functions such as highlighting and commenting. Some have

a rather minimalist design than the others. Thoms et al. (2017) found students would rather receive a more user-friendly interface and a deeper level of conversation in the collaborative online annotation task. It may be a good idea for instructors to experiment with the tool before introducing it to the class. After they select one, they should provide students with both hands-on activities and fixed instructions and/or tutorials available for students' reference. Videos may be an efficient way of providing essential information about a new tool to the students since they can refer back to it if necessary.

**3) Providing learners with a choice for their preferred reading aid**

Students with different strengths of intelligences or with different preferences may support their own comprehension when they are offered an option to support the textual input through their preferred mode. This way, learning can be personalized. Plass et al. (1998) investigated the relationship between learners' reading comprehension in German and their learning preferences. Their comprehension was better when they referred to their preferred mode of annotation (textual or visual). Reading instruction was more effective when students had access to multimedia annotations and when they had a choice to actively select the format of the annotation. Given this finding, it may be possible to argue for expecting an improvement in reading comprehension when learners have a say in the multimedia aids given in the text.

**4) Structuring and monitoring the interaction among learners and the text**

Instructional designers may create assessment tasks in a manner that not only facilitates better comprehension but also prevent cognitive load when SA tools are to be used. Al-Shehri and Gitsaki (2010) integrated a cognitive psychology perspective into the discussions of online reading through CALL. They investigated L2 students' reading comprehension and vocabulary learning through integrated and split-attention formats. They randomly assigned 20 ESL learners

with intermediate proficiency into four conditions: split-attention no dictionary (SAND), split-attention with an online dictionary (SAOD), integrated format no dictionary (IFND), and integrated format with an online dictionary (IFOD). Participants participated in a typical reading task under SAOD and SAND conditions followed by comprehension check questions. In IFND and IFOD conditions, the comprehension check questions were inserted inside the text after a relevant part. Findings showed that integrated format facilitated comprehension better than split-attention format. Furthermore, students under online dictionary conditions performed better at the vocabulary test but they had also spent more time on the reading task. In order not to overwhelm students with too much input (textual, visual), instructors need to be aware of students' cognitive capabilities and look for the optimal conditions to facilitate reading instruction. Integrating comprehension checkpoints within the text may result in increased comprehension. In the context of reading via SA tools, such an approach may create a structured platform for the exchange of ideas and thus promote purposeful interaction.

**5) Creating small groups**

When students interact in a big group, some of them may dominate the conversation or not participate at all in accordance with their personal traits. Yet the group may still achieve their goal since numerous students bring their forces together. In a collaborative reading task using a SA tool, some students may experience anger when a group member has already pointed out something they would like to mention. Thoms and Poole (2018) reported how students found it challenging to add distinct comments. Chang and Hsu (2011) found an increase in students' reading comprehension when they were in groups of twos, threes, or fours compared to their comprehension when they read individually. Such a difference did not exist when students were in groups of five. Groups of three were the ideal group size.

## Summary

In this chapter, I presented the theoretical framework of the study, the use of instructional technology for L2 reading, and a review of available literature on using social annotation tools for reading in another language. The review showed that social annotation tools are likely to increase student engagement and motivation. However, there is not enough research on their use when it comes to adult ESL learners in hybrid or online higher-education settings. Through this study, I hope to uncover study participants' perceptions with respect to their peer support and interactions, reading engagement, and comprehension. The next chapter introduces the methodology and research design of this study.

# CHAPTER 3: METHODOLOGY

## Introduction

In this chapter, I present the research design of this dissertation study. First, I recite the *a priori* research questions guiding this study. I then describe the context of inquiry and introduce participants. Following these sections, I discuss the online social annotation task. After that, I discuss the research design, describe the data sources and data analysis procedures, and review the ethical considerations necessary to protect the participants' identities and rights.

## *A Priori* Research Questions

The following research questions guide this study:

(1) In what ways do the study participants perceive employing the social annotation tool promoted their peer support and interactions while reading a text?

(2) In what ways do the study participants perceive employing the social annotation tool promoted their engagement with reading?

(3) In what ways do the study participants perceive employing the social annotation tool promoted their reading comprehension?

## Context of Inquiry

The study site was a language learning program in a major southeastern university. It provided academic English courses for undergraduate admission-seeking international students. Learning objectives of the courses in the program include thinking critically, communicating ideas, and performing tasks and projects. In addition to increasing students' competence in the English language, the idea of introducing students with foundational skills and strategies

necessary for academic study in the USA guided the design of these courses. The students needed to have one of the following scores to enroll in the program: 65 on TOEFL, 5.5 on IELTS (5.0 in all sub-scores), 44 on PTEA, or 95 on Duolingo, which showed that the participants had upper-intermediate proficiency in English at minimum.

The course in the focus of this dissertation study was a hybrid course involving face-to-face and online instruction. The course was active from May 2021 to August 2021. The students met twice a week on campus and twice a week online. Some students joined all the four weekly sessions online from outside USA. The purpose of the course was to equip international students with academic English skills as they research, produce papers, and deliver presentations in various academic genres with appropriate academic language use. The major assignments to complete the course included a rhetorical analysis, an annotated bibliography, and an argumentative research essay.

**Sampling Technique: Homogenous Purposeful Sampling**

Purposeful sampling refers to intentionally selecting individuals and sites for the purpose of learning or understanding the central phenomenon (Creswell, 2012). Homogeneous purposeful sampling is a strategy involving the selection of "certain sites or people because they possess a similar trait or characteristic" (Creswell, 2012, p. 208). I intentionally selected an EAP course for international students in a southeastern university because of its target group with similar proficiency levels, its focus on academic English, and its incorporation of online collaborative reading.

## Participants

There were 14 participants in this study (Table 7). They were from ten different countries: China, Russia, Vietnam, Panama, Kuwait, Bahrain, Spain, Kyrgyzstan, France, and Kenya. They spoke seven different first languages: Chinese, Russian, Vietnamese, Spanish, Arabic, French, and Kiswahili. They were 18 to 26 years in age. The instructor of the course placed them in five groups for the purposes of annotated bibliography and argumentative essay assignments. All the groups except Group 5 had three members. Group 5 had two members. Groups 1, 2, 4, and 5 had members with different first languages. Two out of three members in Group 3 shared a first language. Their self-reported English proficiency levels were intermediate and advanced.

**Table 7**

*Demographic Information*

| Group | Participant ID | Age | First Language | Country of Origin | Self-Reported English Proficiency Levels |
|---|---|---|---|---|---|
| 1 | G1S1 | 20 | Chinese | China | Intermediate |
| 1 | G1S2 | 19 | Russian | Russia | Advanced |
| 1 | G1S3 | 18 | Vietnamese | Vietnam | Advanced |
| 2 | G2S1 | 26 | Chinese | China | Advanced |
| 2 | G2S2 | 20 | Spanish | Panama | Intermediate |
| 2 | G2S3 | 18 | Arabic | Kuwait | Advanced |
| 3 | G3S1 | 20 | Arabic | Bahrain | Advanced |
| 3 | G3S2 | 18 | Arabic | Kuwait | Advanced |
| 3 | G3S3 | 18 | Spanish | Spain | Intermediate |
| 4 | G4S1 | 18 | Chinese | China | Advanced |
| 4 | G4S2 | 19 | Russian | Kyrgyzstan | Intermediate |
| 4 | G4S3 | 18 | French | France | Advanced |
| 5 | G5S1 | 19 | Kiswahili | Kenya | Advanced |
| 5 | G5S2 | 19 | Arabic | Kuwait | Advanced |

## Instructional Technologies Used

Participants and the instructor frequently used Canvas, a cloud-based Learning Management System (LMS). It is available on mobile platforms as an app. Additionally, students and instructors have access to it on the web. Canvas incorporates various inherent functions such as Announcements, Discussions, Modules, Assignments, and Pages. Instructors and school administrators have the option to embed external tools such as Turnitin. This course used its Modules tab to organize the resources, materials, assignments, and grades.

*Hypothesis* was another technology in this course. It is a social annotation (SA) tool, installed as a Google Chrome extension and it allows users to highlight, add notes, lists, images, videos, .gifs on any given website as well as .pdf files. Users can save their annotations and share them with a designated group. They are able to simultaneously work on the same document or website (Figure 3).

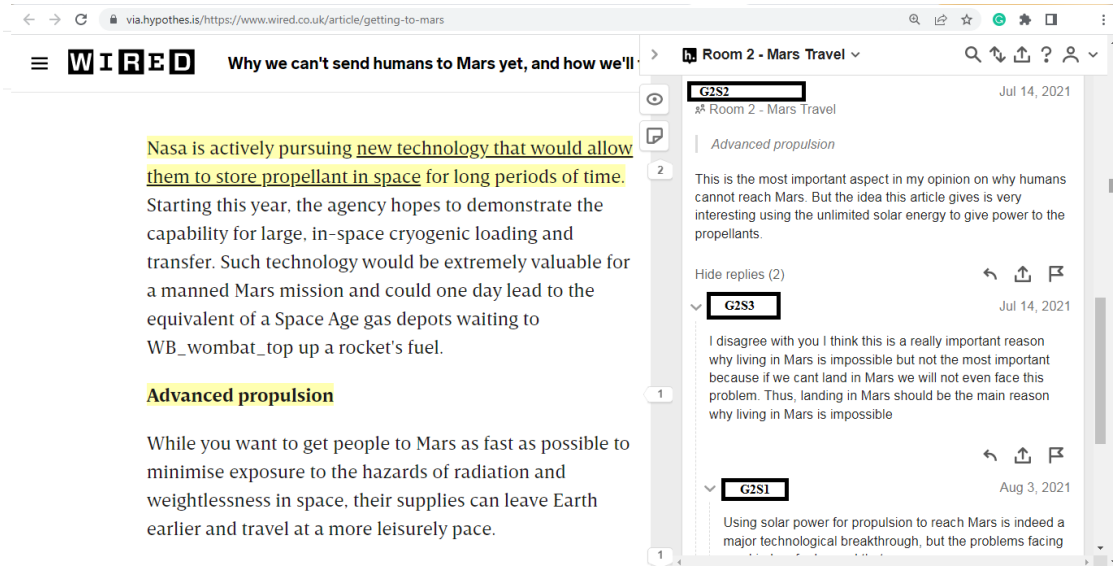


**Figure 3.** Hypothesis Annotation Sample on a Web Article.

Participants in this study enrolled in two *Hypothesis* groups: one for the whole class, and another for their small group. When they needed to add an annotation, they needed to activate *Hypothesis* first, make sure they are logged in, and choose their target group (Figure 4).

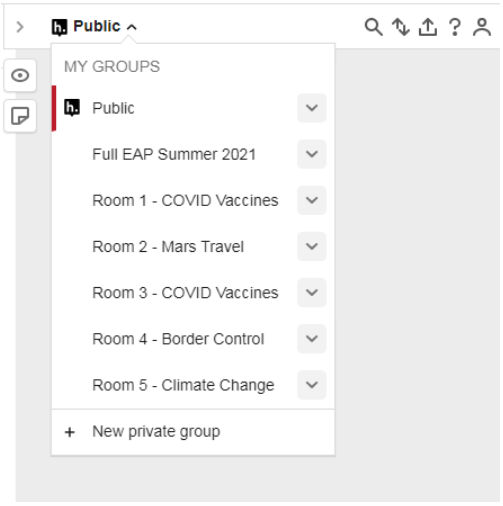


**Figure 4.** Choosing Hypothesis Groups.

Participants also used Microsoft Teams to join the online sessions of the course. Microsoft Teams is a collaboration application enabling its users to join online meetings through audio, video or chat, sharing files, sharing their screens, scheduling future meetings. Some participants joined all the class sessions using this tool as they attended the course from a remote location and all students used it for two online sessions per week. The instructor used this platform for making announcements.

**Description of the Social Annotation Task**

The social annotation task lasted six weeks, the first of which familiarized the participants with the *Hypothesis* tool and its functions such as adding comments, notes, images, links on the portions of the text that they highlighted. The main annotation activity lasted for five weeks. First, the instructor of the course created five groups on the dedicated webpage of

*Hypothesis* tool. Then, the instructor provided the participants with links to join their groups. Visiting their groups' webpage (Figure 5) allowed group members to have their own environment for gathering resources and annotating them without a need to exchange email addresses to start working.

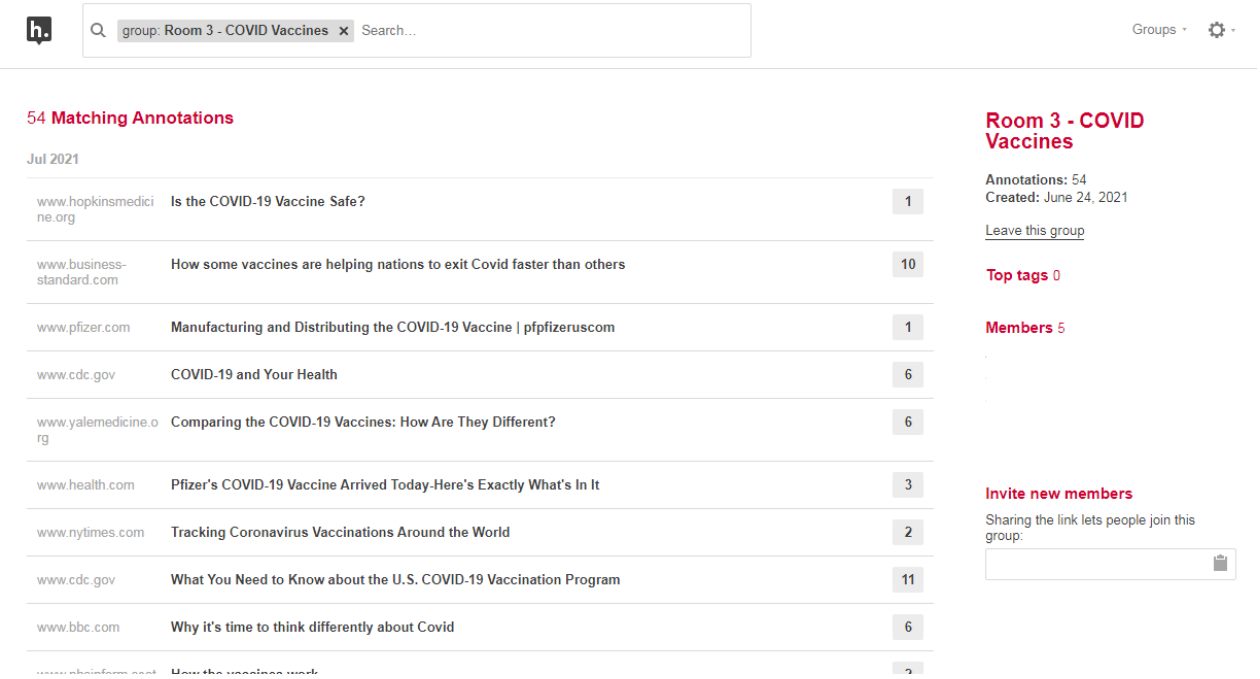


**Figure 5.** Example of a Group Homepage.

The first week of the social annotation task (Table 8) involved introducing the participants with the installation and annotation procedures. Some participants needed further assistance with installing *Hypothesis*. Some of these participants needed to overcome country limitations banning the use of Google Chrome. They received assistance with that from the institution's technical help desk. The task involved participants finding web articles related to their group's assigned topic, annotating those pages in their *Hypothesis* groups. Their goal for

research, reading, and annotating was gathering data for their writing assignments of annotated bibliography and an argumentative research essay.

**Table 8**

*Overview of the Social Annotation Task*

| Timeline | Phases |
|---|---|
| Week 1 | Introduction to the SA tool, guided exercise. |
| Week 2 | Participants research and pick one resource related to their assigned topic. They add their initial comments on this first resource. |
| Week 3 | Participants keep annotating the first resource and look for additional resources. They start drafting their annotated bibliography as a group. |
| Week 4 | Participants annotate one or more resources and update their annotated bibliography. |
| Week 5 | Participants annotate one or more resources and update their annotated bibliography. |
| Week 6 | Final comments before the writing stage for argumentative research essay begins. |

## Research Design

This qualitative study is an exploratory descriptive case study. In this section, I briefly describe the qualitative approach and the genre of exploratory descriptive case studies and discuss why I adopted them.

### Qualitative Approach

Qualitative research includes various methods for and approaches to understanding phenomena by collecting and analyzing data that is "primarily (but not exclusively) nonquantitative in character, consisting of textual materials such as interview transcripts, fieldnotes, and documents, and/or visual materials such as artifacts, photographs, video recordings [...]" (Saldaña, 2011, p. 3). The researchers explore a problem or phenomenon by collecting data from a small number of individuals in order to be able to obtain their views and

then write a flexible report showcasing their subjective and reflexive evaluation (Creswell, 2012). In this study, I explored participants' perceptions regarding the phenomenon of social annotation tool use by collecting and analyzing interview transcripts and documents through my critical lenses. I also collected quantitative data through Likert scale surveys, but I do not consider my research approach to be mixed-method because the survey data serve to enrich the representation of participants' perceptions representation instead of suggesting generalizability or comparison.

### Exploratory Descriptive Case Study

Creswell (2007) defined case study research as follows:

> Case study research is a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audiovisual material, and documents and reports), and reports a case description and case-based themes (p. 73).

I determined this study would be appropriate for case study genre. The bounded system or the case in this study is an EAP course for adult international students in a language program of a southeastern university in Summer 2021 semester. It is an exploratory descriptive case study with a purpose to provide a rich description of participants' reading experiences with a social annotation tool for five weeks. I collected data through multiple sources during the course of the study. I also thought exploratory case study would fit my research design because as Yin (2014) posited, exploratory case studies involved asking "how" and "what" questions when there were no pre-determined outcomes. I explored how participants would perceive a social annotation tool's role in their peer support, engagement with reading, and comprehension Finally, I

characterized this study as a descriptive case study because I aimed to describe a phenomenon in real-world context (Yin, 2014). Since the purpose of this design was both to explore and describe a phenomenon in a bounded system, I determined the genre of this study as exploratory descriptive case study.

## Data Sources

I collected data through multiple resources to be able to explore participants' annotations, how they perceived peer support, reading engagement, and reading comprehension (Table 9).

**Table 9**

*Data Sources for Research Questions*

| Research Questions (RQ) | Data Sources |
|---|---|
| 1. In what ways do the study participants perceive employing the social annotation tool promoted their peer support and interactions while reading a text? | Annotation logs in *Hypothesis*<br>Weekly journal logs<br>Two sets of semi-structured interviews<br>Open-ended post-study survey |
| 2. In what ways do the study participants perceive employing the social annotation tool promoted their engagement with reading? | ELL-RES and ELL-REI<br>Weekly journal logs<br>Two sets of semi-structured interviews<br>Open-ended post-study survey |
| 3. In what ways do the study participants perceive employing the social annotation tool promoted their reading comprehension? | Annotation logs in *Hypothesis*<br>Weekly journal logs<br>Two sets of semi-structured interviews<br>Open-ended post-study survey |

### Background Information Questionnaire

I designed this questionnaire to acquire an understanding of the participants' language learning background (see Appendix A). I asked participants' age and their perceived proficiency level in English. I included such questions to check the eligibility of the participants for this

study. I also asked them questions about their reading habits and their previous English learning experience as such information could help me know the participants' more closely as I explored their reading engagement and emotions. Subject-matter experts at a southeastern US university reviewed the questionnaire.

### Weekly Journal Logs

At the end of each week excluding the first week, I asked the participants to write brief reports about their social annotation experience. The purpose for collecting these data were capturing potential differences that may emerge during the course of the study. These logs tended to be a few sentences to a single paragraph.

### Annotation Logs in Hypothesis

I was a member of all the annotation groups. Therefore, I had access to participants' group activities using *Hypothesis*. At the end of the social annotation task, I extracted all the comments across each group as .pdf files. These files included participants usernames, the phrases they highlighted, their comments, and any responses given by other participants. It also showed the time of annotation. There was a total of 191 comments.

### Semi-Structured Interviews

I conducted two sets of semi-structured interviews (see Appendix E) with ten volunteering participants to find out their perceptions of their use of social annotation tools on peer support, their reading engagement, and comprehension. I conducted the first round at the end of second week, and the second round following the end of the social annotation task. One participant participated only to the second round and nine participants participated in both rounds. I devised eleven questions for the first round, and nine questions for the second round. I asked follow-up questions or clarification questions based on participants' responses to the

structured questions. I conducted these interviews online through Microsoft Teams. They lasted approximately 30 minutes. I recorded them through the inherent recording feature of Microsoft Teams after asking for participants' consent to being recorded.

### Open-Ended Post-Study Survey

At the end of the annotation task, the students responded to an open-ended post-study survey with five questions to provide their input about their experiences with the use of SA. The questions prompted the students into writing their overall thoughts with using *Hypothesis*, working as a group, what they found helpful for learning new words and comprehension, and what they found conducive or constraining during their participation in annotations.

### English Language Learners' Reading Emotions Scale (ELL-RES)

ELL-RES is a validated measure (Hamedi et al., 2020) adapted from the Pekrun et al.'s (2011a) AEQ. It has 18 items in three sections. These sections assess (1) reading boredom, (2) reading anxiety, and (3) reading enjoyment. Participants responded to the items over a 5-point Likert scale (1 = completely disagree, 5=completely agree) online. Emotions have a significant impact on learning outcomes (Goetz et al., 2006) and they can affect students' engagement (Kljajic et al., 2017). I aimed to see whether using collaborative annotations through the SA tool will lead to enjoyment as opposed to creating boredom or anxiety.

### English Language Learners' Reading Engagement Inventory (ELL-REI)

Just like ELL-RES, the ELL-REI is a validated measure (Hamedi et al., 2020) adapted from the Wang et al.'s (2016) math and science engagement scale. It has 18 items in three sections. These sections assess (1) cognitive engagement, (2) behavioral engagement, and (3) emotional engagement. Participants responded to the items over a 5-point Likert scale (1 = completely disagree, 5=completely agree) online. I used this instrument to explore participants'

cognitive, behavioral, and emotional engagement with reading as they participated in the collaborative annotations task.

**Data Analysis Procedures**

First, I tabulated the data based on participants' participation in data collection (Table 10). I created .pdf files with all the logs automatically saved by *Hypothesis* during the treatment. The participants sent me the weekly journal logs in Word, .pdf, or image format. I collected background information, ELL-RES, ELL-REI, and post-study survey online through Qualtrics. I saved the interviews as video files.

**Table 10**

*Participants' Data*

| Participant ID | Background Questionnaire | Interview 1 | Interview 2 | Annotation Logs | Weekly Log 1 | Weekly Log 2 | Weekly Log 3 | Weekly Log 4 | Weekly Log 5 | Post-Study Survey | ELL-RES | ELL-REI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1S1 | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G1S2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G1S3 | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G2S1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G2S2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G2S3 | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G3S1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G3S2 | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G3S3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G4S1 | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G4S2 | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G4S3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G5S1 | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G5S2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **N** | 14 | 9 | 10 | 14 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 14 |

### Transcribing Data

I made use of YouTube's close captioning feature to prepare raw transcriptions of the interviews. To do that, I uploaded interviews on YouTube in private mode and transferred the close captions into MS Word documents. Then, I deleted the videos from YouTube and edited the captions on MS Word as I played and paused the interview videos. I anonymized the transcriptions, made corrections, distinguished participants' input from mine, added punctuation marks to indicate sentence endings and unclear words. I needed to listen to some parts multiple times because I needed more time for editing faster speech.

### Coding and Thematic Analysis

At first, I employed open coding on the interviews, the weekly journal logs, and the open-ended post-study survey responses. I read through the data to get a general sense of its content and reviewed my notes in my dissertation journal. I imported the transcriptions into the data analysis software MAXQDA 2020. I assigned some code labels that represented the meaning I perceived in data. I iterated this procedure for weekly journal logs, and responses to open-ended questions in the post-study survey, and participants' annotations. I created 163 distinct codes in total and assigned them on the data for a total of 2308 times (Figure 6).

I then examined the codebook to identify potential patterns, reviewed the code labels, eliminated the redundant codes, and related codes to each other. Using MAXQDA 2020's code mapping feature, I created a concept map so that I could form preliminary groups of codes (Figure 7). As I grouped related concepts together, I considered their relationship with the most frequent codes such as annotation, comprehension, and peer support. In addition, I examined possible sub-groupings and relationships with less frequent codes.


**Figure 6.** Code Cloud.

Types of annotation was one of the bigger code clusters; it encompassed highlighting, bookmarking, main idea, supporting evidence, interpreting, evaluative annotations, paraphrasing, summary, and responding. These interactions could be indicators and examples of engagement. Therefore, I linked them together. They also occurred during the process of comprehension, so I linked them to each other. Bookmarking involved identifying key words or writing brief descriptions of the importance of the chosen segment. When participants annotated the supporting evidence, they either marked examples they could integrate into their writing or they made references to the credibility of the evidence. Their responses to each other demonstrated agreement, disagreement, prediction, and explanation. Vocabulary cluster was linked to comprehension and included translating, dictionary, using context, being selective, and individual work.

In addition, I linked comprehension to reviewing, engagement, and peer support. I also thought that perhaps deeper thinking and critical thinking was related to comprehension. Ease seemed to be a quality of comprehension process as well. Reviewing code cluster included locating ideas, remembering, memorizing, practicality, organizing resources, effort, timing, forming and argument, writing, saving time, keeping track of input, and efficiency. Peer support contributed to reviewing; therefore, I linked them together. Peer support also included exchanging ideas, perspectives, discussion, and communication. Communication involved simultaneous communication, speaking, typing, brainstorming, comments, apps. This cluster was linked to participants' meetings where they divided tasks, planned their assignment, and provided guidance to each other. Participants' characteristics also influenced the dynamic of leadership in the groups. Participants' previous experiences regarding reading were not directly connected to their annotations as they either practiced paper-based reading or took few to no notes. Their remarks about the drawbacks of *Hypothesis* and suggestions for the feature formed clusters but they were not connected with other interlinked clusters or codes. The drawbacks included country restrictions, VPN, time zone differences, distance, confusion, distractions, limited compatibility with operating systems and platforms. Lastly, suggestions included adding a chat feature, notifications for new comments, providing a tutorial, changing the look of the tool, and adding more functions.

After creating the code map, I condensed the codes into initial themes by inductive thematic analysis. I rearranged some of the themes and split them into two. I also merged some themes because they were closely related to each other, overlapping in some ways. I also included sub-themes of some major themes. I built written descriptions based on the themes and

codes. Finally, I wrote a report for each theme by summarizing what it stood for and providing examples from the transcriptions (Creswell, 2012).

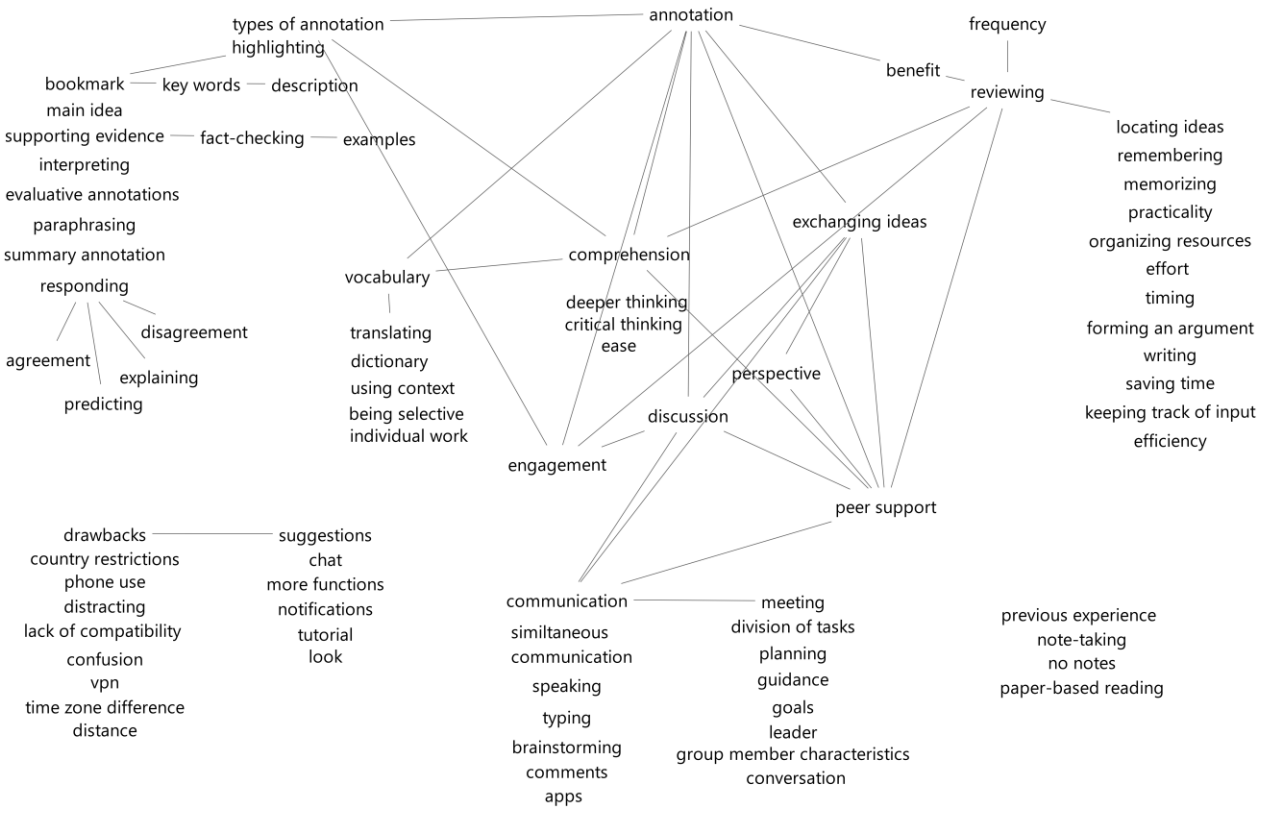


**Figure 7.** Code Map.

### Analysis of ELL-REI and ELL-RES

I collected participants' responses to ELL-REI and ELL-RES data through *Qualtrics*. I analyzed the content of the survey items by reflexive thematic coding. I interpreted the agreement levels of participants and their statements across other data sources through deductive reasoning.

## Ethical Considerations

Before conducting this study, I sought Institutional Review Board (IRB) approval. By following IRB protocols and guidelines, I aimed to protect participants' privacy and confidentiality regarding their identity and responses throughout the treatment. I informed the participants about the objectives of this study, sent them an online consent form with a link to background questionnaire at the bottom. I made sure that participants were aware of their right to withdraw from the study at any point. I assigned participants IDs to protect their identity. I stored the digital data in my password-protected personal computer. I will delete the electronic data five years after submitting my dissertation.

## Summary

In this chapter, I presented the research questions, the context of inquiry, sampling technique, participants, instructional technologies used, the social annotation task, the research approach and genre, data sources, data analysis procedures, and ethical considerations. The research site was an EAP course for adult international students in a southeastern university. I used homogenous purposeful technique in this exploratory descriptive case study. I collected data by background questionnaire, two sets of interviews, weekly journal logs for five weeks, annotation logs in the *Hypothesis* tool, open-ended post study questionnaire, ELL-REI and ELL-RES. I analyzed the interviews, journal logs, annotations, and responses to open-ended questions through thematic analysis using MAXQDA 2020. I analyzed ELL-REI and ELL-RES data in relation to other data sources through deductive reasoning. Throughout the study, I followed IRB guidelines and protocols to protect participants' confidentiality and rights. In the next chapter, I present the findings and discussions of three *a priori* research questions.

# CHAPTER 4: FINDINGS AND DISCUSSION

## Introduction

In this chapter, I report the findings of this study following my reflexive thematic analysis of participants' annotations, two sets of interviews with them, their five weekly journal entries, and their responses to the open-ended questionnaire. In addition, I present my interpretation of the frequency of participants' responses to two Likert-scale surveys, while comparing my interpretations to their statements in interviews and weekly journal logs. I organize the findings and discussion of them in following three *a priori* research questions:

(1) In what ways do the study participants perceive employing the social annotation tool promoted their peer support and interactions while reading a text?

(2) In what ways do the study participants perceive employing the social annotation tool promoted their engagement with reading?

(3) In what ways do the study participants perceive employing the social annotation tool promoted their reading comprehension?

For each question, I first present the findings, then I discuss them. Finally, I end this chapter with a summary.

**Findings of RQ1- In what ways do the study participants perceive employing the social annotation tool promoted their peer support and interactions while reading a text?**

In this section, I aim to answer the first research question. After analyzing participants' interactions in their *Hypothesis* groups, weekly journal logs, interviews, and their responses to open-ended questions in the post-study survey by employing reflexive thematic analysis, I present and discuss five major themes with some examples that illustrate them. These themes are:

1) Remote overseas participation as a constraint on peer interactions,

2) Employing social and communicative skills in interactional patterns,

3) Use of additional tools for procedural communication,

4) Differing mutuality of contributions across groups,

5) Facilitation of connected peer communities.

First, the inclusion of participants attending the class remotely from an international location was limited during the initial stages of social annotation due to time-zone differences and the restrictions stemming from their political contexts. Second, during the course of this study, participants engaged in various interactional patterns while using the social annotation tool *Hypothesis*. Those interactional patterns were bookmarking, evaluative comments, discussion comments, paraphrasing, and summarizing. They supported each other's construction of meaning by employing some communicative skills: asking for clarification, explaining, and acknowledging their peers' contributions. Third, participants needed to participate in instant conversations for planning, and they needed to use additional tools for that. Fourth, not all groups engaged in mutual contributions. Lastly, they considered their collaboration experience to be an opinion exchange in a connected community.

### Theme 1: Remote Overseas Participation as a Constraint on Peer Interactions

Five groups participated in this study. Four groups had three members, and one group had two members. Some students attended the class sessions face-to-face on campus, while others joined remotely from Vietnam, Kuwait, Spain, and China. Those who attended the sessions online were in time zones that were six to thirteen hours ahead of their on-campus peers (Table 11).

**Table 11**

*The Attendance Modes of Group Members*

| *Group* | *Participant ID* | *Attendance Mode* | *Time-Zone Difference* |
|---|---|---|---|
| 1 | G1S1 | Online - China | 13 hours |
| 1 | G1S2 | On-Campus | - |
| 1 | G1S3 | Online - Vietnam | 12 hours |
| 2 | G2S1 | Online - China | 13 hours |
| 2 | G2S2 | On-Campus | - |
| 2 | G2S3 | Online - Kuwait | 8 hours |
| 3 | G3S1 | On-Campus | - |
| 3 | G3S2 | On-Campus | - |
| 3 | G3S3 | Online - Spain | 6 hours |
| 4 | G4S1 | Online - China | 13 hours |
| 4 | G4S2 | On-Campus | - |
| 4 | G4S3 | On-Campus | - |
| 5 | G5S1 | On-Campus | - |
| 5 | G5S2 | Online- Kuwait | 8 hours |

Each group had both online and on-campus attending members. Group 1 had two online and one on-campus member. Two members joined remotely from China and Vietnam, and another member attended the classes face-to-face. Group 2 had one on-campus member and two online members joining from China and Kuwait. Groups 3 and 4 had one member joining remotely from China and two face-to-face attending members each. The online members in these

three groups participated in the classes from Spain and China, respectively. Finally, group 5 had one online member in Kuwait and one face-to-face attending member.

Some participants (G1S2, G2S2, G5S1, and G5S2) considered time-zone differences a challenge for completing their group work on time. In order to improve group work, G5S1 wished teachers to be aware of time-zone differences that may sometimes lead to incomplete work by the deadlines. Aside from some health issues and lack of communication, G5S2 thought one reason why their collaboration did not work well was due to time-zone differences. G2S2 suggested that having groups with members in similar time zones may have made their collaboration easier. Their reflections suggested that participation across distant time zones was a constraint on the mutuality and equality of their contributions because they could not always respond to their peers in a timely manner.

However, G1S2 pointed out that the asynchronous communication through *Hypothesis* was conducive for remote group work. According to him, using a social annotation tool alleviated the time zone challenges because group members did not have to wait for others' availability to contribute to their group. He explained this as follows:

> Annotation in a group; it is not that hard. It is actually very helpful when you can make your annotation and then discuss it. I think there were no problems with me in my group because we were communicating in Teams and doing our annotations in *Hypothesis* at different times because my group mates, as I said in the first meeting, I guess, they are in China and Vietnam. We have 12 hours difference, and that was very helpful because we can do that at a different time and then see that.

In addition to the time zone challenges, many remote participants faced accessibility problems. The students in China had difficulty in setting up *Hypothesis* because it worked

exclusively on Google Chrome, an application banned in China. For instance, G2S1 could not join his *Hypothesis* group at the beginning of the intervention. After doing his research, he used a virtual private network (VPN) offered by the university to download Google Chrome. Participants attending the class face-to-face pointed this out as a drawback as well. G1S2, for instance, added the necessity of VPN services if the applications were not available for some members. Another on-campus participant, G5S1, could not download Google Chrome because she bought her Mac laptop in Kenya with the Kenyan App Store, which did not offer Google Chrome at the time. However, after receiving technical assistance, she could participate in annotation activities. The economic and political settings of participants had a limiting role in their ease of participation in the process of engaging in the interactions.

**Theme 2: Employing Social and Communicative Skills in Interactional Patterns**

In terms of functions of the participants' annotations, I identified five types of interactional patterns: bookmarks, evaluative comments, discussion comments, paraphrases, and summaries. Bookmarks were comments that gave the impression of being added for determining what a specific part of the article meant for the group's future purposes. For instance, G1S3 commented, "this could be used for our claim" on the title of an article. Evaluative comments provided either criticism or evaluation of the author's idea. G1S2's comment, "This sounds like this person has never been associated with medicine, there are different types of needles for every purpose." was an example of evaluative annotations. Discussion comments were group members' replies to other members' evaluative comments and bookmarks. These comments suggested or sought agreement, disagreement, elaboration, or a new perspective regarding an argument. G2S3's response below to G2S2's evaluative comment showed agreement as well as elaboration: "Yes, I do agree with you. With today's technology, going to Mars is impossible.

We need more advanced technology. I think deep down, Musk and Bezos already know that. They just want to be listed among the people who contributed in making living in Mars possible." Paraphrases involved the restatement of an idea in the article with different words and/or structures. Summaries, too, incorporated paraphrases; however, they were abridged versions of extended portions of the article in comparison to solely paraphrases. The functions of participants' interactional patterns suggested the employment of social and communicative skills to achieve the co-construction of knowledge through sharing multiple representations.

Participants in all groups employed annotations functioning as bookmarks. 28 out of 48 comments were phrases with one or several words. The rest had one or more full sentences. Remarks such as "We will use that phrase to connect our second evidence with that article" (G1S2), "Second reason" (G3S3), and "This is a key example to persuade the readers." (G3S2) illustrate how these comments referred to the potential uses of the highlighted text in students' writing project. Some of these comments did not disclose why or how the highlighted part of the article matter for the group's purposes. Instead, they attempted to raise other readers' attention in a similar way to just highlighting. For example, the comment, "This information is really interesting and will help us a lot" (G2S3) did not identify or explain how the group could use that information but invited other readers, including the commenter, to pay attention when revisiting the article. In addition, there were some comments describing the selected words or sentences. "How the temperature rise is affecting the people" (G5S1) and "clues of climate change" (G5S2) were examples of such descriptive bookmarks. The bookmark comments indicated that participants guided each other through collective scaffolding (Donato, 1994) of the reading materials.

There was a total of 70 evaluative comments in all groups. There was a tendency to evaluate the credibility of the claims or data. This tendency was an indicator of the role of source-based writing purposes in their contributions. It also reflected participants' attempts to go beyond reporting the information in the texts toward interpreting it with their prior knowledge and experiences. Comments such as "This claim is disputable. It is ludicrous to believe that providing citizenship to undocumented immigrants in the USA would dramatically increase the economic output. [...]" (G4S3), "This sounds like [a] credible source" (G1S2), and "What has this expert accomplished that makes his words authoritative?" (G1S1) were examples of evaluative comments on credibility. In addition, there were instances of evaluative comments where participants shared their perspectives regarding an argument in the article. For example, when participants commented, "These analyses only considered the short-term direct economic benefits brought to the United States by immigration. But immigrants also have social needs in the United States. They will have considerable needs for medical care, education, or the upbringing of their children. These effects cannot be ignored." (G4S1), and "Living in Mars is still too early, we humans are still unadvanced. I think that it is a good idea that Nasa is planning Mars missions in order to learn. However, Nasa would be crazy if it is considering sending human beings." (G2S3); they responded to the author's perspective by elaborating it or disagreeing with it. Some participants initiated a conversation by asking other group members to evaluate their selection. Evaluative questions such as "Can we take it as a fact or should we look at this paragraph as an opinion?" (G1S2) and "Is this pathos real or is it a bit of an exaggeration?" (G1S1) resulted in other evaluative comments.

In their 58 discussion comments, participants employed some communicative skills such as asking for clarification, explaining, acknowledging contributions, and planning. In addition to

the questions for reliability illustrating the evaluative comments above, there were some clarification questions directed at other group members, such as “Why are the vaccines more helpful in some specific places than others?” (G3S3). Moreover, explaining or elaborating on a group member’s idea often showed signs of agreement or disagreement. For instance, G2S3 responded to G2S1’s comment suggesting that traveling to Mars is challenging due to the possibility of bacterial contamination by agreeing and elaborating on the challenge: “True. If this ever happens, astronauts have to be careful that their ship clean from this bacteria. Even if we get more advanced in technology in the future, this will stop us.” (G2S3). Another communicative skill present in participants’ annotations were acknowledging other member’s contributions. Statements such as “That’s a great fact. That can be used as a support.” (G3S2), “I like this fact” (G3S3), and “It was a great idea” (G5S2) provided participants’ reaction to another member’s contribution to the group reading process. Lastly, similar to some of their bookmark comments, participants’ communicative comments referred to their plans for the upcoming writing assignment. For example, G1S2’s comment, “We will use that phrase to connect our second evidence with that article.” received responses from the other two members confirming this plan.

Across all groups, participants restated 23 isolated statements from the articles in their own sentences. Furthermore, they created 15 brief summaries by paraphrasing lengthier portions of the articles. Seven paraphrases referred to the supporting evidence, while two seemed to be a restatement of the main idea. Paraphrases did not lead to mutual contributions among group members. Instead, they were monodirectional interactions with the reading texts. The lack of meaning negotiation may be a result of forming clear sentences in the correct grammatical forms.

### Theme 3: Use of Additional Tools for Procedural Communication

Annotating through *Hypothesis* was a novel reading experience with technology for many participants. Seven participants said they did not have any prior familiarity with using applications for reading in English as a second language. One participant (G3S3) mentioned using paraphrasers and summarizers to convert long passages into compact paragraphs. Another participant, G4S2, used a text-to-speech application because he found the reading task "less boring" when he listened to the text. G1S2, G4S1, and G4S3 used desktop or mobile applications for notetaking. Numerous participants (G2S2, G3S1, G3S3, G4S2) mentioned using a translation application when they encountered challenges in understanding. Note here that it was all participants' first time using an annotation tool. There were some episodes of brief confusion during the initial set-up stage. Some participants (G1S1, G2S1, G4S1) had to use VPNs so that they could overcome region-specific barriers against accessing the Google Chrome browser, a requirement for using full features of the *Hypothesis* application. Nonetheless, after my second time showing them how to install it and join their groups, all participants found it easy to use.

Using Microsoft Teams for communication with group members was common across all five groups. Participants discussed assignment procedures and task division, brainstormed, and planned their essays. However, the content of the communication on *Hypothesis* was limited to the content of the articles. Participants perceived a need for instant messaging tools to discuss their groups' plans and progress. G4S2 suggested that adding a chat feature to *Hypothesis* might improve the communication and thus the collaboration during their project. Participants could see the list of new comments only if they visited the *Hypothesis* website or if they revisited the reading material while the Chrome extension was active. G1S2 and G4S2 emphasized the need for email notifications for new comments and new responses to their comments. G1S2 specified

what he considered as helpful custom notifications: "For example, you have a couple of groups with different people. You can turn off [notifications] in one group, turn [them] on in another group. You are getting different kinds of notifications from different groups and so on." The participants needed to engage in conversations beyond their written contributions on the reading materials. They needed to plan their progress of collecting more resources and aligning them with their writing goals. The lack of notifications and instant messaging in *Hypothesis* seemed to lead students into using their familiar tools to carry out conversations on planning, which required simultaneous participation.

**Theme 4: Differing Mutuality of Contributions Across Groups**

After joining their groups on both *Hypothesis* and their Microsoft Teams channel, participants communicated with each other to plan their workflow. G1S2 stated that members of Group 1 divided the work equally. G2S2 said Group 2 shared the work on a voluntary basis. G2S1, another member in Group 2, said his groupmates needed his leadership to make decisions on task division. G3S3 indicated that their group discussed who would overtake the "worst, longest" part of the project. In the meantime, participants in Group 4 decided to work on different aspects of their topic. G5S1 mentioned that she and her groupmate assigned themselves tasks and worked individually afterward.

Participants' annotation activities (Table 12) showed that some groups (Groups 1, 2, and 3) seemed to contribute more mutually than others (Groups 4 and 5). Members of Group 4 annotated articles by themselves; in other words, they each found different articles to read, and they exclusively annotated their own articles without responding to their peers' comments on the other articles. These groups utilized *Hypothesis* as a means of organizing a list of web resources individually for the planning phase of their writing. When they were annotating in the whole

class group, some members of these groups interacted with other students in the class. Groups 1, 2, and 3 engaged in collaborative learning, while the limited mutuality in Groups 4 and 5 suggests cooperative learning. Collective scaffolding was present in a more complex manner in the former groups, but it was limited to collecting necessary resources and providing representations of how they interpreted them.

**Table 12**

*Annotations Across Groups*

| | *Group 1* | *Group 2* | *Group 3* | *Group 4* | *Group 5* | *Whole Class Group* | *Total* |
|---|---|---|---|---|---|---|---|
| **Stand-Alone Comments** | 20 | 14 | 46 | 19 | 10 | 34 | 143 |
| **Response to Comments** | 16 | 14 | 8 | 0 | 3 | 7 | 48 |
| **Total** | 36 | 28 | 54 | 19 | 13 | 41 | 191 |

### Theme 5: Facilitation of Connected Peer Communities

Participants recognized the distinctive feature of *Hypothesis* as its ability to match mutual contributions to the relevant portions of the reading materials. G4S1 described his previous group project experiences as sharing the passage link in the Teams chat, followed by everyone reading their own part. He said it was not easy to see what other people thought about the passage or some part of it. He thought *Hypothesis*'s strength was providing the possibility of seeing other people's thoughts and communicating on specific content. *Hypothesis* seemed to simplify the process of engaging in mutual contributions.

Participants considered collaborating by *Hypothesis* timesaving because they could directly comment on what they selected, and their group members could see the part of the text they indicated without a need to describe its location. G2S2 explained it as follows: "I don't say

exactly what I want to show them. I let it [be] known by just clicking quickly that. They receive that information on their computer, so it is not difficult for them to know what I am trying to show them at the moment." G4S2 compared using this tool to a traditional reading experience and thought they would waste too much time finding a specific sentence if they were doing the same thing in real life with a book. Toward the end of the project, the participants gradually annotated more. In her fourth and fifth weekly logs, G3S3 mentioned that *Hypothesis* was becoming "easier and more useful every day." Increasing familiarity with the tool might play a role in the extent of participants' interactions.

G2S2 acknowledged being able to respond to their classmates: "we can tell something different than what they think. So, you can bring your own opinion to them as well." He thought participants could assist their peers by sharing their interpretations. Another participant, G1S2, said that his group spent hours talking about what they should do. According to him, these discussions enabled them to improve their work through other group members' feedback and different perspectives. He added that question comments posted in his group led to a conversation on things he did not notice on his own.

Participants expressed feeling connected to their peers via the feedback they received. In his fourth weekly log, G1S3 referred to *Hypothesis*'s role in their collaboration and wrote, "it is much easier for us to work on the essay because we know and also understand what my peers think. *Hypothesis* connected all members in my group together to share opinions about the topic we chose." G5S2 discussed his experience with the whole class group and suggested that seeing his peers' opinions made the reading process less tedious. "It feels that I am not the only one reading it. When I am assigned a book or something, I feel bored. When I see my peers' opinions, I understand the article more." Similarly, G4S2 referred to his experience in the whole

class group and said, “My classmates always see my comments, and they are saying ‘yeah, I agree with you; it is a good point of view’ or something like this. I am taking feedback, and I like it.” Other participants’ presence as audience for what they shared enhanced their emotional engagement with the reading task. Additionally, when participants engaged in communicative comments, they sometimes incorporated elements of informal speech such as the words “mate (G1S1), cool (G1S1), bro (G1S3), yeah (G2S3), totally (G3S2), well (G4S2), and right (G5S1). Informal speech was an indication of perceiving the environment to be comfortable for sharing their perspectives, which, in turn, could increase their emotional engagement.

Contrary to the overall sentiment towards having access to other peers’ opinions during reading, G3S1 thought his own comments helped him more than his peers’. Nonetheless, he stated that members of his group “helped each other how to have better ideas.” Similarly, G5S1 said discussions with her peers and seeing their thoughts helped her generate more ideas for the final paper. Lastly, thanks to the ease of feedback, G4S1 considered *Hypothesis* a good tool for online classes.

**Discussion of RQ1**

The findings regarding the first question centered around challenges in accessibility, interactional patterns, conversations for planning purposes through other tools, differing levels of mutuality, and community connectedness. Time-zone differences among group members, as well as location-based restrictions against accessing the *Hypothesis* tool, posed a challenge to participants’ interactions. Moreover, participants’ interactions via *Hypothesis* involved (1) adding short comments functioning similarly to bookmarks for retrieving relevant information in the future, (2) evaluating the author’s argument, (3) responding to their peers’ comments to offer their perspective, (4) paraphrasing, and (5) summarizing. The lack of an instant messaging chat

feature necessitated the use of other applications such as Microsoft Teams for communication among group members. Meanwhile, some groups did not participate in mutual contributions unlike others. Lastly, participants considered that their collaboration was facilitated by a convenient and helpful tool for serving a connected community that shares their perspectives and complements each other's understanding.

In this study, the use of social annotations did not guarantee collaboration among learners. Collaborative groups (Groups 1, 2, and 3) had more mutual interactions than others who seemed to engage in cooperative learning (Groups 4 and 5). Collaborative groups responded to their peers' interpretations by sharing their opinions or asking some questions prompting assistance from their peers. On the basis of Oxford's (1997) distinction between cooperative and collaborative learning, the cooperative groups worked towards a common goal, but they were not necessarily together in action while fulfilling their respective responsibilities. Jacob et al. (1996) posited that cooperative learning that led to peer interactions might contribute to the acquisition of academic English; however, the interaction attempts might be futile if learners did not fulfill their peers' requests for help. In that regard, members of Group 4 did not request help from each other on *Hypothesis*. The lack of assistance may imply a lack of improvement in academic English through peer interactions. Nonetheless, they divided the workload and focused their interactions with the text on their part. Therefore, their non-mutual interactions with the text may still have enhanced their academic English. On the other hand, Group 5 ascribed the paucity of their interactions to external factors such as health issues and time zone differences. Group size may also have a role in their limited interactions because it was the only group with two members. When one member had challenges participating in the reading activity, the other had to work independently.

To enhance the mutual contributions of peers, teachers may adopt a few strategies for guiding group work. Having at least three students per group may help avoid monologues if one member is unavailable. In online learning settings with worldwide learners, grouping learners in similar time zones may be another strategy for relatively more effective collaborative learning. In addition, as Klinger and Vaughn (2000) suggested, monitoring the groups and assigning group members specific roles may improve their mutual interactions. Furthermore, by determining multiple deadlines for different interactional moves, the teacher may give learners a chance to respond to their peers' comments before other assignments or readings replace the urgency of a specific conversation. Such an approach to planning learning activities may reinforce the structure in instruction and create more opportunities for negotiating meaning and presenting points of view in context.

Despite a few instances in which the teacher added comments with guiding questions to the whole classroom group, the students did their own research, selected the articles, and carried out interactions among themselves. Consistent with Chun's (1994) argument, the teacher's role was not at the center of this CMC setting. In contrast, the learners exhibited an active role in suggesting novel topics, demanding information, and discussing perspectives. The central position of participants' interactions in this study aligns with the social constructivist theory (Vygotsky, 1978) that posits the significance of students' social interactions for constructing meaning.

Consistent with Chun (1994), participants engaged in some interactional moves such as asking for clarification, explaining, acknowledging contributions, and planning. Employing these moves, they negotiated meaning and assisted one another. Moreover, they actively managed the discourse since they had the possibility to propose new topics of discussion, comment on their

peers' opinions, and ask for additional information. This finding aligned with Chun (1994). Through small group collaboration, many students were able to engage in dialogues and share their thoughts on the reading content. In other words, providing students with an annotation tool for collaborative reading where they can actively discuss their perspectives, clarify confusions, and confirm their understanding facilitated mutual peer interactions for some groups. Some groups provided their contributions without mutuality. The lack of meaning negotiation in those groups may be due to their previous experiences with group work. Furthermore, as Foster and Ohta (2005) argued, participants may not have needed meaning negotiation as a result of forming comprehensible and clear contributions.

In addition, participants cooperated toward the goal of creating their own essays by employing planning moves. They showed their group members what they identified as pertinent to their common purpose. Some participants stated that they could have missed some crucial points if their peers had not left comments. Such occasions may have constituted an opportunity for collective scaffolding (Donato,1994) as learners aided in each other's comprehension.

The participants found it easy to use *Hypothesis* in their groups. This finding is consistent with the literature exploring participants' attitudes toward social annotation tools (Chang & Hsu, 2011; Loh et al., 2013). Furthermore, they thought it to be convenient and useful for their collaboration since they thought it saved them time by linking their comments to the specific textual segments of the article. Throughout their project, they also reported communicating with each other when they did not understand the assignment requirements and when they were planning their workflow. They carried out such conversations on procedural issues through other applications, including Microsoft Teams and Instagram. Similar to Thoms et al.'s (2017) findings, a few participants thought the annotation tool could become more user-

friendly. In that regard, some students wished *Hypothesis* to have additional features that would simplify their communication. They mentioned the lack of chat rooms, notifications for new comments or responses, and audio chat, among the features whose inclusion could have improved their collaboration. Despite its shortcomings, they perceived *Hypothesis* as a tool helping them organize the resources necessary for their writing assignment while enabling them to keep track of their discussions on the article.

Having an audience and a community through CMC may reinforce cooperation among learners (Balester et al., 1982). Participants in this study reported feeling connected to their group members because they could see each other's perspectives throughout the project. They reported receiving helpful peer feedback that improved their ideas. Aside from the perception of benefiting from the peer feedback cognitively, they found it more enjoyable to carry out the reading assignment when their group members in *Hypothesis* accompanied them. They employed some examples of informal language in their comments that may suggest students' perception of their community as a safe space for their exchanges.

Accessibility was a challenge (Dennen, 2018) for the participants joining the class remotely from China. They needed to use the university's VPN to download Google Chrome and the *Hypothesis* extension. Unfortunately, some institutions may not provide VPNs to their students. Therefore, the teachers should be aware of the potential restrictions based on students' historical, cultural, and political contexts before deciding to employ browser-specific social annotation tools like *Hypothesis*. Furthermore, some students may struggle with the technical procedures of installing the Chrome extension and joining their groups on the platform. Therefore, offering students a tutorial session is necessary to ensure they are ready to participate in the annotation task.

**Findings of RQ2- In what ways do the study participants perceive employing the social annotation tool promoted their engagement with reading?**

In this section, I present and discuss the findings of the second research question. First, I examined the reflexive thematic codes on the interviews, weekly logs, and their responses to open-ended questions in the post-study survey. In addition to that, I analyzed the content of the 5-point Likert-scale items in ELL-REI and ELL-RES (Hamedi et al., 2020) to elaborate on participants' perspectives on their reading engagement and emotions. Even though ELL-REI and ELL-RES were quantitative data sources, I do not consider my research paradigm mixed-method. I did not form correlations, make comparisons, or test hypotheses; however, through the guidance of the literature, I aimed to support my interpretation of their interview responses, journal logs, and their responses to the open-ended questionnaire by referring to their overall agreement with ELL-REI and ELL-RES items. After exploring the data sources, I identified the following five themes: (1) maintenance of cognitive efforts, (2) boredom and distractions, (3) anxiety, (4) enjoyment of content through peer contributions, and (5) frustration. I illustrate participants' responses in qualitative data sources by paraphrasing them or including direct quotes.

**Theme 1: Maintenance of Cognitive Efforts**

Participants seemed to describe moderate to high levels of cognitive engagement while reading and annotating in this study. They seemed to actively and interactively work on the reading task without giving up against challenges. Almost all participants agreed with putting effort into reading the text.

They engaged in some behaviors demanding cognitive effort including taking notes to identify main ideas and supporting evidence, evaluating arguments, and asking and answering

questions. Almost all participants agreed with maintaining their efforts when they encountered hardships. They thought about different ways to address problems in their reading comprehension. For instance, they resorted to external resources such as YouTube (G3S3, G5S1, G5S2), Google (G1S2, G2S1, G3S1, G4S1, G5S1, G5S2), and online dictionaries (G1S2, G2S2, G3S3, G4S3, G5S2). They also asked their peers (G1S2, G3S1, G4S1, G3S3) or their teacher (G1S2, G4S1, G5S1) questions on some occasions. In addition, G3S1 asked himself questions about challenging parts to understand them better and read some sentences again. G4S1 also reviewed the confusing sections when he experienced comprehension issues. He said, "If I don't understand something in the text, usually I will review it once again to try to understand it by myself, but if I don't, I will ask someone for help um like the classmates or [the] professor." The use of these various strategies implies that these participants considered challenges as temporary obstacles that they could overcome when they engaged in online resources, their peers' interpretations, the teacher's assistance, and self-analysis of the challenge.

Connecting prior knowledge with the reading content was another way that participants engaged with the text. G5S2, for instance, tried to remember the other articles he read before posting his notes. They incorporated some previously introduced skills from the writing domain as well. G2S2, G4S1, and G4S3 mentioned considering writing conventions to form well-constructed sentences in their comments. In addition to the concern for forming well-structured sentences, they thought about the objectives of their writing assignment as they read and aimed to connect their comments with those objectives. "I'm progressing day by day in building any argument; the hypotheses is an extraordinary tool that helps you in putting your ideas then organizing them," G3S2 wrote. He referred to the argument as a construct to be formed as a result of the gradual connection of ideas from different resources.

Some participants preferred to have readily available answers rather than actively working to figure them out. G1S2, G2S2, and G4S1 attributed noticing and understanding the points they would otherwise miss to their peers' comments. In such cases, peer comments may have reduced some learners' efforts or the need for deeper cognitive engagement. Many participants reported not thinking hard during the annotation task. This could be related to the perceived difficulty of the texts, the annotations' role in outlining the major parts to focus on, and the working habits in groups. To illustrate, G2S3 made a distinction with the extent of his cognitive efforts depending on the article his group read each week. The length and the complexity of their article in the third week challenged him to think deeper and longer before he could start annotating. Meanwhile, G3S1, G3S3, G4S1, and G5S1 considered it easy to find relevant ideas because they created outlines for key information with their annotations. Furthermore, a few participants agreed with working only on the easy parts and doing the bare minimum. G3S3, for instance, considered herself and her group members 'lazy.' She also mentioned working as little as possible and sharing the workload by discussing who would take the 'worst and longest' task. These statements suggested that the decrease in learners' cognitive engagement with the reading was connected to the low complexity of the reading material, having some ready answers through peer contributions to the textual outline, and team membership characteristics related to the willingness to contribute.

**Theme 2: Boredom and Distractions**

Most participants did not report feeling bored during the annotation task; however, many seemed to experience distractions. Boredom seemed to emerge with respect to participants' lack of interest in the content of the text, their disagreement with the authors' arguments, their overall affective state regarding the course, and the involvement of writing practice in the annotations.

The majority of the participants did not find the texts to be boring and they cared about the content of the articles. However, G3S3 said she did not like her group's assigned topic because she disagreed with the prevalent arguments on the issue. She said, "We don't like the topic: COVID. Like, 'don't wear masks'. It's really contradictory to us [...] this topic." She did not enjoy reading articles and working on a report contradicting her genuine opinion. She did not attribute her boredom to the nature of the reading task as she said, "I'm happy to discover the new extension. I hope to use it more." She later described having an overall negative affective state during the course.

One participant, G5S2, reported getting restless during the reading activities. His restlessness stemmed from being expected to write comments. He hated writing in general, and he considered it time-consuming. Overall, boredom did not seem to be a common emotion among the participants, and it arose for various reasons that were connected to participants' interests and opinions regarding the reading materials, and attitudes toward employing writing skills.

Even though most participants agreed with staying focused as they participated in the annotation task, some participants seemed to experience some distractions due to boredom, the difficulty in staying alert due to time zone differences, and diversion of the topic in the comments. Two participants had challenges staying alert, but others did not experience it. G3S3, for example, said she was distracted and sleepy when she participated in group work. She mentioned the time zone difference as her reason for getting distracted. In another instance, G1S3 thought his group members failed to follow the direction of the discussion, so he told them not to divert from their main goal in his response comment. The rest of the comments and responses seemed to remain on topic. There were also instances when comments on the article

disrupted G4S1's reading process. He said, "When I am reading the passage and someone do the annotation, [it] will distract me, like disrupt me of reading this passage." He thought peers' comments might be distracting for some learners.

**Theme 3: Anxiety**

Most participants seemed to experience a low level of anxiety. Even so, some participants felt anxiety due to unfamiliarity with the annotation tool at the beginning and feeling unprepared for the task, and not understanding an important idea in the text.

Many participants objected to being uneasy and thought they were not nervous. On the other hand, two participants (G3S3, G4S3) thought the reading activities made them uneasy because they did not know exactly how *Hypothesis* worked. G4S2 wrote about still not feeling competent at using it in his second weekly log: "I am just starting to understand how to use it. I have no problem writing a comment or annotation, but I still feel uncomfortable on this website." G2S1, too, expressed not feeling good in the second week because it took him a lot of time and effort to start using *Hypothesis* in China, where Google Chrome is banned. These participants annotated more in the following weeks than in their first week of annotating. G3S3 revealed that she initially hated the idea of learning about yet another tool for a class. She said that she was surprised at the helpfulness of her group's annotations in the later weeks. Educating participants on how to use the annotation tool and providing opportunities for informal practice may be helpful in reducing their anxiety. It is also important to consider how some international remote learners may display negative emotions when they have to follow additional steps compared to some of their peers.

Comprehension of important ideas and the perceived inadequacy at preparedness for the task made some participants worried. Three participants reported being worried about the

adequacy of their preparedness, while nine participants disagreed. Such a worry regarding preparedness may have emerged due to their unfamiliarity with the tool. G3S3 said, "At first, I was like, I hate the teacher. I don't understand the program, what is that [...] Oh my god! I don't understand anything, but now I love the program." There were other participants who talked about the initial confusion as mentioned above in this section. Feeling unprepared had a considerable role in participants' anxiety. Those who felt anxious may have spent less time on the task as two participants said they skipped some parts of the activity due to nervousness, but other participants did not experience that. The two participants were tense and felt a considerable degree of anxiety leading to heart race because they thought they did not understand something important. Introducing some strategies such as using resources and asking questions to confirm their understanding may help learners overcome challenges in understanding and avoid too much anxiety.

**Theme 4: Enjoyment of Content through Peer Contributions**

Most participants reported talking to other participants about the content and experiencing enjoyment during the annotation tasks. They got excited about the content of the articles they read, but one participant disagreed. G3S3 was not excited about the content because she did not like the arguments regarding the topic her teacher assigned her group. Almost all participants reported enjoying reading the articles, and there was no disagreement.

According to some participants (G1S2, G1S3, G2S1, G2S2, G3S1, G4S1), discussing reading content was conducive to their comprehension and writing projects. G1S1 revealed noticing that his initial perception of annotating made the task more intimidating: "At first I thought the more words, the better, but now I realize that is not the case. When you find what you want to note, use short, precise sentences or words to describe it. It is much more efficient,"

he said. Choosing good points to annotate was difficult for G2S3 and G3S2 because it involved meaningful selection after achieving comprehension. Eight participants agreed with being glad that their efforts in reading resulted in gains, while one participant disagreed with it. G2S1 said he found it worthwhile to see his peers' different points of view and analyses of the article. G3S3 said she appreciated learning new vocabulary as a result of the reading tasks. Ten participants agreed that their reading enjoyment made them proceed with the task. No participants disagreed with it.

G1S1, G1S2, G1S3, G2S2, G4S1, and G5S1 were interested in what their peers had to say about the authors' arguments. G1S3 mentioned feeling connected to his peers because he was able to know what his peers thought. Meanwhile, G2S3 considered the annotation tasks fun because of the peer interactions. He said, "It was fun because it was as if I was having a conversation with my classmates, and this opportunity made me communicate with my partners a lot and make friends with them." Saving time on the reading task evoked excitement among participants. For instance, G2S2 said, "My teammates can see what I do I can see what they do specifically in specific sources. Easy. [...] They don't have to send me links and then I find the things I want with one click. [...] It's faster." G4S2 described how *Hypothesis* sorted the articles in his group based on the most recent comment, and he found this practical for keeping track of what needs to be read next. The ease of following the conversations about the reading content contributed to participants' reading enjoyment. Some participants (G1S1, G1S2, G1S3, G2S1, G2S2, G4S3) mentioned planning to continue annotating other resources for academic purposes in the future.

### Theme 5: Frustration

Some participants were frustrated with maintaining the communication within their groups. G2S1 was frustrated with his group members' need for him to lead the workflow. He said, "Everybody should have [...] self-awareness. [...] They have to do the work without your attention. It is not somebody else in the group to force you to do the work. You have to do it by yourself. Especially in the university." He also complained about his group members lack of responsibility following the instructor's directions. "You can open that article that doctor showed us. [...] I'm the only one who is doing this. I also write down the name, but the rest of my groupmates, they did nothing." The frustration related to communication problems due to unspecified member roles suggests a need for monitoring and restructuring groups and offering guidelines which would not heighten responsibility on particular group members only.

The initial stages of annotation evoked frustration among some participants due to unfamiliarity with the social annotation tool. However, they were hopeful about their learning experience. During the second week, some still experienced issues. G4S2 talked about feeling still uncomfortable using the *Hypothesis* website. He added, "for me this week was very challenging, but I believe that I will understand everything soon." Not having enough time for reading and responding to peers' comments frustrated G1S2, G5S1, and G5S2. G1S2 compared in-class annotation to doing it at home and deemed in-class annotation to be challenging due to the limited time allocated for reading. He said they had to read the article too quickly in such cases. Meanwhile, G5S1 referred to time zone differences as a frustrating aspect of her group's collaboration. She said, "[...] sometimes time is a limiting factor. Some people are still not on campus and the time difference kind of messes up [the online discussions]." Similarly, her

partner in the same group, G5S2, was frustrated with the low degree of communication he had with his only group mate due to an 8-hour time zone difference and the health issues he had.

**Discussion of RQ2**

The ELL-REI and ELL-RES (Hamedi et al., 2020) findings and participants' interviews and weekly logs suggest that the international students in this study were engaged with the reading during the annotation activity in small groups. They were cognitively, behaviorally, and emotionally engaged with the reading. The findings also indicate that participants mostly experienced enjoyment but not boredom or anxiety.

Participants maintained their cognitive efforts while reading, but they did not seem to encounter considerable cognitive challenges. They may have missed certain opportunities for deeper thinking as some said that they did the minimum work necessary for their group. In order to enhance learners' cognitive engagement, the teachers may participate in the groups and insert some question comments that could lead to conversations in which participants think critically about the content. They could also educate the learners about forming some critical questions to relate the content of the reading to what they know, what they need to know, and what it means from a broader perspective. In addition, teachers' comments could enhance their emotional engagement since Chen et al. (2016) found teachers' participation in collaborative annotations to reduce learners' anxiety. Meanwhile, too much interference on the teachers' part may put students in a passive position. This, in turn, may reduce learners' cognitive engagement by preventing them from their potential to become autonomous learners who use reading strategies independently to construct the meaning while identifying essential and pertinent ideas in the text.

Guthrie et al. (2004) viewed engaged learners as socially interactive learners who persist against hardships and employ cognitive strategies in a knowledge-driven manner. Participants of

this study generally interacted with each other to identify or discuss authors' ideas. Be that as it may, members in one group (Group 4) did not respond to each other. Instead, they divided the workload and annotated the articles individually. This group's lack of discussion on the reading content may exemplify Roushad and Storch's (2016) finding of a tendency to cooperate instead of collaborating in online CMC settings. While this may be true for Group 4, it was not the case for Groups 1, 2, and 3, whose members discussed their perspectives on the reading content as well as the credibility and usefulness of the ideas for their writing project. Group 5, on the other hand, talked about the reading content to each other only to a limited extent. Nonetheless, all groups added comments on the articles to point out the main ideas and supporting evidence and evaluate arguments. Most participants in this study reported not giving up when they faced comprehension issues. They also spent efforts in forming paraphrases or summaries and labeling textual chunks. In other words, they employed some behaviors using cognitive strategies suggesting engagement with the reading.

The participants in this study mostly reported feeling enjoyment, a positive emotion, while annotating in their groups. They did not feel the negative emotions of boredom or anxiety. Pekrun et al. (2011a) found a positive relationship between positive emotions and academic performance. They also argued for the detrimental effect of negative emotions on learners' self-regulation, intrinsic motivation, and performance. Concerning reading in the second language, Hamedi et al. (2020) pointed out that enjoyment could contribute to learners' reading engagement and comprehension. Even though this study did not include any instruments measuring participants' reading performance, some participants pointed out that the annotation tasks in this study may have enhanced their reading comprehension. The next research question will further expand on their perceptions on this matter.

Some participants in this study expressed feeling connected as a community. Moreover, most of them reported feeling low anxiety levels during the annotation task. Their perception of a safe and goal-oriented atmosphere in cohesive learner groups may indicate signs of motivational teaching practice in the annotation task since one of the tenets of Dörnyei's (2005) motivational teaching practice in the second language involves encouraging positive retrospective self-evaluation. Their goal-oriented and safe community perception may well be part of their positive self-evaluation regarding the reading task.

It is important to note that the unfamiliarity with the *Hypothesis* tool during the initial stages of the project seemed to evoke uneasiness and self-doubt among some participants. Learners' digital literacy skills, as well as their access to annotation tools and compatible devices, may influence their emotional engagement. By allowing learners enough room for gaining familiarity with novel tools, teachers may protect learners' self-confidence and help them establish autonomy in later stages.

The learner who had conflicting beliefs with the reading contents (G3S3) reported boredom and low behavioral and emotional engagement. Pekrun et al. (2011b) argued for the role of feeling in control of learning activity in their achievement emotions. G3S3's negative emotions may be due to not having a choice on the reading content or the argument of the writing project. Learners' values, interests, and beliefs may constitute the pre-existing layers of reading engagement, especially when they do not have control of some aspects of the learning activity.

One member of Group 5 (G5S2) did not consider his group cohesive enough due to a lack of communication and his own health problems. Even though he reported cognitive engagement, he expressed feeling negative emotions of frustration and restlessness. The nature of the

communication between these two group members seemed to shape not only the extent of their collaboration but also their emotional engagement. Therefore, emotional engagement may be related to both the nature of the learning tasks and the way in which these tasks progressed following some challenges due to external factors.

**Findings of RQ3- In what ways do the study participants perceive employing the social annotation tool promoted their reading comprehension?**

In this section, I present and discuss the findings of the third research question. I employed reflexive thematic analysis on participants' annotations on *Hypothesis*, their interviews, weekly journal entries, and open-ended responses to the post-study survey. I identified three major themes with some sub-themes. The major themes were: (1) vocabulary learning as an individualistic construct, (2) social annotation tool as a reviewing instrument, (3) deep reading practices for prewriting. I present these major themes with some examples in their sub-themes. Following that, I interpret and discuss these findings in their relation to the literature.

Firstly, participants did not add vocabulary glosses to the text. They did not perceive a need for that as they viewed vocabulary learning as requiring individual effort instead of collective work. Secondly, participants' annotations served as outlines of the articles, which they found efficient for reviewing. Lastly, they employed some deep reading practices that seemed to be connected to their writing goals.

**Theme 1: Vocabulary Learning as an Individualistic Construct**

Even though most participants in this study mentioned benefiting from their peers' notes in understanding confusing or difficult phrases, they did not interact with each other through annotations exclusively to inquire or share meanings of lexical items in the text. Instead, they

seemed to consider vocabulary learning as an individualistic aspect of reading comprehension. This perception may have arisen because (1) some of them did not perceive a need to collaborate on vocabulary, (2) they had differing criteria for choosing the words or phrases that they needed to learn, (3) they were engaged in mental guesswork for the most part, and (4) they used translation to L1 and bilingual dictionaries.

*Lack of need to interact.* Participants' annotations did not include any vocabulary glosses or questions exclusively on the meaning of words or phrases. G2S1, G2S2, G3S1, G3S3, G4S1, G4S3, and G5S2 did not seem to perceive a need to spend collective effort on vocabulary; instead, they individually and independently undertook the decisions of whether or not to look up the words impeding their comprehension. G3S1, for instance, said, "If there is a word that I don't understand [...], I'm not going to ask my friends 'What does this word mean?' I'm going to go get it directly. I don't think I need to do that." According to G4S1, this lack of need for collective work was due to his inability to identify the words that were unfamiliar to his peers. "Maybe some people know this word in Google; someone doesn't. So, it's difficult to identify if the word is new to someone," he said. His statement implied putting the audience's needs as the focus of the sharing acts rather than complementing gaps in their own comprehension with the help of others. Furthermore, another participant, G5S2, said he did not add glosses because he assumed his peers knew more words than him. Meanwhile, G1S2 and G4S3 did not annotate vocabulary because their articles did not contain an excessive amount of field-specific jargon unfamiliar to them. G1S2 explained it as follows: "These articles, which you read on the news websites... They don't have a lot of slang, like a particular English or something. So we can understand it. Not in every point of view, but yes, we can understand it." In other words, the low difficulty level of the texts provided comprehension to a considerable degree, and the satisfaction with that degree of

comprehension did not necessitate collaboration on vocabulary. The inability to assess their peers' vocabulary needs, the assumption of their peers' vocabulary levels to be better than theirs, and the easiness of texts may have forestalled the need for participants' written collective efforts on vocabulary.

*Selectiveness.* Some participants said they did not look up every unfamiliar word in the articles. They mentioned various factors in their decisions to use resources for uncovering the meaning of unfamiliar words. G3S1 pointed out the ineffectiveness of looking up all the words he did not know, which he used to do in the past. He stopped doing it as his efforts were not worth the limited amount of words he learned in the end. He said, "It's more about practicality. [...] I just translate this word, two or three words. [That is] more than enough." He seemed to consider the number of words as a limiting criterion while working on vocabulary. Meanwhile, G1S2, G2S2, G5S2 thought only major interruptions in their understanding were what made them seek resources on vocabulary. "If there are a lot of words which I don't understand, I'm going to Oxford Dictionary, translate a couple of them, and then I understand," G1S2 said. Similarly, G2S2 described reading the challenging parts a few times and then trying to identify the words that impeded his understanding. Participants' employment of varying criteria on limiting the amount of vocabulary work may have contributed to the lack of peer interactions on unknown words and reinforced their tendency to look up words individually.

*Mental work.* Some participants pointed out spending cognitive effort in guessing or maintaining the meaning of unfamiliar words. For example, G1S2 utilized contextual clues to guess the meaning of vocabulary. He said, "There is no full sentence that doesn't make sense. I can do that by logic. In my mind, I came to the conclusion of what this word meant." He used the familiar words in sentences to build the meaning of unfamiliar words through cognitive

processing. However, he did not write down the meaning or test the accuracy of his guesswork. Similarly, G3S1, G4S3, G5S1, and G5S2 did not take written notes on vocabulary after they guessed the meaning using contextual clues. Yet, another participant, G2S1, explained how he needed to take notes to process words on his own and retain them in the long term. He said, "The first time when I met the new words, it is hard to remember them, because that's short[-term] memory, you know. I have to take them to the long[-term] memory," and he mentioned keeping short vocabulary lists by a notetaking application on his phone to achieve that. Even though he preferred writing down the glosses, he did not do that in the margin of the text or share his notes with his peers. In short, most participants did not transfer their conclusions on meaning into writing, which impeded potential collective work on vocabulary.

*Resorting to L1 and translation.* When some participants encountered unfamiliar words, they used translation applications and bilingual resources to uncover the meaning of some unfamiliar words. G2S2, G3S1, G3S3, and G5S2 mentioned translating some words into their L1 using translation applications. When they utilized translation, they did not translate the whole text but instead selected chunks that challenged their comprehension. Even though G5S2 acknowledged using both translation and bilingual dictionaries, he favored dictionaries because they provided both definitions and example sentences. Conversely, another participant, G1S2, did not consider translation beneficial to his vocabulary learning at all and used a monolingual dictionary. The 14 participants in this study had eight distinct L1s. Moreover, four groups out of five did not have any members with a shared L1. Some participants' preferences to resort to their L1s for vocabulary learning may have contributed to adopting individualistic efforts in their L1s.

### Theme 2: Social Annotation Tool as a Reviewing Instrument

Participants identified main ideas and supporting evidence in their comments. Such comments helped them locate ideas easily when they revisited the articles. They also talked about remembering the content of the articles better because of the comments they wrote.

*Identifying main ideas and supporting evidence.* A remarkable portion of participants' comments described the role of some phrases in the article. G1S2, G2S1, G2S2, G3S1, G3S3, G4S1, G4S2, and G5S1 considered the main ideas to be the first thing they looked for in the articles. For instance, when describing what prompted him to add a comment, G3S1 said, "I ask myself [...] if I see the claim or [...] the main words that helped me understand the article." G4S1 also mentioned asking himself what the claim was, and in addition, he tried to identify the authors' strategies to post a comment about them. Furthermore, participants added descriptive and evaluative comments on supporting evidence such as statistical data, examples, authority statements. The descriptive comments such as "other tips for other symptoms" (G3S3) showed the function or content of the selection, while evaluative comments such as "This is a good sign" (G3S2) included learners' perspectives on the supporting evidence. G1S2 thought that the discussions on the credibility of the supporting evidence dominated his group's annotations. This tendency may have emerged because their ultimate goal was to write an argumentative essay as a group after the end of the treatment. They may have aimed to integrate the valid supporting evidence from the articles into their essays to have a strong argument. In other words, their writing goals and strategies may have encouraged them to uncover the outline of the texts and discuss the strength of the arguments.

*Locating ideas when revisiting the articles.* Many participants considered their groups' annotations helpful when they revisited the articles. G1S1, G2S2, G3S1, G3S3, G4S1, G4S2,

G4S3, G5S1, and G5S2 mentioned spending less time on the revision because the annotations helped them navigate through the article toward what they needed to find. To illustrate, G3S1 pointed out that his comments helped him locate the claim, warrant, evidence, rebuttal, and so forth when he read the articles again. “I think annotating these important aspects in the article help me a lot by spending less time and with full understanding about what the authors are trying to say,” he said. His statement implied that his efforts in identifying the elements of the argument rewarded him with better comprehension in a shorter amount of time in his future revisions. In addition to their own annotations, G1S1, G2S2, G3S3, G4S1, G4S2, G4S3, G5S1, and G5S2 pointed out their peers’ contributions to their comprehension and navigation. For instance, G2S1 said, “They annotate the sentences that I’m not aware of. [...] I can search the information that I want, directly through their comments.” He found group work efficient for analyzing a text as his partners’ comments would complement his shortcomings in noticing some ideas.

Most participants reviewed the articles once, and a few participants (G1S2 and G3S1) multiple times. Among the one-time reviewers, G2S1 and G5S1 said that their revisions involved the comments only, not the articles themselves. Meanwhile, a multiple-time reviewer, G3S1, read both the articles and the comments during his first revision, and he read the comments only on his second revision. The other participants referred to both the comments and some portions of the articles when they revisited them. G2S2 pointed out that his comments reduced the need to read the text again because he already knew its meaning through his own description. He said, “Because I got the phrase, I described the phrase. So, I know better what that phrase means when I read it again. I don’t need to read it again.” Participants’ annotations on the main idea and supporting sentences functioned as an outline of the text, which may have led to a focused

review of essential ideas of the text. However, small details may have lacked students' attention in their subsequent readings due to their tendency to selective attention to major ideas.

*Remembering.* G1S2, G2S2, G3S1, G3S3, G4S2, G4S3, and G5S1 mentioned remembering the content with the help of annotations on main ideas and supporting evidence. G2S2 talked about how his active participation in annotating helped him remember the content. He said, "Highlighting some phrases makes you remember. While you do it, you elaborate an answer on your own. So, you are basically learning. You are not repeating what is already written there. You are telling it with your own words." As he emphasized using his own words, he seemed to think what made annotation an aid in remembering was his behavioral engagement with the reading. Similarly, G1S2 stated that he had always been taking notes, even outside the scope of this class, and that he could not imagine remembering the content if he had not taken notes. G3S1 referred to remembering as well. His response, "Its strength is memorizing, knowing the article better," implied his perception of annotating to be an aid in remembering the content even when the annotations were no longer present in sight. In short, participants draw attention to behavioral engagement as a factor in remembering the reading content. Annotation tasks constituted an opportunity for their behavioral engagement, which in turn aided their comprehension by helping them remember more.

**Theme 3: Deep Reading Practices for Prewriting**

Almost all participants expressed that the annotation tool helped them think deeply about the articles. I identified their deep reading practices as dissecting the argument, interpreting ideas, and making connections with their previous readings and perspectives. Reading and writing goals were closely connected with each other in these practices. Social annotation tools

may facilitate the prewriting stage when learners read sources that they can transfer to their writing.

*Dissecting the argument.* Participants tried to identify elements such as the claim, the warrant, qualifier, grounds, and rebuttal in Toulmin or Rogerian arguments, which the instructor had been introducing throughout the study treatment. They added comments with a few words such as "a warrant" (G3S3), "counter argument for us" (G1S2), and "it's really good to use a well-known example like this" (G1S1) to describe the role of their selection in the author's argument. Some of those comments solely referred to the author's argument, whereas others also involved the group's plan for their final argumentative essay. G1S3, G2S2, G2S3, G3S1, G3S2, G4S1, G4S2, and G5S1 suggested that their search for these elements raised their awareness of how to organize their thoughts when they would write an argumentative essay. For instance, in his weekly reflection log, G2S3 said, "This [is] how I became better in organizing thoughts. It really taught me argument construction better by using these parts above in any argument." The learning objectives of this course, which focused on both reading and writing in ESL, prompted students to enhance their writing strategies as they read. As they closely examined arguments, they perceived transferring their receptive learning outcomes to productive ones.

*Interpreting.* Participants in all groups interpreted the text through paraphrasing, writing short summaries, explaining, or forming conclusions. When they paraphrased the ideas in the articles, they reconstructed the meaning, which required understanding it in the first place. Summaries, on the other hand, involved reconstructing a wider network of ideas after selecting the key ones. While they did these acts, they processed and recreated knowledge using different lexical items or syntactic structures than those of the author. They may have chosen to summarize and paraphrase because they aimed to spend less time on their reviews (see Theme

2), which is related to their writing project, encouraging them to read the texts with an overarching goal of integrating pertinent knowledge into their arguments. They also explained some ideas when their peers asked questions about them. G3S2, for instance, responded to a peer's confusion with this comment: "Yes, that means the people are accepting vaccines and are willing to get vaccinated." Explanations required them to understand the author's idea, identify the gap in their peers' comprehension, and produce a phrase that may have had additional information connected to previous or future portions of the same text without contradicting the selected idea. Lastly, they interpreted the text by reaching conclusions based on the data they read. G1S3's comment, "This information is proof that a chip cannot appear in a needle because of its size." is an example of forming conclusions upon reading a piece of evidence. In short, participants' interpretations were indications of deep reading, which also prepared them to write their essays.

*Making Connections.* Many participants asked questions, expressed their opinions, and compared ideas across other texts as they read. These interactions constituted connections between the elements of the text, ideas across different texts, and participants' arguments. G1S1, G1S2, G2S2, G4S1, G4S2, and G5S1 considered that asking and answering questions enabled their groups to make in-depth analyses. "We were asking questions under almost every annotation, and that helps you and your classmates to look deeply inside the problem and to analyze more. Not just the words, the meaning," G1S2 said. He thought he achieved a deeper understanding because responding to his groups' comments necessitated a closer look into the texts. He also added that sometimes his groupmates would share ideas he never thought of, and such conversations enriched his understanding. Another participant, G2S2, elaborated on how he treated the facts he came across in the articles. He said, "I try to do something out of that fact. I

try to explain how it actually relates to the premise or if the statistics or the facts should even be taken into consideration. Is there a double meaning to it?" His response implied establishing a connection between the facts and the authors' arguments in addition to labeling argument elements. In the fourth week, G3S2 described how his group's annotations focused on evaluating many sources at once to organize and strengthen their group's argument: "[...] our group is working very hard to gather information, search throughout the internet, and collect the best data and knowledge to support our claim. One of our goals is for the readers to [...] persuade them." In other words, his group made connections between various articles and their own argument while reading. These connections parallel participants' plans to synthesize various ideas in their writing projects.

**Discussion of RQ3**

The participants did not use the social annotation tool to add glosses in the margins of the article, but they were familiar with some digital resources for vocabulary that could aid in their comprehension. They employed some vocabulary learning strategies as they read the texts. These strategies included selective attention, guessing strategies, and dictionary strategies (Gu, 2018). The participants decided whether the new words were crucial for understanding the article through the selective attention strategy. They did not perceive many words to impede their comprehension. When they did, they employed a guessing strategy by making use of the context surrounding the new words. This finding aligned with Liontas's (2002) assertion that context facilitated and strengthened participants' access to the overall meaning of the reading texts. Many participants seemed to process vocabulary in a similar way to the top-down approach (Chun & Plass, 1997) in psycholinguistics since they integrated their background knowledge, common sense, and the rest of the text to infer meaning. They did not direct their attention to

specific unknown letters or words in isolation. Instead, they tried to derive the meaning of small chunks by resorting to the larger text. Some participants used online dictionaries as another vocabulary learning strategy. Consistent with Koren (1997), some participants favored bilingual dictionaries over monolingual ones. Translation tools were additional resources involving learners' L1. The groups had members with diverse L1s, which would make glossing inefficient when they incorporated their preferred L1 resources. Furthermore, only a few participants mentioned using notetaking strategies for vocabulary. The lack of notetaking was not feasible for collaborative vocabulary learning through social annotating because social annotation relies on mostly written output. Therefore, participants' efforts and strategies remained individualistic cognitive ventures.

Participants' use of social annotating to identify key textual elements was consistent with the findings in Lo et al. (2013), Nor et al. (2013), and Tseng et al. (2015). Their annotations often referred to the relevance of the supporting evidence as they aimed to find source-text information supporting or refuting their essay's argument. This finding indicated a relationship between participants' reading moves and writing goals. When Hirvela (2016) discussed the connection between reading and writing in L2, he posited that good readers could identify the most relevant content in the texts and anticipate how to move that content into their writing. In other words, good readers tried to understand what they read in relation to their writing goals. In this regard, participants in this study seemed to employ the cognitive strategies of good readers. Moreover, they found having annotations to be timesaving for remembering and locating what they needed to transfer into their essays.

Participants' statements also suggested using some of the strategies Bai and Wang (2020) proposed for self-regulated reading-to-write in ESL: mining reading (Hirvela, 2016), writerly-

reading (Hirvela, 2016), cognitive elaboration, and cognitive organization. Mining reading involved participants' search and selection of texts that suited to provide them with relevant information in their future essays. They did writerly reading as they labeled some textual features and evaluated their adequacy or credibility. In addition, they created short summaries to be able to integrate the reading content into their writing, which suggested the use of cognitive-elaboration strategy. Labeling and evaluating the main idea and the supporting evidence implied their attempt to store information in a systematic and selective way through the cognitive-organization strategy. Participants found such annotations with labels, paraphrases, and summaries conducive to reviewing the reading content, which helped them organize their thoughts for writing. Their annotations on the articles reflected the planning stage for writing, which shows how the social annotation tools may be feasible for self-regulated reading-to-write instruction in L2.

Moreover, social annotation tool use in L2 classrooms helps students engage in close reading of reading texts (Thoms & Poole, 2018). This study's findings supported that finding. Participants in this study analyzed, constructed, interpreted, and related meaning while annotating. They seemed to dynamically engage in higher-level thinking and lower-level thinking in Bloom's taxonomy (Bloom, 1956). They began with lower-level thinking as they labeled and located ideas in the text while considering their ultimate goal of creating a written product, a task requiring higher-level thinking. Then, they interpreted the texts through summaries and paraphrases, which necessitated understanding the text (Hedgecock & Ferris, 2009). In addition to understanding, Hirvela and Du (2013) maintained that students could engage in close reading of target texts when they paraphrased and added that such close reading would contribute to both the reading and writing skills of L2 learners. In a similar way,

participants seemed to view paraphrasing as an aid in remembering the content as well because they actively restated meaning rather than passively receiving it. They also analyzed the relationship between various ideas within a text and identified the role of a specific idea in an argument. Moreover, they compared these ideas and relationships to their essay's position so that they could synthesize the pertinent ones in their writing later. Participants' statements and their annotations imply that social annotation use in reading instruction may provide learners with opportunities to reach higher-level learning objectives, especially if the learning setting integrates the instruction of reading and writing skills.

## Chapter Summary

In Chapter 4, I presented the findings for the three research questions guiding this dissertation study. The first research question led to themes related to peer interactions in a social constructivist learning environment. I identified the following themes for this question: remote overseas participation as a constraint on peer interactions, employing social and communicative skills in interactional patterns, use of additional tools for procedural communication, differing mutuality of contributions across groups, and facilitation of connected peer communities. The second research question focused on participants' reading engagement. I identified the following five themes for this question: maintenance of cognitive efforts, boredom and distractions, anxiety, enjoyment of content through peer contributions, and frustration. The last research question focused on participants' reading comprehension during the social annotation task. For this question, I identified three major themes with some sub-themes. The themes were vocabulary learning as an individualistic construct, social annotation tool as a reviewing instrument, and deep reading practices for prewriting.

After presenting the findings of each research question, I interpreted those findings in the discussion section. In addition, I discussed the link between the findings and the literature review in Chapter 2. I also interpreted the implications of these links for practitioners. In the next chapter, I present the summary of my findings, discuss limitations and implications, provide recommendations for future researchers, and conclude with some final thoughts.

# CHAPTER 5: CONCLUSION

## Introduction

I conducted this study to explore the perceptions of adult international students who were enrolled in an EAP course facilitating collaborative reading through a social annotation tool. The participants came from diverse backgrounds, had a minimum of intermediate-level proficiency in English, and were undergraduate students who did not meet the admission criteria until completion of their language program. The previous research on the use of social annotation tools indicated its reinforcing role in reading comprehension (Chen et al., 2014; Yang & Lin, 2015) and the development of positive attitudes (Chang & Hsu, 2011; Lo et al., 2013; Nor et al., 2013). However, few studies explored participants' peer support and reading engagement. This study took place in a hybrid learning environment and some participants joined the collaboration task entirely online from different parts of the world. Participants were physically distant from each other. I explored their perceptions of the social annotation tool in facilitating their active involvement in the reading process as a group because their peers' contributions could help them achieve high engagement with reading and construct meaning together. To explore these perceptions, I adopted a qualitative research design in the genre of exploratory descriptive case study and analyzed four qualitative data sources, which were two sets of interviews, five sets of weekly journal logs, annotation logs, and open-ended responses to the post-study survey; and two qualitative data sources, which were ELL-REI, and ELL-RES (Hamedi et al., 2020). In the next sections of Chapter 5, I present a summary of findings for *a priori* research questions and

discuss limitations, theoretical/pedagogical implications, and suggestions for future research. In the end, I conclude this chapter with some final thoughts.

**Summary of Findings**

In this section, I summarize the findings of this dissertation study by addressing the three *a priori* research questions briefly. Through the first question, I explored themes related to participants' peer support and interactions. Then, for the second question, I explored themes regarding their engagement with reading and their emotions. Lastly, I explored the themes for their reading comprehension in the third question.

*Research Question 1: In what ways do the study participants perceive employing the social annotation tool promoted their peer support and interactions while reading a text?*

Through the social annotation tool *Hypothesis*, participants annotated various online texts in groups of two (one group) and three (four groups) for five weeks. I identified the following five themes with respect to their interactions: (1) remote overseas participation as a constraint on peer interactions, (2) employing social and communicative skills in interactional patterns, (3) use of additional tools for procedural communication, (4) differing mutuality of contributions across groups, and (5) facilitation of connected peer communities. Participants attending the class remotely from an international location faced challenges in participating in the social annotation task due to time-zone differences and the political and economic restrictions on their access to the tool. Nonetheless, participants in general engaged in bookmarking, evaluative comments, discussion comments, paraphrasing, and summarizing. They contributed to each other's construction of meaning by asking for clarification, explaining, and acknowledging their peers' contributions. However, the social annotation tool did not meet participants' needs for real-time conversations, which made them use additional tools to communicate. Peer contributions' levels

of mutuality differed across groups. They perceived their opinion exchanges to facilitate a connected community.

*Research Question 2: In what ways do the study participants perceive employing the social annotation tool promoted their engagement with reading?*

To answer this question, I analyzed all the data sources which included both qualitative and quantitative data. The four themes I identified across these data sources were (1) maintenance of cognitive efforts, (2) boredom and distractions, (3) anxiety, (4) enjoyment of content through peer contributions, and (5) frustration. Participants were cognitively, behaviorally, and emotionally engaged with the reading during the annotation activity in small groups. They thought of different ways to solve reading problems and most of them related their prior knowledge to the reading content. In general, they discussed the reading content with their peers and maintained their focus despite some distractions. Most of them experienced enjoyment. Boredom, anxiety, and frustration were not common negative emotions and they were related to a lack of interest in the reading topic, unfamiliarity with the tool, and fear of comprehension challenges, communication challenges, and time limitations.

*Research Question 3: In what ways do the study participants perceive employing the social annotation tool promoted their reading comprehension?*

I analyzed participants' annotations and their statements in various data sources and identified three major themes related to their reading comprehension: (1) vocabulary learning as an individualistic construct, (2) social annotation tool as a reviewing instrument, and (3) deep reading practices for prewriting. These major themes had some sub-themes: (1a) lack of need to interact, (1b) selectiveness, (1c) mental work, (1d) resorting to L1 and translation, (2a)

identifying main ideas and supporting sentences, (2b) locating ideas when revisiting the articles, (2c) remembering, (3a) dissecting the argument, (3b) interpreting, and (3c) making connections. Participants did not annotate vocabulary. They perceived vocabulary learning to require individual effort, not collective work. They thought their annotations made the reviewing process efficient because they functioned as outlines of the articles. They also employed some deep reading practices with respect to their writing goals.

**Limitations**

As with all studies, this study has limitations. To begin with, I have my own biases, beliefs, and pedagogical approaches to teaching and learning English as a learner and teacher. As a language learner, I benefited from communication with my peers about the challenges I faced because they had similar experiences and provided me with tips and tools to overcome them. I also used applications such as Hilokal to engage in communication with other learners and teachers in the target language. I perceived some affordances for learning vocabulary and grammatical structures, and regulating my learning experience. As a teacher, I used various instructional technologies in the past and I believe they have the potential for improving learning. I think the social constructivist approach to learning promotes the most effective learning conditions in which learners actively construct knowledge together instead of passively receiving it from the teacher or the materials. These beliefs impacted the way I perceived and analyzed the data I collected. Hermeneutic considerations indicate that other researchers may interpret the same data differently than I did based on their worldviews, epistemological backgrounds, and experiences (Richards, 2016).

Another limitation of this study was the extent of data I collected. Even though I triangulated the data through many data sources, I did not collect the data demonstrating their

peer interactions using communication tools other than *Hypothesis*, which could have exemplified their negotiation of meaning and mutual contributions further. I also did not collect their writing projects following the annotation task because the focus of this study was limited to how they approached and perceived reading collaboratively. Such data would allow me to make more connections between collaborative reading and pre-writing.

During the social annotation task, the participants picked the articles they annotated themselves. There were no exclusive criteria for difficulty levels. This could constitute a limitation because the selected articles may not be challenging enough, as a few participants pointed out, to engage in collaborative interactions for negotiation of meaning or vocabulary glossing. This may also have had an influence on their emotional engagement in terms of their anxiety or boredom levels in particular. If the instructor selected reading materials difficult enough for their proficiency levels in the light of learning objectives, participants could have engaged in different mutuality and amount of contributions, different levels of reading engagement and emotions, and different experiences with reading comprehension.

Moreover, participants, in general, did not provide detailed descriptions of their perceptions. There may be several reasons for this. One reason may be having the interviews in their second language. They had intermediate to advanced proficiency in English, but they may have still found it hard or stressful to talk in English while trying to recall their experiences on the spot. I collected weekly journal logs to mitigate this possible disadvantage I foresaw. However, some of the participants kept very brief logs while some wrote at least one paragraph. They may have written short entries because their busy schedules during the summer term may have posed other priorities for them. Lastly, they may have hesitated to tell the truth due to my

involvement as an observer for six weeks. They may have shied away from talking negatively about their experiences.

In short, the findings of this study pertain only to 14 participants in this context of inquiry and the critical lens I employed while exploring the data. In so doing, I made liberal use of hermeneutic considerations, the extent of data I collected, lack of difficulty criteria in the selection of reading materials, and brief descriptions of participants.

**Theoretical Implications**

This study adds to the knowledge in the second language acquisition field regarding international students' perceptions of social annotation use in social constructivist environments for L2 reading online. In addition, I believe participants' perceptions of engagement with reading have some implications for the field of instructional technology.

This study provided a description of participants' perceptions and interactions in a social constructivist and diverse context for L2 reading. As already discussed, there have been studies that investigated the use of social annotations in L2 settings, but this study may be the first one involving collaboration groups with some learners joining remotely from different countries around the world. These learners attended all the courses online and relied on online communication entirely. The study demonstrated how social annotation could facilitate peer contributions and collective scaffolding among these learners. It also showed potential challenges that may arise for remote international learners. Social annotation was compatible with the social constructivist approach to learning because it centralized learners' efforts in actively working on meaning-making with their peers, and allowed opportunities for opinion exchange, organizing information, and negotiation of meaning. However, social annotation use

did not always lead to collaborative learning because some participants did not engage in mutual contributions.

Exploring learners' prospective outcome emotions and activity emotions will contribute to the understanding of social annotation use by expanding on the motivational aspect of the extant literature. Hamedi et al.'s (2020) adaptation of achievement emotions questionnaire into ELL-RES included three relevant emotions for reading tasks: boredom, anxiety, and enjoyment. Frustration was an additional emotion that participants described especially when they talked about the early stages of social annotation. Remote participation was more prone to evoking frustration due to accessibility issues and time-zone differences. A future adaptation of ELL-RES specifically for online ESL settings could include the negative emotion of frustration during reading. Furthermore, participants in this study reported high levels of cognitive engagement but low levels of negative emotions. Their low boredom levels suggest that their cognitive engagement was satisfactory enough to remain on the social annotation task since boredom is an emotion arising as a result of unsatisfactory cognitive engagement (Elpidorou, 2022).

Self-regulated reading-to-write strategies (Bai & Wang, 2020) were not part of the design of this study; however, participants' interactions through social annotation use and their statements indicated that they employed some of these strategies. Including that framework in the research design will improve the understanding of social annotation use and how it could bridge reading and writing in L2. It also has the potential of extending the affordances of social annotation to the writing domain by explicitly prompting learners to evaluate texts, recognize good textual features, and gather information on the content. Moreover, learners' cognitive engagement needs to be examined with regard to learners' use of these strategies as they invite

learners to think critically about the text, organize its content, and transfer knowledge to their own written output while modeling the authors in the target language.

**Implications for Practice**

Collaboration could be achieved better when the language educator provides some guidelines, structured procedures or scaffolding, and explicit instruction on some annotation strategies that could enhance participants' comprehension and vocabulary learning. These guidelines could include relating prior knowledge (or readings) with new information, responding to discussion prompts regarding ideas in reading, asking peers questions if they encounter comprehension problems or if they would like to confirm their understanding, sharing other resources that helped them expand their understanding, glossing the vocabulary that interfered with their comprehension by using images or dictionary entries, and creating outlines of reading texts, pointing out the relationship between key ideas. If there are multiple deadlines for annotations in a week, it may allow participants enough time to respond to other ideas or questions. Therefore, having multiple deadlines could promote the mutuality of contributions and revision of the text by the end of the week.

There are some insights for reading-to-writing instruction as well. Social annotation tool use allowed the learners to develop outlines of articles with main ideas and supporting details, which also constituted participants' pre-writing preparations. Since reading and writing skills are closely related to each other, teachers could incorporate social annotation use in EAP classes to familiarize the students with the outline of reading materials that represent the target genre for writing. They could also exercise the strategies of mining reading and writerly reading (Hirvela, 2016) to organize their thoughts as a pre-writing activity. This could provide learners with opportunities to engage in close reading of texts.

Participants needed to use other communication tools because the social annotation tool in this study did not offer a real-time instant messaging feature. Language educators should consider a solution to meet this need when they pick an annotation tool if the students cannot meet in person or have another mean of simultaneous communication. Moreover, grouping learners participating from similar time zones may increase their behavioral and emotional engagement. The participants in the two-member group faced challenges with completing the task due to the unavailability of one member for a while as a result of health issues. Having small groups of at least three students would make mutual contributions still possible even when one member could not contribute.

As with other instructional technology, familiarity with social annotation tools may take some time. Language educators should devise a simple tutorial document in video or written form showing how to download, sign up for, and use different functions in the annotation tool for the first time. Learners could continue to refer to it until they become familiar and comfortable with using it on their own. The guided practice could also ease their initial involvement with the annotation task. Especially in learning contexts with learners from different parts of the world, language educators should consider whether all the participants would have easy access to the tool to ensure everyone's inclusion. If they are teaching remote international students, they should be aware of the potential restrictions to the use of certain applications in some countries. In such cases, if the educational institution is not providing alternative solutions to override these restrictions, educators should consider other tools that may have wider availability and avoid employing tools that are inaccessible for some learners.

**Recommendations for Future Research**

This exploratory descriptive case study contributes to the field of second language acquisition in that it addressed the gap in research through the characteristics of the context of the inquiry, and some of the data sources. It may be the first one exploring reading engagement and emotions regarding a social annotation task in a learning environment with remote learners worldwide. Future researchers could investigate learners' emotions for reading using ELL-RES, which is a validated measure, in experimental research paradigms with larger student samples. They could incorporate pre- and post-tests for comprehension and then analyze the impact of using a social annotation tool on students' reading emotions, comprehension, and the combined effect of reading emotions and the use of the social annotation tool on reading comprehension. A similar design could investigate engagement with reading through ELL-REI.

Another helpful contribution would be investigating how learners' annotation moves transfer to their writing projects. Researchers could include the teaching of strategies for self-regulated reading-to-writing (Bai & Wang, 2020) and collect additional data sources such as students' collaborative writing projects to explore in what ways social annotation tools may support L2 reading and writing together. In addition, researchers could explore making other connections with writing instruction by integrating social annotation into the peer feedback process after educating learners with strategies for giving constructive feedback.

Researchers could also examine the relationship between interactional patterns (e.g. evaluating, paraphrasing, discussion, etc.) and emotions to see whether teachers' involvement in directing the focus of students on certain annotation moves has an impact on their anxiety, boredom, and enjoyment. Such a study could inform the knowledge on engagement with reading in social annotation tasks. It would also offer pedagogical implications in terms of language

educators' scaffolding and monitoring roles in the social annotation task. With respect to improving instruction, researchers could develop some instructional guidelines to promote mutual contributions and the use of engaging annotations. Then, they could study the impact of following those guidelines on peer interactions and engagement with reading.

Lastly, social annotation use may offer different affordances for doctorate-level English language learners. Researchers could explore the use of social annotation tools for field-specific academic texts such as journal articles in research design courses to familiarize learners with the structure of such texts and the conventions of academic writing. Social annotation use in those contexts may promote different interactional patterns and different perceptions of the role of peer support.

I devised the following list of research questions for future research:

- What is the impact of the use of social annotation tools on the reading emotions of adult ESL learners?
- What is the combined impact of reading emotions and the use of social annotation tools on the reading comprehension of adult ESL learners?
- In what ways do adult ESL learners use social annotation tools for source-based writing?
- In what ways do adult ESL learners employ self-regulated reading-to-writing strategies during social annotation tasks?
- In what ways do ESL instructors facilitate social annotation tasks in online ESL settings?
- What is the relationship between interactional patterns and learners' reading emotions during social annotation tasks?
- In what ways do English learners in doctoral programs interact via social annotation tools?

## Final Thoughts

In this study, I explored the study participants' perceptions of the use of a social annotation tool in promoting peer support and interactions, engagement with reading, and comprehension. After analyzing the data sources, I concluded that social annotation use facilitated peer interactions and peer support. The participants employed various interactional patterns to engage in discussions, evaluate the credibility of data, identify pertinent ideas for their writing goals, and paraphrase and summarize the ideas they planned to incorporate in their writing. They perceived social annotation as a reading task easing their collaboration because it eliminated the need to describe which part of the text they needed to discuss. They found it easy to both send and receive their ideas within their group. However, it did not always result in mutual contributions. Some participants divided the workload and worked on their respective parts. If the language educators plan to employ social annotation tools to promote peer interactions and peer support, they may need to consider having some guidelines for group work. Moreover, some remote learners outside the USA experienced difficulty in reaching the tool, which made some of them have anxiety at the beginning. Selecting inclusive tools or compiling resources like instructions and VPNs may mitigate these problems.

Most participants reported being engaged with the reading cognitively, behaviorally, and emotionally. When they encountered challenges in reading, they thought about the resources they could use and resorted to them. They put the effort into enhancing their understanding by making connections with their prior knowledge, asking and answering questions, identifying key ideas, and evaluating arguments. Boredom levels were low; however, some participants still felt bored because they were not interested in the content, they did not want to write while reading, and their overall affective state for the course already indicated boredom. Similarly, unlike most

participants, a few participants had anxiety due to their initial unfamiliarity with the tool, their communication problems with peers, their distrust of their adequacy for the task, and their concerns about failing to understand important ideas. Participants felt enjoyment with using social annotations because they thought their efforts paid off and because they were interested in their peers' opinions. When taken with participants' cognitive efforts throughout the task, the low levels of anxiety and boredom and high enjoyment suggested that participants were engaged with the reading.

Participants' mutual contributions did not include vocabulary glossing. They considered vocabulary learning as an individualistic construct that did not require a collective effort. They used contextual clues to guess the meaning of unknown words. They also used translation tools and dictionaries, the majority of which were bilingual. Therefore, learners' diverse L1s may be one reason why they worked on vocabulary on their own. Some participants pointed out that the reading texts were not very challenging in terms of vocabulary. This may be yet another reason for not needing to collectively work on vocabulary. With respect to comprehending and remembering the content, participants' annotations served as a reviewing tool with an outline of the text. Social annotation use also facilitated some deep reading practices among learners. Participants dissected the arguments, interpreted ideas, and made connections with prior knowledge, other texts, and their writing goals.

In sum, the use of social annotation tools have the potential of facilitating a social constructivist learning environment; however, such use does not always lead to collective scaffolding. Some learners may not benefit from their peers' contributions if the mutuality of interaction is low. Language educators' involvement in structuring the procedures for interacting may remedy this issue and enhance their engagement with reading. Lastly, social annotation

tools are powerful tools for reading-to-writing in L2 as learners could analyze model texts and transform reading input into their written products.

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# APPENDICES

**Appendix A: Background Information Questionnaire**

Your information will be kept confidentially and used for research purposes only. Please try to answer all the questions accurately.

Please write your full name: _____

**Age:**

**How long have you studied English in the USA?**
___ years and ___ months.

**At what age did you start learning English? _____**

**What is your first language?**
_____

**Please choose the items you read in English:**

| | | |
|---|---|---|
| □ electronic textbooks | □ online news | □ stories or novels |
| □ textbooks | □ print newspapers | □ tweets |
| □ academic articles online | □ magazines | □ other: _____ |
| □ printed academic articles | | |

**Approximately how many hours per week do you spend on reading in English?**
_____ hours.

**In your opinion, what is your English proficiency in reading?**

| | | | |
|---|---|---|---|
| □ beginner | □ intermediate | □ advanced | □ proficient |

**What is your preferred medium for reading in English?**

| | | | |
|---|---|---|---|
| □ paper | □ computer | □ tablet | □ mobile phone |

## Appendix B: English Language Learners' Reading Emotions Scale (ELL-RES)

### INSTRUCTIONS

Attending classes at university can induce different feelings. This questionnaire refers to emotions such as boredom, anxiety, and enjoyment you may experience when participating in the English reading tasks. Before answering the following questions, please recall some typical reading situations in this course which you have experienced during the last 5 weeks.

There are numbers from 1 to 5 next to each statement:

After reading each statement, please **choose the number that applies to you**.

1 means that you strongly disagree.

2 means that you disagree.

3 means that you neither disagree nor agree.

4 means that you agree.

5 means that you strongly agree.

**Reading boredom**

While reading the text,

1. I found the text dull.

2. My mind began to wander as I got bored.

3. I was tempted to put the text aside as it was boring.

4. I thought about what else I could go through rather than reading this text.

5. I got bored to the point that I had problems staying alert.

6. I got restless.

**Reading anxiety**

7. I felt it makes me uneasy.

8. I felt it makes me nervous.

9. I worried whether I was sufficiently prepared for it or not.

10. I skipped some parts because I felt so nervous.

11. I got tense.

12. I felt my heart race as I did not understand something important.

**Reading enjoyment**

13. I got excited about its content.

14. I enjoyed reading it.

15. I started looking forward to going through the text.

16. I was glad that it paid off to read it.

17. My enjoyment of the reading made me proceed.

18. I was so excited saving time on it.

## Appendix C: English Language Learner's Reading Engagement Inventory (ELL-REI)

### INSTRUCTIONS

Before answering the following questions, please recall some typical reading situations in this course which you have experienced during the last 5 weeks.

There are numbers from 1 to 5 next to each statement:

After reading each statement, please **choose the number that applies to you**.

1 means that you strongly disagree.

2 means that you disagree.

3 means that you neither disagree nor agree.

4 means that you agree.

5 means that you strongly agree.

**Cognitive engagement**

While reading the text,

1. I thought about different ways to solve the reading problems.

2. I tried to connect what I was learning from the reading to what I had learned before.

3. I preferred to be told the answer than have to do the work.

4. I was not thinking that hard.

5. I only studied the easy parts when the work was hard.

6. I did just enough to get by.

**Behavioral engagement**

7. I stayed focused.

8. I put effort into reading the text.

9. I kept trying even if something was hard.

10. I talked about the reading content to others.

11. I got distracted.

12. I gave up right away if I did not understand.

**Emotional engagement**

13. I looked forward to continuing reading it.

14. I enjoyed learning new things.

15. I felt good.

16. I often felt frustrated.

17. I thought it is boring.

18. I did not care about its content.

## Appendix D: Open-Ended Post-Study Survey Questions

Thank you for participating in this study. Please review your experience with using Hypothes.is for annotating the reading texts with your group members and answer the following questions with examples in as much detail as you can.

1) What was it like to use Hypothes.is in a group activity? How was your experience?

2) What features of Hypothes.is did you find most helpful for learning new words?

3) What features of Hypothes.is did you find most helpful for improving your comprehension?

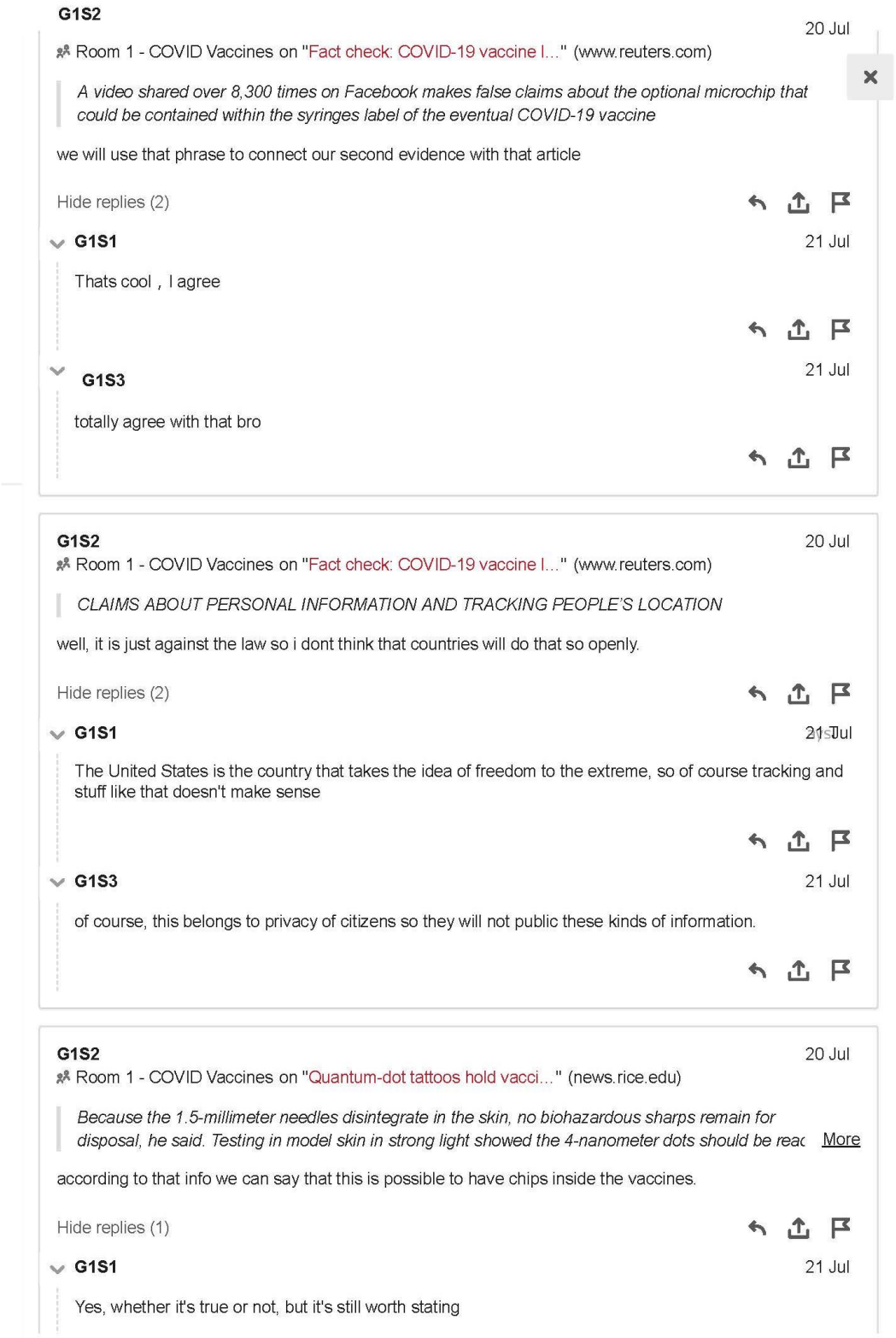
4) What was it like to read in a group?

5) What made it hard or easy when you were annotating the text in your group?

## Appendix E: Semi-Structured Interview Questions

1. What was it like to collaborate with your peers as a group? Tell me about your experience.
2. What helped you understand the text?
3. What helped you learn new words?
4. How did you understand or identify the main idea?
5. What did you do to identify supporting details?
6. What was it like to annotate through this tool? What type of questions and comments did you usually post?
7. How did you review the content of the reading passages?
8. What were the strengths of using this tool for reading compared to your previous experience with academic reading?
9. What were the shortcomings of using this tool for reading compared to your previous experience with academic reading?
10. What would make the group work better during these annotation tasks?
11. What was it like to participate in online discussions during these reading assignments?

## Appendix F: Annotation Samples



**Appendix G: Overview of Studies on Social Annotation Tool Use**

| Author | Setting | Type of Interaction | Data Sources and Analysis | Findings |
|---|---|---|---|---|
| Blyth<br><br>(2014) | French (FL)<br>English (L1)<br><br>Universities in USA<br><br>Participants: 4 instructors | Comment,<br>Respond to comments,<br>Word cloud,<br>Add visuals | Instructors' written responses<br><br>Thematic Analysis | Perceived Affordances:<br>Creating a ZPD for less expert readers<br>Distributing the cognitive load<br>Synthesizing several activities into a single activity<br>Aggregating behavior<br>Blending different types of digital reading |
| Chang & Hsu<br><br>(2011) | EFL<br><br>University in Taiwan<br><br>Participants:<br>Study 1: 42<br>Study 2: 43 | Share notes,<br>Choose the right translation | Questionnaire<br>Interviews<br>Comprehension tests<br><br>Paired samples t-test<br>ANOVA<br>Pearson correlation | CALL reading system lead to significantly better comprehension.<br><br>Groups of twos, threes, or fours (not five) performed better than they did with individual reading.<br><br>Most students found the CALL system to be useful, easy to use, and acceptable. |
| Chen, Wang, & Chen<br><br>(2014) | EFL<br><br>Taiwan<br>7th Grade<br><br>Participants:<br>64 | Selection of Annotation Type<br>Underline<br>Browse<br>Vote<br>Highlight | independent-samples t-test<br>Pearson correlation analysis for reading comprehension and annotating abilities | Experimental Group:<br>Significant improvement in comprehension and annotation abilities.<br><br>Correlation between reading annotation ability of learners and their reading comprehension. |

| | | | | |
|---|---|---|---|---|
| Chen, Wang, Chen, & Wu<br><br>(2016) | EFL<br>Junior High School<br>7th grade in Taiwan<br><br>Participants: 114 | Highlight, Like, Translate, Provide a Link, Comment, Summarize | Students' annotations<br>Foreign Language Reading Anxiety Scale, Pre-, Post-test<br><br>independent-samples t-test, ANCOVA, Wilcoxon signed rank paired-samples t-test | No significant difference in comprehension improvement.<br><br>Learners preferred low-level annotations (like, highlight, translate, link).<br><br>Using the tool without instructor's support did not ease students' anxiety. |
| Liu & Lan<br><br>(2016) | EFL<br>University<br>Participants: 65 | | Vocabulary Pre-test<br>Vocabulary Post-test<br>Log data<br>Questionnaire<br>independent samples t-tests | All groups performed significantly better at post-test than pre-test.<br><br>The collaborators had a higher post-test mean score than the individuals (not significant).<br><br>Collaborators: Significantly higher level of motivational beliefs, and self-efficacy.<br><br>A lower level of test anxiety (not significant). |
| Lo, Yeh, & Sung<br><br>(2013) | EFL<br>A university in Taiwan | Highlight<br>Comment, Dictionary | Cued Recall Test<br>Free Recall Test<br>Attitude Survey<br><br>Recall tests: t-test and Cohen's d<br>Attitude Survey: t-test | The experimental group: significantly better at the cued recall test and the free recall test.<br><br>Positive attitude towards the tool. |

| | | | | |
|---|---|---|---|---|
| Nor, Azman, & Hamat<br><br>(2013) | EFL<br><br>Participants: 81 | Highlight in 3 colors, Comment | Questionnaire<br>Focus interviews (25-30 min) with 14 students in 3 groups<br><br>Descriptive Statistics<br>Thematic Analysis | Students found the annotation tool helpful for their comprehension.<br><br>They thought their highlights and notes helped them navigate through the previous texts.<br><br>The most popular annotation type: highlighting. |
| Thoms & Poole<br><br>(2017) | Spanish – L2 University<br><br>Participants: 15 | Comment, Respond to Comments | Students' comments and annotations (562)<br>Survey<br>Interviews: 4 students<br><br>Thematic Analysis | The literary and social affordances emerged more often than the linguistic affordances.<br>Benefits: Social, pedagogical, performance benefits. |
| Thoms & Poole<br><br>(2018) | Spanish – L2 University<br><br>Participants: 15 | Comment, Respond to Comments | Poems (materials), Students' annotations, surveys, interviews.<br><br>Linear mixed-effect analysis of relationships between text difficulty and linguistic, literary, and social affordances. | There may be social, linguistic, and literary affordances<br><br>Text difficulty may influence the emergence of these affordances. |

| | | | | |
|---|---|---|---|---|
| Thoms, Sung, & Poole<br><br>(2017) | Chinese -FL<br>Univerity in USA<br><br>Participants:<br>11 | Highlight<br>Comment | Surveys<br>Focus interviews<br>(4 students)<br><br>Constant Comparative Analysis | Common functions of the annotations:<br>1) Negotiating the meaning of vocabulary.<br>2) Aiding comprehension.<br>3) Marking grammatical features.<br><br>Students said they needed a more user-friendly interface.<br><br>Some students did not come back to the text later.<br><br>In terms of content, the instructor and the students wished for a deeper discussion. |
| Tseng, Yeh,<br>& Yang<br><br>(2015) | EFL Taiwan First-year university students<br><br>Participants: 50 | Highlight<br>Add notes in the margins to explain relationships between sentences or paragraphs | Pre-test<br>Post-test<br>Discussion transcripts<br><br>Pair-sample t-test<br>One-way ANOVA<br>Post Hoc with Scheffe<br>Thematic Coding | Marking vocabulary and adding Chinese explanatory notes were effective for students' acquisition and retention of word meaning.<br><br>Adding summary notes was a critical factor. |
| Tseng & Yeh<br><br>(2018) | EFL Taiwan University<br>Participants: 22 | Highlight<br>Add comments with RT strategies<br>Share annotated work with hyperlinks, reply to others' annotations. | Pre- and post-test (TOEIC)<br>Annotation records<br>Reflective essays<br><br>A paired-samples t-test<br><br>Coding the annotations<br><br>Constant comparative analysis of essays | After learning to use RT strategies with annotations, low-achieving EFL students significantly improved their comprehension. $t(21) = -6.49$.<br>A large effect size in reading comprehension $h2 = 1.38$ based on Cohen.<br>According to students, questioning was the most useful strategy followed by predicting, summarizing, and clarifying. |

| | | | | |
|---|---|---|---|---|
| Yeh, Hung, & Chiang<br><br>(2017) | EFL<br>Taiwan, University<br><br>Participant: 54 | Add notes<br>Group discussions<br>Underline<br>Highlight<br>Write a summary<br>Chat room | TOEIC as pre-test and post-test<br>Participation records<br>Purposeful sampling: 2 students<br><br>Paired samples<br>Content analysis | A significant difference between the pre-test and post-test for all the groups.<br><br>Student 1 (from More-Progress Group) took more actions in each reciprocal teaching task than Student 2 (from Lower-Progress Group).<br>S1 and S2 went through similar processes but S1 reviewed more. |
| Yang & Lin<br><br>(2015) | EFL<br>Taiwan<br>High school<br><br>Participants: 59 | Highlight<br>Underline<br>Mark keywords | Pre-test<br>Post-test<br>Logs<br>Open-ended Questionnaires<br>Paired samples t-tests<br>Coding | Experimental group performed significantly better at the post-test.<br>Experimental group took more actions than the control group. |

## Appendix H: Online Informed Consent Form


**Informed Consent to Participate in Research**
Information to Consider Before Taking Part in this Research Study
**Title: English Learners' Perceptions of a Social Annotation Tool**
**Study #2309**

---

**Overview:** You are being asked to take part in a research study. The information in this document should help you to decide if you would like to participate. The sections in this Overview provide the basic information about the study. More detailed information is provided in the remainder of the document.

Study Staff: This study is being led by Inanc Karagoz, a PhD student at the University of South Florida. This person is called the *Principal Investigator*. She is being guided in this research by Dr. John I. Liontas, faculty in the Technology in Education and Second Language Acquisition doctoral program. Other approved research staff may act on behalf of the Principal Investigator.

Study Details: This study is being conducted at INTO USF and is supported by Dr. John I. Liontas, a faculty in the College of Education at University of South Florida. The purpose of the study is to collect and analyze data on the perceptions of international students who are in Pathway program regarding the use of a social annotation tool for reading tasks. Participants will first receive a digital link to a background information questionnaire. During a 5-week time period, participants will engage in the reading tasks determined in their course syllabus in groups of 3 to 4 students and use 'Hypothes.is', a social annotation tool allowing individuals to highlight, add comments, pictures, and links on the texts in a simultaneous manner in an online environment embedded on Canvas learning management system. There will be two rounds of video-recorded semi-structured interviews on participants' experience using the social annotation tool. The first round will take place at the end of the first week and the second will take place at the end of the fifth week. Both rounds will take approximately 35 minutes. Participants will be asked to write a weekly summary on their perceptions of using this tool. There will be a digital survey containing questions on reading engagement and emotions and open-ended questions inquiring participants' opinions on their reading experiences with 'Hypothes.is'.

Participants: You are being asked to take part because you are an international student in an EAP course. We want to understand how you interact with your peers in an online environment while participating in reading tasks.

Voluntary Participation: Your participation is voluntary. You do not have to participate and may stop your participation at any time. There will be no penalties or loss of benefits or opportunities if you do not participate or decide to stop once you start. Your decision to participate or not to participate will not affect your job status, employment record, employee evaluations, or advancement opportunities. Your decision to participate or not to participate will not affect your student status, course grade, recommendations, or access to future courses or training opportunities.

Benefits, Compensation, and Risk: We do not know if you will receive any benefit from your participation. There is no cost to participate. You will not be compensated for your participation. This research is considered minimal risk. Minimal risk means that study risks

are the same as the risks you face in daily life.

Confidentiality: Even if we publish the findings from this study, we will keep your study information private and confidential. Anyone with the authority to look at your records must keep them confidential.

## Why are you being asked to take part?

You are being asked to take part in this study to share your perceptions on using a social annotation tool while reading and interacting with your peers in an online environment.

## Study Procedures

If you take part in this study, you will be asked to answer an online questionnaire with 9 questions which will take approximately 15 minutes. For five weeks, you will be asked to keep a weekly summary of your perceptions of using Hypothes.is. These summaries will take approximately 10 minutes to write. You will be asked to answer an online survey. It will take approximately 35 minutes. You may be randomly chosen to participate in two rounds of semi-structured interviews through Microsoft Teams. These interviews will take place at the end of first and fifth week and they will take approximately 35 minutes each.

## Alternatives / Voluntary Participation / Withdrawal

You do not have to participate in this research study. You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study. Decision to participate or not to participate will not affect your student status (course grade) or job status.

## Benefits and Risks

We are unsure if you will receive any benefits by taking part in this research study. This research is considered to be minimal risk.

## Compensation

You will receive no payment or other compensation for taking part in this study.

## Privacy and Confidentiality

We will do our best to keep your records private and confidential. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. Certain people may need to see your study records. The only people who will be allowed to see these records are:

- The research team, including the Principal Investigator and study coordinator.
- Certain government and university people who need to know more about the study. For example, individuals who provide oversight on this study may need to look at your records. This is done to make sure that we are doing the study in the right way. They also need to make sure that we are protecting your rights and your safety.
- Any agency of the federal, state, or local government that regulates this research. This includes the Office for Human Research Protection (OHRP).
- The University of South Florida Institutional Review Board (IRB) and its related staff who have oversight responsibilities for this study, and staff in USF Research Integrity and Compliance.

Your information or samples collected as part of the research, even if identifiers are removed, will NOT be used or distributed for future research studies.

We may publish what we learn from this study. If we do, we will not include your name. We will not publish anything that would let people know who you are.

It is possible, although unlikely, that unauthorized individuals could gain access to your responses because you are responding online. Confidentiality will be maintained to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet. However, your participation in this online survey involves risks similar to a person's everyday use of the Internet. If you complete and submit an anonymous survey and later request your data be withdrawn, this may or may not be possible as the researcher may be unable to extract anonymous data from the database.

## Contact Information

If you have any questions, concerns or complaints about this study, call Inanc Karagoz at (347) 720-6966. If you have questions about your rights, complaints, or issues as a person taking part in this study, call the USF IRB at (813) 974-5638 or contact the IRB by email at RSCH-IRB@usf.edu.

We may publish what we learn from this study. If we do, we will not let anyone know your name. We will not publish anything else that would let people know who you are. You can print a copy of this consent form for your records.

I freely give my consent to take part in this study. I understand that by proceeding with this survey, I am agreeing to take part in research, and I am 18 years of age or older.

https://usf.az1.qualtrics.com/jfe/form/SV_4ZUBZns2hZUGgB0

**Appendix I: Recruitment Flyer**

Dear EAP students,

I would like to ask for your participation in a research study. I am studying the experience of international students taking an EAP course at USF. My goal is to better understand your experience taking part in online reading tasks while working in a group through social annotating. This study can be done completely online, no face-to-face contact is required.

If you choose to participate, I would like to send you questionnaires and surveys and interview you about your experiences with reading tasks in your EAP course. Your participation would include writing a weekly summary which will take approximately 10 minutes a week, and four visits. One of the visits will take approximately 10 minutes and the other three visits will take approximately 35 minutes each. Participation is on voluntary basis.

Please reply to this email if you have questions or are interested in participating.

Thank you!

**Inanc Karagoz**
Doctoral Candidate in Technology in Education and Second Language Acquisition, USF College of Education

inanc@usf.edu

IRB Protocol #2309

## Appendix J: IRB Protocol Approval and Review Exemption Letter

UNIVERSITY of SOUTH FLORIDA

EXEMPT DETERMINATION

March 29, 2021

Inanc Karagoz
4413 Avalon Suites Terrace
Apt K403
Tampa, FL 33613

Dear Ms. Karagoz:

On 3/25/2021, the IRB reviewed and approved the following protocol:

| | |
|---|---|
| Application Type: | Initial Study |
| IRB ID: | STUDY002309 |
| Review Type: | Exempt 1 |
| Title: | English Learners' Perceptions of a Social Annotation Tool |
| Funding: | None |
| Protocol: | • Protocol, Version #1, March 24, 2021.docx; |

The IRB determined that this protocol meets the criteria for exemption from IRB review.

In conducting this protocol, you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Please note, as per USF policy, once the exempt determination is made, the application is closed in BullsIRB. This does not limit your ability to conduct the research. Any proposed or anticipated change to the study design that was previously declared exempt from IRB oversight must be submitted to the IRB as a new study prior to initiation of the change. However, administrative changes, including changes in research personnel, do not warrant a modification or new application.

Ongoing IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities impact the exempt determination, please submit a new request to the IRB for a determination.

Sincerely,

Various Menzel
IRB Research Compliance Administrator

## Appendix K: Certificate of Human Research Refresher Course

CITI PROGRAM

Completion Date 22-Jan-2021
Expiration Date 22-Jan-2024
Record ID 38848627

This is to certify that:

Inanc Karagoz

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Human Research
(Curriculum Group)
Social / Behavioral Investigators and Key Personnel
(Course Learner Group)
2 - Refresher Course
(Stage)

Under requirements set by:

University of South Florida

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w66c62750-a8c4-4bd7-80d4-619efb5bf7d7-38848627

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| Title | English Language Learners' Perceptions of Employing a Social Annotation Tool to Promote Peer Support, Engagement with the Text and Reading Comprehension |
| Institution name | University of South Florida |
| Expected presentation date | May 2022 |

### Additional Data

| | |
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### Requestor Location

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| Institution name | University of South Florida |
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### Additional Data

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| Portions | Table I The Control-Value Theory: Basic Assumptions on Control, Values, and Achievement Emotions (page 320) |

### Requestor Location

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| Instructor name | Inanc Karagoz | | |

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