Multimodal Digital Literacy Practices: Perspectives of L2 Academic Writing Instructors

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MULTIMODAL DIGITAL LITERACY PRACTICES: PERSPECTIVES OF L2 ACADEMIC WRITING INSTRUCTORS

by

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Dedication

I dedicate this dissertation to my lovely husband, Eduardo, and my precious children, Felipe and Laura.

While I studied for days and nights, you supported me. While I studied, our family has had better life opportunities. While I studied, you have been allowed to live in this country.

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Abstract

The purpose of my dissertation study was to explore the experiences and perceptions of English language instructors about the use of multimodal digital technologies in the teaching of academic writing. Writing academically in English as a second language (L2) is complex and multilayered for international students, and multimodal digital literacy practices are essential in the writing process in the age of information technology. The literature on multimodal digital literacies applied to L2 English instruction and to academic writing and the literature on teachers’ impressions about instructional technologies are vast. However, there is a need for further studies that address the perceptions of L2 language instructors and their experiences with instructional technologies in the teaching of L2 English academic writing in intensive English programs (IEP). This qualitative study explored that topic through the theoretical lens of multimodal literacies using a semiotic approach. Five instructors contributed to the study with individual interviews, weekly reflections, and teaching artifacts. The findings highlight the affordances of new digital media, and they add insight into the multimodal nature of second language writing. The participants highlighted positive affordances of digital literacies as well as their concerns. The findings brought up (1) issues related to the digital divide among adult international students; (2) the instructor’s philosophies of L2 teaching and learning; and (3) the instructor’s socio-semiotic perspectives on L2 English academic writing. In the discussion, I identified and unpacked
what they named as the underlying factors that inform their choices of multimodal digital literacy practices, which can inform programs for teacher education and professional development as well as future research on multimodal digital literacies.
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Chapter 1 – Introduction

This study starts with an introduction that includes a piece of my personal journey that has led me to my research questions. That subsection is followed by the study's purpose, my research questions, their relevance, a description of the instructional setting where I conducted it, and my position as a researcher.

A Piece of My Journey into Second Language Writing and Instructional Technologies

In the mid-1980s, when I started studying English as a foreign language in Brazil, little to no writing was required. All the writing exercises were repetitive drills where the learners were required to substitute certain words in given sentence frames. I admit that most times I did not even read the sentences because it was too easy to determine which words to plug into the blank spaces. In the late 1980s and early 1990s, as I progressed in the language program, writing exercises became increasingly longer but required only copying and repetition. I still remember approaching a teacher for clarification on a writing task because I could not understand why I was asked to do so much copying. At the end of the conversation she suggested, “Come to the lab after class if you need extra practice on that.” The language center had always been known for employing technology – slides, videos, and audio recordings – in its programs, but the lab was used for repetitive drills that had been recorded on cassette tapes. The lab had individual cubicles equipped with headsets and tape recorders, and a tutor would operate the main audio
booth and handout instructions along with the specific tape for the required lesson, and eventually answered questions about the writing exercises.

Later, circa 1994, the renovated language lab offered state-of-art individual computers and audio equipment for the students to provide independent practice beyond class time. In a developing country such as Brazil, that was groundbreaking. We would see the exercises that mimicked the coursebook on the screen, and the computer provided immediate feedback to the words we typed granted that we typed the words exactly as the software had been programmed without any extra spaces. All the written answers were pre-determined and did not leave space for creativity. Those exercises were rudimentary predecessors to some of the educational applications we encounter online today.

In the 2000s, when I started teaching English as a Foreign Language (EFL), technology had evolved and embraced more multimedia resources, and coursebooks now had companion CD-ROMs and websites. I still have a pack of those CDs stored in a box. Despite these changes, the premise remained – exercises were still highly controlled and predictable. They emphasized grammar and vocabulary practice based on the behaviorist stance of repetitive practice and positive rewarding of expected answers. In the late 2000s, I was introduced to computer-assisted language learning programs, such as Rosetta Stone, which are still used in schools worldwide. Never in my learning experience, was I required to write meaningful texts in English with a real audience in mind. I only started writing purposefully in English after I became officially an EFL instructor at a language institute in Brazil in 2007.

As a language instructor, I noticed that classroom practices, beyond the EFL setting, had transitioned away from behaviorism to meet constructivist theories and
communicative approaches, but technology designed specifically for language teaching still reproduced the traditional drilling exercises. I wondered if their advantage over print was limited to the immediate feedback pre-programmed on websites, which saved the instructors’ planning and grading time and allowed students to practice independently. As I have always enjoyed experimenting with new digital technologies, I attempted to use as much as I could in my lessons: selecting YouTube videos, downloading songs, designing slides instead of printed handouts, and assigning online exercises. Whenever possible, I would explore the Internet in class with the students to find answers to questions that came up. However, at that time, the school had only a few computers (none in the classrooms), two or three projectors, and limited Wi-Fi, so I had to be creative with the selected resources.

When I came to the USA in 2012 and started teaching English as a second language (ESL) to international students, and at an Intensive English Program (IEP) housed at a large R2 university, I learned about other technologies used in language teaching and learning. Teachers used websites such as Quizlet and Kahoot for vocabulary practice, Socrative for interactive question and answers, Randall’s ESL-Lab for listening practice, and numerous other websites and mobile applications for grammar practice. These skills-based options were endless, yet resources for authentic writing practice were limited. I intuitively started using Google Docs for collaborative writing and immediate feedback in my classroom before I found that the practice was already documented and supported in scholarly literature. Although that digital technology was not created specifically for second language (L2) teaching, it yields cooperation and authentic
communication to support writing, which aligns with socio-cultural theories of teaching and learning.

Throughout these decades of L2 English learning and teaching, I have found that there are instructors who welcome technologies into their language classrooms, and who are open minded to try new digital literacy practices. Meanwhile, there are others who are reluctant and who avoid those digital resources. Both groups have their arguments. For instance, in a visit to the language lab that partnered with the university IEP where I worked circa 2015, my interaction with the director – I will refer to him as Dr. Richards as a pseudonym – went somewhat like this:

Priscila: What kinds of software are available for English teaching at the lab?
May I send my students here for independent practice?
Dr. Richards: We have a large portfolio with too many options for me to list. If you have something specific in mind, we can discuss the best options and design the activities you want your students to practice.
Priscila: Do you have anything like Rosetta Stone, or anything similar that I can draw on to assign certain units of learning for my students to come here and complete after class?
Dr. Richards: Of course, not. I am a linguist. Those programs are for teachers who do not have training in language teaching and learning.

Dr. Richards sounded offended by my question about Rosetta Stone, but I understood his concern. He implied that authentic language learning is a sociocultural endeavor and could not be replaced by pre-programed drilling exercises installed on computers. These and several other experiences I have had with multimodal digital
technologies for language learning propelled my interest in studying how teachers see and use multimodal digital resources in their English language classrooms. Before I can propose any professional development about the uses of digital multimodalities and their innovations, I must understand the experiences teachers have had with instructional technologies and their perspectives about it.

**Purpose of the Study**

With this study, I explored the experiences and perceptions of English language instructors who use multimodal digital technologies for the teaching of academic writing. Since 2020, more than ever due to the distanced learning circumstances imposed by the COVID-19 pandemic, technology has unapologetically made its way into every L2 classroom, and there is no way back. I wondered what language instructors would have to say about instructional technologies today and about what drives their choices of technologies for teaching academic L2 English writing.

Instructional technology is certainly not anything new. Decades ago, Gagne (1987) proposed a definition of instructional technologies explaining that learning may occur in schools, learning centers, in industry, and at home, and through communication. Communication could be achieved using various media. Therefore, he proposed, “instructional technology includes practical procedures for using existing media to deliver instruction, and also to deliver portions of instruction that supplement the communication of an instructor” (Gagne, 1987, pp. 6–7). That definition was closely aligned with the experience I had in my early years as an L2 English learner. The procedure was repetition, the existing media was a combination of videos, images, and audio recordings, and together they supplemented the instruction provided in class.
However, digital technologies and multimodal digital media have evolved significantly since then, and so has the understanding of new literacies (Knobel & Lankshear, 2014; Lankshear & Knobel, 2011). In the past fifteen years or so, multiple social media platforms have connected people all over the world across geographic and political borders. Children are exposed to mobile applications on phones and tablets from a significantly early age (some even before they can crawl) (Murray & Olcese, 2011; Srisontisuk, 2022). Games have become increasingly realistic with advanced graphic resources on a variety of consoles and have played an important socio-interactive role in education (Gee, 2015b; Gee & Price, 2021). Digital literacy has become essential for everyday life (R. H. Jones & Hafner, 2012). Educational institutions in the U.S. and many other countries have been implementing digital literary practices for decades with a growing demand that students employ digital literacy skills. Institutions of higher education assume that students will bring their personal devices (smartphones, tablets, and personal computers) to the classroom and will be able to use them effectively in their studies. Despite several issues that highlighted social inequalities, primary and secondary schools all over the U.S. have made sure that every student has their own school-issued devices and, at the very least, some alternative to access the Internet for schoolwork (Squire, 2022). Chapelle and Sauro (2020) explain that “technology has added multifaceted new dimensions to teaching and learning, which include new ways of teaching every aspect of language, new pedagogical and assessment approaches, as well as new ways of conceiving and conducting research and development” (p.1)

In this interconnected scenario, it is vital to adopt a more current definition of instructional technology. Reiser and Dempsey (2017) state that the field of instructional
technology is difficult to define because it is in constant expansion and scholars may see it from different angles. For instance, it can be described as the media or tools through which instruction is delivered or as an integral part of the learning process from design to evaluation. The terms “instructional technology” and “educational technology” have been used interchangeably in the literature (Seels & Richey, 1994). However, the term *instructional* technology encompasses a broader spectrum that includes not only K-12 education but also post-secondary settings and training programs, and it describes that technology's function is to enhance instruction and relates to issues of teaching and learning. Informational and communication technologies (ICTs) have disrupted instructional practices in every academic setting and are particularly relevant in language classrooms (Z. Li et al., 2020). Hampel, (2019) stated that “new information technologies do support new forms of teaching and learning that radically transform the manner in which people appropriate knowledge” (p.5).

Therefore, in chapter 2, I present a review of the academic literature on the intersection of instructional technologies and L2 English writing for academic purposes. In chapter 3, I discuss the theoretical framework that informs this study. I approached the study through the lens of multimodal literacies taking a semiotic approach (Cope & Kalantzis, 2000; Jewitt & Kress, 2003; Kalantzis & Cope, 2015; Kress, 2010; Kress & Bezemer, 2015) because L2 writing and instructional technologies are inherently multimodal and involve multiple processes of meaning-making. Chapter 4 presents the qualitative methods and methodology for the research. Chapter 5 lays out the findings. And finally, in chapter 6, I offer a discussion and suggest implications of my study for the
scholarship. More information about the research instruments is also available in the appendices.

**Research Questions**

In my study, I explored the choices made by English language instructors when they teach academic writing to speakers of other languages, and how they do so by using multimodal digital technologies and digital literacy practices. Within the context of teaching at intensive English programs (IEP) for post-secondary international students, the research questions that will inform my qualitative case study are:

1. What do language instructors have to say about their experiences with and perceptions of digital multimodal technologies when teaching second language English writing for academic purposes (henceforth simplified as L2 English academic writing)?

2. What are some of the underlying factors that language instructors identify as affecting their choices of instructional technologies when they teach L2 English academic writing?

**Relevance of the Study**

Since March 2020, the use of instructional technologies has been in heightened evidence in the popular media as well as in scholarly publications. School-building closure protocols caused by the COVID-19 pandemic forced language instructors to try digital tools that they may not have tried before. In the language classroom at all academic levels, teachers often prioritize face to face interactions due to the communicative and interpersonal nature of language teaching and learning. With the obligatory shift to distance learning, some of which had to be done asynchronously via
online platforms, teachers were also forced to review their pedagogical practices. Maintaining the level of interpersonal interactions via computer mediated communications became an essential topic of discussion among this teacher population. Research in this area is relevant to informing the academic community about the uses of multimodal digital technologies in second language teaching and learning.

This study explored the perceptions and experiences of English language instructors who use multimodal digital technology resources for the teaching of L2 English academic writing. The findings will inform the academic community which expects international students to communicate proficiently in English across various academic genres and media in American higher-education settings. Understanding instructors’ choices is relevant because we must identify and unpack their experiences and perceptions, which can inform programs for teacher education and professional development in the fields of second language writing, English for academic purposes at the post-secondary level, and intensive ESL programs. The factors instructors perceived and talked about as underlying their choices may help improve teacher education and develop pedagogies in the future where instructional technologies will continue to play a larger role. For instance, an instructor may identify a colleague’s recommendation as a factor affecting the selection of an online resource, which might be based on the resource as being entertaining and they might discuss the selection of pre-approved supplemental material associated with a course book (a companion website), or justify a choice based on previous familiarity with the technological tool, or the potential of a new resource to meet the specific needs of a group of students. Each of these hypothetical underlying factors may carry implications. In the data collection – through interviews, individual
weekly reflections, and class artifacts – I investigated the participants’ accounts of how they viewed and experienced digital literacy practices in the writing classroom. The details are laid out in the methods and findings.

**Instructional Setting**

International students represent a numeric minority group in U.S. American universities, yet they are a relevant group of scholars for the growth and development of all study fields. The number of international students in U.S. American institutions for higher education has seen a growth trend over the years (Institute of International Education, 2018). International education was the fifth largest service export in the USA, contributing $39 billion to the country’s economy in 2018 and creating or supporting more than 455,000 jobs in the 2017-2018 academic year (NAFSA, 2019). Despite the uncertainties imposed on international education due to the COVID-19 pandemic, universities continue to work with and pursue the interests of international students (Toner, 2020). In the 2019/2020 academic year, U.S. universities hosted 1.08 million international students (Institute of International Education, 2020). Nonetheless, in 2021, there was a sharp decline of 21 percent in the enrollment of international students in the U.S. (Bukenova et al., 2021), and instructors have had to rely heavily on technology and virtual resources to support the specific needs of international students including the expansion of global online learning programs (Martel & Baer, 2021). The most current report indicates that 948,519 international students enrolled in U.S. universities in the 2021/2022 academic year (Institute of International Education, 2022).

IEPs serve a portion of the international student body that needs to improve English language and literacy skills before they enter higher education programs. Some IEP courses
can also be labeled as courses of English for Academic Purposes (EAP) – hence the use of the acronym EAP interchangeably with IEP in the literature. IEPs or EAPs are full-time (18 hours per week) educational programs that offer English language instruction to international students whose dominant language is not English. They focus on advanced communication proficiency and academic language. These programs are often housed within universities, but they can also be provided by university partners and by independent language schools (Reese & Helms, 2020).

IEPs attract international students seeking academic degrees across the United States. Each program has its own characteristics granted that they meet the standards established by accreditation institutions (TESOL Accreditation Advisory Committee - AAC, 2018). Through a rigorous process of evaluation and auditing, these entities provide accreditation to IEPs, and international institutions of education may partner with these programs based on their credentials.

For clarification, it is relevant to define international students as non-immigrant visitors enrolled in IEPs and classified in the USA as individuals who hold F1 or J1 visa types. Stating the visa status is relevant because it sets this group of students apart from other language learners present in the USA for other purposes (such as business, tourism, permanent residency, and immigration). International students, as opposed to other categories of internationals living in the U.S., must prove that they can afford the high cost of living and study in the U.S. and are allowed only limited access to employment, which may translate into making them a very selective group of high achieving individuals. The U.S. Department of State and the U.S. Department of Homeland Security regulate students’ entry and permanence in the country while they maintain student status (United States
Department of State, 2015). That is, in this context, international students are citizens of foreign countries and nonimmigrant temporary visitors living in the U.S. solely for the purposes of studying or for academic exchange. This classification is relevant because IEPs are accredited to serve this specific student population, and their curriculum design must follow parameters established by immigration authorities. China, India, South Korea, Saudi Arabia, Brazil, Taiwan, Vietnam, Japan, and Mexico are among the top countries of origin for international students in higher education (Institute of International Education, Inc., 2020). IEPs enrolled 39,352 international students in 2021 – a significant downward trend compared to the more than 133 thousand L2 English learners enrolled in 2015 (Institute of International Education, 2022).

IEP language instructors are often internationally certified and have gained experience teaching abroad. Most IEP teaching positions require a master’s degree. Some IEPs include the Cambridge Certificate in English Language Teaching (CELTA) for their faculty’s recommended credentials (TESOL - AAC, 2018). Those requirements suggest that English language instructors hired in accredited IEPs across the country are highly qualified professionals with extensive academic achievements. That is the target population I studied.

**My Position**

I am a bilingual writer and have been writing academically in English as my second language since approximately 2007. I have been an international student in the U.S. since 2012. I come from Brazil, the 4th largest country that sends international students to the U.S., and I came with the specific purpose of improving my English language and literacy skills, and to pursue a graduate degree in teaching. My exposure to English language started
in Brazil in the early 1980s, but my immersion into English language and culture was limited while I lived in Brazil, so I felt the need to study abroad to reach my academic and professional goals. I had reached a plateau in my language and literacy skills and needed to be immersed in a sociocultural environment where English language is not only a school subject, but where it is also the medium of everyday interactions.

I have also taught for about five years in an IEP at a university in the southeastern region of the United States. That program underwent an accreditation process while I worked there as an adjunct language instructor. While I was involved in teaching all the language domains (listening, speaking, reading, and writing), I was listed as one of the reading and writing instructors for seven semesters and was also responsible for the computer lab and iPad cart. These technological resources were available for students to access during and outside class time.

In addition to my personal and professional background, my academic efforts have often revolved around academic English writing. My master’s degree project addressed instructional resources for the writing tasks required by the standardized proficiency tests TOEFL (Educational Testing Service, n.d.) and IELTS (IELTS, n.d.).

I position myself as someone who has a combined perspective as a learner, an instructor, and a scholar in the field of L2 English writing for academic purposes. In conversations with colleagues, I have often asked and been asked about instructional practices to teach academic writing and digital literacy skills, and how to meet various students’ needs depending on their cultural background. As a scholar, I have read and reviewed literature on second language learning, attended and presented in conferences. I am still working toward publishing a qualitative research study I have conducted among
L2 English writers. This personal experience within and perception of the field positions me to ask my specific research questions described above.
Chapter 2 – Literature Review

To inform my study, I started by searching the databases available in the Thomas Cooper Library at the University of South Carolina using the key terms instructional technology, academic writing, English as a second language (ESL), intensive English programs (IEPs), English for academic purposes (EAP), and English for specific purposes (ESP). The glossary (see – Glossary) offers definitions of these search terms. IEPs may offer English courses for general communication or for specific purposes. ESP is an umbrella scholarship field that covers several specific uses of English language – e.g., English for business, English for tourism and hospitality workers, English for immigration, English for law enforcement, and English for air-traffic controllers. EAP is one of the specific purposes of English courses and the focus of this study. That initial search retrieved articles published in several journals in multiple disciplines. Although only some articles were directly related to my research topic, that initial search provided me with titles of journals that I should explore. I compiled a list of eighteen journals (see – List of Journals) where scholars from multiple disciplines publish studies about L2 writing, academic English writing, and instructional technologies. Naturally, that list of journals expanded as the study progressed and all the references are listed at the end of the study. Throughout the study, I also included book chapters, and peer-reviewed scholarly blogs, websites, and news articles.
In my broad exploratory review of the literature on multimodal digital technologies, I focused on scholarly peer-reviewed literature published in the past ten years. This overview of research literature included skimming titles and abstracts, highlighting key words, and scanning for specific information about research questions, methods, findings, and implications. Then, I categorized the articles to find patterns. That process helped me identify and select which sources I needed to read closely. My goal was to select scholarly literature related to my research questions; thus, I eventually categorized the articles in three main areas,

1. Multimodal digital technologies applied to writing instruction.
2. Multimodal digital technologies used in IEPs, EAP, and ESP.
3. Instructors’ perceptions of and experiences with multimodal digital technologies used in the teaching of L2 English academic writing.

All the research articles that I reviewed were informative, but none of them addressed all the elements of my proposed study—IEP, instructional technologies, academic English writing, and instructors’ perspectives. This section reviews the selected literature and the identified need gap that this study attempts to address. I start with a brief report of previous reviews of the scholarship related to instructional technologies and L2 instruction.

**Previous Reviews of the Literature on Multimodal Digital Technologies and L2 Instruction**

In this section, I report on five reviews of the literature regarding instructional technology, L2 teaching and learning, and L2 writing instruction. Vorovel and Kim (2012) reviewed the literature about distance language education published between 2005
Lamy & Hampel (2007) examined the literature dating back to the early 1980s describing the evolution of research about computer-mediated language learning in the past four decades. Otto (2020) provided a broader overview of the scholarship on technology for language instruction since the first decades of the 20th century to the first quarter of the 21st century. Gibbons and Li (2021) reviewed twenty dissertations in the field. Finally, Zhang et al. (2021) reviewed 113 studies about digital technologies used for collaborative writing. These sources show that the use of digital multimodalities in language education is not new, and they have multiple uses in every stage of teaching and learning, from planning to delivery and assessment. This review is relevant because it situates my study in the academic dialogue.

Vorovel and Kim (2012) reviewed the impact of distance education on L2 teaching and learning. They relied on earlier literature published by M.G. Moore and Kearsley to define the meaning of distance education before they explain its impact on L2 instruction – “distance education is teaching and planned learning in which teaching normally occurs in a different place from learning, requiring communication through technologies as well as special institutional organization.” (M. G. Moore & Kearsley, 2011, p. 2). Following that definition, which includes a reference to instructional technologies, Vorovel and Kim (2012) reviewed 24 articles about language teaching in distance education published in 16 journals in the field of second language learning between 2005 and 2010. Their review found that, in that timespan, research “primarily focused on course and task design issues, telecollaboration and conferencing, assessment, and language teaching across various formats of [distance education].” (Vorovel & Kim,
They recommended further research to expand the understanding of teacher-student interaction as well as student engagement in L2 distance education.

Lamy and Hampel (2007) provided an overview of instructional technologies in L2 education during that period. They referred to publications going back to the 1980s to explain that research about computer-mediated communication for language education has been the interest of scholars for decades. That is not surprising since home personal computers became accessible to the public at large in the early 1980s. Since then, research about computer mediated language learning has shown two major affordances: (1) teachers can use computers to teach language where the target language is the purpose of the interaction, and (2) learners can use computers independently for authentic communication where the target language is the medium of interaction. The authors presented a list of ten terms that have been used in the literature over the years (see Table 2.1).

Table 2.1 Acronyms in computer-assisted language learning (Lamy & Hampel, 2007, p. 8).

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL</td>
<td>Computer-Assisted Language Learning</td>
</tr>
<tr>
<td>CALI</td>
<td>Computer-Assisted Language Instruction</td>
</tr>
<tr>
<td>CELL</td>
<td>Computer-Enhanced Language Learning</td>
</tr>
<tr>
<td>CBLT</td>
<td>Computer-Based Language Teaching</td>
</tr>
<tr>
<td>CMC</td>
<td>Computer-Mediated Communication</td>
</tr>
<tr>
<td>ICALL</td>
<td>Intelligent CALL</td>
</tr>
<tr>
<td>MALL</td>
<td>Mobile Technology-Assisted Language Learning</td>
</tr>
<tr>
<td>NBLT</td>
<td>Network-based Language Learning</td>
</tr>
<tr>
<td>TELL</td>
<td>Technology-Enhanced Language Learning</td>
</tr>
<tr>
<td>WELL</td>
<td>Web-Enhanced Language Learning</td>
</tr>
</tbody>
</table>

Research in this area has evolved and has influenced L2 instruction research and practice. Although scholars in various fields have examined different aspects of
computer-mediated language learning, Lamy and Hampel explained that sociocultural theory has been the most common framework shaping the way educators approach this topic. Research has often provided insight into teacher roles, instructional design, collaborative learning, student participation, motivation, and identity. Through a sociocultural lens, computer-mediated communication for language learning is a situated social practice that offers great affordances for interaction and learning (Lamy & Hampel, 2007).

Otto (2020) examined the literature from the perspective of multiple technologies (not only computers as opposed to Lamy and Hampel cited above) and explain that “the basic media used in language instruction – written texts, drawings, photos, audio, and video – have remained constant over time, although the technologies that delivered them have [evolved]” (p. 10). Interestingly, she observed that some issues and trends have remained the same despite the advancements of technology. In 1918, scholars studied the advantages and limitations of the “talking machine” and the phonograph, and one of the recommendations for success included “enthusiastic teacher involvement in the delivery of materials to students (with the caveats about extra time and expertise needed to learn and deploy the technology)” (p. 10). That is to say that some of the concerns and recommendations have not changed but have rather evolved. Sociocultural influences in the study of technology applied to language teaching and learning became more prominent in the turn of the 21st century “with the view of the learner as a social being, whose cognitive and linguistic development occurs through social interaction mediated by language” (p. 19). Through the lens of sociocultural theory, multimodal digital technologies support the shift away from teacher-centered instruction and “toward
student-oriented, active and collaborative learning environments, with the student as creator of digital texts and media and (co)-constructor of knowledge, both in and out of the classroom” (p. 19). Instructional technologies are no longer limited to the delivery of language instruction in educational settings. Instead, it is now ubiquitous means of authentic language experiences. This perspective has propelled the research in L2 teaching and learning involving mobile devices, instructional language software, distance education methodologies, games, and multimodal literacies which are present in our everyday practices. Otto concluded the historical review suggesting that we return our attention to pedagogical methodologies, instead of focusing on the tools we employ to achieve instructional goals.

Gibbons and Li (2021) investigated a gap in the literature based on their systematic review of twenty doctoral dissertations on L2 writing and technology completed in the USA between 2010 and 2019. The authors categorized the dissertations in five groups according to their foci: (1) computer mediated feedback, (2) automated writing evaluation, (3) computer-based collaborative writing, (4) technology-based writing instruction and assessment, and (5) digital composition and literacy. Fifteen of those studies took place in settings described as IEP, EAP, graduate, and tertiary level ESL, which indicated a research trend for investigating adult L2 teaching and learning with emphasis on academic English writing and technology. However, all twenty dissertations included student participants. None of them investigated instructors’ or teachers’ perceptions of instructional technologies applied to the teaching of academic English writing. That review of twenty dissertations was relevant to my study because it pointed out directions for future research. Instructional technologies applied into L2
English academic writing is a niche that has been explored, but researchers have not yet explored teachers’ practices and experiences.

Zhang et al. (2021) reviewed 113 primary sources on computer-mediated collaborative writing in L2 contexts and found a predominant focus on adult learners, post-secondary settings, intermediate to advanced levels of language proficiency, and English language learners (as opposed to L2 learners of other languages). In those studies, most of the collaborative writing was performed outside the classroom (e.g., through Google Docs and wikis), and fostered the use of multimodal digital literacies.

The authors also found a predominant focus on qualitative case studies, although other methodologies have been applied to this field too. Regarding theoretical frameworks, their review found that researchers favored sociocultural theories, which align with the focus on collaboration. They highlight that there were flaws in the reporting of research methodologies and findings, which I kept in mind in the reporting of my methodology described in chapter 4. In the authors’ perspective, several articles fail to provide details regarding validity and reliability as well as details about the participants and instruments. Nonetheless, in qualitative studies, they found that “triangulation, the use of multiple data sources and theories to provide corroborating evidence, is the most common strategy researchers use to validate the research. Nearly half of the reviewed studies also employed the validation strategy of providing a thick description” (Zhang et al., 2021, p. 16). This article was relevant to my study because it provided an overview of the literature (albeit specific to collaborative writing) and illustrated how my study aligns with the current research trends.
The literature reviews described above provided valuable insight into the scholarship of instructional technologies dating back to over a hundred years ago. It shows that multiple forms of technology beyond computers have been applied to the teaching of second language writing (Otto, 2020). Through the decades, educators have often expressed their concerns about technological evolutions, but Otto observed in the literature that enthusiastic teachers have adapted to the constant changes. The literature demonstrates researchers’ preference toward qualitative research (Zhang et al., 2021) and sociocultural theories (Lamy & Hampel, 2007; Otto, 2020; Zhang et al., 2021) which reflect the focus on interpersonal interactions and collaboration in L2 instruction. This methodological trend supports the design of my study. Nonetheless, the reviewed literature lacks a specific focus on teachers’ perspectives and experiences about the use of instructional technologies in the teaching of L2 writing. This literature revealed the need for further research on “emerging technologies for collaborative, autonomous, and critical language learning” (Lamy & Hampel, 2007, p. 153), teacher-student interactions (Vorovel & Kim, 2012), instructional practices beyond and above the choice of instructional tools (Otto, 2020), and instructors’ experiences and practices (Gibbons & Li, 2021). In addition to the research topics, Zhang et al. (2021) also recommended that researchers provide more detailed and accurate descriptions of their methods and findings.

Multimodal Digital Technologies Applied to Writing Instruction

The literature examined in this section addresses the use of multimodal digital technologies in the teaching of L2 academic writing in various settings, and it is not restricted to IEPs, EAP, or ESP. This review is important because IEP instructors often
adopt instructional practices that have been researched and used in various educational settings. After reading the selected literature, I identified emerging trends among the studies. Therefore, I divided the literature into three subsections: multimodal composition, perceived effects of computer mediated feedback, and reported effects of instructional technologies on students’ L2 writing skills.

**Multimodal Composition**

In this subsection, I have reviewed six studies which address the use of digital technologies in multimodal composition (Hafner, 2015; Hafner & Ho, 2020; Ho, 2022; Pacheco et al., 2021; Smith et al., 2021; Villamizar, 2018). They reflect research conducted in various instructional settings including bilingual adolescents (Pacheco et al., 2021; Smith et al., 2021) and adult learners (Hafner, 2015; Hafner & Ho, 2020; Ho, 2022; Villamizar, 2018) and demonstrate the potential benefits of multimodal literacy practices for language learners.

Hafner (2015) examined the affordances of digital media in multimodal composition. Hafner defines *multimodal composition* as “activities that engage learners in the use of digital tools to construct texts in multiple semiotic modes, including writing, image, and sound (to name a few)” (p. 487). This study, conducted in Hong Kong, focused on students enrolled in a university-based course on English language for science. It explored how English language learners remixed existing media through mashups or parodies to create their own artifacts. The author argued that the use of digital multimodal composition potentially improved students’ language proficiency because of the availability of collaborative tools and wide authentic online audience. Students used a variety of out-of-school literacies that incorporated their cultural background into their
multimodal compositions. Hafner identified a potential challenge when some students tended “to appropriate existing creative works in their digital compositions—for example, incorporating soundtracks, sound effects, or stock footage” (p. 488). This can be a controversial issue due to copyright infringement, and it may force instructors and researchers to consider “notions of ownership, authorship, and relevant practices of academic honesty as they pertain to such digital productions” (p. 488). Drawing upon the Bakhtinian notion of *heteroglossia*, Hafner discussed how the remixing using digital media can suppress or promote students’ voices. He argued that “for second or foreign language learners, an important element of learning to write is learning to appropriately and coherently incorporate [others’] voices in their writing” (p. 492). This is a relevant skill in academic writing, where language learners must overcome the challenges of analyzing and synthesizing what has already been said in the literature. Hafner contributes to the scholarship by proposing a theoretical model of *remix practices for multimodal composition*, which can be used for research and instructional practices.

Villamizar’s (2018) study draws attention to the oversimplification of multimodal composition as the mere use of images to complement written texts. In his study in an English language teaching program in Australia, he aimed “to learn from the participating teachers’ understanding of visual literacy and experiences using images in the classroom” (p. 283). His study setting was not limited to English for academic purposes. Villamizar identified an intersection between the use of visual literacy and digital technologies when teacher participants indicated that they relied on technology to view and produce multimodal texts on electronic devices. However, pressure imposed on teachers limited their opportunities to engage students in processes of critical visual literacy. He
recommended a review of the curriculum and pedagogies to “approach them with a clearer vision of whether their use of technologies is about supporting oral and written language learning outcomes set by the institution, or about developing visual literacy” (Villamizar, 2018, pp. 288–289). He argued that the teachers in the settings he observed still used digital technologies to reproduce the traditional teaching of literacy skills. However, “just as these traditional skills are at the core of language learning, the development of visual literacy ought to be systematically and explicitly integrated as an essential element of 21st century higher education” (p. 289).

More recently, Hafner and Ho (2020) explained that “different modes have different affordances” (p. 2), and these affordances change over time due to obsolescence and technological advancements. The “range of available resources for making meaning” (p. 1) is ever growing. Nonetheless, they discuss that digital modalities (e.g., linguistic, visual, gestural, auditory, and spatial modes) have unique affordances such as hypertext and interactivity which enhance learners’ engagement, motivation, autonomy, authenticity, and voice. Smith et al. (2021) explored the perspectives of 10th-grade English language learners on multimodal composition. Drawing upon a social semiotics framework (Jewitt & Kress, 2003; Kress, 2010), they found that the affordances of multimodal literacies for meaning making included peer collaboration and meaningful connections.

Through a translanguaging lens and a semiotic approach to multimodal composition, Pacheco et al. (2021) conducted a systematic review of 74 studies to address the use of scaffolded digital multimodal composition in the classroom. The authors focused only on studies of adolescent emergent bilinguals, defined scaffolding as
a temporary support learners use to achieve their learning objectives, and searched for scaffolding types and functions. Their findings identified the following types of scaffolding, which I synthesized in bullet points for accessible reference:

- Designed scaffoldings – strategies that were planned by the teacher in advance.
  - Collaborative composing
  - Direct instruction
  - Model texts

- Interactional scaffolding – strategies that were employed in real time as needs emerged in the classroom.
  - Translanguaging
  - Discussion
  - Encouragement
  - Questioning

The authors identified the following functions of scaffolding, also described as learning outcomes:

- Produce multimodal composition
- Establish multimodal and multilingual context
- Make real-world connections
- Learn how to use digital tools for the creation of multimodal texts
- Empower students to make decisions, take risks, and affirm their identities
- Build content understanding
• Analyze texts to identify important concepts
• Gather information

Pacheco et al. (2021) explained that this review of research is relevant for instructional practice because it informs teachers about the role of translanguage practices and about the challenges of multimodal composition. They suggested that every student, regardless of linguistic or cultural background, needs scaffolding to understand the affordances of digital multimodalities and how to combine them for rhetorical purposes. Their review also identified gaps in the literature – none of the studies measured quantitatively the affordances and constraints of scaffolding for multimodal composition. They recommended further research to identify and measure which scaffolds work better for different multimodal products and which scaffolds are more appropriate for different groups of students.

Ho (2022) investigated the translanguage practices through digital multimodal composing of four undergraduate students at a university in Hong Kong. She observed that the students deployed their full bilingual repertoire as well as a range of digital literacy practices which brought forth their voices and identities. She also observed the use of multiple semiotic resources in the composition of videos, combining images, sounds, and writing. The experience challenged the students’ perspectives about academic essays and class presentations, and it gave them the opportunity to communicate their knowledge creatively through an out-of-school genre (YouTube videos) that they were familiar with. These findings support a pedagogical shift toward using multimodal composition in academic writing classes.
Although none of the studies cited above (Hafner, 2015; Hafner & Ho, 2020; Ho, 2022; Pacheco et al., 2021; Smith et al., 2021; Villamizar, 2018) took place in IEPs, they provide some insight into the perspectives of instructors and students on multimodal composition applied to L2 writing. Some of the insights indicate that,

- Students use a variety of out-of-school literacies in their multimodal compositions.
- Teachers still use digital technologies to reproduce traditional instructional practices instead of capitalizing on new affordances such as interaction and collaboration.
- Digital multimodalities have unique affordances which enhance students’ engagement, motivation, autonomy, authenticity, voice, peer collaboration, and meaningful connections.
- Every student needs some level of scaffolding to understand the potential of digital modalities and how to combine them effectively for multimodal composition.

The studies identified affordances of instructional technologies for writing and multimodal composition across settings, and they continue evolving with the emergence of technological advancements, so instructors must continuously assess how multimodal literacies are integrated in the curriculum. These findings are not specific to L2 English writers nor are they specific to students at the post-secondary level.

*Perceived Effects of Computer Mediated Feedback*

Several studies in the selected literature investigated the perceived effect of feedback provided by peers and by instructors via digital technologies. In this subsection
I reviewed studies conducted in various settings the U.S. (Ene & Upton, 2018; J. Li & Li, 2018; Severino & Prim, 2015, 2016) and abroad (Ahamat & Masrom, 2018; Al-Olimat & AbuSeileek, 2015; Ebadi & Alizadeh, 2021; Yilmaz, 2018). The studies demonstrated the perceptions of teachers and students. They also discussed multiple elements of feedback including short-term and long-term perceived effects of multimodal feedback, top-down and bottom-up approaches to feedback on L2 writing, and feedback provided synchronously and asynchronously via digital platforms.

Al-Olimat and AbuSeileek’s (2015) experimental study investigated the implications of computer-mediated feedback at a 10th-grade academic English writing course in Jordan, where English is taught as a foreign language. They found that students who received computer mediated corrective feedback from both peers and teachers achieved higher scores in academic English writing. The students in the control group received computer-mediated instruction like the experimental groups but did not receive nor provide feedback on writing. The findings indicate that computer-mediated feedback provided by peers as well as teachers yielded a combination of feedback modes that is more effective and motivating than only one mode or no feedback at all. Their findings are aligned with Sarré et al. (2021) results showing that any type of corrective feedback in blended-learning environments is better than not providing corrective feedback in L2 writing at all.

Two studies conducted in an online writing center indicated trends in online feedback to L2 academic English writing (Severino & Prim, 2015, 2016). The first study found that tutors’ comments involved direct corrections, explanations, options, and questions. Eleven percent of the comments on the writing of Chinese students were
directed to correcting word choices. Since word choice errors can be critical for reading intelligibility, the authors suggested that tutors should learn better practices on how to provide effective vocabulary instruction and feedback to English language learners (Severino & Prim, 2015). In a follow up project, the authors performed a case study of one international undergraduate student (Severino & Prim, 2016). The authors describe the Chinese student participant as a diverse and cosmopolitan multilingual who had traveled to several countries and majored in journalism in the U.S. They analyzed a sample of ten papers written by the student throughout her undergraduate studies and revised by seven different tutors. The findings indicated short-term improvement of linguistic accuracy, and modest long-term improvement in rhetoric. The student often requested feedback focused on grammar, which indicated her traditionally narrow conception of writing development. Given the student’s specific needs, the researchers recommended face-to-face (as opposed to online) long-term tutoring to help the student meet her L2 writing goals. Nonetheless, the student considered the asynchronous online tutoring more convenient. In that case, the researchers suggested that students should work with the same tutors over time and across writing assignments, should break the cycle of relying on tutors for corrective asynchronous feedback, and should take charge of their L2 writing development. They also recommended group discussions between tutors and writers to establish a coaching relationship rather than the expectation that tutors will assume the role of online editors.

Ene and Upton (2018) examined the relevance of timing in teacher electronic feedback. Based on the perspectives of 64 students and three teachers in an EAP composition course for international students in the U.S. They found that teacher
electronic feedback was effective in improving L2 writing, and a combination of synchronous electronic feedback reinforced the power of feedback given asynchronously. The teachers in the study provided feedback via MS Word comments and track changes on electronic drafts.

Ahamat and Masrom (2018) interviewed ESL students to understand their perspectives on using Wikispaces in class to improve their writing skills. The researchers conducted their study with 44 undergraduate students in Malaysia where English language is the medium of instruction. They found that the students enjoyed writing wikis and reported that the use of wikis promoted effective learning experiences. Students appreciated the electronic feedback from peers and instructors which also promoted collaborative writing practices.

Li and Li (2018) examined the use of the electronic tool Turnitin to stimulate peer feedback for ESL academic writing and found that the PeerMark module within Turnitin facilitated peer review. The tool shifted the students’ attention away from bottom-up mechanical issues (such as grammar, spelling, and punctuation) toward the global structure of the texts, which helped them incorporate specific suggestions and holistic advice on academic writing. They conducted their study in an academic writing course for international undergraduate students in the U.S. They did not specify if the course was classified as an IEP or if it was a regular composition class.

Yilmaz (2018) investigated the impact of instructional technologies on students’ motivation toward reading and writing in L2 academic English. The 5-week study was conducted with 35 students in an English course in Turkey. The use of instructional technologies had a positive impact increasing students’ motivation based on the novelty
of the digital resources, individualized and independent learning opportunities, immediate feedback and editing, autonomy over the learning process, and the opportunity to interact actively with peers and instructors. The students found motivation when they worked collaboratively on meaningful and fruitful projects that integrated multimodal resources. Their improved motivation also led to an improvement in writing skills.

Ebadi and Alizadeh (2021) explored students’ perspectives on peer review provided through *Google Docs*. In their mixed methods study, conducted in preparatory course for the English proficiency test IELTS in Iran, they found that learner driven online feedback significantly enhanced the learners’ academic writing skills. The students’ responses collected through writing tasks and semi-structured interviews indicated that their perceptions about electronic peer feedback are positive.

The review of these studies is relevant because they reflect the interest in feedback in the academic writing studies, and the use of instructional technologies applied to feedback has increased significantly in recent years. In fact, Kalantzis and Cope (2015) identify feedback as one of the affordances of new digital media because it “enables a renewed focus on formative assessment – assessment that is on-the-fly, and that makes in a detailed and constructive way a direct contribution to student learning” (p. 381). The studies described above indicate that computer mediated feedback is perceived as having a positive impact on students’ writing skills (Ahamat & Masrom, 2018; Ebadi & Alizadeh, 2021; Ene & Upton, 2018; J. Li & Li, 2018; Severino & Prim, 2015, 2016), on their assessment scores (Al-Olimat & AbuSeileek, 2015; Sarré et al., 2021), and on their motivation toward academic writing (Ahamat & Masrom, 2018; Al-Olimat & AbuSeileek, 2015; Yilmaz, 2018). Although these studies were not necessarily
conducted in IEPs and do not explore teachers’ perceptions, they offered valuable insight into the use of instructional technologies for writing feedback in multiple settings and found through a variety of research methods.

**Effects of Multimodal Digital Technologies on Students’ Writing Skills**

Other studies have shown further effects of instruction mediated through technology on L2 English writing. The use of instructional technologies has effects beyond the classroom and beyond the language learning stage. Scholarly literature supports that through digital multimodalities, learners can have continuous and expanded access to the target language (Dugartsyrenova, 2020; Nezakat-Alhossaini, 2018). Additionally, access to digital multimodalities improves the learners’ sociocultural immersion (Babni, 2019), which can consequently improve issues of equality and social representation. The literature reviewed below illustrates these findings.

Nezakat-Alhossaini’s (2018) experimental study about adult English language learners in Iran showed the positive impact of blended learning. The author defined blended learning as a combination of in-person instruction supplemented by online materials and electronic feedback. In that study, 50 students were divided into two groups – control and experimental. The control group received traditional writing instruction in the classroom using paper-based materials such as textbooks and documents. They also wrote their assignments and received teacher feedback on paper. The experimental group received instruction in the classroom and accessed materials online, submitted their assignments electronically, and received feedback through comments and track changes on MS Word. The results show long-term effects of blended learning on students’ writing skills. Students in the experimental group outperformed those in the control groups. The
researcher found they had improved writing fluency due to “more opportunities to recycle their language” (Nezakat-Alhossaini, 2018, p. 20). They also showed improved confidence, independence, and attitude toward writing in L2 English based on the feedback they received on their writing. Finally, they demonstrated improvement in textual and grammatical complexity, likely due to the exposure to more authentic texts as opposed to the published coursebooks.

In a similar study conducted in Morocco, Babni (2019) examined the effects of computer-mediated communication on students L2 English writing skills. He identified that computer-mediated communication can potentially promote student motivation, active learning, reflective learning, learner’s autonomy, collaborative learning, interaction and exposure to the target language, sociocultural immersion, and social equality and identity. 246 college students and 20 English language instructors participated in the study. Unfortunately, Babni’s article contained inconsistencies in the data description, and the results were not clearly explained. Nonetheless, he indicated a positive impact of instructional technology on the students’ writing skills and performance including metalanguage awareness, grammar, and vocabulary.

Dugartsyrenova (2020) investigated the use of a digital English language tutor specifically designed to raise students’ awareness of multiple academic genres. That instructional technology was designed to provide feedback on students’ writing based on APA style and discipline-specific corpora. 59 students and 10 in-service teachers piloted the digital tutor in an EAP program at a Russian university. The researcher found that students evaluated the digital tutor positively compared to print-based materials. The qualitative data analysis showed that this tool effectively raised the students awareness of
academic genres. The quantitative data showed the pedagogical usefulness of the system as it helped students improve their writing skills.

Although the studies of Babni (2019); Dugartsyenova (2020); and Nezakat-Alhossaini (2018) took place in the context of English as a foreign language (EFL) classes, they showed that multimodal digital technologies have been applied in writing instruction in various countries, which contributes to the equity in access to texts for users of English around the world. Their findings demonstrated the potential benefits of instructional technologies on the teaching and learning of L2 English writing.

**Multimodal Digital Technologies Applied in IEPs, EAP, And ESP**

The literature examined in this section addresses the use of instructional technology specifically in IEPs, EAP, and/or ESP contexts, but it is not restricted to the domain of academic writing. As explained at the beginning of this chapter and in – Glossary, IEPs as well as EAP courses often provide integrated instruction in all language domains, and students are expected to integrate all their linguistic skills in academic communication. Therefore, the scholarly literature reviewed here addresses these instructional contexts, and it is divided into two subsections – (1) the use of L2 in virtual spaces and (2) everyday digital literacy practices used for L2 teaching and learning.

**Virtual Spaces and Second Language Learning**

According to Lamy and Hampel (2007), virtual worlds have been a setting for language learning since the 1990s, but research in that area was slow to develop. They defined that

Virtual worlds are virtual reality programs which range from immersive environments (with sound and touch sensors) to graphical spaces (with or without
audio) and text-based environments. Often, they are open spaces, accessible by the public as well as by those in a learning group. (p. 131).

That definition highlighted the multimodal character of those digital tools that can be applied for instructional purposes. Through a sociocultural lens, Lamy and Hampel described that virtual worlds allow for pedagogical immersion and interaction where learners work together and become part of speech communities using the target language. After reviewing the past research in that area, they concluded that this collaborative nature “appears to have succeeded in emancipating [the] learners from the constraints of former ways of learning” (p.137). Kluge and Riley (2008) added to their description that virtual worlds are “three-dimensional environments where individuals are represented by avatars (…) These online virtual worlds, imagined and created by their inhabitants, are often referred to as “metaverses.” Metaverses include aspects of the real world represented in virtual spaces” (p. 128). They concluded that “Virtual worlds promote immersive, deep, authentic, active, and constructivist learning” (p. 133) that teachers can explore for student-centered pedagogy. However, costs, accessibility, legal issues, and time constraints required in the development of virtual worlds seem to be major drawbacks. In the subsection below, I review five studies (Chen, 2020; Khodabandeh, 2022; Querol-Julián, 2023; Sarré, 2013; Sydorenko et al., 2019) that gave me insight into the use virtual spaces for L2 instruction in the specific contexts of post-secondary English instruction.

Sarré (2013) explored students’ perceptions about task-based language learning in virtual learning spaces. This specific study focused on the development of oral skills for presentations in L2 English including interactions with the audience. He conducted his
study among biology students enrolled in a program of English for Biology at a university in France. Students completed specific communicative tasks in the virtual learning environment under the supervision of L2 English tutors. The students’ responded positively to the experience of practicing L2 English for Biology in the virtual platform. They also provided feedback about the type and quality of support they received from the tutors which informed future improvement.

Sydorenko et al. (2019) indicated that the value of augmented reality (AR) for English language learning remains underexplored. Through the lenses of sociocultural theory and conversation analysis, they investigate how students learn L2 vocabulary in virtual learning spaces. They approached a task-based goal through AR gaming. Their participants included 8 English language learners (ELLs) enrolled in an IEP in the U.S. and 4 pre-service ESL teachers enrolled in a course about second language acquisition. The participants used English language in meaningful tasks within the AR game. The target vocabulary was science oriented (e.g., solar panels, water cycle, recycling, and fuels) and relevant to the gamers. The virtual environment promoted and facilitated the students’ language learning. The researchers examined the affordances of AR gaming and argued that “participants have relative freedom to construct the task and develop their own goals” (Sydorenko et al., 2019, p. 734) in those spaces. The AR gaming tasks also facilitated the students’ authentic engagement and collaborative learning.

Chen (2020) explored the role of language instructors on the virtual environment of Second Life (SL) – an immersive multiuser simulation where users can represent themselves as avatars and interact in ways that would not be possible in real life. Released in 2003, SL was not originally developed for instructional purposes, but it
attracted the attention of educators who started building 3D spaces for teaching and learning. In his narrative case study, Chen studied the role of an English instructor at an ESP program providing English L2 academic writing instruction to international students in Australia. He observed the learning curve as the language instructor learned to use the simulation platform and developed her teacher identity within the AR environment. Chen concluded that despite the challenges, teaching in virtual environments such as in SL’s simulation, can be “pedagogically motivating to students and professionally rewarding to teachers interested in embarking on this 3D virtual journey” (p. 399). His study is relevant because immersive simulations are fast evolving, and research in this field can provide teachers with professional development focused on the best pedagogical practices for virtual teaching and learning.

Khodabandeh (2022) researched the effects of virtual reality (VR) games in the paragraph writing skills of students enrolled at a university-based online course of English for translation in Iran. The 52 participants were divided into four groups: (1) control introverts, (2) control extroverts, (3) comparative introverts, (4) comparative extroverts. The researcher intended to investigate if the effects of VR games would be different for introvert and extrovert student translators. The control groups received language instruction via the messaging app WhatsApp. The comparative groups received the same language instruction via a VR game designed specifically for the study. The author concluded that the VR enhanced instruction was beneficial to improve the participant’s L2 English writing skills because it simulates real interactions that would happen in face-to-face contexts, and it enhance the learners’ motivation, enjoyment, and collaboration for both introverts and extroverts. However, the Khodabandeh echoed
Kluge and Riley's (2008) concerns about the cost of VR apps development and about teacher training in using VR apps.

Querol-Julián (2023) made a multimodal analysis of interactions during an online class. Although that was not a virtual world (where participants would have created avatars and virtual life), it was a virtual space for instruction and interaction. She analyzed the L2 English instructor’s and the students’ utterances, silence, gestures, gaze, facial expressions, body language, and other contextual clues. This multimodal study focused primarily on oral communication events, but there were instances in which students used the chat feature of the online conferencing platform. The teacher waiting time was crucial to repair students’ engagement because as students typed in the chat box in English with their cameras and microphone off, the communication was often disrupted. Writing took time, and sometimes multiple students would write in the chat simultaneously. The course instructor had to be sensitive to wait for students to reply to questions and to give opportunities for questions and comments. Writing in a chat box during online classes is a relatively new genre of academic writing that became more prominent and pervasive during the COVID-19 pandemic. That writing, although often informal, can be considered academic because it is used for academic communication among learners and instructors. In this online class, English was the Lingua Franca, and all the participants had to negotiate meaning throughout their multimodal communication. The author concluded that the dynamic of online communication is complex. The study suggested that it is important to raise awareness for the characteristics of multimodal interactions in online classes. Besides teaching English
language and integrated language skills, instructors must also include scaffolding of online interactions.

The five studies reviewed in this subsection (Chen, 2020; Khodabandeh, 2022; Querol-Julián, 2023; Sarré, 2013; Sydorenko et al., 2019) investigated the impact of virtual learning environments as instructional technology in L2 English programs designed for specific purposes – respectively, English for academic writing, English for translation, English for Biology, and an IEP. These studies represent the advancement of ESP research around the world and show that virtual learning environments are beneficial for language learners because they foster collaboration, engagement, enjoyment, and authentic opportunities to use the target language beyond the boundaries of a physical classroom. They also highlighted some challenges including costs and the need for teacher education so that L2 teachers can be prepared to teach in this high technology scenario. The research on virtual spaces used for language learning in ESP, EAP and IEP programs is intriguing because those technologies are still developing. I had not expected to find this niche in the academic literature. Other digital technologies such as multimodal media (including images, videos, audio files, slide presentations, and more), text processors, online exercises, and learning management systems seem be more popular and pervasive in English language programs. Therefore, it was interesting to find that researchers and practitioners in this field have been venturing into the exploration of more advanced technology and virtual worlds. In the next subsection I will review the literature about the use of other digital technologies for L2 instruction.
The literature reviewed in this section represents the interest in using multiple digital technology tools as L2 learning tools. Ankeny (2019); K. A. Moore et al. (2016); Reinhardt and Zander (2011); Umutlu and Akpinar (2020); and Zhou et al. (2022) explored the role of ubiquitous technologies used specifically in L2 English writing. Hampel (2019) and Z. Li et al. (2020) have argued that the development of and wide access to digital technologies (for instance, through social media and apps on mobile devices) has disrupted language teaching and learning in positive ways. Hampel (2019) addressed the topic of digital technologies for language instruction through the theoretical framework of Complexity Theory (Larsen-Freeman, 2016) and Multiliteracies (Cope & Kalantzis, 2000). Hampel discussed that digital technologies are available to language learners, and so learners adapt their digital literacy practices in complex ways to communicate in their sociocultural contexts. In this scenario, a multimodal approach to literacy instruction must recognize that meaning making is an active and transformative process that is not bounded by the classroom space. Hampel also recognized that technology changes the dynamic of the learning process, and there may be hinderances as well. Digital technologies can be a distraction as learners attempt to multitask. The distractions affect academic performance, test performance, information recall, comprehension, and note-taking if students stray off task. With that issue in mind, Z. Li et al. (2020) suggested that “teachers should not underestimate the importance of learner training” (p.89) because the everyday use learners make of digital technology may or may not be ideal or conducive to learning. Z. Li et al., (2020) categorized digital technologies applied to L2 writing into three categories:
1. Collaborative online tools where learners can write and contribute to one another via the Internet (e.g., Google Docs, MS Words, wikis, and html pages).

2. Automated writing evaluation (AWE) systems which give machine generated feedback to writers (such as spelling and grammar checkers, and Turnitin).

3. Corpus-based tools which provide language data that writers can reference (e.g., COCA – Corpus of Contemporary American English).

The studies reviewed below exemplify the use of these three categories of digital instructional technologies.

In a study published over 10 years ago, Reinhardt and Zander (2011) observed the use of social networking in IEP. They found that online social networks potentially facilitated interaction among students and their development of transcultural identities. However, it is important to notice the date of the publication because social networking has expanded significantly in these more than ten years, and it has become even more prevalent in learning spaces than they were when these scholars concluded their study.

K. A. Moore et al. (2016) investigated the digital technologies and digital literacy practices used by international students who are non-native speakers of English. They observed how that specific student demographic used technology to support their learning. The researchers conducted the mixed-method study in Canada, and most of the students were from Chinese origin. The artificial intelligence tool used in the study offered word prediction and speech-to-text features. That is, the digital technology offered predictive text that the L2 writers could select to complete their writing. The program learned and improved the predictions according to the students’ writing and
choices. The speech-to-text feature allowed the students to listen to their own writing to identify common errors such as grammar, punctuation, and missing words. The researchers provided training to the students so that they could use the technology adequately. Although all the participants valued the instruction they received in-person from writing instructors, they consistently noted that they were familiar with and used multiple technological tools on a regular basis to improve the quality and productivity of their writing. One of the positive aspects they identified is the immediate feedback provided by technology. The findings suggest that L2 learners can benefit from language instruction that also coaches them on how to use digital technology tools for writing productivity.

More recently, Ankeny (2019) focused on the social media of WhatsApp – a texting platform used internationally. She realized that mobile devices and apps have become the norm in learning environments, and teachers must be prepared to incorporate that kind of technology in the classroom to enhance teaching and learning. Ankeny conducted her study in an IEP in the U.S. and investigated 13 students’ perceptions of vocabulary challenges done on the social media platform as opposed to traditional vocabulary practice assignments. In WhatsApp, students can improve their English vocabulary through authentic written communication. According to Ankeny, the use of that free platform can improve students’ motivation to write in English.

Umutlu and Akpinar (2020) conducted a quasi-experimental study in an IEP in Turkey. They explored the effects of videos used in flipped-classroom settings for English writing instruction. They observed that the experimental groups that received instruction through multimodal videos (i.e., videos that included narration, on-screen text,
and images) outperformed the control group, which received instruction in the traditional in-class format. In their article, they provide recommendations on how to design flipped classroom lessons.

Zhou et al. (2022) examined the use of machine translation among Chinese learners of L2 English. They found that students did not outsource their writing to digital technology tools. Instead, the students combined their own knowledge with suggestions they found through the digital translator. They were aware that the digital tools were not perfect translators because the artificial intelligence was still incapable of capturing the nuances of language expressions. However, learners used that technology to expand their communicative repertoire and to fulfill their specific communicative needs in academic writing. The researchers found “evidence of bilingual students’ translanguaging practices” (p.9) as students integrated their Chinese and English language skills effectively and deployed their multimodal literacy practices efficiently.

The studies reviewed in this subsection revealed that commonly used applications from outside of school practices can be useful for teaching and learning as well. Since, learners are often familiar with online platforms and conventional digital tools, they can adapt their multiple digital literacy skills to their learning tasks. Some of the everyday digital tools addressed in these studies include social media (Reinhardt & Zander, 2011), AI enhanced features such as speech-to-text, text prediction, read-aloud, and spell-checkers (K. A. Moore et al., 2016), text-messaging apps (Ankeny, 2019), videos (Umutlu & Akpinar, 2020), and machine translators (Zhou et al., 2022). Studies like these demystify the use of technology in the classroom because today these digital tools are used in mundane tasks. Nonetheless, while many students may be familiar and
comfortable with digital technologies, Z. Li et al. (2020) remind the academic community that teachers cannot take these common digital literacy skills for granted. It is important to coach the learners without assuming that everyone has had the same level of training and same access to digital technology before coming into the classroom.

**Teachers’ Impressions About Instructional Technologies Used in L2 Writing**

The literature examined in this section addresses teachers’ impressions about using instructional technologies in the teaching of second language writing, but it is not restricted to IEPs. This section differs from the section above because it focused specifically on the instructors’ perspectives. It highlights findings such as instructors seeking innovative feedback practices (Lee, 2014), the affordances of Google Drive for collaboration and timely feedback (Slavkov, 2015), the incorporation of Google Translate as a pedagogical tool (Stapleton & Leung Ka Kin, 2019), the exploration of social media as a learning space (Reinhardt, 2020), and the positive attitudes of instructors toward multimodal composition (Tan & Matsuda, 2020).

Lee (2014) investigates the perceptions of language instructors about instructional technologies for feedback on L2 writing. The researcher collected interviews and personal reflections and found that instructors are engaged in professional development seeking innovations in feedback practices. Despite the challenges, instructors find professional agency and instructional benefits in the use of innovative feedback practices in the teaching of English as a foreign language in Hong Kong.

Slavkov (2015) investigated the affordances of [Google Drive](https://drive.google.com) in the teaching of L2 English writing in higher education in Canada. He explained that second language teaching and learning can be enhanced through digital technologies. The author and
instructor discusses that “L2 instruction and practice employing Google Drive highlights the sociocultural view of writing as a type of social act that involves a complex, distributed, mediated, and dialogic process of invention and language skill development” (Slavkov, 2015, p. 90). Additionally, “the use of online technology affords a higher degree of immediacy and interactivity than a traditional offline word-processed submission returned to the students at a later point with teacher comments in the margins (often still printed on paper)” (p. 91). He concluded that the use of Google Drive promotes collaboration as well as timely peer and teacher feedback.

Stapleton and Leung Ka Kin (2019) investigated the impressions of English language instructors about Google Translate. Instructors must be constantly learning new technologies and assess how they might disrupt language teaching and learning. The researchers conducted their study in an L2 English writing program in Hong Kong. It is inevitable that language learners will use the resources of machine translators available online and through mobile apps. The author argued that although language instructors may disapprove of the use of technology as a crutch, they must find ways to incorporate Google Translate as a pedagogical tool.

Reinhardt (2020) investigated the use of instructional technologies in L2 teaching and learning in the light of the distance learning scenario imposed by the outbreak of COVID-19. He discusses the new focus on social media incorporated into teaching and learning and explores new affordances of computer-assisted language learning (CALL). He offers four renewed metaphors to capture the dynamics of social media as a learning space: windows, mirrors, doorways, and playgrounds. Social media can be windows through which “learners can observe how native and expert users of a language interact,
socialize, and otherwise live their [public] lives” (p. 237). As mirrors, “many social media platforms allow users to carefully construct and present an identity that reflects one aspect, or an idealized aspect, of their identities” (p. 237). The analogy to doorways represents ways in which social media allows users to “participate in L2 cultural and intercultural practices” (p. 238). Such access used to be limited by the mediation of traditional and static materials. Finally, as playgrounds, social media offers users a controlled and playful environment where learners can exercise their new linguistic identities. Reinhardt echoed other scholars highlighting the ubiquitous presence of social media among learners, so he suggested that instructors must review how to incorporate this technology for pedagogical purposes.

Tan and Matsuda (2020) investigated teachers’ perceptions of multimodal composition in a first-year English program (FYC). Although their study was not limited to L2 English writers, it sheds light on the belief systems of writing instructors toward instructional technologies. They collected data through an online survey, teacher interviews, and samples of teaching materials. It is important to highlight that the participants were FYC instructors and Ph.D. candidates in Linguistics and Applied Linguistics, English Literature, English Education, and Writing, Rhetoric and Literacies. All but one of the participants had less than four years of teaching experience, but their practices were informed by current academic scholarship, which may not be the case in other settings. The research findings indicated that FYC instructors had a positive attitude toward multimodal composition, and their teaching practices seemed to be aligned with their beliefs. The participants used multimodal literacies to promote awareness, cultural sensitivity, critical thinking, and the understanding of subject-matter. They found that the
participants in that study were aware that multimodal texts used in the writing classes provided effective pedagogical opportunities.

The studies reviewed in this section are relevant because they demonstrate language instructors’ perceptions of, experience with, and attitudes toward instructional technologies in the teaching of English writing across settings. As such, they cover teachers’ attitudes toward digital technologies not only in the scenario of American institutions (Reinhardt, 2020; Tan & Matsuda, 2020) but also international trends (I. Lee, 2014; Slavkov, 2015; Stapleton & Leung Ka Kin, 2019). Their studies demonstrate that although teachers may face challenges in the use of multimodal digital technologies in the teaching of L2 writing, they also have a positive attitude toward the benefits they can offer. Lee (2014) found that language instructors in Hong Kong seek innovative feedback practices and perceive professional agency and instructional benefits in using instructional technologies for feedback. Slavkov (2015) highlighted the affordances of Google Drive, emphasizing its role in promoting collaboration, timely feedback, and sociocultural views of writing. Stapleton and Leung Ka Kin (2019) argued that language instructors should incorporate Google Translate as a pedagogical tool, acknowledging its inevitable use by language learners. Reinhardt (2020) discussed the incorporation of social media as a learning space through which learners can experience the authentic use of the target language by culturally diverse writers. Tan and Matsuda (2020) found that first-year English program instructors held positive attitudes toward multimodal composition, which aligned with their teaching practices and facilitated effective pedagogical opportunities. These scholarly findings are relevant because they support the findings of my study despite coming from different instructional settings.
Gap in the Academic Literature

According to my review of the literature, there is a wide variety of research studies about instructional technologies in L2 writing teaching and learning and about instructional technologies applied in IEPs and EAP. Some of them focus on students’ perceptions or learning outcomes while others focus on instructors’ perceptions. Until now, there is limited research that addresses language instructors’ perceptions of and experiences with instructional technologies in the teaching of L2 English writing for academic purposes in IEPs.

Such studies are necessary because post-secondary students in the U.S. are expected to communicate their learning of scholarly concepts through writing assignments. International students are expected to demonstrate their understandings through English writing as their L2, and instructors often expect that they do so at the same level of proficiency and accuracy as their counterparts who use English as their L1. Academic English writing is so integral to higher education that American universities dedicate hundreds of course sections to English composition to make sure they level the field for all freshmen students before they delve into their majors. Nonetheless, in my experience, I have observed that writing is the language domain that receive the least attention in L2 English teaching and learning. Listening, speaking, reading, grammar, and vocabulary, and even non-academic writing (e.g., emails, short notes, letters, narratives) often take precedence over academic writing. Second language writing is complex and requires proficiency in the other language domains before learners can fully express themselves through complex written texts. A multimodal approach to L2 English
academic writing may inform more effective pedagogical practices and teacher professional development.

Finally, there is a gap in the literature in defining L2 English academic writing as inherently multimodal due to the variety of semiotic processes at work. I will explain this perspective in more detail in the Theoretical Framework chapter. IEPs must address multiple modalities (digital and otherwise) used in academic writing because their international students will go into all sorts of fields at various academic levels that will demand multimodal literacy practices in English. After they complete their ESP course of studies, each student will encounter different writing demands in their respective majors. Therefore, it is essential to study how IEP instructors see the use of instructional technologies to prepare students for a variety of academic writing genres through the lens of multimodal literacies and the affordances of new digital media.
Chapter 3 – Theoretical Framework

In this chapter, I address the theory that framed this study – multimodal literacies. The study explored what language instructors said about their experiences with and perceptions of the instructional technologies they apply in teaching second language (L2) English academic writing. The sections below present an explanation of three key concepts that informed the data analysis: (1) multimodal literacies, (2) academic writing as a complex multimodal genre, (3) second language writing as a multimodal meaning-making process.

Multimodal Literacies

The three essential elements of my exploration are second language instruction, academic writing, and instructional technologies. When talking to the study participants, I often used the simple terms “technology” or “instructional technology” to represent the multimodal new digital media they employ in their writing lessons. That is, these three elements required an understanding of multimodalities and multiliteracy practices. Therefore, it was fitting to frame my study under the lens of multimodal literacies (Cope & Kalantzis, 2000; New London Group, 1996).

The theory of multiliteracies refers to multiple forms of meaning-making processes and representations through texts beyond the level of words printed on paper, beyond a single national language, and even “broader than language alone” (Cope & Kalantzis, 2000, p. 5). For example, reading a music sheet, a computer code, an
architectural blueprint, a crochet diagram, a mathematical equation, a road map, a street
sign, or a user’s manual involve multiple literacy skills. Those texts contain symbols of
which the reader must recognize and interpret according to their semiotic schemas and
for their specific purposes (Cope & Kalantzis, 2000; Kress, 2010; Kress & Bezemer,
2015).

Semiotic theory – or semiology – was introduced by Swiss linguist Ferdinand de
Saussure (Hodge & Kress, 1988; Saussure, 1959, 2011) and expanded by other scholars
such as American philosopher Charles Sanders Pierce (Hanks, 1996; Peirce, 2011;
Reynolds, 2018) to describe processes of interpretation of communicative signs. Kress
(2010) emphasized the Saussurean perspective on semiotics and stated that “multimodal
Social Semiotics does not make use of Peirce’s well-known tri-partite classification of
signs, as iconic, indexical and symbolic” (p. 65). Signs are socially negotiated and
motivated – they must make sense in the social context – so Kress argued that allowing
for arbitrariness as proposed by Peirce (2011) would be “a profound mistake” (Kress,
2010, p. 67). Nonetheless, he also recognized that the Saussurean theory was built on
linguistic representations, so he adopted elements of Peircean theory because it allows the
interpretation of signs according to “social histories, valuations, and consequent
differences” (p. 68) in their representations. The theory of multimodal social semiotic,
thus, shows that “the relation of signifier and signified in the sign has a social and
therefore ‘political’ and ideological component” (p. 68).

Therefore, social semiotics is the study of symbols, signs, and signification
including not only the symbols and modes used in communication but also their
significance in the social context (Eco, 1997; Gee, 2005). For example, in writing, a
comma indicates a brief pause to separate parts of a sentence. The same symbol (,)
inscribed at a higher level (‘) is no longer a comma and becomes an apostrophe used in
English writing to hold the space of a letter (e.g., in the contraction you’re it holds the
place of the letter a). In Portuguese writing, the same symbol inscribed below the letter c
(ç) transforms the sound of the letter. Similarly, the single letter I written in upper case in
English in any position within a sentence represents the first-person subject pronoun
while in other languages that capitalization carries no meaning or may be considered an
error. Barton and Hamilton (2005) explain that “print literacy always exists alongside a
range of other modes of meaning making, in particular visual meaning making, and that
literacy is but one part of a range of semiotic resources, each with its specific
affordances” (p.22). This way, they argue that written information is “highly multimodal”
because it involves multiple systems of interpretation.

At the written (or notational) text level, the reader may often think about the
words as the main signs that carry meaning. Nonetheless, the graphemes, punctuation,
capitalization, font style, spacing, indentations, and directionality are also examples of
symbols which carry meaning that complement the meaning of the written words.
According to Kenner (2003), these symbols exemplify how multiliteracies, as a
theoretical framework, encompasses a broad spectrum of complex semiotic processes.
Through this lens, texts do not have to necessarily be strings of words, sentences, and
paragraphs written with ink on paper. Rather, texts are creative and intentional
expressions of meaning. “The notion of multiliteracies supplements traditional literacy
pedagogy by addressing these two related aspects of textual multiplicity” (Cope &
Kalantzis, 2000, p. 5) – multiple channels of communication and the multicultural and linguistic diversity of today’s communication systems.

The term *multimodality* has been used across disciplines because it encompasses the idea that communication and meaning-making is not solely conveyed through a single mode, but rather through the integration and interaction of multiple modes or channels. “The concept of multimodality, referencing the co-occurrence of multiple semiotic modes in any communicative act, moves beyond language codes, and directly takes up issues of what, in addition to language, comprise repertoires for meaning-making” (Hawkins, 2018, p. 59). It is important to clarify that Hawkins used the term semiotic modes referring to the various modes, such as printed symbols, gestures, pauses, images, and more, which interlocutors use to convey information during communication. Hawkins described the role of globalization and digital technologies in communication because they break the barriers of physical distances and time. In fact, Cope and Kalantzis (2000) identified the reality of “diversity and global connectedness” (p.6) as one of the arguments to support the study of multimodal literacies. In recent years, and particularly since the outbreak of the COVID-19 pandemic, higher education institutions have seen a growing number of international students attending courses at foreign schools without leaving their home countries. This pedagogical shift is only possible through digital technologies applied to teaching and learning. Such intercultural use of multimodal digital technologies and multiliteracy practices must take into account the multiple socio-semiotic processes learners and educators employ in their communications in the learning spaces.
Although “multimodal [literacy] is not the same as digital [literacy]” (Yi, 2017, p. 90), digital and screen-based resources are part of the scope of multimodalities. Multimodal refers to the multiple modes (e.g., visual, linguistic, auditory, and kinesthetic) of communication. Multimodal literacy is the ability to consume and compose texts using multiple modes that are appropriate to the context. Digital literacy is that consumption and production of texts through electronic technology such as computers, smartphones, tablets, and any other digital devices that can access online content through the Internet. Digital media is often multimodal because it incorporates multiple modalities.

Reiser (2017) explained that technologies have been described by scholars as tools for teaching and learning as far back as 1905. Since the beginning of the twentieth century, educators have used instructional media such as photographs, stereographs, slides, prints, charts, and film for instructional purposes. However, with the advanced technology we have in the first quarter of the twenty-first century, digital technologies include an expanded group of digital and interactive electronic multimodalities which allow each individual student to have those instructional materials in their hands at virtually any time.

It is important to note that the terminology used to describe multimodal digital literacies varies across sources and from time to time. For instance, Ware (2020) explained that in the early 2000s, “electronic literacies” (p. 265) were described as four distinct prongs:

1. Computer literacy – basic knowledge of computer functions
2. Information literacy – critical consumption of digital media available on the Internet

3. Multimedia literacy – the ability to consume and create digital texts in multiple modes (text, video, images, graphics, audio, etc).

4. Computer-mediated communication – ability to initiate and main interaction with others through digital technologies (through emails, text messages, social media, discussion forums, etc).

R. H. Jones and Hafner (2012) explained that “digital literacy [practices] involve not just being able to ‘operate’ tools like computers and mobile phones, but also the ability to adapt the affordances and constraints of these tools to particular circumstances” (p. 13). That is, being knowledgeable about computer functionalities is not enough, but it may be the first step toward developing digital literacy. There is a difference between digital competence and digital literacy practices. Dudeney and Hockly (2016) explain,

*Digital literacies and the concept of being digitally literate refers to our ability to effectively make use of the technologies at our disposal. This includes not just technical skills, but perhaps more importantly, an awareness of the social practices that surround the appropriate use of new technologies. (p. 115)*

Maybe the key words here are the *social practices* associated with digital literacy.

Akayoğlu et al. (2020) studied the specific digital literacy practices of language teachers. They found that their participants used social media, learning management platforms, quiz activities, material design, presentation, and online storage for linguistic and pedagogical purposes. The participants also defined that being digitally literate means the ability to collaborate with others and engage in critical thinking through the efficient use
of digital technology. My study is aligned with theirs in that it “can assist in identification of [teachers’] needs, which could then guide initiatives to revise foreign language teacher education curricula” (Akayoğlu et al., 2020, p. 86).

In teaching L2 writing, a language instructor may use digital tools such as online dictionaries, thesauruses, and corpus linguistics to improve the vocabulary use in written texts. Instructors may select applications or websites that provide writing exercises with prompts and feedback generated by artificial intelligence (Godwin-Jones, 2018). Students may choose their own tools as well. Embedded digital editors (e.g., spell-checkers or auto correct) and third-party services such as Grammarly provide writers with immediate feedback on writing accuracy. Speech-to-write tools allow learners to dictate to a computer or mobile device what they want to write. Hyperlinked texts allow L2 learners to expand the boundaries of texts and access multiple digital media (audio, videos, images, vocabulary definitions, and other texts) with a click. Additionally, instructors may provide real time feedback on student writing using shared documents on online word processors such as Google Docs and MS Word among numerous others. The options of multimodal resources and digital literacy practices are endless for the teaching of L2 English academic writing.

Reiser & Dempsey (2017) clarify that the term instructional technology equals the digital media used for teaching and learning. The choices and application of those technologies are part of the scope of the field of instructional design and technology. Instructional technologies play an essential role in the design, development, implementation, evaluation, and management of learning processes. It is important to consider the multiple uses of technology for teaching and learning. There is a wide range
of possibilities that go from passively watching videos on a computer screen to actively and creatively programming robots in the classroom. This study sought to explore what teachers say about the digital technologies they use in their classrooms, and consequently it provides insight into which technologies they and their students use. Chapelle and Sauro (2020) introduce the purpose of their handbook stating that “technology has become integral to the ways that most language learners in the world today access materials in their second and foreign language, interact with others, learn in and out of the classroom and take many language tests” (p. 1).

Yi (2017) commented on the understanding of multimodal literacy research in the field of L2 writing. She alerted that there are “teachers, L2/multi-lingual writers, and literacy journal editors/reviewers who associated multimodality exclusively with digital technologies and [hold] skeptical views of multimodal literacy” (p.90) even though the use of multimodal texts in the classroom is not new. She explains that multimodal literacy practices are a broad term that includes the use of both print-based and screen-based (digital) texts. Yi expressed her concern about the conflation of the terms multimodal literacy and digital literacy practices because it may cause conflicting views. For instance, Yi and Choi (2015) reported on a study participant who questioned whether multimodal activities “can become a crutch that allows students to express themselves without fully acquiring the L2” (p. 844). In that case, the teacher failed to acknowledge that the academic and professional world is embedded with words coupled with images, sounds, and other contextual clues. Yi (2017) warned that this bias can “prevent L2 writing professionals from paying more attention to multimodal literacy practices” (p. 91) which L2 writers “will need in the real world once they have left our classroom” (p.91).
Our goal, as educators and researchers, is to prepare L2 English academic writers and writing instructors to understand the potential benefits of building multimodal literacy skills with digital literacy practices. Therefore, one of the goals of this study is to distinguish digital literacy practices in the teaching of L2 English writing and provide research insights into teachers’ perspectives about those specific practices.

**Academic Writing as Complex and Multimodal**

Even native speakers of English may face challenges with academic English writing and may access multimodal and technological resources to enhance their performance. To understand the demands of academic writing, I build upon the works of Swales (1990). He examines and discusses academic English writing as a complex genre studied across the world. Academic English is often the object of multidisciplinary scholarship which focuses on various aspects of writing.

The characteristics of academic writing are directly related to speech communities and discourse communities (Swales, 1990). This claim is relevant in this study because *discourse communities* in academic contexts – say, the scholars in the field of public health, in mathematics, or in business – share distinctive field-specific standards of academic writing which include a range of genres, lexicon, and a set of common communicative goals. That is, there are norms and writing conventions specific to the genres used in each field. Nonetheless, scholars within each academic field may practice writing differently based on their cultural and linguistic backgrounds. For instance, North American law students may write reports differently than law students in East Asia or in West Africa; and Mexican researchers may write medical studies differently from those studies written in Iran, in China, or in Nigeria because these groups of scholars belong to
different *speech communities* despite sharing the content knowledge of their fields. Therefore, academic writing is a social practice which abides by distinctive requirements and expectations according to the specific academic fields – discourse communities – and to the linguistic and cultural backgrounds of specific groups – specific speech communities (Bax, 2011; Charles et al., 2011; Gee, 1996; Lea, 2005; Swales, 1990).

Additionally, each academic level within an established field experiences specific writing demands that vary in levels of complexity. For instance, undergraduate students write shorter and simpler essays that are different from those written by graduate students, which in turn are also different from those published by senior professors. Finally, the range of academic writing genres presents their own multimodal demands (Swales, 1990). For example, an expository essay, a discussion board entry, a statistical graph, a lab report, or a slide presentation for a class are different genres that demand the use of specific modalities, which in today’s academic institutions are often produced and distributed digitally. Various academic genres may also demand a variety of digital literacy practices such as the use of text editors, spreadsheets and statistical software, image and video editors, or online learning management systems. In sum, academic writing encompasses the understanding of multiple semiotic systems according to its context. It encompasses the particular demands of its discourse community, speech community, academic level, and academic genre as well as the use of new digital media and digital literacy practices.

Following Kress’s (2010) stance, “‘translations’ across modes *within* a culture are both possible and hugely difficult” (p. 10). If a speaker of any language must translate the information found in a bar chart from a statistical report into a report in narrative form,
he/she must find the specific words in that language to translate what was first presented in numerical and graphic modes. It is possible, yet the speaker must know the proper jargon associated with that report. “Translating” numerical scores from an experiment into a written report can be challenging because they evoke different representations of information – different semiotic systems. When a writer must complete that same task in a second or additional language, the task presents an additional layer of complexity because the writer must draw upon a series of different types of semiotic systems from two different language codes at the same time. In other words, academic writing is, in its essence, multidimensional, multilayered, and multimodal due to the variety of semiotic processes involved in the writing (see Figure 3.1 Error! Reference source not found.).

![Figure 3.1 Multiple layers of academic writing](image)

In Figure 3.1, I show a graphic representation of how I understand the multilayered complexity of academic writing based on Hyland (2008), Kress (2010),
Lillis and Tuck (2016), and Swales (1990) as well as on my personal experiences as a second language academic writer and language instructor. Academic writing occurs in the intersection of speech communities, academic discourse communities, specific academic genres, and specific demands of the various academic levels, and it demands the application of multimodal digital literacy practices. Native and non-native English speakers must master academic English writing skills according to the variables of their fields of studies, academic level, and genre. Nonetheless, L2 academic English writers must add the layer of navigating those expectations in their non-dominant language and across speech communities.

Kress (2010) addresses the challenges of translating the same genre (for instance, poetry) from one language to another due to cultural representations of ideas. These challenges are even greater when the “translation” also includes various modes because processes of meaning-making in any culture are not universal. He defines that “modes are the result of a social and historical shaping of materials chosen by a society or representation” (Kress, 2010, p. 11). Following Kress’s example, “there is no reason to assume that the mode of gestures in Culture 1 covers the same ‘area’ or the same concerns or is used for the same purposes and meaning as the mode of gestures in Culture 2” (p. 11). Although Kress uses the example of gestures, and in another section, he offers a similar example involving poetry, I maintain that the same concept can be applied to academic writing genres.

In teaching L2 English writing, language educators address the complex balance of intercultural and multimodal communication. For instance, Savini (2021) describes her experience with a Russian student who informed her that “explicitly stating one’s
argument would insult the reader” (p. 4) in a Russian context. That is, although explicitly stating arguments is a given expectation in English academic writing, due to cultural norms it may be inappropriate in academic writing for other speech communities. That is an example of organization and argumentation at the essay level. The same applies for the organization of words within sentences and sentences within paragraphs in distinct languages. Trained L2 English instructors are equipped to help international students understand these different organizational patterns while working on academic writing. This is a pragmatic skill that extends beyond the writers’ knowledge of grammar, vocabulary, or mechanical conventions (punctuation, capitalization, and spelling).

Second Language Writing as Multimodal Literacy Through a Semiotic Approach

Taking a social semiotic approach (Hodge & Kress, 1988; Kress, 2010; Kress & Bezemer, 2015) to language learning, linguistic and sociocultural differences qualify L2 writing as a multiliteracy. Lo Bianco (2000) illustrates the claim that L2 writing is inherently multimodal by using Japanese writing as an example. In Japanese, there are three writing systems – Kanji, Katakana and Hiragana – which are used for distinct functions. Katakana is used to represent foreign words. Lo Bianco describes, “when a second language learner of Japanese encounters the required use of Katakana the effect is like a semiotic jolt” (p. 101) because the linguistic dimension represented by Katakana “to render foreign words in written form” (p. 101) requires moving between the semiotic systems that represent the Japanese language. Learners must make a conscious effort to decide appropriately between the writing systems. Other languages such as Arabic and Hebrew allow for the omission of letters that represent vowel sounds in their writing systems and are written from right to left (as opposed to European languages). Languages
such as Chinese and Japanese, use pictographs (or logograms) that represent ideas rather than sounds. Writing pictographs as well as diverse alphabets require not only an understanding of what the symbols represent, but also hand movements that differ from English writing. If the writer types on a computer keyboard instead of writing by hand, there are yet other multimodal literacies in place that differentiate L1 and L2 writing. Based on these examples and the semiotic approach, I argue that L2 writing is intrinsically multimodal because writers must navigate distinct modes to write efficiently.

To understand the scope of the studies of second language writing, I draw on Hyland (2008), who encouraged language instructors to adopt multiple approaches for teaching L2 English writing. To address didactic matters, he noted that instructors may focus on language structures, on text functions, on creative expression, on the writing process, on the written content, or on the genre. According to Hyland, cultural differences are among the dimensions of second language writing. He theorizes that “language and learning are inextricably bound with culture” (Hyland, 2008, p. 36) and based on cultural schemata, expectations, attitudes, approaches, and strategies toward literacy teaching and learning vary across cultures. However, these variations are rarely made explicit in classrooms, which may cause frustrations and conflicts among language instructors and learners.

Moreover, writing in various languages is not only different based on various alphabetic systems and cultural elements of written communication but also based on the linguistic representation of ideas. From a semiotic standpoint, words (either written or spoken) are arbitrary representations of ideas (Hodge & Kress, 1988). Sometimes, they translate literally into another language. For instance, a dinner table in English is directly
translated into *mesa* in Portuguese and in Spanish and into *tavola* in Italian because their concrete and literal meaning remains the same. However, that is not always the case. Words may have multiple meanings, and numerous words and expressions do not translate literally among various languages (Hyland, 2008; Kress, 2010), requiring the L2 writer to convey meaning through transposing diverse semiotic systems. There are lexical units that are never fully translated from one language to another. For example, the auxiliary verb *do* in the sentence *I do not speak English* does not have an equivalent translation in multiple languages. It takes time for an L2 writer to have a linguistic repertoire that is vast enough to articulate accurate translations from their dominant language to the target L2 and vice versa because this task requires more than knowing the face value of words. To demonstrate that L2 academic writing requires multiple semiotic processes, I look at the example of beginner L2 English writers who may resort to literal translations to convey ideas in their texts or make inaccurate word choices (Severino & Prim, 2015) resulting in awkward constructions that hinder the understanding of the text. Therefore, it is safe to say that effective L2 writing requires that the writer navigates multiple semiotic systems efficiently at the lexical, syntactic, rhetorical, conceptual, and presentational levels (Kalan, 2022).

When a biliterate writer writes in English as a L2 (regardless of genre), he or she must navigate multiple processes of meaning making (Kress, 2010; Kress & Bezemer, 2015). Writing in one language cannot be simply transposed into another language by words face value because (1) alphabet systems and pictographic systems represent language units differently in each language; (2) language and culture are intertwined, so written language is aligned with the cultural norms where it is embedded; and (3) there
are words and expressions that do not translate literally from one language into another. There are distinct visual (written words look different in distinct languages), auditory (letter-sound correlations and phonics vary from language-to-language), and kinesthetic (hand writing movements vary when languages use different graphic systems and directionality) modes involved in learning to write in L2 English, and that is the multimodal character of L2 writing. Kalan (2022) noted that, “a multiplicity of semiotic engagements, as a result of movement between diverse linguistic, cultural, institutional, and discourse communities, creates opportunities for more effective semantic triangulation and meaning making. Semiotic interactions are varied and can include engagement with different art forms, digital platforms, cultural spaces, and discourse practices. Translanguaging multiplies semiotic interactions in all these textual, cultural, and discursive ecologies in that it enables plurilinguals to cultivate linguistic interactions in more languages, cultures, and communities, and thus in a larger number of semiotic conventions” (p.68). Kalan claims that “the more semiotic engagement learners have, the more prepared they can be for handling diverse forms of textual consumption and production” (p.80). Therefore, Kalan made a connection between multimodal literacies, multiplicity of semiotic engagements, and translanguaging to signal the complexity of L2 writing.

From a semiotic standpoint, as mentioned above, writing requires more than knowing the face value of words and stringing words together following linguistic norms. After all, writing is a social practice and as such, it implies human interaction. Nevertheless, the fast-paced growth of artificial intelligence (AI) has raised educators’ concerns about L2 teaching and learning and about academic writing, and it is bound to
disrupt English education. AI is making it possible for machines to translate text in real
time via camera, scanning, and text-dependent apps on digital devices (Bowker, 2020;
Deng & Yu, 2022; Zhou et al., 2022). At the time when my study was conducted,
Generative AI – a type of AI technology able to generate various types of texts including
multiple modalities such as written and spoken texts, images, and sounds – had not yet
become popular and accessible to the vast public, but it grew rapidly at the end of 2022
and first semester of 2023 (Marr, 2023; OpenAI, 2023a; Pavlik, 2023). I will discuss it in
the final chapter of this dissertation. Although digital tools are not perfect (yet), they are
becoming more powerful and have the potential to help or hinder L2 writers depending
on the digital literacies skills they develop. In a recent interview, linguist Noam Chomsky
criticized the use of generative AI for academic writing referring to it as digital
plagiarism (Sprakel, 2023). Therefore, he recommended that teachers and higher
education instructors become familiar and better prepared to teach learners in innovative
ways using digital multimodalities as resources but not as outsourcing solution for
writing assignments.

In this subsection of the theoretical framework that guides my study, I have
introduced the semiotic lens that defines L2 writing as inherently multimodal. From a
Saussurian perspective on semiotic (or semiology), semiotics and multimodal literacy
theories are suitable lenses for study of digital literacy practices in the teaching of L2

Affordances of New Media

Now that I have defined the key concepts of digital literacy practice and L2
English academic writing as a multimodal literacy practice, I can introduce the lens
through which I plan to conduct this study. This study contributes to the scholarship related to multimodal literacies by investigating what language instructors said about their choices of instructional technology when they teach L2 English academic writing to post-secondary international students. For that, I used a theoretical lens on learning and the affordances of new digital media proposed by Kalantzis and Cope (2015).

Kalantzis and Cope were influenced by the affordance theory proposed by American psychologist James J. Gibson (Kalantzis, personal communication, May 11, 2023). In his theory, Gibson (1977) suggested that “the affordance of anything is a specific combination of the properties of its substance and its surfaces taken with reference to an animal” (p. 67), and clarified that “although an affordance consists of physical properties taken with reference to a certain animal, it does not depend on that animal” (p. 69). For instance, water has properties that afford drinking but not breathing to humans; nonetheless, the same properties of water afford breathing and drinking to sea creatures. With that, Gibson explained that certain affordances of surfaces and substances that make life easier for some animals, can at the same time make life harder for other animals. Affordances can be perceived differently by users depending on the circumstances. Gibson provided several concrete examples, including that of the manipulation of a knife – “it affords cutting if manipulated in one manner, but it affords being cut if manipulated in another manner” (p. 77). Similarly, the affordance of concealment can be perceived differently depending on the circumstances where it happens. An individual may conceal a weapon for protection while another may conceal it for violence and crime. To one person, the weapon affords hurting, and to the other, it affords being hurt. That is, affordances can be positive or negative. Although Gibson’s
theory was originally applied by psychologists and to studies of design and visual perception, it has since influenced studies of technology, computer mediated communication, instructional design, and artificial intelligence.

Kress (2010) also relied on Gibson’s theory of affordances and applied it to the study of multimodalities stating that “in social semiotic approaches to multimodality, it is an absolute assumption that modes have different affordances” (p. 92) and “equal emphasis is placed on the affordances of the material ‘stuff’ of the mode” (p.80). He explained that “given the distinct affordances of different modes they can be used to do specific semiotic work” (p. 82). For instance, speaking, writing, and images are fundamentally different modes because they offer different affordances in communication. The affordances of these three different modes vary from culture to culture and according to the demands of the communicative event. During communication, interlocutors build their knowledge and negotiate meaning according to the potential affordances of the modes in use.

In the study of digital literacies, Jones and Hafner (2012) critically discussed that “all tools bring with them different kinds of affordances and constraints” (p.2). While new digital technologies afford interpersonal collaboration across geographic distances, it has also reduced face-to-face interactions as users have become more engrossed in communicating via screens. They explained that “coping successfully with information involves understanding both the information creating and the information limiting affordances of digital media” (p. 19). That is, new digital media affords the creation of content (e.g. via YouTube, social media platforms, blogs, news media, advertisement, and more). At the same time, this affordance generates information overload, which
limits the user access to reliable and relevant information. Therefore, multimodal digital literacy skills and efficient digital literacy practices require clear understanding of the positive and negative affordances of digital technologies and multimodal digital media.

Kalantzis and Cope (2015) identified “seven new learning affordances opened up by new media” (p.375). By new media, they mean “different kinds of pedagogical applications of [digital] technology” (p. 374), and I believe they can be applied to multimodal digital literacy practices in the context of L2 English academic writing instruction. The authors use the term “e-learning ecologies” to describe the context of digital instructional technologies used in the classroom for face-to-face and distance education. The seven affordances as described by Kalantzis and Cope are introduced in Table 3.1, and I will explore them in more details in the methodology chapter.
### Table 3.1 Seven affordances of new digital media (adapted from Kalantzis & Cope, 2015)

<table>
<thead>
<tr>
<th>Affordances of new media</th>
<th>Definitions (Kalantzis &amp; Cope, 2015)</th>
<th>Hypothetical examples based on my own experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ubiquitous learning</strong></td>
<td>Learning extrapolates the boundaries of the classroom and of the class time, and it can occur anywhere and anytime.</td>
<td>Teachers have taught English writing virtually to international students across the world using platforms such as Zoom and Google Drive.</td>
</tr>
<tr>
<td><strong>Active knowledge making</strong></td>
<td>Students can be more productive than mere receptacles of passive knowledge.</td>
<td>Students can use online dictionaries and thesauruses to search vocabulary found in their readings and improve the vocabulary in their writing samples.</td>
</tr>
<tr>
<td><strong>Multimodal meaning</strong></td>
<td>Students can generate their learning content through videos, audio, images, and much more than simply writing a unidimensional paper.</td>
<td>Students create blog posts or wikis for an assignment which includes hyperlinks to outside sources, illustrative images, and short video clips they developed.</td>
</tr>
<tr>
<td><strong>Recursive feedback</strong></td>
<td>Feedback can be timelier throughout the learning process. Additionally, immediate feedback can come from peers as well as from instructors.</td>
<td>The teacher leads a collaborative writing workshop where all the students share their written work using Google Docs. Small groups provide peer feedback using the comments and track changes features in real time or asynchronously.</td>
</tr>
<tr>
<td><strong>Collaborative intelligence</strong></td>
<td>Learning is a sociocultural process, and students can learn more as they can develop knowledge in collaboration.</td>
<td>Students interact through writing in a discussion board at the learning management system (such as Blackboard, Moodle, Canvas, or Google Classroom).</td>
</tr>
<tr>
<td><strong>Metacognition</strong></td>
<td>Teachers and students may reflect on the learning processes, and they can register their reflections in various modalities.</td>
<td>Students respond to an online survey identifying the critical areas where they need improvement. The responses are displayed anonymously on the classroom screen for whole group discussion.</td>
</tr>
<tr>
<td><strong>Differentiated learning</strong></td>
<td>Learning activities can be tailor made to the needs of individual learners.</td>
<td>Students can choose the topic or genre of their writing within a selection appropriate for the learning unit. Choices can be accessed and communicated electronically through hyperlinks in the learning management system.</td>
</tr>
</tbody>
</table>
The instructional affordances of new digital media identified by Kalantzis and Cope (2015) stem from the conceptual field of multimodal literacies (Cope & Kalantzis, 2000; Jewitt & Kress, 2003; Kress, 2010; New London Group, 1996), and is supported by scholarship in the field of L2 teaching and learning (Chapelle & Sauro, 2020; Hampel, 2019; Lamy & Hampel, 2007; Rienties et al., 2022; Ware, 2020) and L2 English academic writing (Gilliland et al., 2018; Godwin-Jones, 2018; Hafner & Ho, 2020; M. Li & Storch, 2017; Tan & Matsuda, 2020; Yi, 2017; Yi et al., 2020).

Lo Bianco (2000) explains that the theory of multiliteracies encompasses cultural and linguistic diversity as well as multimodalities. Meaning making processes must be constantly negotiated in intercultural communications. In the intersection between globalization and information technologies, he asserted:

> Languages caught up in the multimodal environment of contemporary communication, which combine verbal linguistic meaning-making with the gestural, visual, spatial, and the radically altered writing and reading regimes of computer literacy, such as oral-like writing and writing-like oralism in voice instruction, complicate literacy practices with multicultural contexts as the modes, codes, and cultural meanings interact with each other. (pp. 93–94)

Silva (2016) agreed saying, “with increasing globalization comes the need for more and better communication across languages. And due to the influence of the Internet, much of that communication is and will continue to be in writing” (p. 33). With the current rise in virtual teaching and learning we may see a shift from writing to the creation of videos and audio files, which may or may not be scripted (a distinct genre and mode).
Lo Bianco (2000) added that the multiliteracies project was aligned with the teaching and learning of multiple languages because it recognized the complex literacy awareness and articulation students must develop to communicate across cultures. He draws examples from various countries including South Africa, Japan, and Vietnam, where script choices, levels of written formality, and semiotic processes cannot be compared to those exercised in world Englishes. Yi (2017) echoes that contemporary communication across communities and societies required access to various semiotic resources for adequate meaning making. These scholars highlight the need for a framework combining multilingualism and multimodal literacies in the studies of L2 writing a (Lo Bianco, 2000; Yi, 2017; Yi et al., 2020).

**My Study’s Contribution to the Theoretical Framework**

My study adds to the scholarship through combining multilingualism and multimodal literacies to explore and examine L2 academic writing instruction, and instructional technologies. Thus, my study design was inherently multimodal. I studied those elements in multilingual instructional settings where learners and instructors were multilinguals. English was often their only shared language. The affordances of new digital media (Kalantzis & Cope, 2015) served as the theoretical framework to explore what language instructors said about instructional technologies in the context of teaching L2 English academic writing in IEPs. This lens helped me make sense of the underlying factors the participants identified as informing their choices of digital instructional technologies and multimodal digital literacy practices.

Furthermore, the concept of writing is changing rapidly with the advancements in digital technologies, social media, and artificial intelligence (AI). Contemporary
academic writing is not the same as when I was in college over 20 years ago. There are multiple electronic tools that writers can access, which bring a unique set of affordances and facilitate L2 writing. AI is not addressed in this study because it did not emerge as a theme in the data, but it is certainly an interest of my future research and work.

As I wrote this study, I realized I cannot define writing in the traditional sense of putting words on paper anymore because traditional definitions found in dictionaries do not fully address what writing can be. The Oxford Dictionary, for example, defines writing as (1) “The action or process of forming or setting down letters, symbols, or words on a surface such as paper with a pen, pencil, brush, etc.; the occupation of one who writes by hand;” (2) “the action or practice of creating text by pressing the keys of a typewriter or similar instrument; typing;” and (3) “the action of composing and recording in written form; expression of thoughts or ideas in written words; esp. literary composition or production,” (“Writing, n.,” n.d.). None of the dictionary definitions or examples contemplates the multimodal and multifaceted characteristics of writing academically in the digital technology era. As a child, I wrote school assignments using pen and paper. Every little mistake made me scrap the whole page and start over. Today, I have the tools to write through multimodal digital technologies without touching any physical tool (e.g., through voice recognition and speech-to-text technologies). Writing can be as ephemerous as a passing thought when I hit the backspace key or as long-lasting as a viral political Tweet when it is saved and reproduced by multiple media outlets. Mistakes, some of which are waved off as minor typos, can be automatically and instantaneously corrected by spell-checkers (auto correct) and digital editors such as Grammarly. The impact of digital technologies on writing today is vast and it will
continue evolving requiring writers to develop multimodal digital literacy skills and practices. This study has helped me redefine writing through the lens of multimodal literacies in the context of digital instructional technologies applied to L2 academic writing. I hope the findings and the discussion can enlighten the scholarly conversations about multimodal digital literacy practices for other educators as well.
Chapter 4 – Methodology

When English language instructors teach academic writing, they often employ multimodal digital literacy practices. As defined previously in the theoretical framework chapter, digital literacy practices involve the consumption and production of texts using various modes through electronic technology such as computers, phones, tablets, and other digital devices. Digital media is often multimodal since it incorporates multiple modalities and requires multiple meaning making processes. Multimodal digital resources used for the purposes of teaching and learning are more easily and commonly identified as instructional technology, so that was the term I used with the participants during the data collection. Reiser (2017) explains that “although the view of instructional technology as media has persisted over the years [since the 1920s], during the past 50 years other views of instructional technology have emerged and have been subscribed to by many professionals in the field” (p. 2). Reiser proposes a more robust and current definition of instructional technology to “encompass the analysis of learning and performance problems, and the design, development, implementation, evaluation and management of instructional and non-instructional processes and resources intended to improve learning and performance in a variety of settings” (p. 5). Therefore, instructional technology is not only digital media, but also all the related practices involved in its use for teaching and learning.
In this study, I investigated what English language instructors say about their choice of instructional technologies. The goal was to explore their experiences with and perceptions about technology in the teaching of second language English academic writing. As stated previously, the following research questions informed the qualitative exploratory study. The bold-faced font highlights the key phrases in each question:

1. What do language instructors have to say about their experiences with and perceptions of digital multimodality choices when teaching L2 English academic writing?

2. What are some of the underlying factors that language instructors identify as affecting their choices of instructional technologies when they teach L2 English academic writing?

**Research Design**

To address these research questions, I used ethnographic methods to conduct an exploratory case study. Stake (1995) states that “case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances” (p. xi). In the footnotes he clarifies that “we cannot make precise definitions of cases or case studies because practices already exist for case study in many disciplines” (p. 2), yet he exemplifies that a case may be a single person (e.g. a teacher), a group of people within the same context (e.g. the faculty of a certain school), or “a particular mobilization” (p. 2) of people toward a common interest (e.g. teachers specialized in second language instruction). Therefore, case studies focus on the naturalistic observation of cases, which are not necessarily limited to a single person. In an earlier publication, Stake highlighted that “case studies have been used by
anthropologists, psychoanalysts, and many others as a method of exploration preliminary to theory development” (Stake, 1978, p. 7). He explains that although qualitative case studies are not generalizable, their particularization can be considered a strength and “have an epistemological advantage over other inquiry methods” (Stake, 1978, p. 7) because they are relatable. In other words, although one person alone can hardly represent a whole group, that single case can be representative of similar cases. This way, the reader can make personal connections between the studied case and their own experiences, and thus naturally come to generalizations. As I understand it, the epistemological advantage in my case study is that language instructors can find themselves represented through the voices of the participants. I believe that the participants’ perspectives are relevant for the scholarship, and other educators can learn from the perspectives studied here. Case studies can be constructed based on ethnographic methods of data collection and analytic processes, but they are “designed to provide insight by describing phenomena” (Compton-Lilly, 2021, p. 12). The methods I used in this study describe the phenomenon of English language teachers who teach L2 writing for academic purposes and use digital multimodalities in their teaching practices. In this case study of L2 academic English instructors in IEPs, I aimed to draw on the experiences of a small number of educators to inform the academic community as well as fellow second language instructors.

Given the qualitative design approach to my study, I do not claim that the data is representative of the entire population of second language writing instructors or IEP instructors around the USA. Nonetheless, the findings and discussion can potentially
inform the academic community in the fields related to L2 English academic writing and instructional technology. The methods are described in detail in this section.

**Exploratory Case Study Design**

Saldaña (2016) proposes that “exploratory methods permit open-ended investigation” (p. 153). This exploratory mindset is the essence of this study. I did not have a pre-supposed hypothesis that guided my exploratory collective case study. Rather, I explored a variety of perspectives and issues. Although I started with identified research questions, they are open-ended and did not seek to test a hypothesis. The flexibility and the lack of a hypothesis can be considered a weakness of the case study design, but measures such as triangulation can strengthen the design (Stake, 1995; Streb, 2010).

This is an instrumental case study (Compton-Lilly, 2021; Stake, 1995) that explored what language instructors say about instructional technologies to teach L2 English academic writing. The nature of the case study methods is *paradigmatic* as I sought to understanding what can possibly be applied into teacher education and teacher professional development in the field of teaching English as a second language. Therefore, I developed an exploratory paradigmatic instrumental case study. Due to the exploratory character of this study, I coded the data iteratively (Saldaña, 2016) to identify themes and patterns through the lenses of the *seven affordances of new media* as proposed by (Kalantzis & Cope, 2015). I discussed the details in the **theoretical framework** chapter. In the following subsections, I provide more details about the study design.
Setting

As described in the introduction, I aimed at IEPs that enroll post-secondary international students in the United States as the **instructional setting** of this study. IEPs or English programs for academic purposes (EAPs) are full-time (minimum 18 hours per week) instructional programs that offer English language instruction to post-secondary international students whose dominant language is not English. It is important to remember that the international students enrolled in IEPs must be older than 17 and must have concluded their high-school education according to the curriculum established in their countries of origin.

IEPs are often housed within institutions of higher education, but they can also be provided by university partners and by independent language schools (Reese & Helms, 2020). Accredited university-based Intensive-English Programs (IEPs) often follow the standards determined by The Commission on English Language Program Accreditation (CEA) (TESOL Accreditation Advisory Committee (AAC), 2018). CEA is supported by the American Association of Intensive English Programs (AAIEP, also known as English USA), the Accreditation Council for Continuing Education and Training (ACCET), University and College Intensive English Programs (UCIEP), and the Teachers of English to Speakers of Other Languages, Inc. (TESOL International Association). Such programs and their students’ enrollment are regulated by the U.S. Department of State and the U.S. Department of Homeland Security (United States Department of State, 2015) and recognized by the U.S. Secretary of Education. Although there are other IEPs that are not accredited by the CEA across the country, for this study I only included CEA accredited programs.
Figure 4.1. Distribution of IEPs per Location and Affiliation Types. Figure Created for this Study Based on the List of Accredited IEPs Available in the CEA’s Website (CEA, 2023)
The CEA provides a list of accredited IEP sites (Commission on English Language Program Accreditation, 2023). I filtered the list to focus on the programs located in the United States. There are 313 IEPs located in 38 of the 50 states. Figure 4.1 shows their distribution and affiliations. Among those programs, 56.9% are independent (they are private language schools), 36.1% are affiliated to universities, 5.1% are affiliated to colleges (including community colleges), and 1.9% are affiliated to other institutions such as religious seminaries, institutes of technology, and the U.S. Department of Defense. For the purposes of this study, I targeted the programs housed in colleges and universities because of their primary focus on the development of academic language skills.

**Sample of Participants**

The five participants in this study are English language instructors who teach L2 English writing for academic purposes in five different IEPs as described above. The CEA list provides the names of the language programs and their websites, which allowed me to search the contact information of program directors and administrators. Although not all programs make that contact information readily available, with that list in hand, I was able to send my recruitment flyer and survey link to as many program directors as I could find.

The recruitment process occurred in February and March 2022 through an online survey. I initially distributed the survey electronically by sending emails to the listed IEP directors, administrators, and faculty. I also posted the recruitment flyer to targeted groups on social media (mostly on Facebook groups aimed at L2 writing and TESOL) and shared it with colleagues with whom I have worked in the past. Two instructors
responded immediately based on the social media posts and another ten instructors responded to the survey based on the emails sent directly to their programs. Twelve individuals responded to the recruitment survey (described below and shared in the appendices section). The survey questions served to identify participants who met the inclusion criteria and collected data about their demographic as well as their use of technology in the classroom. Six respondents were interviewed, but one instructor decided to withdraw from the study afterwards due to personal matters not related to the study.

The five IEP instructors recruited compose the collective case study. This number allowed me to triangulate the findings within the data they provided individually and across the participants. At the time of the data collection, the participants had been teaching remotely in online courses (synchronously or asynchronously) as well as in-person using online resources. The participants met the following criteria to proceed to the interview phase of data collection:

1. Instructors currently working in English programs for academic purposes (EAP) or intensive English programs (IEP) in the United States.
2. Instructors currently teaching second language English writing for academic purposes. That is, their students intend to pursue academic degrees which require a proficient level of academic writing in English.
3. Language instructors who use online digital multimodal literacies (referred to as *instructional technologies* in the data) in their curriculum.

Moreover, the parameters of exclusion are:
1. Language instructors who teach L2 English writing that is not intended for academic purposes (such as “survival” English courses, English for immigration purposes or English for business purposes).

2. L2 English instructors who do not use digital multimodal tools in their course design.

3. Teachers of English as a second language (ESL) who teach exclusively in K-12 settings.

4. L2 instructors who, despite their previous experience, are not currently engaged in the teaching of L2 English writing for academic purposes.

Gender, age, nationality, years of teaching experience, or language dominance were not considered as inclusion or exclusion factors. Based on the inclusion/exclusion criteria, the recruitment survey served to filter the number of participants. Their participation in the study was voluntary and informed, and participants were free to leave the study at any point according to their convenience. This design does not indicate any significant risk for the participants. The participants’ identities are confidential, and the data is stored on a password protected personal device to prevent breach of confidentiality. I have deidentified the data and replaced their names with pseudonyms. The names of the institutions where they worked at the time of the data collection is confidential in the sections and chapters below.

In the next subsection, I will describe the profile of each individual participant. They are described in the order they joined the research.
Overview of the Participants. Table 4.1 provides details about the five participants according to their responses to the initial survey.

Table 4.1 Profile of the Participants

<table>
<thead>
<tr>
<th>Pseudonyms</th>
<th>Natalia</th>
<th>Isabella</th>
<th>Hannah</th>
<th>Jessica</th>
<th>Sarah</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age group</strong></td>
<td>33-40</td>
<td>41-48</td>
<td>41-48</td>
<td>25-32</td>
<td>41-48</td>
</tr>
<tr>
<td><strong>Born in</strong></td>
<td>Belarus</td>
<td>Brazil</td>
<td>Poland</td>
<td>Colombia</td>
<td>USA</td>
</tr>
<tr>
<td><strong>Raised in</strong></td>
<td>Belarus</td>
<td>Brazil</td>
<td>Poland</td>
<td>USA</td>
<td>Various countries in Europe and East Asia.</td>
</tr>
<tr>
<td><strong>Languages</strong></td>
<td>English, Russian and Italian</td>
<td>Portuguese, English, and Spanish</td>
<td>English and Polish</td>
<td>English and Spanish</td>
<td>English, Italian, and Spanish</td>
</tr>
<tr>
<td><strong>Years of Teaching Experience</strong></td>
<td>12</td>
<td>20+</td>
<td>20+</td>
<td>15</td>
<td>20+</td>
</tr>
<tr>
<td><strong>Highest academic degree</strong></td>
<td>Master’s degree in educational leadership</td>
<td>Master’s degree in applied linguistics</td>
<td>Ed.D. – focus on the experiences of refugee women in the U.S.</td>
<td>Master’s degree in applied linguistics</td>
<td>Master’s degree in TESL, emphasis on educational technology</td>
</tr>
<tr>
<td><strong>IEP Location</strong></td>
<td>Southeast U.S.</td>
<td>Southeast U.S.</td>
<td>West Coast Community College</td>
<td>Southeast U.S.</td>
<td>Southeast U.S.</td>
</tr>
<tr>
<td><strong>Institution's Affiliation</strong></td>
<td>Special-focus private university</td>
<td>R2 University</td>
<td>R1 University</td>
<td>R1 University</td>
<td>R1 University</td>
</tr>
<tr>
<td><strong>Student demographic as described by the participants</strong></td>
<td>Middle-Easterners and East-Asians seeking degrees in the specific-focus fields. F1 visa holders sponsored by their governments.</td>
<td>Males and females from the Middle East, East Asia, and South America, seeking academic degrees in various areas. F1 visa holders.</td>
<td>Members of the community, refugees and asylees from various countries, immigrants, spouses of F1 visa holders. Students at the entry level taking credit and non-credit courses.</td>
<td>Multilingual American citizens, F1 and J1 visa holders from the Middle East, East Asia, and South America. Non degree seeking. Many will enroll at local community colleges or other institutions.</td>
<td>Mostly males, from the Arabic-speaking countries, China, and Russia. Some are F1 visa holders sponsored by their governments. High beginners seeking bachelor’s and master’s degrees.</td>
</tr>
<tr>
<td><strong>Institution's choice of LMS</strong></td>
<td>Canvas</td>
<td>Canvas</td>
<td>Canvas</td>
<td>Canvas</td>
<td>Canvas</td>
</tr>
<tr>
<td><strong>Recruitment</strong></td>
<td>Direct email with flyer and link to the recruitment survey</td>
<td>Personal contact via social media post</td>
<td>Personal contact via shared interest social media group</td>
<td>Direct email with flyer and link to the recruitment survey</td>
<td>Direct email with flyer and link to the recruitment survey</td>
</tr>
</tbody>
</table>
The five participants in this study are females. The lack of gender diversity did not happen by design. Rather, these were the only participants who responded to the recruitment survey, met the inclusion criteria, voluntarily accepted to participate, and completed all the steps of the data collection fully contributing to the study. In my own teaching experience, I have observed that instructors in this field are predominantly females, which may have influenced the availability of female participants and not males. Interestingly, all five participants grew up in linguistically and culturally diverse contexts. Four of the participants were born abroad and immigrated to the U.S. for different reasons at different stages of their lives, and one participant was born in the U.S. and grew up living in several countries due to her family’s military service. Therefore, all five participants have been immersed in bilingual contexts and in contact with English language learners from their young ages. This was not part of the selection criteria or the study design, but it appeared in the data as one of the factors that inform their pedagogical choices.

All five participants teach English to adult international students in post-secondary institutions. This was part of the inclusion criteria. Nonetheless, the institutions where they work have different characteristics, including their locations and ranking, which attract different groups of students. Therefore, the experiences and perceptions of the participants vary according to their student body’s demographic.

**Natalia.** Natalia, originally from Belarus and a native speaker of Russian language, immigrated to the U.S. about 15 years ago and now teaches English as a second language at an IEP housed in a special-focus private university in the Southeastern region of the United States. The university offers degrees ranging from undergraduate to
doctoral levels, catering to students interested in Science, Technology, Engineering, and Mathematics (STEM). International students often choose to enroll in that IEP due to that specific focus. Natalia started teaching English as a foreign language in Belarus. With a bachelor's degree in TESOL from her home country and a master's degree in educational leadership obtained in the U.S., she has consistently pursued an academic career as an influence of her parents, who are university professors. Natalia had her first mobile phone about 20 years ago and her first personal computer about 16 years ago, yet she feels confident in her use of digital technologies and in her digital literacy practices.

**Isabella.** Isabella, who was born in Brazil and shares a similar linguistic, cultural, academic, and professional background with me, has been teaching English for over 20 years. She currently teaches at an IEP housed in an R2 university in another Southeastern U.S. state. She immigrated to the U.S. after participating in a student exchange program. Coincidentally, Isabella and I started our studies of English as a foreign language around the same time and at the same chain of language centers in Brazil although we lived in different states. The language center used the audiolingual method, with high controlled drilling exercises mostly focused on oral communication and vocabulary and grammar practice. She started teaching following her mother’s steps and tutoring some of her mother’s students — her mom taught Portuguese and Isabella tutored them in English. She received her bachelor’s degree in Letters in Brazil and more recently obtained a master’s degree in applied Linguistics in the U.S. As a teacher, she positions herself as a facilitator who supports her students’ agency, and she tries to keep up with the fast evolution of digital devices and online resources.
**Hannah.** Hannah teaches English as a second language at an IEP housed in a community college in the West Coast. She is originally from Poland and has lived in the U.S. for over 20 years. She received a bachelor’s degree in TESL in her country and a master’s degree in TESL in the U.S. She has a doctoral degree in education and her dissertation research focused on the experiences of refugee women from Afghanistan studying at community colleges in the U.S. Her diverse student body consists of adult F1 international students, refugees, and immigrants, primarily from the Middle East (Afghanistan, Syria, Iran, Iraq) and Latin America (Mexico, El Salvador, Guatemala, Honduras). Many of these students receive financial aid and are provided with laptop computers by the college, as they are required to enroll in 12 credit units. Although she finds digital technologies overwhelming, she tries to incorporate new digital literacy practices in her classes because they may be fun.

**Jessica.** The youngest among the five participants, Jessica has been teaching English as a second language for approximately 15 years, and currently teaches in an IEP housed within a prestigious university in the Southeastern region of the U.S. She holds a bachelor's and a master's degree in applied linguistics with a focus on second language teaching and has pursued additional graduate courses in related fields including education. Jessica reluctantly identifies as Hispanic due to her parents' Colombian linguistic heritage. Although born in Colombia, she was raised in predominantly white communities in the U.S., which has shaped her cultural experiences. While she speaks conversational Spanish for familial communication, she does not use it extensively for academic purposes, and she finds the American categorization of Hispanics/Latinos tremendously limiting. Her international students primarily aim to pursue academic
degrees in other American colleges and universities, rather than seeking immediate
degrees from the institution where she teaches. As the university maintains highly
competitive admission standards, English language learners are advised to enroll in
courses at community colleges or apply to less competitive universities after completing
their English language programs. The program has observed that students have a greater
chance of acceptance when they transfer into the institution after taking academic courses
elsewhere, compared to applying directly. Jessica affirmed that she has a positive yet
realistic outlook on her digital literacy skills, and she is not intimidated by digital
technologies and new media.

Sarah. Sarah positions herself as an advocate for the use of new digital
multimodal media and instructional technologies. She has over 20 years of teaching
experience and currently teaches at an IEP located within an R1 university in the
Southeastern region (not the same institution as Jessica’s). She has two bachelor’s
degrees in Italian and in International Relations, a graduate certificate in e-Learning
Design, and a master’s degree in TESL with emphasis on educational technology. She is
also the co-editor of a TESOL International Interest Section.

Although she is American-born and identifies English as her primary language,
Sarah’s identity is multifaceted due to her extensive global experiences. She moved
abroad at a very young age due to her family’s military service and grew up in South
Korea, Germany, Belgium, and Italy. Later, she studied abroad in Italy, and after her
college graduation from a university in the U.S., she worked for the Peace Corps in
Moldova.
Sarah’s students are F1 and J1 visa holders from various countries, predominantly from the Middle East and East Asia. She teaches the high beginner course, but she has had students at various levels of proficiency, all aiming to pursue academic degrees at various levels (undergraduate and graduate). Her main course objective and learning outcome is to guide students to write paragraphs showcasing three distinct rhetorical characteristics. Through assignments such as writing summaries, critiques, responses, and short essays based on literature reviews, students are encouraged to develop their ideas, display their academic voice, and demonstrate their English language proficiency.

In this subsection, I have described each participant’s profile. Although there are course instructors in the post-secondary sector, I will often refer to them as teachers in the subsequent chapters. I also provide more details about them in the findings and discussion chapters, where I present their experiences and perspectives.

Data Collection Instruments

Data collection included a recruitment survey, two semi-structured interviews, and four weekly reflections which included instructional artifacts that illustrated the participants’ teaching practice.

First, I disseminated the recruitment flyer (see Figure 4.2 below) by email and through social media targeting the specific population. IEP language instructors were invited to respond to the online recruitment survey on a password protected platform (Microsoft Forms). This online recruitment survey included the consent form and space for the teachers to express their interest in participating in the interview phase of the project. It also included demographic questions.
Following the recruitment, I scheduled interviews with the participants who met my study criteria. The interviews happened via the video-conferencing platforms Zoom (which became globally popular over the COVID-19 pandemic). I interviewed each teacher twice – before and after the weekly reflections. After the first interview, I collected four weekly reflections written by each participant about their weekly teaching experiences using instructional technologies. The reflections included at least one multimodal artifact (e.g., image, video, teaching material, digital resource) which illustrated their choice of instructional technologies. The list of collected artifacts is available in – List of artifacts submitted by the participants. Using four data sources (i.e., recruitment survey, interview, individual reflections, and artifacts as summarized in Figure 4.3) provided trustworthiness through triangulation. These instruments provided material for a thick description of the cases, which is key in this case study design (Compton-Lilly, 2021).
Figure 4.3. Summarized Description of the Instruments of Data Collection

Recruitment survey. I designed and distributed the initial recruitment survey using MS Forms. The recruitment survey was formatted in Microsoft Forms, which is a password protected platform. Microsoft Forms is part of the Microsoft Suite offered by the University of South Carolina and it requires my student username and password to access the participants’ answers. No one else has access to my student credentials for that account. At the same time, the forms can be formatted to be accessible to anyone with a link and do not require a password from the participants. 12 individuals responded to the recruitment survey, but only 11 of them provided all the answers. 8 individuals, all of which met the inclusion criteria, indicated their interest in participating in the subsequent phases of data collection; nevertheless, only 6 of them followed up with the first
interview. One person who completed the first interview withdrew due to personal issues that were not disclosed but were not related to the study, and his data was not used in the study. The five remaining respondents met the inclusion criteria and contributed to all the steps of the data collection.

The survey questions provided a preliminary picture of who the participants are and about their practices as English language instructors who teach L2-EAP writing using instructional technology resources (see – Online Recruitment Survey). The survey served to ensure that all the participants met the inclusion criteria, and it provided demographic data. I collected demographic data from all the twelve respondents but did not disclose in the findings the data about those who were not recruited or who did not provide consent. Because of the fixed and impersonal character of online surveys, the instrument addressed the research questions only superficially. It allowed me to prepare for the in-depth questions I asked in the subsequent interviews. While the survey was meant as a recruitment tool, I present the demographic findings in narrative form above in the participants subsection and in the findings.

**Semi-Structured Interview.** Semi-structured interviews allowed me to ask more in-depth follow-up questions about the instructors’ perspectives on L2-EAP writing (see – Interview instruments). I scheduled individual interviews with each participant using Zoom as the video conferencing platform. The second round of interviews, about four weeks after the first, allowed me to follow up on the weekly reflections and ask for clarifications about the multimodal artifacts the participants provided (see description below). The interviews constitute the largest data sources for my analysis.
Since the study design is exploratory, I did not propose any intervention and I did not expect the interviews to provide pre- and post-comparison data. My reason for proposing two interviews was to guarantee the opportunity to clarify responses which helped strengthen the credibility of the data analysis.

**Weekly reflections.** After instructors responded to the online recruitment survey and participated in the first round of interviews, they were invited to participate in the following phase of data collection. That stage consisted of four weekly reflections for which I provided detailed instructions (see – Weekly Reflections and Artifacts). I asked the participants to write and share four weekly reflections on their teaching of L2 English academic writing which must include their use of instructional technologies. It is important for me to note that none of the participants followed the exact 4-week schedule for the reflection due to their own schedules, breaks, cancelled classes, and other unforeseen circumstances. That did not affect data collection nor the study. I sent weekly reminders and the Google forms link by email to each teacher individually. That phase of the data collection went from April 11, 2022, to May 10, 2022 – that is, a little over 5 weeks total.

For the purposes of this study, a reflection is more than a description of a lesson plan or teaching steps. The reflection required thinking about what went well or not so well, about the decision-making process, about ideas for improvement, and about personal growth. For the reflections to contain substantial information, I required about 300 words. I decided to use Google Forms for these reflections because all the participants were already familiar with it and it allowed me to collect multimodal artifacts (including digital formats such as videos, photos, documents, or audio files). The
participants submitted their reflections electronically. At the end of the first interview, I discussed with them the purpose of the reflections and the depth I expected from them. I also clarified what the artifacts meant and discussed examples (as described below). As expected, some teachers are more detailed in their writing than others, so their reflections varied in length and depth. I did make one update in the Google form after I received the first reflection to include a space for the teachers to describe the artifact they uploaded and explain why they chose it.

Jessica was the teacher who offered more details and more critical thinking upon her own teaching approach and methods. She commented on it during the second interview expressing that the reflections were a valuable exercise for her to realize how much she has been doing with her students. Initially, she believed she had little to offer about instructional technologies in academic writing. However, Jessica discovered how she used digital multimodalities in her writing class and others, such as providing online feedback with color-coded comments, using videos to model writing assignments, and promoting close reading with multimodal texts. While this study did not aim to propose an intervention, the reflections stimulated personal and professional growth for the teachers involved, as evidenced by their critical examination of their choices and motivations, contributing to both their own development and the study's.

Artifacts. At the end of the online form for each weekly reflection, the participants had a space to upload artifacts that illustrated their use of instructional technologies connected to the respective reflection (see – Weekly Reflections and Artifacts and – List of artifacts submitted by the participants). The instructions suggested that artifacts may be a screenshot of an online resource used in class, a videoclip, a
picture of electronic devices, a piece of student work (deidentified), a piece of feedback (deidentified), a diagram of the classroom layout, or a copy of their lesson plans. Since I did not perform classroom observations, the artifacts helped me better understand what the teachers described in their reflections and what they said about the instructional technologies used in their writing classes. The purpose of the artifact is to illustrate and enhance the information they provided and to serve as conversation pieces that I could further explore in the second round of interviews. Two participants offered to submit multiple artifacts with each reflection because they believed they could present a better picture of what happened in the classroom and how they incorporated digital multimodalities.

During our second interview, I referred to the artifacts and asked clarifying questions. The mere description of mobile applications and online resources was not enough for me to discuss its affordances in my analysis, but when I looked at the artifact and asked the participants to talk more about it, I was able to hear what they said, what they identified, and what they questioned about it. That way I had more data to validate my research findings.

The artifacts complemented the information the teachers shared and were used in conjunction with a written reflection. For example, Sarah wrote in her fourth reflection that she had created review activities using the Quizlet platform for a High Beginner Academic Preparation class, specifically to prepare students for their final exam, which would require them to write two paragraphs incorporating the vocabulary. The Checkpoint activity, still in beta phase, was used as an individual spelling test to help students check their own knowledge. The results were visible to the teacher and helped
inform their teaching. The activity also provided engagement without singling out students who didn't know the material. The teacher found this activity helpful as a formative assessment and would like to incorporate it more in the future. The artifacts chosen were screenshots of the results from the multiple-choice and spelling activities, which demonstrated student engagement and assessment without calling anyone out. For that, she submitted the following artifacts (see Figure 4.4):

![Screenhots of assessment results]

*Figure 4.4. Examples of artifacts Sarah submitted with her weekly reflection #4*

**Data Analysis**

For the qualitative data analysis, I used the software NVivo to organize and code the data. I did not use the artificial intelligence features available in the software for auto-coding. Rather, I coded the first few transcripts line by line, and as some codes emerged in paragraphs, I used them as the basis for the subsequent transcripts, written reflections, and artifacts.

I drew upon the guidelines recommended by Glesne (2015) and Saldaña (2016). Saldaña (2016) clarifies that codes in the context of qualitative inquiry cannot be confused with *codes* in semiotics. Here, codes are phrases that make sense to interpret the data. He adds that coding cannot be considered a synonym with labeling, analyzing, or categorizing. The “coding is a heuristic (from the Greek, meaning “to discover”) – an exploratory problem-solving technique without specific formulas or algorithms to follow” (Saldaña, 2016, p. 40). Coding is a progressive refinement of data, which must be
cyclical and organic to generate categories, themes, concepts, meanings, and theories. He suggests, “Keep yourself open during initial data collection and review before determining which coding method(s) – if any – will be most appropriate and most likely to yield a substantive analysis” (Saldaña, 2016, p. 146). Keeping an open mind during the holistic coding cycle allowed me to identify how the data aligns with the seven affordances of new media described in the theoretical framework. It also helped me recognize new affordances that emerged from the data as well as concerns, which can contribute to the body of scholarship.

Glesne (2015) suggests that the researcher begin by reading the data quickly taking notes of recurrent topics, code words, and memos. The exploratory approach to coding allows the assignment of initial codes to the data before developing more refined coding systems. I approached that first cycle of coding through holistic coding, which Saldaña (2016) defines as the application of “a single code to each large unit of data in the corpus to capture a sense of the overall contents and the possible categories that may develop” (p. 271). This holistic coding approach is recommended for beginning researchers because it is an attempt to identify basic themes and issues, and it prepares the ground for more detailed and refined coding cycles. Holistic coding is also the “best approach to analyzing visual data” (Saldaña, 2016, p. 117), which was appropriate for analyzing the teaching artifacts collected from the teachers. Table 4.2 (below) shows examples that illustrate the codes and sub-codes that emerged from the data in my first round of coding.

There are many possible codes that can be applied to data. That is, “no one right coding scheme exists” (Glesne, 2015, p. 198). Glesne explains that the codes must make
sense to the researcher, but “need not be useful or clear to anyone else” (p. 198). Below, there is a list of the emergent codes from my first round of coding.

Table 4.2. Emergent Codes from First Round of Coding (See - Coding for detail)

<table>
<thead>
<tr>
<th>Emergent codes from the first round of coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 7 affordances – theoretical framework based on Kalantzis and Cope (2015)</td>
</tr>
<tr>
<td>• Active knowledge making</td>
</tr>
<tr>
<td>• Collaborative intelligence</td>
</tr>
<tr>
<td>• Differentiated learning</td>
</tr>
<tr>
<td>• Metacognition</td>
</tr>
<tr>
<td>• Multimodal meaning making</td>
</tr>
<tr>
<td>• Recursive feedback</td>
</tr>
<tr>
<td>• Ubiquitous learning</td>
</tr>
<tr>
<td>• Emergent concerns</td>
</tr>
<tr>
<td>• Authentic assessment issues</td>
</tr>
<tr>
<td>• Clear expectations</td>
</tr>
<tr>
<td>• Compatibility</td>
</tr>
<tr>
<td>• Cost</td>
</tr>
<tr>
<td>• Cumbersome access</td>
</tr>
<tr>
<td>• Different skill levels</td>
</tr>
<tr>
<td>• Lack of interpersonal connection</td>
</tr>
<tr>
<td>• Plagiarism and cheating</td>
</tr>
<tr>
<td>• Tech dependency</td>
</tr>
<tr>
<td>• Tech instability</td>
</tr>
<tr>
<td>• Time constraint</td>
</tr>
</tbody>
</table>

In - Coding, I provide definitions and examples from the data to illustrate how each code worked. At this stage, looking for affordances and concerns pointed me to the theoretical framework. In the following cycle of coding, I returned to the data looking for common themes.
The second cycle of coding approached the data line by line under the lens of the theoretical framework (Glesne, 2015). Glesne suggests that in this cycle, coding methods can be combined as needed. For this study, I used the pattern coding approach, which “develops the “meta code” – the category label that identifies similarly coded data. Pattern Codes not only organize the corpus but attempt to attribute meaning to that organization.” (Saldaña, 2016, p. 368). The patterns may be grounded on the framework proposed in Kalantzis and Cope's (2015), but it also gives me the opportunity to add to the scholarship with new elements.

The reader can find that second round of coding and grouping of codes by themes in the table below (Table 4.2). The emergent codes are grouped under three main “parent” codes – 7 affordances, concerns, defining writing, and other affordances.

After the second and more refined coding cycle, Glesne (2015) recommends making a list of all the codes and checking whether some codes can be combined in one category or split into subcodes. This way, I reworked the coding scheme and made the codebook (displayed in Table 4.2) with clear definitions to guarantee that the coding sessions done at different times did not drift away from the meanings that I found.

The final step was to understand the relationships among codes developing themes according to the theoretical framework. That is what Glesne (2015) classifies as codeweaving. This step goes beyond organizing and describing the data. The intent is to identify phenomena that are not obvious through the raw data.

This cyclical coding will identify themes and patterns in what language instructors have to say about their experiences with and perceptions of instructional technologies. This iterative approach to the coding and analysis progresses “from the full
set of codes, which is then reorganized into a selected list of categories, and then condensed further into the study’s central themes or concepts” (Saldaña, 2016, p. 339). That is, each “iteration” of analysis narrowed down to get rid of peripheral material and to mine the essential information carried throughout the collective case study. Figure 4.5 illustrates the cyclical or iterative coding process described above.

![Figure 4.5. Approach to the coding cycles](image)

All five participants acknowledged that digital modalities bring affordances to teaching and learning, and they use them in their classrooms. When asked about the seven affordances described by Kalantzis and Cope (2015), they agreed with the literature and identified additional affordances as well as their concerns. The findings chapters demonstrate that their experiences, perceptions, and choices of digital modalities are influenced by various aspects of instructional technologies. The data analysis revealed five themes: the digital divide and skill gaps among adult international students, academic integrity, educational goals and learning outcomes, cultural awareness, and expanded semiotic schema. These themes are presented in order of complexity, with the digital divide discussed first due to its widespread recognition in scholarly literature. The semiotic and multimodal aspect of L2 writing, being more abstract and complex, is addressed last. Each theme encompasses the affordances and constraints of digital
modalities as experienced by the instructors in their instructional contexts. Further elaboration on these themes can be found in the findings chapters as defined in Table 4.3.
<table>
<thead>
<tr>
<th>Findings chapters</th>
<th>Themes</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The digital divide among adult international English learners</td>
<td>The digital divide</td>
<td>The theme of gaps in the students’ digital literacy skills emerged in the data as both a concern about and an affordance of new digital media. Teachers recognize that the students’ previous exposure to digital literacy practices is not homogeneous, and they cannot assume that their students have the skills necessary to succeed in academic programs in the U.S. At the same time, the participants see their role in closing the digital gaps through the language and literacy activities they implement in their classes.</td>
</tr>
<tr>
<td>Teachers’ philosophies of language teaching and learning</td>
<td>Academic integrity</td>
<td>This theme emerged predominantly as a concern related to misuse and abuse of digital technologies. The participants described measures they take in the classroom to avoid plagiarism and cheating in their students’ writing assignments. This theme is closely related to the instructors’ philosophies of teaching and learning.</td>
</tr>
<tr>
<td>Educational objectives and learning outcomes</td>
<td>Based on Bloom's et al. (1956) taxonomy of educational objectives, the data demonstrated that teachers select multimodal digital resources according to the learning outcomes they aim to achieve in their classes, which are also related to their philosophies of language teaching and learning.</td>
<td></td>
</tr>
<tr>
<td>Semiotic perspective about multimodal digital literacy practices</td>
<td>Cultural awareness</td>
<td>Cultural diversity emerged as a theme across the data sources as the instructors identified their students’ linguistic needs as one of the factors that inform their choices of multimodal digital tools. In their academic writing classes, they address cultural norms associated to literacy practices.</td>
</tr>
<tr>
<td>Expanded semiotic schema</td>
<td>The five participants identified semiotic processes employed in the learning of academic English writing and in the use of multimodalities.</td>
<td></td>
</tr>
</tbody>
</table>
Researcher’s Reflexivity

As a qualitative researcher who has collected and analyzed the data, I recognize my role as a research tool. My assumptions, experiences, and beliefs influenced how I categorized pieces of information and identified emergent themes. It is relevant to clarify that my perspective is informed by my position toward instructional technologies, my linguistic and cultural backgrounds, and my experiences as an English language learner, an L2 English teacher, and a junior scholar. I have used multimodal digital technologies in my daily routine as well as in my classroom, and I have advocated for their use in the classroom since I started teaching in the early 2000s. I have presented workshops about the use of digital multimodalities in L2 teaching and learning and coordinated the computer labs in two of the institutions where I worked. My own perspective about multimodal digital media and digital literacies as well as my personal experiences with them influences the cyclical coding of the data.

When I started writing the findings chapter, I reflected upon the role of digital technologies in my own academic writing. Multiple electronic devices and digital applications have become such an integral part of my writing routine that I take them for granted. Digital tools facilitated the organization of and access to information. Although I did not use generative AI to write my text, I had the assistance of AI editors on my devices which checked my spelling, grammar, vocabulary choices, punctuation, and tone. I wondered whether I would be able to write academically in English if I were deprived of all these resources. Digital technology has become more than an instrument and is now part of the academic writing method. My second language learning and my teacher training did not prepare me for this use of digital literacy skills, but the world I live in has
gradually infused, if not imposed, my work with them. In this scenario where I write, L2 academic writing is no longer limited to the knowledge of the content, choices of words, and penmanship. As Kress and Bezemer (2009) put it, “The term ‘writing’ no longer stands as a synonym for text or text-making (as in ‘I'm just not getting anywhere with my writing’); instead, it refers either to the mode of writing or the practices/processes of writing” (p. 168). Writing is now the art of combining multiple literacy skills and modalities, including the digital ones, to facilitate the understanding and interpretation of reference texts and to convey meaning efficiently and effective with the purpose of reaching a global audience who is closer than ever before. As an English instructor and as an L2 writer, I often expect other instructors and writers to take advantage of the technologies that enhance language and literacy outcomes. Therefore, this is my pragmatic bias toward multimodal digital literacy practices which influenced my analysis of the data and my findings.

Additionally, it is important for me to reflect on my academic and professional journey which has brought me to this stage because it also influences my theoretical lenses. I started my academic career as a speech language pathologist (and not as a teacher) in Brazil. As such, my first understanding of language, literacy, and educational theories was through the perspective of Brazilian scholars who were strongly influenced by European schools of thought, as opposed to U.S. American scholarship. For instance, I was first introduced to semiotics from a Saussurean (French) perspective rather than a Peircean (American) framework, and that background still influences the bases of my understanding of semiotic theory. Nevertheless, I chose to research multimodal literacies from a social semiotic approach as proposed by Hodge and Kress (1988); Kress (2010);
and Kress and Bezemer (2015). While Saussure's structuralist perspective was influential in Kress's work, emphasizing the relationship between signifiers and signified in language, Kress also incorporated Peirce's ideas on the dynamic nature of signs and their interpretation within social and cultural contexts. By integrating elements from both Saussurean and Peircean frameworks, Kress developed a socio-semiotic perspective that recognizes the social, cultural, and multimodal dimensions of meaning-making. Therefore, I must reflect on my own understanding of these distinct yet complementary theories to frame the findings of my study. They are my theoretical biases. As I reflect on transformative experiences I have had in the study of other theories, I expect my scholarship to evolve and improve and to provide clearer understanding of semiotic processes in L2 academic writing through this and future studies.

Finally, when I use the term U.S. American to describe institutions located the USA instead of simply using the term American, I do so to differentiate it from the diverse cultures present in the Americas. U.S. American culture and educational institutions have characteristics that do not apply to other Pan-American settings. Because of my South American (specifically, Brazilian) background, it is relevant for me to make this distinction and to honor the standpoint that the term American is not specific enough to describe the educational scenario encountered in the U.S. The term U.S. American, sometimes hyphenated as U.S.-American, is broadly used in scholarly literature.
Chapter 5 – The Digital Divide Among International English Learners in IEPs

Advanced students know how to type, but with our beginners they don't even type, so I give all of my students a week to submit their assignments, like journal writing, you know? It takes them a week to type out one page per week. (Hannah, excerpt from interview #1, 2022)

Hannah’s statement highlighted her concerns about the digital divide she encountered among her students. The term *digital divide* (van Dijk, 2012) refers to the different levels of access students have to new technologies and digital media. This theme emerged in the first interview with the participants as one of their concerns but also as one of their foci in meeting their students’ needs. It is a tangible matter (with its complex causes and effects) because it has been widely discussed in academic and secular outlets, particularly during and after the COVID-19 pandemic (Lederman, 2020; Squire, 2022). As Ware (2020) posited, “part of the tension brought to light in this work surrounding the digital divide is the question of whether technology helps exacerbate preexisting differences, or whether it merely amplifies them, and thus draws our attention to them” (p.272).

Hannah added,

If you can't use a laptop, just having it doesn't help much. Well, I guess it helps, but for me not being able to be there and help them out how to use it, it was very challenging. So very often, especially at the beginning of the pandemic, the
success rates were not necessarily too good because of that, I believe. Students were struggling with using electronics and Canvas and submitting assignments. (Hannah, excerpt from interview #1, 2022).

The term digital divide is used here to express the participants’ perception of their students’ as well as their own access to updated digital devices, reliable Internet connections, breadth and depth of information, accessibility tools as accommodations in case of special needs, digital communication skills, and technological trouble shooting support. Digital technologies may afford to expand or afford to limit access to information (Jones & Hafner, 2012). The quality of access to those resources in students’ previous and current educational experiences may expand or close a skill gap. The participants identified the digital divide as a concern and as one of the underlying factors that inform their instructional choices (in response to RQ2). They also indicated their awareness of the digital divide in their student population and their commitment to close skill gaps by providing students with the access they need.

Something that I think is really important, that is part of my job (…) to take time from class, or to make it part of the class really, to show [students] how to find those [feedback] comments. (…) I have to sit there and [spend time] showing them how to find the comments, where to click, (…) And I walk around and I make sure, you know, “Did you find it? Did you find the assignment we're talking about? Did you find my general comments? Did you find my specific comments on the essay or on the outline itself?” And taking that time I think has really helped a lot because it gives students the tools (…), just making a hands-on
[practice] in class and (...) they take pictures of the PowerPoints that they can go home and find it. (Jessica, excerpt from interview #1, 2022).

In other words, while the participants recognized the challenges of the digital divide among their students, they also see their responsibility and opportunity to close that gap through the use of instructional digital multimodalities in their classrooms. They perceived that investing time in promoting digital inclusion is a matter of equity and justice. While skill gaps are often a concern, instructors may see their use of instructional technologies as a positive tool to close some of the gaps.

Issues of digital divide – as described above – include not only the individuals’ personal access to digital literacy but also the access to materials provided by different institutions. Natalia works at an IEP housed in a special-focus private university in, Jessica and Sarah teach at two different R1 universities, Isabella teaches at an R2 institution, and Hannah teaches at a community college. Besides the particular characteristics of their institutions, the participants are also located in three different states in the southeastern U.S. and western U.S. It is understandable that those five institutions have and provide different digital resources based on their sources of funding and instructional purposes. Additionally, each of the participating teachers came from different backgrounds and have had different training on the use of digital multimodalities for academic writing. Therefore, their instructional choices are informed by their diverse contexts.

The theme of digital divide appears in the teachers considerations about students’ previous access to digital literacy skills, current access to personal devices, institutional offer of services and resources, and instructional choices of digital modalities. That is, the
considerations involve access at the personal level, the classroom level, and the institutional level, and I will describe below how this theme appeared in the data.

**Previous Access to Basic Digital Literacy Skills**

When the participant teachers described the international students enrolled in their programs, they spoke about various countries and linguistic backgrounds as well as the age groups and educational backgrounds represented. Given that vast diversity, it is safe to presume the heterogeneity of experiences their students bring to their classrooms each day. Although their students were all adults and intended to pursue degrees in higher education in the U.S., the teachers did not assume by any means that their students had previous exposure to digital literacy practices. There are various factors that influence learners’ digital literacy skills, and those factors were not evaluated in their placement in the L2 classroom. Although the teachers counted with pre-assessment of their students’ linguistic skills and their curricula was designed to meet specific linguistic needs at each level of their programs, that pre-assessment did not provide them with information about multimodal digital literacies. Therefore, and not surprisingly, they observed gaps among their international students’ skills.

Hannah expressed her concern about female refugee students who come from interrupted educational backgrounds and who have had little or no experience with digital literacies. She recounted the story of a student who failed her course due to that gap. The student did not submit writing assignments and did not respond to the feedback comments Hannah provided through Canvas (the learning management system used at the educational institution). Although Hannah explained the procedures and expectations at the beginning of the course, the student was unaware that she had missed assignments
and did not know how to check the feedback on Canvas. Hannah made several attempts
to alert the student through electronic messages, but at the end of the semester, the
student was surprised that she had failed the course. Her student replied, “I have never
seen these. I haven't seen a single one,” to which Hannah reflected, “I felt like it was my
failure. (…) I put it on the syllabus. We talked about this the first day of classes. I
reminded them during the semester, (…) but she didn’t [see my messages].” (Hannah,
excerpts from interview #1, 2022)

While Hannah was providing feedback and communicating with the student
through Canvas, the student was not aware that she was supposed to check that feedback.
This was something that Hannah had taken for granted since she had explained to the
class at the beginning of the course. This type of skill gap cascades into several other
issues that hinder students’ learning progress. It can be frustrating for both learners and
instructors alike because it may hinder the language learning process.

Hannah expressed that her program requires her to cover a lot of writing
instruction with her students – “I have so much to cover. There's just [not enough] time”
(Hannah, excerpt from interview #1, 2022). The English program where she teaches, at a
community college on the West Coast, is divided into three levels. Students arrive at the
lowest level with almost no English language skills and must develop language
proficiency in all four domains – listening, speaking, reading, and writing – in about a
year to graduate the program at the highest level and eventually be able to apply for a
higher education program in the U.S. The student population comes from linguistically,
culturally, and socio-economically diverse backgrounds. Hannah described,
like I said earlier, we have immigrants, we have international students, (...) and students who come on J-1 visas and are very often more familiar with English. (...) We get a lot of refugees who never learned English, and especially female refugees. (...) [Some students] are very educated, so when they come here, they're almost fluent in English. But (...) with so many refugees coming from Afghanistan, we have women who are not literate at all, (...) and they don't even know how to behave in class” (Hannah, excerpt from interview #1, 2022).

Such diversity causes a significant skill gap among the learners both in terms of English language proficiency and of digital literacy. Hannah found that covering all the English writing curriculum can be challenging. When students also need to learn basic digital literacy skills such as saving documents, sending emails, uploading documents onto the learning management system, reviewing feedback that has been posted online, and navigating outside sources to support writing assignments, Hannah spent time with them outside of class to teach digital literacy skills.

[When a student] came to my office hour (...) I showed them how to download Microsoft Word on their computer. (...) It took me half an hour (...) just to show them how to save [a document], and then the person came back a couple of weeks later and said, “I remember everything, but now how do I attach the document? How do I find or where do I find this document?” So, I taught her how to create a folder. (Hannah, excerpt from interview #1, 2022)

She believes that it is her responsibility to provide that instruction and assistance to her students, when in fact, her job description is to teach academic English. She must not only assess her students’ English language proficiency but also consider their
multiliteracies skills to differentiate her instruction, to provide equitable and inclusive opportunities to all students, and to make sure the writing assessments are valid and reliable. She stated, “that requires additional work from us, but if we don't do that, we are setting our students up for failure” (Hannah, excerpt from interview #1).

Jessica explained that she addresses her students’ digital literacy needs by spending time coaching her students on how to find and use the feedback she gives on their writing assignments. She uses PowerPoint slides and walks the students through the resources available on Canvas. She described her approach,

If I spend a lot of time giving students feedback, and I don't show them where to find it, it was a waste of my time (…), but when I set up my PowerPoint, I teach them, I show them the path to follow, (…) and I go through those steps, my PowerPoint is there as a guide. If they're not sure how to find it, they just look it up [again].” (Jessica, excerpt from interview #2, 2022).

This digital literacy skill is essential, so it is embedded in Jessica’s curriculum and takes time out of her teaching academic English writing. Nonetheless, as she puts it, this teaching time is not wasted. Rather, it prevents the waste of her and her students’ time.

The other participants echoed that concern but also see their role in closing that digital gap. Natalia, for example, explained that she did not have the opportunity to gain digital literacy skills until she entered college a little over 15 years ago. She was born and raised in Belarus, and even though she started using computers in college, her access to it was limited and some of the online content was censored by governmental authorities. She understands from personal experience that her students may come from cultural backgrounds where they may have been deprived of access to new digital media and
content. Thus, Natalia works in close partnership with her university’s library to ensure that her students must learn how to access the library materials, do research using online resources, write literature reviews, submit papers, and receive feedback using the learning management system, Canvas. She wants to prepare her students for success in college and graduate classes. In her words,

I really think it is helpful for students to learn how to use the online version of the [University] Library while they are [the English program’s] students as when they enter the university, they will be expected to do research using the [University’s] Library. (Natalia, excerpt from weekly reflection #2, 2022)

Without this technology, students would not be successful in their research projects, and it would not be authentic as the majority of [the University’s] students have been using online tools since the pandemic started. So, my goal here is to make sure that students can fully utilize various online resources provided by [the University] to work on research projects. (Natalia, excerpt from weekly reflection #3, 2022)

Natalia teaches English writing as an authentic medium of academic communication while teaching her students how to access and use multimodal digital literacies. The ample access to her university’s technological resources (computer labs, classroom technology, Wi-Fi, online literature, and IT support) allows her to close the digital divide for her students.

When the teachers comment on their students’ digital divide, they are addressing diverse aspects of that multimodal digital literacy. The gaps Hannah recognized among her students are related to basic computer literacy and computer-mediated
communication (see Ware, 2020). Such aspects of digital literacy are often taken for granted in U.S. American higher education and are especially expected from younger generations born in the age of digital and communication technologies. Jessica on the other hand, spoke about her students’ needs in multimedia literacy – the ability to consume and create digital texts in multiple modes – and Natalia spoke about the information literacy gap – which focuses on the research, use, and evaluation skills expected from critical consumers of Internet content. Multimedia literacy and information literacy are prongs of digital literacy skills that most college instructors tend to address in higher-education courses. Therefore, the participants identified distinct aspects of digital literacy that contribute to the digital divide among their students.

In conclusion, the teachers observed that their students’ previous access to basic literacy skills have an impact in their classrooms and in their choices of multimodal digital technologies. When their students are better prepared, the teachers can focus on the language skills they will develop using digital literacy skills and practice in the classroom as well as at home. When the students did not have previous access to multimodal digital tools, or if their previous experience was insufficient, the teachers must use their instructional time or their office hours to address those basic needs. Their students’ lack of digital literacy skills indicates that the teachers will divide their attention to meet instructional goals in L2 writing while also teaching digital literacy skills.

**Access to Personal Devices**

The digital divide also refers to the devices available for individual students in the classrooms. Not every learner has access to the same digital devices for their classwork. Sarah provided the photographic artifact in Figure 5.1 showing the technological
resources available in her classroom. This picture demonstrated how her students worked on an assignment in class using their own devices. However, we can see in the photo that each personal computer is different (having different features), and the student in the first row is using his phone in lieu of a laptop. Sarah explained that this specific student did not have a personal computer and ended up using his phone connected to the Wi-Fi to collaborate and participate in the class discussion. Sometimes, that is a choice, and other times, that happens for the lack of better options. She noted,

Figure 5.1. Classroom artifact provided by Sarah. It displays her students working collaboratively using their own digital devices.

I've had some students who could not bring in a laptop every day due to multiple reasons. So, they tried to do everything on their cell phones or on a piece of paper, and sometimes that worked. Sometimes it didn't. But that also could have been the connectivity of the internet inside the classroom building [which] could have had hindered that [access to the material] and also, which devices they're trying to access the information on (Sarah, excerpt from interview #2, 2022)
That is, there are students who cannot take their personal computers to the class, and times when the Wi-Fi signal does not work properly on personal devices. In those cases, mobile phones are the best options for accessing instructional materials and participating in activities. As Sarah observed, phones are not always optimal.

Isabella submitted a similar artifact (Figure 5.2) where we can see her students at work. In the photo, we see four students looking at digital content on their personal computers and the same content is projected on the classroom’s large screen. They are spread further apart. According to Isabella’s reflection, the material is the companion website of the course textbook selected by her program’s leadership.

![Classroom artifact provided by Isabella. It displays her students accessing the instructions for an assignment using their own digital devices](image)

This activity did not call for student collaboration and we see that the students have different devices, including at least one PC (with the student on the bottom left corner on the image) and a Mac computer (with the student on the bottom right). Different computers running different operational systems and different Internet browsers
can cause compatibility issues with the companion website. However, Isabella shared the same content on the larger screen so that everyone would see and follow along. This alternative strategy helped close the digital divide by enabling content to be shared through multiple devices.

From the interviews and reflections, the data showed that writing activities which require independent work and expand the boundaries of the classroom walls tend to highlight issues caused by the digital divide because students end up using different personal devices. For instance, when students must search outside sources independently, collaborate with classmates on shared digital files, communicate electronically, play online games, write their own papers, submit assignments, and benefit from feedback that is shared digitally, they must also be able to operate digital devices independently. Having access to devices with a variety of configurations (as illustrated in Figure 5.1 above) may exacerbate the digital divide by helping or hindering students’ multimodal digital literacy practices. On the other hand, the digital divide is less evident when instructional technologies are used to reproduce traditional methodologies. For example, Isabella wrote “with the podium computer and the projector in my classroom, I am able to show the video to all students at once” (Isabella, excerpt from weekly reflection #2, 2022). In that same reflection, Isabella expressed her intention to reproduce that activity with the addition of “a worksheet to go along with it for practice, and maybe some other types of follow-up activities, such as more dictation, and sentence writing, to help students memorize the words and spelling.” Such use of technology is not different from playing videos on a TV set while completing exercises provided on paper, as teachers often did several decades ago. In that case, the digital divide is hidden because all the
students can see the multimodal digital content on the same screen and can complete their exercises using paper and pencil.

In summary, when schools do not offer equal access to digital devices, and students must provide it for themselves, there will be inequalities. The different electronic devices the students can access highlight the digital divide because each piece of equipment has different configurations which may or may not be compatible with the instructional needs.

**Access to University Services and Resources**

The participant teachers in my study work in five different programs which receive different levels of fundings and therefore offer different resources to their students. It is understandable that more prominent programs receive more funding and offer more benefits to their students compared to smaller and modest programs. The unequal access to digital resources available across various educational institutions around the country may accentuate the divide for international students. The participants described some of the digital technologies their students have access to.

Natalia stated, “the mission of our language institute is to prepare international speakers or speakers of other languages to enter university successfully” (Natalia, excerpt from interview #1, 2022). In alignment with that mission, her academic writing curriculum included the use of multimodal digital literacies that range from interpersonal communication to online research for academic writing. She required her students to use digital text editors for writing and worked in close partnership with the university’s library where students receive training to digitally search, access, and use literature. She described,
In [name of the university], we have Canvas (…) [as the LMS]. I personally like modules where I organize my materials and articles for research. Then I use Google Docs and Word, and that's where students practice writing and I can see live what they're typing, right? And I can make my comments. Then students submit their assignments [online], and I can leave my comments. Then we have the [university] Library, which is online, and students use (…) [it] to search for articles that make annotations or highlight [outside sources] and stuff like that. (…) We show students how to do research. We have [librarian] speakers come into the class and show students how to find materials, how to use keywords, how to come up with research questions, how to look through the literature, how to evaluate literature, and then how to write in APA style. (…) What's good about that library is that they have materials for different levels. (…) So, I show students that they can find articles [according to] their level [of English proficiency].

(Natalia, excerpt from interview #1, 2022)

Besides using Canvas and the library’s database, her students participated in group texting through mobile apps to share course information. Natalia’s students were entitled to use all the resources available at the university and were encouraged to apply for undergraduate and graduate programs in that same institution.

Isabella, on the other hand, described her program as detached from the university despite being physically located at the heart of the institution’s campus. When asked if her students could use the Writing Resources Center or the Department of Student Accountability for matters of academic integrity to avoid plagiarism in writing, Isabella explained that she was not familiar with those services. She explained,
I don't know if my university has it [a writing center or department of student accountability]. I haven't checked. (…) they might have it out there in the university, but our English Institute is kind of aside from the organization, so I'm not familiar if they have one or not. (Isabella, excerpt from interview #1, 2022)

Her English language learners may or may not be eligible to all the services and resources offered by the university as they have not been admitted to degree-seeking programs yet. She did not speak about her students’ access to the library or to other online resources offered by the institution.

In contrast to Natalia’s students, the students in Jessica’s program are encouraged to not apply for programs in the university where they are housed. The R1 institution is top ranked and highly competitive among American universities, and English language learners are believed to have more chances of acceptance at community colleges or less prestigious universities than at that specific institution. She described,

What happens with most of our students is they applied to the community college (…) then later, they'll transfer to [her university]. It's pretty difficult for our students to go into us directly as undergraduates. It is a tough school to get into. There's stiff competition and so it's just difficult. It's easier, and that's part of our guidance, for you to get into [the R1 university] if you go to the community college first, because the transfer rates are much higher. So, when they go to the community college, they do take those [introductory] classes because they're required (…) and prep courses before they can start the college composition classes. (Jessica, excerpt from interview #1, 2022).
Therefore, although Jessica provides rigorous L2 writing instruction, her students experienced limited opportunities within that university compared to their counterparts who are admitted there as their first choice. That affects Jessica’s choices of instructional technologies (in response to RQ2) because she is not preparing her students to meet the high standards of that university. Her program assumes that their students will receive basic instruction and will develop other literacy skills elsewhere.

Hannah teaches at an IEP in a community college and explained that her institution provides the students with electronic devices, but her students sometimes struggle with them.

Our school provided computers for students with Microsoft Word, (...) but every month or so, they expire, and you have to bring your computer to campus and sign into the internet on campus (...). You don't have to go in, you don't need anybody's help, but students don't know how to do it, and many of them say, “You know, I don't have Microsoft Word anymore.” (...) A lot of them, especially refugee students who had no access to computers before, don't even know what to click on the computer how to even open [it], so somebody has to help them with that. (Hannah, excerpt from interview #2, 2022).

Although her community college tries to close the digital gap among international students by providing them with computers and software, which is more than what the other participants described about their institutions, the devices alone do not guarantee that students will be able to access digital content available there. Their needs are different than those encountered among Jessica’s, Natalia’s, and Isabella’s students.
The different technological resources, services, and expectations encountered in each educational institution influence the students’ access to and development of multimodal digital literacy. They can widen or help close the digital gap among international English learners. The instructors’ choices of instructional technologies in their writing classes were influenced by the access their students had to services, materials, and support within their institutions.

**Access to Modalities Enabled by Instructional Choices**

The weekly reflections and class artifacts provided a glimpse of how each participant selected and exposed their students to different digital multimodalities using instructional technologies. They intentionally addressed the digital divide among their international students. Nonetheless, their selections reflected their teaching styles and philosophies of language teaching and learning. The list of artifacts (see Appendix G) illustrates the choices the participants made and their purposes for using digital modalities. While some used textbook companion websites, online assignments, and online exercises, others used slides, videos, images, games, and text processors. What is important to notice is that teachers’ choices varied (that is natural because each teacher is a different individual), so students in different classes were exposed to different digital multimodalities. This is not a criticism to the teachers’ choices but a study finding which shows that their instructional choices of multimodal digital technologies provided their international English learners with different digital literacy practice opportunities in the classroom. Such diversity may have fostered digital inclusion or may have widened the digital gap.
For example, Jessica spoke about her perception of *PowerPoint* as opposed to other digital resources. She argued, “PowerPoint has been around since I was in high school, right? And so, to me, it doesn't feel like a [new] technology. It just feels [common] like a blackboard or a pencil in the classroom” (Jessica, excerpt from interview #2, 2022). For her, PowerPoint is a traditional digital technology taken for granted and cannot be compared to the innovative use of games or newer digital media that foster collaborative practice. When she spoke about instructional technologies, she referred to recent multimodal resources that she uses, such as educational game platforms such as Kahoot and Quizlet for students to practice vocabulary in a fun and engaging way. Indeed, PowerPoint was first launched in the mid-1980s, and Microsoft made it more accessible to the large public in 1990. Her generation was born at a time when these digital tools were already available and at hand to everyone in her sociocultural context, so that does not feel innovative to her. It is a given digital literacy practice. Jessica then described how she uses videos to model to her students how to complete a writing assignment, and promotes close reading of multimodal texts (images, videos, songs). In these ways, Jessica intentionally helps her students to close the digital divide in her classroom. Her use of multimodal digital technologies gives her students the opportunity to improve not only their English writing skills, but also the digital literacy skills that will be expected in their future academic and professional endeavors. To exemplify how she meets her students’ basic digital literacy needs, Jessica stated,

The computers [in the lab] are all Macs, which is challenging for some of the students if they don't have a Mac. Helping them find the web browser and the word program (...) then helping them find it on the desktop (...) showing them
how to upload (...) files or their presentations or their videos or whatever.

Definitely. And I also think about the older students who might not have the same
digital literacy skills as the younger students, so I think, (...) “what do I need to
show her to get her to the place where she can find the information that she
needs?” (Jessica, excerpt from interview #1, 2022).

Other teachers who are less comfortable with innovative uses of technology may
not select the same variety of resources or plan the same kind of multimodal literacy
practices. The use of a digital learning management system (LMS) for feedback as found
in the data exemplified such differences. All five participants relied heavily on their
institutions’ LMS, and by coincidence, they all used Canvas. Canvas allows instructors to
store, organize, and distribute course content as well as collect students writing
assignments and provide feedback and grades. Canvas is visually attractive and user
friendly for students and teachers. The five teachers interviewed in this study expressed
positive perspectives about Canvas. Whether they use all the features that Canvas affords
or they use only the most basic features to reproduce traditional practices, their choices
may accentuate the digital gap for their students.

When speaking of providing timely feedback, Isabella said, “Yes. [Feedback is] much faster. (...) We don't have to have all those assignments and papers flying all over
the place and don’t have to write everything for [the students’ assignments]” (Isabella,
excerpt from interview #2, 2022). For her, Canvas affords the convenience of not having
to carry student papers around as physical copies and not having to handwrite the
individual feedback and grades. However, she did not provide me with enough data to
allow me to analyze how she gives feedback to her students via Canvas.
For Natalia, on the other hand, Canvas affords the convenience of giving feedback through the app on her mobile phone as illustrated by her artifact (Figure 5.3).

![Artifact provided by Natalia to illustrate her feedback on student writing via Canvas](image)

Figure 5.3. Artifact provided by Natalia to illustrate her feedback on student writing via Canvas

That feature allows Natalia to provide her students with timely feedback using her mobile devices from the comfort of any place where she might find herself. She stated in her third reflection,

I enjoy working with the assignment tool as it allows me to check for plagiarism as well as give substantial feedback to students. I think it is easier for students to understand typed feedback than the one written by hand. (...) Also, when I submit my feedback, students can instantly see my feedback and start working on their second draft. Before students had to wait until the next class to get their papers. (Natalia, excerpt from reflection #3, 2022).
For Jessica, Canvas affords offering color coded feedback, which includes multimodal notetaking features as illustrated by her artifact (Figure 5.4).

![Image of Canvas interface with color coded feedback]

**Figure 5.4. Artifact provided by Jessica illustrating her color-coded feedback on student writing**

For her Canvas affords much more than the convenience of not carrying piles of paper and the convenience of grading anywhere and anytime through mobile devices. She invests on using multiple modalities of feedback to build her students’ agency over their own work. In her reflection that accompanied this artifact, Jessica explained,

Speed Grader [on Canvas] allows me to give more detailed feedback than what will fit on the printed essay. I can also use different colors for different types of comments. Green highlighting is grammar, pink is content, and blue is connected to sources and plagiarism. Sometimes I also use yellow, which means something is excellent (the wording, the explanation, the example, etc.), or red for common errors (this depends on the student). Some students have consistent issues with
article use, another student might use the phrase "used to" incorrectly throughout their paper. The use of the different colors allows the students to see what to focus on (grammar, content, plagiarism, or a consistent error specific to them).

The data showed that teachers' choices of multimodal digital technologies are not a dichotomy but a continuum or a spectrum that ranges from more conservative to more innovative uses of digital tools. They may place themselves differently across the spectrum depending on their students’ needs but also depending on their level of comfort with digital modalities and on what they perceive as the tools’ affordances. Thus, their diverse choices may enable their students to have more or less access to digital literacy practices and to develop more or less multimodal literacy skills.

**Closing Thoughts About the Digital Divide and Skill Gaps in the Findings**

The digital divide and skill gaps theme found in the data demonstrates different approaches that provide students with access to digital literacies and learning strategies. The level of digital inclusion seems to be associated with (1) the students’ previous experiences with multimodal digital tools and their previous access to digital literacy and media literacy, (2) access to different personal devices, (3) availability of resources in different institutions, and (4) the instructors’ choices of instructional technologies.

The participant teachers associated skill gaps (both in English writing and in digital literacy) to students’ previous and current exposure to digital multimodalities. Some students are very tech savvy while others need help to save a file on their computers. Instructors often see themselves teaching not only L2 English and academic writing, but also how to use multiple devices and applications for academic success. After all, digital literacy is an assumed expectation in U.S. higher education. In addition,
students are often expected to bring their own devices to the classroom and to know how to use them for a variety of tasks. This may be the source of inequalities. Teachers find themselves in a challenging situation because they must teach English writing while also finding time to troubleshoot technical issues in students’ devices. Combined, these elements translate into a challenge in the use of digital modalities for L2 academic writing. Finally, different institutions offer a variety of digital resources. More affluent and competitive institutions generate more funding which consequently translates into more resources. Smaller institutions, on the other hand, end up being more selective due to their limited budget. These institutional differences can as well generate inequalities across the country. Consequently, instructors make their decisions regarding instructional technologies based not only on the students’ language proficiency and language development goals, but also on their students’ access and ability to navigate digital content and on their own perception of the affordances of new media. The participants made choices of multimodal digital technologies to promote digital inclusion in their L2 English writing classes with the purpose to prepare their students to academic success in U.S. higher education.
Chapter 6 – IEP Instructor’ Perceptions of L2 Teaching and Learning

Academic Integrity

When the participants spoke about the use of instructional technologies in L2 academic writing, the theme of academic integrity emerged as both a concern and as one of the affordances of digital media. To address widespread cheating and plagiarism among college students, LMSs like Canvas incorporate AI features that deter academic misconduct. These features are not new, as similar applications have existed since the late 1990s. Turnitin and SafeAssign are two of the plagiarism prevention tools compatible with LMSs, providing reports on the extent of verbatim content from external sources. They are compatible with LMSs and can be linked to assignments to streamline the grading and feedback processes. LMSs also offer features that lock students' internet browsers during tests, preventing access to digital notes, applications, online content, and communications. Respondus’ LockDown Browser is one example compatible with Canvas. However, despite preventive measures, some students still manage to circumvent them, causing concern among instructors regarding cheating and plagiarism in the L2 English writing classroom. Sarah spoke about these AI tools and explained her position on this matter saying,

I really advocate for Turnitin, but not Honorlock or Proctorio, that's another academic software, and I don't find it to be as useful because yes, it will record the students while they take the test; yes, it will look at their screens; but that does
not prevent them from sticking up their phone next to their screens and using their phone while taking the test. So, to me it seems a waste of time. (Sarah, excerpt from interview #2, 2022).

As a measure to prevent cheating, Sarah uses a lockdown browser that prevents students from opening multiple tabs and applications on their computers during tests. Quizzes and writing assignments are distributed through Canvas, which also has safeguard features. Additionally, she talks openly to her students about academic integrity and what is perceived as misconduct in American institutions,

I talk to them often about academic integrity. What does that mean? For my international, undergrad and grad students, that's a conversation that has a lot of ramifications for them. (...) It's a starting conversation. (...) I think that if a student signs an academic integrity pledge before they take a test, and then they break that pledge during the test, well then, I think that [the pledge] can be as a very, very powerful tool. It's their signature. They have agreed to do that. I think the consequences of breaking your word – because in so many countries, your word is your bond, that's your reputation – has a more profound influence than these Proctorio or Honorlock. (...) (Sarah, excerpt from interview #2, 2022).

Sarah perceived that without setting clear expectations, some of her students would seek assistance from online sources to complete their English assignments. She also noticed that some of her students were never taught about plagiarism based on the same academic norms observed by U.S. American institutions. In her experience, she found that using preventive tools was not effective if she did not discuss those issues of
academic integrity with her students. In response to RQ#2, Sarah’s teaching experience informed her decision to not use *Proctorio* or *Honorlock*.

Isabella discussed in length her experience and perspective on the issues of students working around tools that would prevent cheating and plagiarism. “They find ways to hide their translation pages. They find ways to check and double check [answers] on Google, and then they turn in a graded assignment, and you don't know if they cheated or not” (Isabella, excerpt from interview #1, 2022). She was concerned about students becoming dependent on technological tools not to enhance their performance, but as an aid that prevents linguistic growth. She said, “They cheat in front of me when I stand in there in the classroom, so (...) they would definitely cheat [online]. Every semester, we run their writings through the plagiarism tool, and the whole thing is on the internet” (Isabella, excerpts from interview #1, 2022). She defined what she perceived as academic misconduct and negative affordances of digital technologies and explained it in further detail,

There are two ways to use these resources. (...) I teach them about Google definitions that [is better than going] to Google Translate. (...) there is the positive way to use [technology] which is to help them improve their language, and then there is the negative way, which I called cheating. It is when they filter [their writing] through a translating site that will translate it for them, and then they will turn it in and they will have not learned anything. (...) (Isabella, excerpts from interview #1, 2022).

That is, in Isabella’s perspective, machine translation is a form of digital cheating. Her students can certainly write effectively in their L1, so she observed the students’
reliance on Google and machine translators to reproduce texts in the target L2 as a hinderance.

She expressed that during the COVID-19 pandemic, while all the courses were offered online and many of her students were not allowed to travel to the U.S., she was not sure of how much they learned. She could not ensure that the person doing the academic work behind the computer was her student or someone else. “I couldn't connect with the students. I couldn't see what they were doing. (...) I have no idea who was cheating who was not because they could very well be sitting together in the same room and taking the exam” (Isabella, excerpt from interview #1, 2022). That was a challenging experience for her as she could not see her students not be sure of how much they truly learned. In the classroom, her students can often work on process writing and use digital literacy practices in the revision stages, which she perceives as a beneficial use of digital technologies as opposed to copying from outside sources or using machine translation. She offered this example of positive use of digital tools,

The writing process never ends. (...) I tell them all the time, “you we can always make a text better. Even the best text can be improved.” So, we do a lot of editing, especially in levels three and up, (...) until we get to a final draft. That is what I'm expecting them to produce. So, that can be done online. (Isabella, excerpt from interview #1, 2022).

The most popular processors currently, MS Word, Google Docs, and Apple Pages have embedded assistant editors that provide a real time report on written texts. In addition to editorial tools, some applications and mobile devices also offer personal assistants and accessibility tools denominated “speech-to-text,” which type automatically
by voice dictation. With that in mind, I asked the participants their thoughts about their students using text-processors’ review tools such as spelling and grammar checkers, thesauruses, dictionaries, and translators. The participants’ responses to these questions varied.

Sarah responded that it depends on the context and on the teachers’ perceptions. She said,

Personally, I don't think [it is a problem]. But the concern regarding academic integrity that my colleagues have positioned, is that during an exam, those tools then do violate academic integrity. So, if you have a written exam, then having access to those tools with an online written exam, it is their opinion that it violates academic integrity. (Sarah, excerpt from interview #2, 2022).

Jessica was ambivalent about it and shared,

I haven't had the time to fully wrap my brain around the use of translation tools in the classroom. (…) The students wanted so much to write perfect, or to give perfect presentations, that it seemed like they used Grammarly or some other translation service and then when they went to give their presentations, they had to read the whole thing because those words weren't natural to them. And (…) I said, “You know? You didn't trust yourself. You didn't trust your words. You had to translate them, and we can tell that you weren't comfortable with those words” (Jessica, excerpt from interview #1, 2022).

Isabella responded that for her, the use of these performance/productivity tools is a form of cheating and students should not use them until they show they can write independently without them. Then, I asked Isabella if she uses online dictionaries and
thesauruses, and if she uses spelling and grammar checkers in her word processor to review her own writing. She responded,

Absolutely. Yes. (…) [When I use productivity tools,] I'm checking something in terms of reviewing, or maybe getting a different [word]. You know? “Let me get a synonym for this word, because I already wrote it many times in the previous paragraph.” But I know the structure of the language, I speak the language, I'm fluent. And I'm not looking for [students] to write something at my level because they are still learning. (Isabella, excerpt from interview #1, 2022).

That is, the teachers’ perspective about the use of digital productivity tools to enhance writing performance in L2 English is not unanimous, and they still have concerns about the appropriate use of those resources.

Assessments and grammatical structures are Isabella’s primary focus. Throughout the interviews and particularly when asked about her teaching philosophy, Isabella shared her belief in teaching prescriptive grammar, striving for linguistic accuracy, and assessing it through written tests and summative writing assignments. She used written tests with multiple choice and gap-fill questions, which often have prescribed answers making it easy for learners to find answers online. Her summative writing assignments have a given prompt and scoring rubric that emulates standardized language proficiency tests such as the TOEFL and the IELTS, both popular English proficiency tests. Such standardized tests do not allow learners to use digital writing assistants. Her focus on linguistic accuracy is understandable because she had in mind the demands of writing academically in college and graduate classes. She perceived that professors in the various disciplines will not tolerate gross grammatical errors, missing punctuation, and spelling issues that
may hinder the readability of students’ papers. For her, this approach to linguistic accuracy was a matter of preparing her students for success. Her perspective is informed by her academic and professional background in applied linguistics. Teaching English grammar is at the top of her research interests. Additionally, her experience as a language learner was grounded in repetition drills and highly controlled grammar exercises. That methodology and pedagogical approach to foreign language learning worked for her and has worked for students around the world for decades, so this was the model Isabella had both professionally and academically.

Hannah agreed. As a language learner and a language instructor, she saw the relevance of teaching grammar explicitly and assessed it in her student’s writing. Grammar accounted for 40% of her grades while organization and development account for 30% each. In her feedback to her students, Hannah addressed grammatical errors in detail. She explained,

I do pay attention to all the mistakes and stuff. (…) I want [the students] to be successful (…) I always tell my students, “I want you to be proud of yourself. I want you to be proud of your English. I want this English to take you places, and I want you to be successful in everything.” (Hannah, excerpt from interview #1, 2022).

Hannah, Isabella, and Natalia expressed valid concerns about linguistic accuracy which justify their concerns about cheating, plagiarism, and academic success. They are aware of the linguistic discrimination international students and English language learners face in U.S. higher education based on linguistic accuracy (Reichelt, 2021), so
their teaching included preparing their students to rise above the expectations without being overdependent on digital technologies for writing. Natalia explained,

I mostly use Google Doc, but I tell students to turn off editing [tools] so it feels like paper. (…) Next semester, when I teach level two, which is high beginners, I probably will be using paper for a little bit just to make sure they know how to write. (…). I want to see what students can do on their own without help or some outside sources. (Natalia, excerpt of interview #1, 2022).

Relying on digital technologies to fix grammar and vocabulary seems to be a smaller concern when the writing activity requires L2 English learners to express their own ideas. Writing assignments that require integrated skills such as listening or reading before responding to the information in writing are less conducive to copying from other texts. Isabella expressed that when that’s the case, “if [students] are writing in English, and they want to check for a synonym, I teach them (…) that you can right click on the word (…) to see all those synonyms, and (…) that's a great tool” (Isabella, excerpt from interview #1, 2022).

The five teachers reported doing such activities that require integrated literacy skills. For instance, Jessica required her students to analyze a video using close reading strategies which she modeled in class, and then asked them to choose one aspect of the text to write about. Sarah shared a slide with images and quotes and asked her students to write about them combining their analytical skills. Hannah required her students to work in small groups to collaborate on the writing of short paragraphs. The paragraphs must contain direct quotes from a common reading. She wrote, “students were to find a quote in the book we read in class, use the quote correctly with an in-text citation, and write a
follow-up sentence. Each group [independently] worked on a separate Google Doc”
(Hannah, excerpt from weekly reflection #4, 2022). Figure 6.1 shows a sample of student work as an artifact of Hannah’s class activity and reflection. In the image, it is visible that Google Docs AI editing tools were enabled during the students’ group work, and Hannah did not speak of it as a form of cheating. All five participants described that in such activities, they could discuss with their students how to use digital editing tools and how avoid plagiarism. They were less concerned about cheating in those cases.

![Google Doc](image)

Figure 6.1. Artifact #4 provided by Hannah displaying a Google Doc file students used for a collaborative exercise during an online class and showing blue underlining under three words, which indicates that AI editing tools were enabled.

As mentioned above, Sarah discussed with her students the diverse understandings of plagiarism around the world and told me that it is important to have an open conversation about it in the classroom to raise her students’ intercultural awareness. She saw the affordance of instructional digital technology to provide a visual demonstration of the issues of plagiarism – in its originality report, Turnitin highlights and color codes sections of the text that match outside sources. She explained,

I think Turnitin is an excellent tool because it then allows for the conversation of,

“Oh, this could be considered plagiarism, this could be considered bad
paraphrasing, this could be considered you plagiarizing yourself,” which is a concept many students don't even understand because it doesn't exist in their countries. (...) It makes a huge [impact] having discussions about self-plagiarizing. That's such a foreign concept to so many students. Even here, our American students don't understand that concept. So, (...) these conversations, I think have to happen if our international students are going to succeed in a US higher education system. (Sarah, excerpt of interview #2, 2022).

In summary, the findings analyzed above in this subsection demonstrates that the teachers’ perception of cheating and plagiarism in L2 academic writing depends on the course context and learning objectives. Their perspectives and choices vary according to their students level of proficiency in L2 English. At the beginner and lower intermediate levels, when students are still gaining control over the target language, teachers tend to assign controlled practice exercises (e.g., gap-filling or multiple-choice exercises), which have prescribed answers. In this case, it is easier for learners to cheat by looking up answers online or by using machine translators and auto-correct tools. The teachers notice that it may also be easier for students to fall into plagiarism when they have a limited English language repertoire. After all, paraphrasing requires them to write ideas in their own words. At higher levels, when students have better lexical, grammatical, and pragmatic control over the L2 and a wider linguistic repertoire to draw from, teachers tend to assign writing exercises that require higher order thinking skills (i.e., analyzing, evaluating, and creating texts in L2 academic English), in which it is more difficult for students to find pre-established answers to copy from. The teachers also expect their students to have better tools to avoid cheating and plagiarism at more advanced levels.
When the participants assign summative assessments, they require their students to write without any digital aid to make sure they can evaluate what students can truly do on their own. Additionally, the teachers associated academic integrity with a cultural competence that accompanies the development of L2 English. They addressed it in academic writing classes across proficiency levels as an element of intercultural awareness. They acknowledged that plagiarism and cheating are current issues in college classes even among native speakers of English who grew up and were educated in America, so their observation about addressing these issues with their international students is not a criticism to international cultures.

**Educational Objectives and Learning Outcomes**

Digital inclusion and academic integrity are two of the underlying factors that informed the participants choices of multimodal digital technologies. Both factors intersected with specific educational objectives and learning outcomes in the courses the participants taught. The term “digital inclusion” appears in the literature as opposed to the digital divide and it refers to the equitable access and exposure to digital literacies in educational contexts (see for example, Kim et al., 2021). L2 English learning requires that students experience all levels of cognitive development (Bloom et al., 1956; Salma, 2020) to write academically. According to the participants’ perspectives, their choices of digital multimodalities depend on the kind of literacy practice their students need, which includes not only reading and writing efficiently in English but also using digital literacy skills in their academic writing. Therefore, it is important to observe how various levels of cognitive engagement emerged in the data as an underlying factor influencing instructional choices of digital technologies. In other words, the participating English
instructors consider the purpose of the learning activity first, and then they selected
digital multimodalities to accompany it. In alignment with scholarly literature (Glover et al., 2016; Washington, 2019), their choices of instructional technology is secondary to the pedagogy.

Jessica described how student learning outcomes (SLOs) informed her use of technology. Her choice of a video essay and the time spent on the text analysis – a high order cognitive skill – was directly linked to the SLO for that unit of study. She could have chosen other texts to meet the same outcomes, but she saw the benefits of the multimodal text. This is how she described her digital media choice,

I used the first half of the video in the first week of class. (…) Rhetorical analysis was recently added as an SLO, so combining it with this video would be excellent. We could analyze the word choice, the use of facts versus opinions, the use of outside sources, the use of appeals and her analysis of the appeals in the film. (Jessica, excerpt from weekly reflection #2, 2022).

That is, it appears that using a video essay as the secondary source for rhetorical analysis provided more information than using a printed written text. She used it as a mentor text to demonstrate to her students how to write a text dependent analysis.

According to Bloom’s taxonomy (Bloom et al., 1956; Rains & Sechrest, 2018; Salma, 2020), rhetorical analysis requires high-order cognitive skills that go beyond remembering, understanding, and applying L2 writing norms. Text analyses require critical reading skills, and writing an analysis requires the ability to use information employing the full extent of the learner’s linguistic repertoire. Knowing her students high
level of English proficiency, Jessica focused on the content and organization of their analysis (based on the multimodal digital text) rather than on language mechanics.

In her classes, Jessica prioritizes activities that require critical thinking, close reading, content analysis, and the writing of multiple genres, and she does so by relying on the students’ choices, interests, and funds of knowledge (Moll et al., 1992; Ruben & Moll, 2013). She stated her position about that,

I'm teaching reading, writing, listening, and speaking, and teaching them how to do those things in English. They know how to do those things in their languages, so I’m just giving them different strategies in English. So, since I'm not a content teacher, I trust the content that they have, that they can build off of. So, even if we're doing a research paper, I don't want to give them a boring topic that they don't [know about], that I'm going to find super interesting but that they don't care about. I want to choose a topic that they already know about, that's going to be interesting for them to read about, that they are already reading about, and I just fill them in English. (Jessica, excerpt from interview #2, 2022).

I asked what degree of importance she gives to teaching and correcting grammar and mechanics (spelling, punctuation, and formatting). She responded that those are secondary details because she wants her students to feel free to make mistakes.

Grammar is always at the very, very end. And I told them that. I say, “you know, if we look at the grammar, or the language at this stage, you're going to have to redo it anyway. (...) You have to fix the content first. You have to make sure your ideas are there that you have made those points [clear]. (Jessica, excerpt from interview #1).
In the second interview, Jessica reiterated and clarified her approach to linguistic accuracy. She said,

I don't want them to sound perfect. I don't want perfect presentations or perfect essays. I don't want them to use all of the academic vocabulary. I want them to choose topics that they're comfortable with, to push themselves, to build more vocabulary, and to try out grammar structures that they might not be that comfortable with. And make those mistakes and then learn from them. (Jessica, excerpt from interview #2, 2022).

To illustrate her approach to the educational objectives in her class, Jessica described an activity she proposed to her class where students analyzed visual elements of presidential portraits found online. Her students wrote about it, and then they used the same analytical skills to write about texts in other modalities of their choice. The learning outcome she expects from her students is the ability to create texts and communicate authentically with the resources they have and using high order thinking skills.

I think so many times students really want to write perfectly or write it like a native speaker, or, you know, write it in a specific way where they don't altogether trust the way that they wrote it, because they think, “oh, it's not grammatically accurate, or I don't have enough vocabulary,” but I tell the students, “You have so much information inside your head. My job is to help you put it into English.” (Jessica, excerpt from interview #1, 2022).

The data displayed above demonstrates that Jessica named the educational objectives and SLOs as a major underlying factor that informs her choices of multimodal digital resources. One of the artifacts Jessica shared includes her instructions for an
assignment in which students were required to analyze a chosen aspect of a video. Figure 6.2 shows what she shared with her students digitally on Canvas.

![Assignment Page on Canvas](image)

**Figure 6.2.** Artifact shared by Jessica showing an assignment page on Canvas which requires the students to use analytical skills.

The assignment instructions referenced a mentor-text that Jessica discussed with her students in class, a link to the primary source, the steps to complete the assignment, the target language (“analysis strategies” and “vocabulary for analysis”), the follow up step where students would respond to each other’s writing, and the writing goals. This specific assignment and the selection of multiple digital modalities allowed Jessica’s students to use high order thinking skills in English – analysis of a multimodal text (video), evaluation and peer-review of their classmates writing, and creation of an
original analytical essay. Even though their language choices may or may not have been accurate according to prescriptive academic language standards, they used English language as a medium to develop authentic skills that will be required in every academic course they take in American higher education in the future.

Natalia and Sarah echoed that they select multimodal digital resources based on educational outcomes and that the learning objectives in their courses often require high order cognitive skills. Natalia described the importance of using multimodal digital media to provide her students with plenty of access to English language. She argued that when her students have access to the target language through videos, songs, spoken word, language rich images, and multiple written genres, they develop a deeper understanding of the meaning, forms, and use of words in a variety of contexts.

Natalia’s students often seek degrees in sciences, technology, engineering, and mathematics (STEM areas). The English program offers content-specific language classes, with the objective to lead language learners to develop English writing skills while also learning about engineering concepts, for example. She believes that those classes are a beneficial opportunity for her students to develop writing skills in an environment that requires high-order thinking skills – such as analysis and synthesis of scholarly articles – in study fields that motivate them. Some students feel inspired to pursue a degree in the fields prioritized by that institution. I asked if she characterizes that class as English for specific purposes (ESP) or English for academic purposes (EAP), and she replied that it is both depending on the path the students intend to pursue. For most, it is EAP because they will use those language skills in academic programs in various disciplines and for various other purposes. For some students, the course serves as ESP
because students start learning English jargons, communicative skills, and specific genres in the STEM areas of their interest.

Sarah reported on a similar approach to selecting authentic texts rather than those prescribed in ESL textbooks. In one specific class, she had seven students at the beginner level, predominantly male speakers of Arabic, Chinese, and Russian languages. All the students intended to continue their education in the U.S. at various academic levels. The learning outcome was to have students writing three kinds of paragraphs integrating critical reading skills and composition based on the analysis and evaluation of texts. Sarah saw the need to supplement the textbook and companion website with outside resources. In the excerpt below, she explained how she uses EdPuzzle,

There are videos where you can embed questions inside the video and then allow [students] to interact with the videos often. So, the benefit there, of course, for second language learners [is that] they have an opportunity to view and review the material and I can include an assessment afterwards, and they have plenty of opportunity to look over it again and again at their own pace. (Sarah, excerpts from interview #1, 2022)

Digital multimodalities allow Sarah to create a variety of activities at various cognitive levels – e.g. remembering vocabulary, understanding grammar, applying language structures, analyzing texts, synthesizing sources, evaluating sentence constructions, and creating texts in various genres. Digital multimodalities also allowed her students to practice English writing skills through anonymous surveys and interactive exercises in a way that traditional textbooks would not do. She listed her use of “things like Quizlet, Mentimeter, Poll Everywhere to create activities that can then be used for
reinforcement, or study guide purposes, or a way to do formative assessment” (Sarah, excerpts from interview #1, 2022). She informed that she used Google Forms and Microsoft forms “as entrance ticket or an exit ticket because you can see immediate results, and I don't give it a grade” (Sarah, excerpts from interview #1, 2022). Some of the exercises and assessments she uses are highly controlled and require lower order thinking skills such as recalling and understanding grammatical structures (see example in Figure 6.3) while others are more creative and require higher order skills such as analysis and evaluation (Figure 6.4).

Figure 6.3. Artifact submitted by Sarah showing a grammar exercise where students worked on remembering and applying grammatical rules in sentence word order.
Figure 6.4. Artifact submitted by Sarah showing a PowerPoint slide for an activity where students wrote creatively in response to pictures and quotes. They used skills such as analysis and synthesis of the images and quotes to create a reading response.

Sarah explained,

The activity is actually an embedded PowerPoint slide in their Canvas assignment, so all is available and accessible to the students (the assignment, how to write the assignment, the images and prompts, and options of writing the assignment). Canvas is our LMS, and by having everything in one place so that students don’t need to locate the information makes it easier and less confusing. (Sarah, excerpt from reflection #1, 2022).

Isabella discussed that she made different choices and saw distinct possibilities depending on the instructional objectives for students’ lower levels of English proficiency. She perceived that her students, in entry levels and with limited English language skills, needed highly controlled L2 practice that required low-order cognitive
skills such as recognizing and recalling the meaning, form, and use of basic vocabulary and basic grammatical structures. For that, she selected multimodal digital materials such as games and exercises that were simple and more controlled. They do not involve linguistic synthesis, creation, or evaluation or texts. Figure 6.5 shows one of Isabella’s artifacts that she used to introduce the target vocabulary to describe parts of the house. Although her students were adults, the resource is a video from a children’s program. She reflected on the benefits of the colorful and well-illustrated video saying that it helped language learners retain the vocabulary that they built through multimodal input.

Figure 6.5. Artifact provided by Isabella showing a still photo of a video she used in class to teach vocabulary that describes parts of the house. The learning outcome was for students to understand and remember new vocabulary.

The findings analyzed in this subsection show that instructional objectives are a major factor informing the teachers choices of multimodal digital technologies. Although Jessica, Isabella, and Hannah selected videos in their classes, they selected and assigned those multimodal texts for different learning purposes requiring different levels of
cognitive skills. Students in more advanced levels were assigned multimodal texts and activities that required higher order thinking skills, which allowed for more creative uses of multimodal digital literacies. Such activities aimed at analysis, synthesis, evaluation, and creation of written texts as learning outcomes. Additionally, these high order thinking activities were more aligned with sociocultural learning theories in the sense that they fostered the use of L2 writing for authentic communication of ideas.

In contrast, students at lower levels of L2 English writing were assigned multimodal texts and literacy practices that required lower order thinking skills. Such activities aimed at remembering, understanding, and applying English language structures as learning outcomes. Regardless of their previous knowledge and skills in the L1, students in the lower levels were not expected to demonstrate high order thinking skills in L2 academic English. The digital literacy practices in that case were highly controlled and more aligned with behaviorist theories of teaching and learning (for example, vocabulary and grammar exercises with prescribed answers). Based on the instructional objectives and learning outcomes, the students’ exposure to digital multimodalities in the L2 writing classroom seemed to be more receptive and reproductive in beginner levels, and more active, collaborative, and creative in advanced levels of the language courses.
Chapter 7 – Socio-semiotic Perspectives on L2 Academic Writing

Cultural Awareness and Engagement

The teachers in my study observed that new digital media affords the access to texts produced by L2 English writers around the world, which allows them to engage in discussions about cultural norms associated with literacy. Discussions about cultural awareness and engagement in cultural exchange are essential in the studies of L2 writing and international education. “Cultural factors help shape students background understandings, or schema knowledge, and are likely to have a considerable impact on how they write, their responses to classroom contexts, and their writing performance” (Hyland, 2008, p. 36). Language learning is inherently related to cultural practices. Academic writing is one of those cultural practices associated with post-secondary education. As a Lingua Franca, English writing functions as a unifying tool allowing students from all over the world to integrate academic discourse communities, yet writing plays different roles in different cultures and speech communities. The participants spoke about culture, their students’ cultural practices related to writing, and how digital multimodalities facilitate conversations that raise cultural awareness in their classrooms. Through the use of multimodal texts, their students engaged in conversations that raised their cultural understanding.

In Sarah’s classroom, for example, she uses polls to elicit students’ anonymous participations. Figure 7.1 shows one of her class artifacts – a screenshot of Poll.
Everywhere where she asked several questions about correct sentence formation. Her students can scan a QR-code using their phones or type the URL on an internet browser on any device to access the poll and answer it without creating accounts or informing their real names. I asked her the purpose of her approach and what she identified as the benefits.

![Figure 7.1](image)

*Figure 7.1. Artifact shared by Sarah. It depicts her use of PollEverywhere to elicit student participation for formative assessment.*

Sarah explained that she had previously observed that her East-Asian students, mostly from China and Japan, would not be vocally participative in her classroom. She would ask open questions to the class, and those students rarely responded. Her questions were for formative assessment and to check everyone’s understanding of lesson content, so she had to find alternative ways to engage everyone. Sarah explained,

I created [the electronic poll] using their own mistakes or mistakes similar to what they have written. And, you know, that doesn't tell me who answered what, but then it's a great talking point. (...) I think it's great for them, because (...) they can
be anonymous, and they can get immediate feedback. (...) It helps for metacognition, (...) and differentiated learning. (...) in a way that doesn't make anyone embarrassed. (...) And with that discussion being anonymous you're giving everybody a level of formative feedback that's not threatening, and it is constructive for everybody at the same time. And (...) that allows for collaborative learning and social cultural learning too. (...) It might help them later on (...) when they're working with others from other backgrounds. (Sarah, excerpt from interview #2, 2022)

She clarified that this was not a way to stereotype her students, but an observation of cultural practice in the classroom. Anonymous participation through online pools was the alternative Sarah found to engage all her students in that form of assessment without putting anyone in evidence. The polls are visually simple and user friendly. She can display all the answers in real time and in various formats on the classroom’s large screen. In the case of this specific artifact, students just selected (voted on) one correct answer in a multiple-choice format, but the website also features open ended questions, word clouds, and surveys. Those features can be used in multiple ways in the language classroom, such as in exit tickets, formative assessment, and preference surveys. Other websites such as Mentimeter and Nearpod provide similar alternatives. In these exercises, Sarah has used anonymous samples of student writing so that everyone can look at sentence formation and discuss errors without any identification. This example shows evidence of the teacher’s cultural awareness and culturally responsive approach.

On the same line of thought, both Sarah and Isabella discuss how they use deidentified samples of student writing to discuss various rhetorical moves in writing
assignments. They project those writing samples on the large screen to share them with the whole class and make comparative analyses of text organization. Certainly, that activity could have been done more traditionally with printed copies or an overhead projector, but current digital tools allow for the economy of material resources, and the instructors can distribute those documents electronically to their students including annotations and comments discussed in class.

In their description of these comparative activities, Sarah and Isabella essentialize and generalize writing styles according to their perceptions of cultural writing practices. Isabella perceives that displaying different writing samples on the screen creates a great opportunity for cultural conversations. Students in her class have discussed why they write one way or another. By openly discussing their rationale for their rhetorical styles, they become more aware of how people can write differently around the world. It also gives Isabella the open opportunity to discuss how English language users often write.

Natalia had that experience as a Belarusian native speaker of Russian learning English as a foreign language. She explained that the composition instruction she received in Russian was different than English. In the education she received in Belarus, she was not taught about text organization. She explained her perception of learning English with comparative rhetorical analysis,

I compare it to my Russian way of writing essay; it will be totally different than English. In English, there is a structure that you have to follow. (…) And when [students] are not familiar with that [structure] when they come to the program, we have to teach that. Definitely. (…) in Russian there's no certain structure. (…) Actually, I kinda liked [the structure of texts written in English] because there's
like a certain formula that you can just take, and you post it, and you just make it your own. (Natalia, excerpt from interview #1, 2022).

The anecdotes the participants provided derive from studies in comparative rhetoric, and more specifically comparison of thought patterns in multicultural classrooms (Kaplan, 1966). Javadi-Safa (2018) explained that Kaplan’s work was influential and has permeated studies on L2 writing and L2 teacher education for several decades (see, for example, Hyland, 2008; X. Wei & Zhang, 2020; and Wu & Rubin, 2000). Although comparative rhetoric is controversial and has been criticized by various (Atkinson, 2004; Atkinson et al., 2015; Canagarajah, 2021; Horner et al., 2011; Javadi-Safa, 2018; Jordan, 2021; Lu & Horner, 2013; You, 2021), the teachers’ background knowledge and perceptions about rhetoric are relevant for the discussion of the underlying factors that they identify as influencing their choices of multimodalities. When the teachers used their students’ deidentified writing samples to compare and contrast rhetorical patterns, they were not attempting to stereotype or frame their students’ writing based on their national origins. Rather, they attempted to foster intercultural awareness and intercultural engagement by discussing the spectrum of cultural values (Bennett, 1986, 2016) that inform L2 writing practices. Digital multimodalities afforded metacognitive conversations that promoted intercultural awareness in a non-threatening manner.

**Expanded Semiotic Schema**

Writing academically requires the combination of various elements of semiotic – meaning-making systems. Academic writing is different from writing for other purposes in the sense that it must meet specific requirements of academic disciplines, specific
genres, and academic levels. The diagram shown in Figure 3.1 (page 61 of this dissertation) shows a representation of the complexity of L2 academic writing academically in a second language in the intersection of academic Discourse communities (Gee, 1996), speech communities (Hyland, 2008; Swales, 1990), academic writing genres, academic levels, and digital multimodal literacies (Jewitt & Kress, 2003; R. H. Jones & Hafner, 2012). From this standpoint, the findings suggest that L2 academic writing can be considered intrinsically multimodal because L2 writers must rely on multiple socio-semiotic schemas (Hodge & Kress, 1988; Kress, 2010) – frameworks for grounding systems of representation in context – to make meaning through writing.

Thinking about that multilayered complexity of L2 academic writing, I turned this question to the teachers to explore their thoughts about L2 writing as multimodal literacy practice and how they perceive the impact of digital multimodal literacies through this semiotic lens. All the participants, being highly educated, offered thoughtful answers based on their own multilingual experiences. At first, these specific questions took each participant aback. Jessica expressed it well, “I don't know. I think I would have to think about that more deeply (…) It is going to be a pickle to think about. Yes. Great question.” Other participants asked for clarification or more explanation of what I meant by multimodality and multimodal literacy. Each participant approached the topic of semiotic schemas from a distinct angle as described in the subsections below. Table 7.1 provides a brief overview of the findings in this subtopic which indicates that using multimodal digital technologies expands L2 learner’s semiotic schemas:
Table 7.1. Brief overview of teachers perspectives of their students semiotic schemas associated with L2 English academic writing.

<table>
<thead>
<tr>
<th>Participant</th>
<th>View of semiotic in L2 English academic writing</th>
<th>Brief overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isabella</td>
<td>Perceived L2 writing as multimodal associating semiotic systems with distinct brain functions, life experiences, and symbols.</td>
<td>Expressed her belief that different languages are processed in different areas of the brain and are built according to unique life experiences. Writers understand the meanings of written symbols according to the way experiences are stored in the brain.</td>
</tr>
<tr>
<td>Jessica</td>
<td>Perceived L2 writing as multimodal associating semiotic systems to social identities and conversation topics.</td>
<td>Expressed her belief that multilingual writers use different semiotic schemas depending on the communicative context. Their social identity and the conversation topics elicit specific semiotic schemas.</td>
</tr>
<tr>
<td>Hannah</td>
<td>Perceived L2 writing as multimodal associating semiotic systems to cultural norms of directness and on linguistic structure.</td>
<td>Expressed her belief that L2 writing follow not only the rules of linguistic structures, but also socio-cultural norms.</td>
</tr>
<tr>
<td>Sarah</td>
<td>Perceived L2 writing as multimodal associating semiotic systems to rhetoric patterns and meaning making processes.</td>
<td>Expressed her view that L2 writers are influenced by rhetorical patterns to which they have been exposed.</td>
</tr>
<tr>
<td>Natalia</td>
<td>Perceived L2 writing as multimodal associating semiotic schemas to various skill levels in L1 and L2.</td>
<td>Hypothesized that L2 writers expand their semiotic schemas when they combine their full repertoire of L1 and L2.</td>
</tr>
</tbody>
</table>

**Isabella – Brain Function, Life Experiences, and Symbols**

Isabella argued that multilingual writers use different parts of the brain to process different languages, notably when they learn distinct languages at various stages of life. She views L2 writing as a multimodal literacy practice because of the different linguistic experiences we have with words and their connotations. She hypothesized,

Linguistically speaking, the way that languages form in our brain is different.

Experiences that we have with words (...) when [we] first are exposed to a certain word, (...) when we were kids, (...) [they] form different ideas in our mind. And when we learn a second language (...) after a certain age, we don't really have those moments, those experiences, because we are learning something very
technical, and you're not learning from growing up in that language. (Isabella,
excerpt from interview #2, 2022)

When asked about the learning experiences of speakers of multiple languages, Isabella
noted that gestures have different meanings in different cultures and highlighted
differences among writing scripts.

The Cyrillic and the Arabic [alphabets] are actual letters. The Japanese alphabets
are also letters to letters, but the Chinese are symbols. Like, each of those symbols
is not only one letter or one word. Sometimes it means a group [of words] or a
sentence. So, I think it's different. And the other thing too, Arabic students write
from right to left, and they sometimes they join words. Most of the times, they
join a lot of words with one of those [letters] that they write. So, when they start
learning English, they have to be taught that they have to separate those words.
(…) You can't just start writing without spacing because if you do, we don't
understand what you're writing. (…) So, in my opinion, it [each language] is a
different mode. (Isabella, excerpt from interview #2, 2022)

Isabella’s example was not only about the written scripts used in each language,
but rather about the thought processes involved in the physical act of writing. According
to Isabella’s perception, the concept of multimodality in L2 writing depends not only on
the meaning of the words and grammar, but it also depends on the graphemes and on the
embodied practices of written language. For instance, the letter-sound correlations are
very similar among romance languages, so that facilitates the semiotic processes for a
speaker of one of those languages to write in another romance language as L2. The letter-
sound correlations between Romance languages and English are not the same, but at least
the alphabet is the same and most sounds are close enough that an L2 English writer can make approximations. When the alphabets are different – and Isabella mentioned Cyrillic, Arabic, and Japanese – writers must learn not only the form, meaning, and use of new words, but also new units to represent the phonemes of each word. Bridging that semiotic construction is even more complex when the writing system of the student’s L1 uses logograms such as in Chinese as opposed to graphemes. Her examples highlight the concrete aspect of writing – be it by hand or by typing – in two or more languages.

Although Isabella did not use the theoretical term *semiotics*, the structural concepts she pointed out refer to symbolic representations of meaning at two levels – the graphic symbols and the meanings of words. She identified graphemes as arbitrary symbolic signs that represent the specific phonemes or L1 and L2. Letter-sound correlations often vary from one language to another, so the L2 writer must understand new semiotic schemas to use those symbols correctly. Similarly, different notational scripts (Isabella spoke about various alphabets, for example) carry distinct meanings and afford communication with readers of different languages, which is aligned with the socio-semiotic approach to multimodality (Kress, 2010). At the word level, Isabella referred to the mental representation of signs – the signified – and the connotations writers can invoke beyond the dictionary value of lexical units.

**Jessica – Identity and Conversation Topics**

When I asked about L2 writing being a multimodal process, Jessica took a minute to think and responded based on her cultural heritage and cultural identity,

I don’t know. So, My Spanish is not strong enough to have the kinds of conversations that I can have in English (…) Sometimes. I talk to my parents, and
I want to talk about, let's say, the political situation that's happening, and I just don't have the words for it, and it's frustrating for me. I think about my students. I think, “oh my gosh, how frustrating it must be for them to write about not [only] political situations, but any of the different situations [when they do not have all the vocabulary]. (...) When I try to have those conversations with them, I feel like I'm two different people. (...) It's frustrating because (...) I can't have that rich of a conversation, you know? I can talk about hidden gossip and talk about house and family things, but I can't go outside of certain areas just because I don't have the vocabulary for it. (Jessica, excerpt from interview #2, 2022)

Jessica then discussed conversations she has had with her parents in Spanish at home but never with anyone in English. Sometimes she struggled to find the right words in English. She shared, “I say that to my husband all the time. I've never had to say this word in English” (Jessica, excerpt from interview #2, 2022). Although Jessica did not use the theoretical term semiotics, her perspective alludes to the roles of identity, communication, and learning in the construction of signs. She drew from her oral communication experiences to conclude that each she uses her two languages (English and Spanish) in different social contexts and for distinct social-cultural purposes. Not only does she use different codes, but also her linguistic skills varied according to the topics of conversation (gossip, chores, academic content, and politics). For her, each linguistic code affords different forms of social interaction.

Our conversation took a different direction from this point as we talked about family traditions and tone of voice, but the bottom line is that there is a matter of identity and of vocabulary knowledge in each discourse community she enters. As a bilingual, she
developed linguistic proficiency according to the specific purposes relevant to her Discourse communities. The fact that she has a master’s degree does not guarantee she will be able to talk to her parents in Spanish about her field of expertise – she perceived there would be a paradigmatic conflict if she tried. English is her academic and professional language and Spanish is the language of family conversations. Jessica made that connection while also thinking about the struggle her students might feel when they want to write in English about a topic they would have been comfortable with in their dominant languages. That is a reference to how multilingual writers rely on different meaning making systems – semiotic schemas – in each language they use.

**Hannah – Directness and Structure**

Hannah brought up the comparison of writing in multiple languages in her second interview. She was born and raised in Poland and that is where she started her academic and teaching career. However, now that she has lived in the U.S. for several years, Hannah has also obtained a master’s and a doctoral degree from American institutions. She has plenty of experience writing academically in Polish and in English. Based on that experience, Hannah shared that her writing in Polish tends to be freer and less structured than in English. She shared, “I'm glad that I have this Polish experience because in Poland, the more intriguing you are in writing, the better,” (Hannah, excerpt from interview #2, 2022). That is, Polish writers are not expected to state their claim right away. Rather, the readers expect the text to be engaging so that readers can discern the main ideas for themselves. I noticed that in Hannah’s answers to my questions and in her reflections, she told stories to illustrate her ideas but left it to the interlocutor to construct the final meaning of her message.
Hannah shared her experiences teaching students from China and Afghanistan. She explained that she must often teach them about writing objective introductions, with a clear topic sentence and a thesis statement that sets the tone for the entire paper, because they have not written this way in their other languages. She has observed that the students are often surprised by the structure of English writing. This is how she explained her own writing experience in English compared to writing in Polish,

The whole organization of the paper, there's so much repetition in English paper, you know? When you think about this, you know, the first paragraph tells you what the paper will be about, then you write about that. And then you're reminded in the conclusion of what the paper was about, right? But in other cultures, like, you know, like in Poland, in Polish, you are free to write whatever you want. And, teachers always find something wrong in my paper. I'm like, “well, there's no structure really in Polish paper, you know?” So, having that structure, that organization of ideas, is something that students are lacking here, [those] who are coming from different cultures. (Hannah, excerpt from interview #2, 2022)

I asked for concrete linguistic examples, so Hannah compared Polish language and culture to the way English speakers communicate. She gave the example, “So, in Poland, or in my language, we tend to be more direct. You know, we don't have that, “Could you please just do it?” We kind of substitute that “could you” buy saying, “Do it.”” (Hannah, excerpt from interview #2, 2022).

Although the language in each of these sentences can be easily translated from one language to the other based on the face value of the words, their implicit meaning does
not translate as well. Hannah believes that such differences in communicative differences transpire in the written text in the way L2 writers choose their words and organize their texts.

Hannah’s perspective highlighted that writers make meaning not only by the choice of their words, but also by the construction and directness of their texts. Directness or indirectness in each language carries meaning. They signify what the writer constructs as the social responsibility of the reader. As Hannah saw it, the Polish writer expects the reader to make inferences and draw conclusions while the English writer provides the reader with clear and direct statements not leaving room for ambiguities. Multilingual writers must navigate these two semiotic systems in the appropriate contexts. The understanding of cultural norms for written and spoken communications in different contexts is also part of the semiotic systems L2 writers must master.

**Sarah – Rhetoric and Meaning Making**

My second interview with Sarah was more than two hours because she spoke in length about her advocacy for multimodal literacy practices in the teaching of writing. When I asked Sarah, “Do you think that when we write in a second language, that's also a different modality from writing in our first language?” she was assertive referring again to contrastive rhetoric. She believed that writing in an L2 required more than the knowledge of the vocabulary and grammar, and it required an understanding of the writing norms accepted in various cultures. She explained:

Each language and each culture have their own norms. For example, my Arabic speakers, in their writing, they are more indirect, and you have to find the point, right? Whereas in in U.S. norms, cultural norms, we prefer a more direct route to
the point, and we don't want to look at all the indirectness, right? To us
[indirectness] is superficial, or superfluous, right? But in in Arabic writing, for
example, it's necessary. It's a way to set the stage, the way to indicate your
knowledge, the way to indicate your education. To go straight to the point would
be considered rude. It is not just [about] the syntax or the lexicon of the language,
but also the way the meaning is conveyed changes when you change languages.
(Sarah, excerpt from interview #2, 2022)

I questioned her about the risk of looking at contrastive rhetoric as a pre-established
binary that stereotypes cultures as writing directly or indirectly depending on their values.
Sarah responded that she does not believe this is a dichotomized stereotype of diverse
cultures. Rather, she believes that this is an acknowledgement that cultures are unique,
and each has unique norms for communicating through writing. She said,

I think it's more of understanding where your students are coming from in their
first language. And then, you know, using that knowledge to help them with the
adaptation at their new area. If you can understand where somebody's coming
from, because there's no good or bad here, then as an instructor, you can (…) help
them understand why there might be these seemingly grammar errors or structural
errors in their second language that affects the meaning that they're trying to
convey. Right? (…) I see it as a way to become more familiar with the students
that you are working with, so that you can better facilitate a path that leads to
them reaching their goals. (Sarah, excerpt from interview #2, 2022)

She added that exploring multiple cultural norms that may emerge in L2 academic
writing is a matter of metacognition,
It's a cliché, but this maximum is true, the more you know, the better you can be prepared, right? So, if I can find out more about my second language in the writing, I can write beyond that, too. (…) So let's try to break down that barrier that's preventing that comprehension and talk about it. (Sarah, excerpt from interview #2, 2022)

From that point of the conversation, when Sarah expressed her belief that L2 writers tend to construct their texts based on their cultural norms and expectations applied to written texts, our conversation evolved towards strategies to bridge the eventual cultural gaps. That was when I started questioning more the role of digital literacies in the scenario of bridging semiotic systems in L2 academic writing. So far, the participants had highlighted cultural norms that inform writing regardless of digital modalities. They had spoken about meanings at the grapheme and lexical levels, the identity of the interlocutors and context of the communication, and the cultural values embedded in written communication. Sarah, nevertheless, highlighted that digital multimodalities allowed her to bring up discussions about how writers make meaning in different ways in various cultures. The relevant insight from Sarah’s perspective is that the more exposure to multimodal texts and explicit conversations about meaning making may facilitate effective learning of L2 English writing. Natalia provided some more insight into that.

**Natalia – Bridging the Language Proficiency Gap**

When I asked Natalia whether L2 academic writing was intrinsically multimodal, she answered right away, “yes.” Then she hesitated and explained: “Maybe it depends on how experienced [a writer] you are.”
I asked for examples to illustrate what she had in mind. Natalia offered examples based on vocabulary and then on grammatical constructions relying on her comparisons between Russian and English. First, she observed that words have multiple meanings, and that nuanced understanding comes with experience. She explained:

I have to be very familiar with the language to know that there are different meanings for me to choose from. And so, if I'm a beginner, I will just know how [the word] is used in my first language (…) because I just translated it, and I did not look at the different definitions of the same word. (…) The more you learn English, you will understand that [words] have many meanings that may not be the same as in your first language. So, you can enrich your vocabulary this way.

(Natalia, excerpt from interview #2, 2022)

Then, Natalia reflected further and observed that the same intimacy with a language is relevant for the understanding how words are used within sentences. She reflected,

What I usually do is encourage students to listen and to read more. And just by reading, they can see that there is a pattern in English. [For example], (…) adjectives in English go before nouns, and in some languages the adjective goes after the noun. So, just by being exposed to that, by listening and paying attention to the way people speak, and it'll . . . Even if we talk about collocation, so that there are two words in English that go together, you're going to just take one word and it has the same meaning [in another language], but we just don't say like that in English. (Natalia, excerpt from interview #2, 2022).
In this excerpt, Natalia pointed out some of the benefits of reading and listening more to English. By being exposed to multimodal texts, learners can internalize linguistic patterns that govern word order, collocations, and multiple meanings of words. I asked if that meant writers used different semiotic systems to understand those nuanced differences between their L1 and English as their L2. She responded that it meant the seamless combination of multiple semiotic systems, but that was only possible for advanced writers. She explained,

At the beginning, like, high-beginning [-level] students write like that [relying on the patterns of their L1]. But then, maybe by the end of high-beginner level, they start to understand that they can’t just translate word by word from their other languages. (…) And that's when they start to [make meaning by using the standard structure of English]. (Natalia, excerpt from interview #2, 2022)

I asked Natalia about the role of digital multimodalities in facilitating the transition from the beginner to the advanced level of English writing. At some point, L2 academic writers must progress from writing in English through the semiotic schema of their L1 to recognizing the need for complementary semiotic systems from both their L1 and English (L2). Natalia's perspective aligns with the translanguaging framework (Velasco & García, 2014), where multilingual learners internalize and combine multiple semiotic systems to build their whole linguistic repertoire. She emphasized that increased exposure to English in diverse modes and contexts enhances learning efficiency. Natalia highlighted integrating listening and reading to understand word collocations and contextual meaning variations. She emphasized the importance of depth and breadth of linguistic exposure for building the learners' repertoire. Multimodal texts, including
written and audio formats, help learners grasp word meanings in context beyond
dictionary definitions. Natalia also emphasized that digital technologies enable L2
English learners to access diverse texts written by culturally diverse writers worldwide,
expanding their understanding of academic English writing across Discourse
communities.

Natalia’s experience and perceptions aligned with the seven affordances of new
media described by Kalantzis & Cope (2015). Through that exposure to multimodal
digital literacies, her students had the opportunity to learn through videos, audio files,
audio books, and reading materials on the Internet through mobile applications and
websites. Natalia encouraged her students to take agency over their own learning by
building their knowledge actively and collaboratively. She provided recursive feedback
to her students in the form of meaningful comments or responses to students’ questions
via Canvas. Her students could also obtain feedback from peers through group texts. She
believed that this rich exposure to English language via multimodal digital media helped
her students build their semiotic schema and therefore improve their L2 English academic
writing skills.

Closing Thoughts About the Expansion of Semiotic Schema

Natalia’s perspective offered a new way to view second language writing, which
may be a link between beginner writers and more proficient ones. Advanced writers
appear to navigate multiple semiotic systems using the fullness of their multimodal
literacies and translanguaging resources. According to the other teachers, L2 writing is
more effective when writers build their metacognition of how their languages work in
relation to the cultures where they are used. That is, they are able to compare and contrast their L1 and English even though that may happen subconsciously.

As participants explained, multimodal exposures to the L2 (both in quantity as in quality) fosters the opportunities for learners to also construct multimodal meaning of their own. That is, the more intensive multimodal immersion into the L2 allows for a better understanding of how the language works in context. Learners can expand their semiotic schema through translinguaging practices. Based on the examples the teachers provides about various elements of linguistic (phonetic, phonology, semantic, syntax, and pragmatic), it seems that they believed that beginners are limited in their L2 word choices, or in their sentences structure, or in the tone (directness), or in their rhetorical devices because they often write in English (L2) relying on the semiotic system of their L1. For Isabella, the linguistic limitations were associated with previous linguistic experiences with the L2 as well as the storage of linguistic elements of the L2 in the brain. For Jessica, the limitations were associated with the writer’s linguistic and cultural identities. For Hannah, the limitations were associated with the misunderstanding of socio-cultural norms. Sarah and Natalia argued that for learners to bridge from the beginning to the advanced levels of L2 writing, they need socio-cultural opportunities to build their linguistic identity and repertoire. They believed that advanced writers combine multiple semiotic systems when they write in L2 academic English as their higher level of proficiency allows them to see the different nuances in the signifiers in two or more languages. The diagram below (Figure 7.2 Error! Reference source not found.) illustrates this aspect of the findings.
Figure 7.2. Representation of the multimodal nature of L2 writing through a semiotic approach to multimodal digital literacies
Chapter 8 – Discussion

Multimodal digital literacies and digital literacy practices are a necessity for students in U.S. higher education. This study’s findings show that the five teachers recognized ways in which instructional technologies helped in the teaching and learning processes, but they also raised concerns. The teachers helped their students to use digital resources to enhance their writing performance and master the complexities of writing academically at various English proficiency levels and in various disciplines. On the other hand, some teachers were concerned about learners becoming dependent on those technologies and using them inappropriately or not using them at all. This study highlights the use of new digital multimodal technologies in intensive English classrooms, highlighting the teachers’ perspectives and experiences. All five participants thought critically about the use of digital multimodalities in the form of instructional technologies and perceived positive and negative effects on L2 academic English writing. Their choices were informed by their teaching and learning experiences and instructional philosophies, which is aligned with the literature on multimodal pedagogical practices in English composition (Tan & Matsuda, 2020). Therefore, their perspectives were complex and multilayered.

In the following sections, I discuss that the instructional purposes, teachers’ philosophy of L2 teaching and learning, and teachers’ language ideologies associated with L2 writing are underlying factors that inform their choices of instructional technologies.
Instructional Purposes Informs Perceptions of Digital Multimodalities

The five participants affirmed that they use at least some digital technologies in their daily activities in and out of the classroom – some with more confidence and proficiency than others. The data shows that their instance toward digital multimodalities in the classroom are associated with the instructional purposes of choosing digital resources. The teachers were unanimous in their perception of positive affordances of multimodal digital media and technologies for language input. Some examples include:

- using the library’s online databases to search, find, select, read, and analyze scholarly texts.
- using multimodal digital texts (such as video essays, images, music, and written articles) for close reading, analysis, and synthesis and as mentor texts for future writing tasks.
- consuming multimodal digital texts as a tool to raise intercultural awareness.
- using online videos for language input and video-lessons that students can use independently and autonomously beyond the classroom instructional time.

All the participants also perceived positive affordances of digital technologies when they provided feedback, distributed reading materials, and explained assignment rubrics via the online features of Canvas. They agree that digital technologies have made these activities more convenient for teaching English language.

On the other hand, the teachers’ concerns were more prevalent when students used digital technology for language output; that is, when students relied on digital technologies in their writing process and products as well as in writing exercises. They perceived that the use of digital technologies (1) may exacerbate the effects of digital
literacy gaps; (2) may be abused as a breach of academic integrity; and (3) must be approached thoughtfully according to the students’ level of L2 English writing proficiency. I will explain these three main concerns in the following subsections.

**Closing the Digital Literacy Gap through Fostering Multiliteracies and Translanguaging**

Concerns over the digital divide have grown as technology becomes more sophisticated and usable for a variety of purposes. Ware (2020) explained that scholars have been concerned about it for decades alerting that “availability of adequate technological infrastructure would be unevenly divided in the population and would exacerbate existing social inequalities” (p. 271). According to Ware, such concerns regard not only the distribution and access to digital devices but also to the “complex uses of technology for educational purposes.” The digital literacy gap among L2 learners may become more apparent in their writing process when they need to use digital technologies to deliver their writing products. Learners who are more proficient in the use of digital technology will be at an advantage compared to their peers. They will not have to spend part of their energy learning how to use the technological tools and can focus on the course content. In this study, some of the teachers were concerned that the use (or lack of use) of digital multimodalities may exacerbate inequalities in their L2 English writing classrooms.

Three of the teachers described how instruction on how to use digital multimodalities helps close that digital gap because students are exposed to the digital technologies (devices and platforms) and to multimodal digital texts available online for open access or through university libraries. By fostering digital literacy practices,
teachers prepare their students for academic success. This is aligned with the scholarly literature that claims that digital literacy practices are associated with academic performance and retention in higher education (Ahmed & Roche, 2021). College courses in the U.S. often demand the use of instructional technologies.

From a sociocultural learning standpoint, language learners can use multimodal digital tools to write collaboratively and develop stronger literacy skills through digital (online) communication (Lamy & Hampel, 2007). Such use of digital literacies can also disrupt traditional teaching and learning dynamics as students gain autonomy to become collaborators and co-constructors of their knowledge (Hampel, 2019; L. Wei, 2022). The teachers believed that the exposure to texts in multiple modalities produced by diverse authors improved their students’ opportunities to form semiotic schemas and enhance their linguistic repertoire.

Instruction in how to use multimodal digital literacies in L2 writing, including but not limited to translators and other technologies to assist in the writing process, also connects to a translanguaging approach (Garcia & Wei, 2014; E. Lee & Canagarajah, 2019; Velasco & García, 2014) in the sense that multimodal digital tools facilitate the learners’ use of their full repertoire of literacy practices. Translanguaging encompasses not only the navigation between diverse linguistic structures but also a variety of modalities that language users deploy in interactions to share information, represent their identities, and build relationships (L. Wei, 2011). Through the lens of translanguaging theory, digital technology can serve as learning tools that foster active independent learning. In time, the L2 learner can develop the necessary skills to write independently in English using not only their full linguistic repertoire but also their multimodal digital
literacy skills. L. Wei (2022) argued that “translanguaging is not simply transcending the boundaries between named languages, but also the boundaries between language and other semiotic and modal systems for meaning- and sense-making. Translanguaging in that sense embraces multimodality” (p.409). I believe that multimodal literacies embraces translanguaging reciprocously as part of the “entire semiotic spectrum” (S. Kim, 2018, p. 50) that students’ can use in their literacy practices.

Although the teachers are concerned about the inequalities heightened by the digital divide in their L2 English writing classrooms, the literature on translanguaging and multimodality, from a semiotic approach, demonstrates that closing the digital divide is beneficial for language learners. Pennycook (2017) investigated how translanguaging could incorporate not only linguistic repertoires but also a variety of semiotic modes and suggested that meaning emerges from interactions among people, artifacts, multiple modalities, sensorial experiences, and linguistic resources. S. Kim (2018) observed that young transnational learners select a variety of resources from their linguistic and digital repertoire to communicate efficiently with different audiences. According to Kim’s case study, the youth drew from the totality of their semiotic repertoire through translanguaging and multimodal digital composition (videos, images, text, and speech) to communicate and fully express their linguistic and cultural identity. Using multimodal resources as well as translanguaging, language learners can more efficiently progress from monolingual to multilingual engagements. Canals (2021) found that multilingual learners from Spain and Canada used multimodal and translanguaging resources to clarify lexical items and suggested that “multimodal elements contribute to the lexical retrieval process” (p. 663). Cárdenas-Curiel and Ponzio (2021) recommended the use of
translanguaging, transmodality, and intertextuality to scaffold students' learning and support their writing process. They highlighted the relevance of future inquiries into how teachers can incorporate biliteracy, multiliteracies, and translanguaging frameworks to enhance students' language and literacy practices while valuing their resources and agency as bilingual writers. Therefore, the practices and perspectives of the teachers in my study support their students’ L2 learning by using multimodal digital literacy practices and closing the digital literacy gap in their classrooms, which is an instructional choice aligned with current translanguaging scholarship.

**Fostering Academic Integrity**

Some of the teachers in this study expressed concerns about academic integrity. They perceive the ease of cheating and plagiarism as a negative affordance of digital technologies. R. H. Jones and Hafner (2012) explained that computers and the internet are not inherently good or bad, but they allow users to respond and adapt creatively to common problems, sometimes in positive and socially acceptable ways and other times in negative ways. The participants stated that it can be difficult for instructors to tell if the students really produced their own texts or if they received help through digital technologies. These concerns are reflected in the literature on L2 writing and other disciplines. Any student, regardless of linguistic background, may abuse digital resources to cheat and plagiarize (Désiron & Petko, 2023; M. Jones & Sheridan, 2015; Ma et al., 2008; Negoiţă & Negoiţă, 2022; Peritz, 2022). Within the field of L2 writing, scholars and educators have not reached a consensus about if using machine translators, spell checkers, auto-correct, and similar technologies is acceptable because it can be either perceived as a hinderance to the language learning process or a signal of the
learners resourcefulness (Alharbi, 2023; Bowker, 2020; Deng & Yu, 2022; Stapleton & Leung Ka Kin, 2019).

When Isabella spoke of digital technologies as a threat to academic integrity, she was also informed by the underlying concern that language learners may become dependent on AI via spell checkers, grammar editors, and translators to produce their written texts. She is not alone in that concern. At the time of the data collection, we did not talk about AI text generators, but since then, the academic community has been vocal on social media and in the scholarly communities discussing this same concern across disciplines and academic levels, and regardless of the students linguistic and cultural backgrounds.

Her position is supported by scholars such as Chomsky, who has stated in a recent interview that using artificial intelligence for writing is a form of electronic plagiarism (Sprakel, 2023). In the same interview, Chomsky argued that AI does not bring any benefits to language users and can be a nuisance to teaching and learning. Nonetheless, he also suggested that one way to avoid the harmful effects of AI in education is to make the learning environments more engaging and less test-centered so that students will be interested in learning the content and developing skills instead of just striving for a certain grade regardless of their effective learning outcomes.

ChatGPT-3, for example, is an artificial intelligence language model that uses machine deep learning to interact with users in a conversational way and generate written texts on demand (OpenAI, 2023a). At the time when I am writing this chapter, OpenAI has just launched the next generation model ChatGPT-4, which is particularly geared toward education and is already in use by digital learning platforms such as Khan
Academy and Duolingo (Duolingo, 2023; Khan, 2023; OpenAI, 2023b). Since its public launch in November 2022, ChatGPT has afforded the creation of hundreds of other AI tools in partner websites. Microsoft has announced the use of GPT-4 features embedded in its Internet browser and other applications. Google has also announced the launching of Bard (Pichal, 2023), which is a direct competitor to ChatGPT, and PaLM-E, which is described as a multimodal language model capable of generating more than just text (Driess & Florence, 2023). Such technology has sparked discussions about the future of education, and most specifically the future of language and composition teaching and learning exactly for the reasons described above – learners may choose to rely on the digital technology rather than learning how to write independently without digital assistance.

This is a fresh and very recent discussion involving ethics, teaching philosophies, and approaches to instructional design. A search in the Thomas Cooper library database at the end of March 2023 using the search terms “philosophy of teaching and learning” AND “academic writing” AND “artificial intelligence” retrieved 2129 peer-reviewed journal articles published in the past ten years and 534 (that is 25%) published only in the past year. These numbers indicate that AI has been a relevant topic of scholarly discussion in education with a growing interest that may support a reform in philosophies of teaching and learning.

Peritz (2022) expressed concern about the impact of digital technologies on academic conduct with a compelling analogy. He questions if AI should be compared to performance-enhancing drugs or to high-performance gear used in sports. Society rejects performance-enhancing drugs because they provide the user with unfair advantages and
may cause real harm to the athletes. On the other hand, high-performance gear is both acceptable and encouraged in such a way that the industry invests in technological advancements to enhance performance. That is true not only in sports but also in many other fields that employ high technology tools. With that analogy, Peritz proposes that educators approach digital technologies critically. In his article, he discussed the example of Sudowrite, an AI text-generator launched in November 2021. He argues that digital technologies may be a hinderance (analogous to enhancing drugs) if, for example, students submit assignments that were completely generated by AI or if they use search engines to find answers to online exams and to deliver texts that they did not create by themselves. On the other hand, digital technology can be analogous to performance gear if a student searches for information online and uses it to inform their own writing, or if they use AI generated texts to improve their productivity, unblock their creative process, and provide ideas for their writing.

The AI discussion is still unfolding among scholars as well as among the general public and on the news media because new and more potent AI platforms are being launched by tech giants almost every day since November 2022 (Abdous, 2023; Ferlazzo, 2023; Hanlon, 2023; Marr, 2023; Valenzuela, 2023; Weise & Grant, 2023).

To foster academic integrity, both Isabella and Natalia explained that they build more positive digital literacy practices by teaching their students how to use digital tools for revision during formative activities. Sarah also teaches the responsible use of writing assistance tools. She suggested an open dialogue with the students to discuss the academic integrity policies in place at U.S. higher education as well as in American society at large. The discussion in her classroom raises the students’ cultural awareness
about the social norms that regulate plagiarism and cheating, and it sets clear expectations for the use of digital literacy practices. Their approach is aligned with scholarly literature that recommends placing the teacher in the position of “a learning facilitator, a scaffolder, and a critical reflection enhancer, while the learner becomes an empowered explorer, a meaning maker, and a responsible knowledge constructor” (L. Wei, 2022, p. 410).

**Different Approaches to Technology Based on English Language Proficiency**

In this study, the teachers concern with the digital gap and academic integrity were intensified depending on their students’ level of English writing proficiency. Teachers of L2 writing must consider students’ target language proficiency levels and L1/cultural backgrounds in planning instruction (X. Wei & Zhang, 2020). It was important to understand how this impacted the use of technology for instruction. Upon analysis, it seemed that the teachers’ perception of risks in digital multimodalities for learners was informed by Standard Language Ideology which favors the use of prescriptive language and linguistic standardization (Milroy, 2001; Milroy & Milroy, 2012).

Two of the teachers restricted their students use of technology such as online dictionaries and electronic editors in summative assessments. They intended to emulate the environment of standardized tests and force students to write academically without any writing assistance tools. They were particularly prone to use those measures with learners in the beginner and lower intermediate levels, but not so much with learners in more advanced levels, believing that the use of digital writing assistants (machine translator, dictionaries, thesauruses, and text editors) at the basic and lower intermediate levels may mask L2 English learning deficiencies. This perspective about beginner and
more proficient learners appears to be contrastive with the translanguaging approach that suggests emerging bilinguals should be allowed all the possible tools to communicate their ideas effectively as part of the learning process. Velasco and García (2014) argued that,

Despite the multimodal affordances provided today by technology, few writing programs in schools make use of it, especially after the early grades. When planning writing, bilingual students should also be encouraged to use all kinds of multimodalities – drawings, videos, etc. – and to draw from their more flexible bilingual worlds than the static and dichotomized one, projected by the rigidity of how “languages” are used in many bilingual education programs. (p. 15)

Banning the digital writing assistance tools in the classroom is debatable (Bowker, 2020) because bans are unlikely to work. Bowker gathered twenty-four educators to discuss this topic in an information session. The participants agreed that “a better approach could be to introduce machine translation literacy instruction because this knowledge could help the students to make informed decisions about when using machine translation could be a good choice, and when it might not be” (p. 33).

It is important to highlight that many adult international students who attend English courses for academic purposes at IEPs have already achieved high educational standards in their countries of origin, and 32% of them intend to pursue other degrees at U.S. institutions in the future (Institute of International Education, Inc., 2022). They are often interested in Information Technology (IT) and Science, Technology, Engineering, and Mathematics (STEM) related areas. According to the Open Doors report on international students released in November 2022 (Institute of International Education,
2022), almost 50% of international students enrolled at U.S. higher education institutions in the 2021/2022 academic year selected Math and Computer Sciences (21.1%), Engineering (19.8%), and Physical and Life Sciences (8.3%) as their fields of study. Those are areas where coursework, scientific research, and publications demand the use of high-technology software and equipment, so those specific students tend to be familiar with digital literacies in their lives in and out of academia. This student population is likely to find ways to complete their assignments using digital tools for writing assistance.

Nonetheless, teachers cannot assume that all international students come from previous educational experiences that exposed them to the multimodal digital literacy practices demanded in U.S. higher education. McLeod (2022), for example, investigated the online learning readiness of 117 international students and recommended the development of more studies with stronger assessment tools to identify the specific needs of international students. While many students feel confident about their digital literacy practices, banning digital technologies that enhance the writing performance can potentially increase the digital gap because for the students who do not meet that learning readiness requirement. During the interviews, Natalia acknowledged that teaching L2 English academic writing to that demographic with traditional resources (such as printed English language textbooks) may demotivate and hinder their academic success in U.S. higher education.

In Isabella’s perspective, if L2 learners, particularly those who are beginners or at a low-intermediate level, rely too much on digital writing technologies, they may become unaware of language patterns, which may lead to fossilization of grammatical errors
(Roeder et al., 2020; Schmidt, 1995). Consequently, they may never learn how to write independently in English. But not all teachers agreed with this stance. Jessica believes that explicit grammar instruction should not be the primary focus of academic writing. First, she focuses on the organization of ideas and argumentation. She focuses first on high order critical thinking skills and not so much on the linguistic output. Her students are allowed to use their full linguistic repertoire to convey their ideas, which is aligned with the translinguaging approach (Canagarajah, 2021; Garcia & Wei, 2014; E. Lee & Canagarajah, 2019; Velasco & García, 2014). She only addresses grammatical and lexical accuracy at the final editing stage of the writing process. In that writing process, Jessica selects digital multimodalities that will inform the construction of ideas through analysis and evaluation of texts rather than fixed linguistic exercises.

It is important to notice, however, that Jessica and Isabella teach different groups of students. Isabella teaches emergent bilingual learners in the beginning stages of her language program, and Jessica teaches students at intermediate and advanced levels. Jessica can certainly address more linguistic complexity and higher order thinking activities applied to English writing because her students are fluent in English. Their linguistic repertoire in English is richer than for their counterparts in lower levels. Isabella’s students are still building their basic vocabulary for conversational purposes and may only be able to express concrete ideas using given words and sentence frames in English.

A similar contrast occurred in the responses provided by Sarah and Hannah. Sarah’s students are at the advanced level, and their level of language proficiency allows them to write more creatively. Hannah’s students not only are beginners and
intermediate, but some of them come from interrupted schooling and may not be as comfortable with the use of digital technology. The data, nevertheless, did not provide sufficient information to support the claim that the students’ proficiency level is an underlying factor informing the teachers’ choices of instructional technologies. Rather, it appears to be a matter of teaching styles and instructional preferences.

**Teaching Styles and Instructional Preferences**

Ware (2020) found in the literature reviewed since the late 1990s that “instructors made use of new technologies in starkly different ways depending on their pedagogical beliefs and training, their instructional contexts, and their familiarity with technology” (p. 265). The findings in my study confirm that teachers perceive and experience the use of multimodal digital technologies according to their training and preferences.

Natalia and Jessica spoke directly about the fact that their pedagogical approach to L2 writers depends on the learning outcomes in different levels of the program. Hannah’s choices are informed by her own research focus. She strives to provide her refugee students with the best possible learning experiences by using digital multimodalities (e.g., video) to enhance productivity and make best use of the instructional time. In contrast, Isabella’s teaching is informed by academic background in Applied Linguistics with a strong focus on explicit grammar instruction, and Sarah’s teaching is informed by her philosophies of teaching and learning she learned through her studies in instructional technology. Isabella believes that grammatical accuracy is essential in L2 teaching and learning, and Sarah believes in openly discussing pros and cons of using digital resources in writing and mentoring her students to think critically about their academic choices.
The five teachers’ teaching styles and instructional preferences were informed by their students’ cultural backgrounds. They were aware of their students’ cultural and linguistic diversity. Concepts such as individualism and collectivism (Atkinson, 2004) and contrasts in Western and Eastern writing norms (Hyland, 2008; Nisbett, 2003) emerged in the interviews. Western writing is often associated with individualism, which values the writer’s individual creativity and critical thinking, and teachers often praise those skills in their students’ writing. In contrast, Asian cultures are often associated with collectivism and are perceived as favoring and reproducing existing knowledge as a form of reverence. Teachers and learners value memorization and imitation. Sarah and Isabella echoed these ideas that East Asian L2 English writers tend to build their arguments by reproducing the voices of more experienced writers to honor others rather than themselves. Contrastively, Isabella argued that Middle Eastern students tend to digress using anecdotes and figurative language to convey their messages, which she identified as a demonstration of the cultural value placed on oral communication and negotiation skills. Understanding these cultural differences is aligned with theories of culturally relevant, responsive, and sustaining pedagogies (Ladson-Billings, 2011, 2014; Nieto, 2010, 2013; Nieto & Bode, 2018; Paris & Alim, 2017). The teachers tried to understand students’ approaches to writing so that they were able to plan instruction accordingly. However, it is important to be aware of stereotyped and outdated perceptions of culture. Such dichotomized ideas derive from contrastive rhetoric theories (Kaplan, 1966), which have been largely discussed and criticized by more modern scholars (Atkinson, 2004; Atkinson et al., 2015; Canagarajah, 2021; Horner et al., 2011; Javadi-Safa, 2018; Jordan, 2021; Lu & Horner, 2013; You, 2021).
One of the criticisms of Kaplan’s work (1966) on contrastive rhetoric is the fact that it stereotypes specific cultural groups as if their writing styles were monolithic and unchangeable (Atkinson, 2004). Atkinson explained that contrastive rhetoric often conflates national identities with cultural identities to justify how writers from a certain geographic location use certain rhetorical patterns. From a multimodal literacy and translational standpoint and considering how English language is widespread around the world among native and non-native speakers, it is dangerous to oversimplify the thought patterns employed in English academic writing. Multilingual writers should not be bound by assumptions about rhetorical patterns; after all, writers within the same cultural group can use their unique repertoires to write in a variety of rhetorical patterns (Horner et al., 2011; Lu & Horner, 2013).

Nonetheless, failing to explore specific cultural practices and cultural representations related to writing would be an ethnocentric way to deny or minimize the relevance of cultures and their influence on thought patterns and language (Bennett, 1986, 2016). Bennett proposes that discussing the spectrum of cultural values and how they inform cultural practices fosters intercultural sensitivity and understanding. He posits that “since intercultural sensitivity is not ‘natural’ to any single culture, the development of this [intercultural sensitivity] demands new awareness and attitudes” (Bennett, 1986, p. 179). The participant teachers tried to discuss a variety of cultural norms that transpired in their students’ writing when they compare and contrast rhetorical patterns using their students’ deidentified writing samples.

The teachers approach to the complex matter of cultural norms shows their multimodal perspective toward cultural practices associated with L2 academic writing.
They agreed that it is important to avoid the binary comparisons between, for example, the so-called Global North and the Global South, or Asians versus Westerners, or collectivist versus individualistic cultures. The concern in this approach is to avoid oversimplified dichotomies. The adherence to core cultural values is a nuanced spectrum. That is, individuals and cultures are more complex than just the comparison of opposing extremes. It is true that the expression of cultural values is a continuum, and individuals have unique personality traits; nonetheless, speech communities as well as discourse communities have shared conventions of written communications (Swales, 1990). L2 writers must be aware of those norms that are socio-culturally negotiated. Genres and rhetorical strategies vary in time and from place to place.

The teachers different pedagogical choices may as well be associated with their own cultural literacy practices (Hyland, 2008) because “language and learning are inextricably bound with culture” (p. 36) and lived experiences. Hannah, Isabella, and Natalia are non-native speakers of English and shared experiences of having their academic papers harshly criticized due to their L2 writing skills. All three of them had degrees in English teaching as well as teaching experience in their countries of origin before coming to the U.S. Nonetheless, American professors told them their English writing did not meet their expectations. Their L2 learning experiences have shown them that lexical and grammatical inaccuracies as well as textual organization trump the relevance and the content of their texts, so Isabella and Hannah expressed their sentiment toward avoiding that experience for their students.

These three teachers know from personal experience and from the scholarly literature that “the presence of non-standard linguistic features in ESL writing causes
faculty readers to focus on mechanical issues, discouraging or even blocking engagement with the content and organization of the writing” (Ives et al., 2014 cited in Reichelt, 2021, p. 26). Zawacki and Habib (2014) found in their study that faculty across disciplines consider some lexical errors worrisome because they may raise questions about how much the writer understands about the subject. Although they found many of the faculty “to be generous with their energies in helping L2 writers succeed” (p. 202), they still take a “zero tolerance” (p. 206) approach and consider any language errors non-negotiable. Their findings showed that faculty scored L2 writers more harshly on content-related areas based on the linguistic choices rather than on the actual ideas expressed by the writers. Rubin and Williams-James (1997) found that faculty engaged less with and offered less feedback on essays attributed to L2 writers. Isbell and Eldaba's (2018) described the challenges, stress, and anxiety L2 writers face in academic courses due to perceived “writing inadequacies” (p. 1886). In Corcoran's (2019) study, journal editors identified research article structure, rhetorical strategies, and lexico-grammatical accuracy as major issues in the scientific submissions of L2 English writers. In the survey of fifty-five multilingual scientists, Corcoran found that 67% of them perceive that their scientific submissions are treated more harshly by editors and reviewers of academic journals when they are identified as L2 English writers. Scholars perceive that attitude toward L2 writers as a form of linguistic discrimination in higher education (Clements, 2021).

In alignment with the scholarly literature and their own language learning experiences, the three participant teachers prefer to put a strong emphasis on explicit grammar instruction. Their teaching styles compensate for the perception that L2 writers
are held at higher standards compared to their L1 English writers counterparts. The online exercises they select and digital feedback they provide often address grammar and vocabulary, and have pre-determined correct answers. Their approach suggests that one of the underlying factors affecting their instructional preferences of digital technologies are informed by their perception of bias against L2 English writers (Reichelt, 2021)

Jessica and Sarah, on the other hand identified themselves as native English speakers and English as their dominant language. Despite living abroad during infancy, they were educated in English medium schools. During the interviews and reflections, they did not recount having their writing harshly criticized or unfair treatment due to their use of written English. They were not emphatic about teaching language mechanics. That is not to say that they do not teach grammar and vocabulary, but rather it was not the main focus of their instruction. They took a communicative approach to writing that aligned with sociocultural theories (Vygotsky, 1986; Wells, 2000) including translanguaging (Garcia & Wei, 2014; E. Lee & Canagarajah, 2019; Otheguy et al., 2015; Velasco & García, 2014) and multimodal literacies (Lo Bianco, 2000; New London Group, 1996; Tan & Matsuda, 2020).
Chapter 9 - Conclusion

A Paradigm Shift About Digital Multimodalities in L2 Academic Writing

The discussions about the digital divide, academic integrity, English writing proficiency, translanguaging, multimodal digital literacies, collaboration in writing, teaching styles, language ideologies, and teachers’ individual preferences are complex and multilayered. Each of these themes in isolation can unfold into entirely new studies. That is to show the importance of examining which factors underlie teachers’ choices of digital multimodalities. The critical examination of these factors in future research will be relevant because surely, scholarly positions about these themes are not unanimous, and the literature is vast enough to support opposing ideas. Although these are important themes, the purpose of this study was to name the factors teachers identify as underlying their choices but not to delve into the effects of each factor individually. The findings highlight the importance of bringing these topic discussions to the forefront of teaching education regarding the use of digital multimodalities through instructional technologies in L2 English academic writing. The researcher expects that future discussions will lead teachers and teacher educators to a paradigm shift toward what really matters in L2 writing instruction in the age of informational technology.

Technology is not going away. On the contrary, the recent fast advancements in AI as examined above have shown that digital technologies will be even more prevalent soon. New research is coming out right now exploring the effects of AI in education, with
some questioning if the teaching profession will become obsolete and others defending that teachers must remain current because the humanity of teaching and learning cannot be replaced by machines. Berger (2016) wrote about the power of inquiry and suggests that soon, digital machines such as Google Assistant, Siri, and Alexa as well as other search engines such as those found in library databases will be able to retrieve answers to any given question that humanity has already been able to respond to. Heavier machines, such as robots, will be able to automatize and perform repetitive tasks. In that scenario, we – humans – can dedicate our intelligence to asking more complex questions and to creating more advanced knowledge.

Scholars have long discussed the value of harnessing the affordances of new multimodal digital media in education (Cope & Kalantzis, 2013; Gee, 2015a, 2015b; Kalantzis & Cope, 2015; Zaorob & Chin, 2001) including in L2 teaching and learning (Chapelle & Sauro, 2020; Otto, 2020). While some of us – teachers – are just scratching the surface of digital multimodal instructional technologies, Wang et al. (2022) designed an automated feedback system based on machine deep learning to provide instructional scaffolding to 955 learners in a massive open online course (MOOC). They found that the digital system they developed provided timely and meaningful feedback to the learners who interacted on a discussion forum. The machine learning method supported efficient learning in the online environment. Rosé (2022) has been studying the impact of computer assisted collaborative learning for L2 education and spoke about AI conversational assistants that serve as a virtual-conversation partners to interact with English learners. The technology is not perfect yet, but computer scientists, linguists, and engineers have been working on it. The presenter explained that advanced technology
should not substitute teachers but will serve as catalysts for more efficient instructional interactions.

Our younger learners are growing in this 21st century scenario, and they will enter the work force in an even more interconnected world where they will be required to write collaboratively with scientists and researchers who might be thousands of miles away. It is our job as teachers and teacher educators to discuss ways to teach not only L2 English academic writing but also strategic tools for independent and collaborative writing based on multimodal digital literacy practices. For instance, Slavkov (2015) suggests that in his study, collaboration through Google Docs removed the L2 writing instructor from the privileged position of main audience and sole judge of the quality of the student writing product (as the major scorer of summative writing assignments). Instead, it repositioned the instructor to an observer’s viewpoint to assess growth throughout the writing process where learners actively construct their own knowledge in collaboration using all the multimodal digital resources available.

The five participants showed that they are collectively open to embracing digital technologies in the writing classroom to design, store, organize, and distribute course content. They are also willing to use digital multimodalities for language input. They see the relevance of immersing their students in a variety of texts to enhance the formation of semiotic schemas that will foster better L2 learning. The next step in research is to develop professional development programs to discuss why (or why not) teachers should fully embrace digital multimodalities to enhance the efficiency of student L2 English writing productions for academic purposes. Maybe instead of perpetuating the traditional five-paragraph essay on paper and ink, the L2 English writing classroom should be a
space for the multimodal production of texts that incorporate the learners’ full creative repertoire. That is an implication for future research. The five participants demonstrated through their artifacts that they have the skills to create multimodal texts for their classes in the form of videos, assignments, slides, worksheets, games, and more. Based on the data analysis of the reflections the participants provided, I fully believe that they have the ability to guide their students through that creative process as well. It only requires a paradigm shift towards fully embracing multimodal digital technologies and practices in the students’ collaborative production of academic writing.

Implications

This study suggests three implications of the findings for teacher education and professional development. The participants’ teaching and learning experiences inform their choices of digital multimodalities in their L2 English academic writing classes. They have both positive and negative perceptions about digital multimodal instructional technologies. The underlying factors they identify as affecting their choices provide language and information that can be used in teacher education to discuss:

1. The perceived affordances and hinderances of digital multimodalities
   a. Teachers are positive and unanimous about the affordances of digital multimodalities for the consumption for English academic writing.
   b. Concerns are more prevalent when teachers speak about text production than when they speak about text consumption.
   c. Their concerns speak about the digital divide, academic integrity, and different approaches to technology depending on their students’ L2 English writing proficiency.
2. The underlying factors informing teachers’ choices of multimodal digital technologies for L2 English academic writing are associated with their teaching styles and instructional preferences.

3. The recent advancements in multimodal digital technologies open an opportunity for a paradigm shift about digital multimodalities in L2 English academic writing instruction

**Limitations**

This is a qualitative exploratory case study of five female English writing instructors. They teach English academic writing to adult and young-adult learners in the specific context of IEPs in three states across the United States. The data represents a slice of their instructional practices specific to the dates and places where they were in the year 2022 – multimodal digital technologies have evolved since then. The participants shared their perceptions and experiences through interviews, written reflections, and digital artifacts. The findings and discussions are exploratory and did not test any hypothesis or intervention. Therefore, the findings are not intended to be generalized unless other educators find themselves in situations like those described in the study where the findings are applicable. Rather, the findings are meant to open future discussions that can inform teacher education and professional development as well as future research.

The researcher recommends further research about the impact of multimodal digital technologies for the development of more robust semiotic schemas and higher order skills in L2 academic writing. Similarly, the researcher recommends further studies
focusing specifically on the main underlying factors that teachers identify as informing their instructional choices of digital multimodalities for L2 academic English writing.
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Appendix A – Glossary

This glossary informs how key terms are used in this study. Because literacy is a topic of multidisciplinary interest, terminology and definitions may vary from author to author. Keeping a glossary clarifies what I understand about these terms at this point in my career and how they inform my current research. The entries are organized in a scaffolding order rather than alphabetically in a way the first items feed the subsequent ones.

**Literacy**

Literacy is the ability to read, write, and use written and symbolic language to communicate effectively in specific contexts. The traditional concept of literacy is often linked to early childhood education and the fundamental ability to read and write. Literacy education often focuses on the decoding, interpretation, and use of letter sound correlation, phonics, grammar, sentence formation, paragraph organization, and ultimately, rhetoric and composition, and it progresses from simple texts to more complex ones in a variety of genres. More complex genres are field specific containing jargon and abstract concepts that require specialized previous knowledge. Texts can be written with the use of a variety of tools, such as chisels on wood, stylus on clay, pencil or ink on paper, or keys on a computer keyboard.

Literacy is a fundamental skill that is necessary for participating fully in society and for achieving success in many areas, such as education and the workforce. It is important not only for individuals, but also for societies, as it allows for the exchange of
ideas, knowledge, and information. It involves not only the ability to decode and encode written language, but also the ability to understand and analyze the information that is being communicated. Over the centuries, tools and media have evolved, and so has the definition of literacy.

According to Bailey (1992), the definition of literacy changes in time and according to the place where it is used. At times, the term literacy has been minimally interpreted as one’s ability to read and write at least their name. Anyone who is unable to do so is classified as illiterate. In the 15th-18th century period, literacy was often associated with classical education and was a privilege of the clergy and civic elites. The Industrial Revolution brought the association of literacy with the acquisition of theoretical knowledge and problem-solving skills. In the 19th century, literacy levels remained low although a growing number of people would be described as literate, especially in urban educational centers. Only in the 20th century, literacy became associated with widespread schooling, educational standards, grade levels, and testing requirements. The ability to read and write expanded in many ways, and the term literacy has been often used interchangeably with functional literacy; that is, the production and understanding of written statements in context. Many people who would have been categorized as literate, were then considered semiliterate or functionally illiterate. With literacy being used as a commodity and controlled for political and religious purposes, defining who is literate can be complex. The understanding of literacy became higher than it was before. In the past century and across the English-speaking communities, educators, politicians, and activists have strived to broaden the access to literacy (Bailey, 1992; T. M. McArthur et al., 2018).
The UNESCO offered a definition of literacy in its World Congress of Ministers of Education on the Eradication of Illiteracy, in 1965:

Rather than an end in itself, literacy should be regarded as a way of preparing man [sic] for a social, civic and economic role that goes beyond the limits of rudimentary literacy training consisting merely in [sic] the teaching of reading and writing. (Yousif, 2003 in Fransman, 2005, p. 12)

**Multiliteracies**

Multiliteracies is an approach to literacy education that emphasizes the importance of understanding and creating communication in multiple modes (defined and exemplified below). Multiliteracies is a more dynamic concept that incorporates the diversity of communication contexts. This approach to literacy education has since gained widespread acceptance and has influenced the way literacy is taught in many schools around the world. It recognizes that in the modern world, we encounter information and messages in a variety of formats and being able to understand and produce this type of content requires a certain level of multimodal literacy. The term "multiliteracies" was first coined by the New London Group, a group of educators and researchers who published a seminal paper on the topic in 1996 (New London Group, 1996). The New London Group is a multidisciplinary group of scholars who see literacy from the various lenses of their fields and cultural backgrounds, and therefore, address the complexities of multiple forms of literacy as demonstrated in Figure A.1.

We decided that the outcomes of our discussions could be encapsulated in one word, ‘Multiliteracies’ – a word we chose because it describes two important arguments we might have with the emerging cultural, institutional, and global
order. The first argument engages with the multiplicity of communications channels and media; the second with the increasing salience of cultural and linguistic diversity.

The notion of multiliteracies supplements traditional literacy pedagogy by addressing these two related aspects of textual multiplicity. (Cope & Kalantzis, 2000, p. 5)

For the purposes of this study, it is relevant to highlight their focus on multicultural approaches to meaning-making processes. This dimension of multiliteracies theory is vital in the study of second language writing because it addresses the multiplicity of World Englishes and the processes of communicative negotiations in the globalized scenario. Cope and Kalantzis (2000) continue,

The multiliteracies argument suggests the necessity of an open-ended and flexible functional grammar which assists language learners to describe language differences (cultural, subcultural, regional/national, technical, context specific, and so on) and the multimodal channels of meaning now so important to communication. (p. 6)
Figure A.1. Two arguments that support Multiliteracies theory

Mode

In literacy research, modes refer to the different ways in which information and messages can be represented and communicated. The three main modes are linguistic, visual, and auditory. Linguistic modes include written and spoken language, while visual modes include images, diagrams, and charts. Auditory modes include sounds, music, and other forms of nonverbal communication. The boundaries between them can be blurred. For instance, interlocutors often convey meaning by using gestures, body language, pauses/silence, laughter, and other non-verbal modes while using spoken language. Similarly, written language relies on non-verbal visual clues such as layout, spacing, font, and colors. In literacy research, the term “modes” is often used in the context of multimodal literacy, which refers to the ability to understand and create communication using multiple modes of representation at the same time. Through digital media, a written text can be accompanied by images, videos, audio files, hyperlinks, and many more augmentative modes. Modes are not the same as genres, media, languages, or registers.
Each of those distinct elements work together to compose the meaning of messages in their specific context.

Kress (2010) explains how writing, in its essence, is a combination of multiple modes – words, clauses, sentences, grammatical organization, graphic resources (font style, size, spacing, bolding, color, margins, etc), punctuation, paragraphs, etc. The same structures can be arranged and rearranged accordingly depending on the genre and the media. Although mode is not directly related to language, it is directly related to the culture of various languages as Kress explains.

Modes differ in what they offer from culture to culture for exactly these reasons: the different requirements of different societies and their members and the consequent differing shaping. As a semiotic resource, image in one culture is therefore not identical to image in another. Even across closely related cultures and ‘languages’ (such as English French German) differences in the cultural use (…) lead to characteristic variation in meanings made. (p.81)

To illustrate that explanation, I can compare the use of capital letters (as a linguistic and visual mode carrying meaning) in Portuguese and in English and the meaning they carry. In standard American English, the written convention determines we must capitalize the names of languages and nationalities to denote that they are proper nouns (e.g., German, French, Japanese). In contrast, in written Portuguese, the convention determines that the capitalization determines the meaning of those words – lower case is used for languages and nationalities to denote common nouns and to differentiate them from the capitalized names given to peoples or to academic disciplines that study their languages. Table A.1 shows the use of capitalization in context.
Table A.1. Demonstration of capitalization as a mode that expresses different meanings in written languages

<table>
<thead>
<tr>
<th>Portuguese norms of capitalization</th>
<th>English translations</th>
<th>Meaning of the word “Portuguese” based on capitalization (mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eu falo português.</td>
<td>I speak Portuguese.</td>
<td>Language</td>
</tr>
<tr>
<td>Meu bisavô era português.</td>
<td>My great grandfather was Portuguese.</td>
<td>Nationality</td>
</tr>
<tr>
<td>Eu sou professora de Português.</td>
<td>I am a Portuguese teacher.</td>
<td>Academic discipline / school subject</td>
</tr>
<tr>
<td>O Português é um povo acolhedor.</td>
<td>The Portuguese are welcoming people.</td>
<td>The people</td>
</tr>
</tbody>
</table>

Media and Genre

Media, genre, and mode are all related to the ways in which information and ideas are communicated, but they have slightly different meanings. As explained above, mode refers to the way in which information is represented and communicated, such as through words, images, or sounds. Media refers to the means or platform through which information is conveyed, such as television, radio, or the internet. Genre refers to a category or type of content, such as a news article, an academic article, or a non-fiction book. For example, a news article (as a genre) can be available on a news website or on a printed magazine (as media), and its written text can be accompanied by images and graphics (as modes). If that same news is transmitted on the radio (media), it will include a variety of sounds and possibly the voices of various interviewees (modes); but if it is shared on a website (media), it may include videos and hyperlinks (modes). That example shows how one genre can include multiple modes and be shared through different kinds of media.

Multimodality
Multimodality refers to the use of multiple modes of representation, such as words, images, sounds, and gestures, to communicate information and ideas. In the modern world, we often encounter information and messages that are multimodal, combining different modes to create a more rich and engaging experience. For example, a website may use a combination of text, images, and video to convey its message, and being able to understand and create this type of communication requires a certain level of multimodal literacy. Multimodality is an important concept in literacy education, as it recognizes the implications of understanding and using multiple modes in communication. The concept of multimodality is particularly relevant in the use of digital media.

**Digital Media and New Digital Media**

Digital media refers to the means of communication that work digitally such as everything available on the Internet, digital files, mobile apps, and browser apps. They may encompass podcasts, blogs, computer games, video games, online discussion forums, audiobooks, e-books, electronic magazines, social media, collaboration platforms, and news outlets. Digital media may also include offline means of communication such as computer files (such as documents, slides, spreadsheets, video, and audio), digital art software, radio stations, satellite radio, open television, photos, and homemade videos. This is not an exhaustive list of possibilities.

New digital media refers to the various forms of digital media that have emerged in recent years. This includes social media, online film streaming platforms, mobile apps, high-resolution video games, augmented reality, virtual reality, and other forms of digital communication and content that have become popular in the last two decades or so. New
digital media is distinct from older forms of digital media, such as email and texting, which have been around for longer and have been more widely adopted. New digital media has changed the way we communicate and consume information, and it continues to evolve as technology advances. They often combine multiple modes and can contain multiple textual genres.

**Multimodal Literacy**

Considering the concepts of multiliteracies and multiple modalities, multimodal literacy is the ability to make meaning out of a complex combination of multiple modes of representation. This type of literacy is important in the modern world because we often encounter information and messages in a variety of formats. For example, a single message may combine text, images, charts, hyperlinks, and video, and being able to understand and produce this type of content requires a certain level of multimodal literacy. Meaning is constructed through the multiplicity of sources that complement and enhance each other. The reader must know how to read all the elements efficiently and critically to extract the full extent of the information in context.

Academic writing is an example of multimodal literacy to the extent that readers and writers must combine outside sources of information of various genres and various modalities (words, numbers, diagrams, charts, tables, citations, page layout, formatting styles, and more).

Multimodal literacies rely on the ability to integrate multiple semiotic processes to make meaning out of multimodal texts (Jewitt & Kress, 2003). Therefore, second language (L2) writing can be considered a multimodal literacy when the writer navigates vocabulary choices, grammatical structures, rhetorical devices, and symbols (such as
punctuation, accent marks, indentation, spacing, directionality, and capitalization) using the full extent of their linguistic repertoire to compose a text. Even the handwriting in multiple languages is a multimodal construction of meaning as various cultures embody written language differently (Kenner, 2003). Semiotics and semiotic processes are at the center of the study of multimodal literacies (Barton et al., 2000; Jewitt & Kress, 2003; Kress, 2010) as represented in Figure A.2.

![Figure A.2. Semiotic in multimodal literacies](image)

**Semiotics**

Semiotics is the study of signs and symbols and how they are used to communicate meaning. It is the study of how people use signs, such as words, images, and gestures, to represent ideas and convey meaning to one another. Semiotics is interdisciplinary and related to fields such as linguistics, anthropology, sociology, education, and psychology. Ferdinand de Saussure is generally considered to be the first scholar to propose a structuralist approach to the study of semiotics. He termed this semiology. In his book *Course in General Linguistics*, published posthumously in 1916, Saussure proposed the concept of the "sign" as the fundamental unit of linguistic analysis. He argued that signs consist of two parts: the signifier, which is the physical form of the
sign (such as a word), and the signified, which is the mental concept or idea that the sign represents. However, Saussurean semiology was limited to the structuralist approach to the verbal language. Other scholars such as American philosopher and scientist Charles Sanders Peirce contributed to the studies of semiotic expanding its approach from the Saussurean dichotomy (signifier and signified) into a trichotomy (iconic signs, symbolic signs, and indexical signs). In this study, I explore the use of digital literacies through the semiotic approach to multimodalities (Hodge & Kress, 1988; Kress, 2010; Kress & Bezemer, 2015). While Saussure's structuralist perspective was influential in Kress's work, emphasizing the relationship between signifiers and signified in language, Kress also incorporated Peirce's ideas on the dynamic nature of signs and their interpretation within social and cultural contexts. By integrating elements from both Saussurean and Peircean frameworks, Kress developed a socio-semiotic perspective that recognizes the social, cultural, and multimodal dimensions of meaning-making. This is the understanding of semiotic applied in this study.

**Academic Writing**

Academic writing is a type of writing that is used in academic settings, such as schools and universities. It is characterized by its use of formal language, its focus on a specific topic or research question, and its reliance on evidence and reasoning to support its arguments. Academic writing typically follows a set of conventions such as the inclusion of citations and references and formatting styles, that are specific to the field or discipline in which it is being written. Academic writing can take many different forms, consist of various genres, and combine various modes for publication in multiple outlets (journals, conferences, books, video, classes, and course assignments). Some examples of
academic genres include research papers, literature reviews, and critical analyses, all of which require high order thinking skills to critically summarize, analyze, and synthesize information based on scientific evidence and support of academic sources. Effective academic writing requires the efficient use of multimodal literacies.

**Digital Literacy**

Digital literacy is the ability to use digital technology, communication tools, and networks to find, evaluate, and disseminate information. Formerly, it meant the ability to type and save documents, send and receive electronic mail, design simple images, organize electronic files and folders in digital units, and retrieve information processed by computers. Nowadays, digital literacy includes skills of growing complexity such as being able to use a computer and its various applications online and offline, being able to find and process information on the Internet and being able to use digital tools for communication and collaboration. Digital literacy is an essential skill in today's world, where much of the information and communication we encounter is in digital form. While computers and Wi-Fi connections may still be restricted to more affluent areas, mobile phones have in many ways democratized access to digital content around the world. Having a high level of digital literacy is important for being able to participate fully in society and for success in many fields, including education and the workforce.

The concept of digital literacy does not replace the traditional understanding of literacy or multiliteracies. Rather, it expands on those definitions as it combines multiple modes, new media, and the ability to not only use the digital tools but also to communicate effectively through them in specific contexts. That is, it incorporates the use of multimodal literacies.
**Instructional Technology**

Instructional technology is the use of technology to enhance teaching and learning. The term “educational technology” may also be used to describe the same in K-12 settings. This includes a wide range of tools and strategies, such as educational software, online learning platforms, and interactive whiteboards. Instructional technology can be used to support a variety of teaching and learning goals, such as improving student engagement, increasing access to educational resources, and personalizing instruction to meet the needs of individual learners. The field of instructional technology encompasses research, theory, and practice related to the design, development, and implementation of technology-based learning environments.

**Digital Gap**

The digital gap refers to the inequality between individuals, households, businesses, and organizations in terms of their access to and use of information and communication technologies (ICTs). This gap can have several negative social consequences, such as limiting access to education, employment opportunities, and essential services, and exacerbating existing social and economic inequalities. In addition, the digital gap can also have political consequences, such as limiting access to information and participating in political processes. The school closures imposed by the COVID-19 pandemic brought the concerns about digital gap to the forefront of educational discussions and research.

**English as a Second Language (ESL or ESOL)**

English language learned by speakers of other (more dominant or primary) language(s). It is learned in the immersive context of a predominantly English-speaking
society. For example, a French speaker may choose to learn English as a second language by studying in England, in Australia, or in Canada among other countries.

**English as a Foreign Language (EFL)**

English language learned by speakers of other (more dominant or primary) language(s). It is learned in a foreign context where English is not the predominantly language of the community. For example, an Arabic speaker living in Egypt may choose to learn English at a local school.

**Intensive English Program (IEP)**

English language programs for international speakers of other languages. According to the guidelines determined by governmental policies, IEPs are dedicated to post-secondary international students who hold student or exchange visas and visit the USA temporarily. Many IEPs are accredited by the Commission on English Language Program Accreditation (CEA). They may be housed in universities and colleges, but some are independent businesses. These programs may offer English language instruction for general purposes or for specific purposes.

**English for Specific Purposes (ESP)**

Basturkmen (2010) clarifies that ESP courses have a narrower focus than general English programs because they center on the analysis and catering to the learners’ specific needs, which are often (but not exclusively) related to work or education. ESP is an umbrella scholarship field that covers several specific uses of English language – e.g., English for business, English for tourism and hospitality workers, English for immigration, English for law enforcement, and English for air-traffic controllers. Some
IEPs may offer ESP classes such as English for the TOEFL exam or English for engineering graduate students.

**English for Academic Purposes (EAP)**

EAP is one of the specific purposes under the ESP umbrella. “What sets English for academic purposes (EAP) apart from general language study is its focus on specific, purposeful uses of [English] language (...) in academic contexts” (Hyland, 2016, p. 17). EAP courses often provide integrated instruction in all language domains – listening, speaking, reading, and writing – addressing vocabulary, grammar, pragmatics, pronunciation, and communicative skills. After all, students are expected to integrate all their linguistic skills in academic communication.
Appendix B – List of Journals

List of journals consulted for the initial review of the literature in alphabetical order:

1. College Composition and Communication
2. College English, Computers, and Composition
3. Contemporary Educational Technology
4. English for Specific Purposes
5. English Language Teaching
6. English Teaching
7. International Journal of TESOL and Education
8. Journal of Academic Writing
10. Journal of International Students
11. Journal of Second Language Writing
12. Language Education and Technology
13. Language Learning and Technology
14. System
15. Teaching English with Technology
16. TESL- Electronic Journal
17. TESOL Quarterly
18. Writing Center Journal
Appendix C – Online Recruitment Survey

Instructional Technologies Applied to L2 English Academic Writing

Recruitment Survey

IRB Pro00118521

My name is Priscila J.B.M. Costa, and I am a doctoral candidate in Language & Literacy at the University of South Carolina. The purpose of this survey is to recruit teacher participants for my dissertation study titled: Affordances of New Media: Instructional Technologies Applied to L2 English Academic Writing. I intend to investigate the experiences and perceptions of language instructors who use digital technologies for teaching and learning. I wonder what language instructors have to say about digital instructional technologies and about what drives their choices of technologies for teaching second language English writing for academic purposes. This study will inform the academic community, programs for teacher education, and professional development initiatives regarding instructional technologies applied to academic L2 English writing.

Inclusion criteria:
Participants must meet the following criteria:

1. Language instructors currently working in intensive English programs (IEP) or a program of English for academic purposes (EAP) in the United States.
2. Language instructors currently teaching L2 English writing to meet the demands of higher-education institutions.
3. Language instructors who use digital instructional technologies in their curriculum.

Gender, sexual orientation, age, nationality, citizenship, race, ethnicity, years of teaching experience, or language dominance will not serve as inclusion or exclusion factors.

Risks and privacy:
Participation in this study does not include risks for the participants. All the personal information will be kept confidential. Any identifying information such as names, institutions, and locations will be substituted with pseudonyms when the study is presented to the research committee. The compiled findings may be shared in academic publications and in scholarly conferences, but the participants will remain anonymous to preserve their privacy.

Data collection:
If you would like to collaborate as a participant for my data collection, your participation will require:

1. answers to this online survey (it will take about 10 minutes of your time)
2. two interviews
3. four weekly reflections about your teaching practices. Each reflection will be about 300-words long, and I will provide clear instructions about it during the first interview.
   1. each weekly reflection will include an artifact that illustrates your use of instructional technologies. The artifact may be a screenshot of an online resource used in class, a videoclip, a picture of electronic devices you used, a piece of student work (deidentified), a piece of feedback (deidentified), or a diagram of the classroom layout among other options.

In case we cannot meet face-to-face, I will ask your permission to interview you through an online virtual meeting space (Zoom, Google Meet, Teams, or Skype).

Voluntary participation:
Participation in this study is voluntary and does not involve any form of monetary compensation. Participants may withdraw from the study at any time.

To start your participation, please continue on this survey. Do not hesitate to contact me by email should you have any questions. My email is priscila@email.sc.edu.

Questions about your rights as a research participant are to be directed to Lisa Johnson, Assistant Director, Office of Research Compliance, University of South Carolina, by phone: (803) 777-6670 or email: liscal@mailbox.sc.edu.
Consent form
The complete survey will take about 10 minutes.

1. Would you like to be a participant in this study? *
   - Yes
   - No

2. If you responded yes in the previous question, inform your first and last name to proceed. *
   

3. What is your email address? *

   

Recruitment questions

5. How many years of experience do you have in ESL teaching? *

   

6. Are you currently teaching English as a second language? *
   - Yes
   - No

7. Do you currently teach academic English writing to speakers of other languages (L2 English academic writing)? *
   - Yes
   - No

8. Do you currently teach at an Intensive English Program (IEP) or at a university-based program of English for Academic Purposes (EAP)? *
   - Yes
   - No

9. Does that program serve international students in F1 or J1 visa status? *
   - Yes
   - No
   - Maybe. I am not completely sure.
10. In which U.S. State is that program located? *

11. Which age group do you typically teach in that program? *

12. In which format do you currently teach L2 English academic writing? *

- Traditional face-to-face teaching
- Face-to-face with the support of technology in and out of the classroom
- 100% online - synchronous
- 100% online - asynchronous
- Hybrid format (a combination of two or more formats)
- Other

Teaching experience

13. Which languages do you speak (at any level of proficiency)? *

14. In which languages can you write (at any level of proficiency)? *

15. In which languages can you read and write proficiently for academic purposes? *

16. How often do you use these resources while teaching L2 English academic writing? *

<table>
<thead>
<tr>
<th>Resource</th>
<th>In every class</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>online resources</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>mobile apps</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>smartphones</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>tablets (such as iPad, Kindle, or other)</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>personal computers</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>computer lab</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>language lab</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
17. Do you develop your own instructional materials such as handouts, videos, exercises, texts, and games? *

- Yes, I develop or select all my instructional materials
- No, all the materials I use in my writing classes are pre-selected and approved by course administrators or other instructors
- Sometimes, I have some materials selected by the program coordinators, but I also add my own selection of materials
- Other

18. Select the materials you typically use in your L2 English writing classes (select all that apply) *

- Authentic literature (novels, chapter books, picture books, non-fiction texts)
- News articles (printed or online)
- Abridged books and texts at your students specific reading levels
- Pre-produced videos, clips, or movies
- Songs
- Poetry pieces
- Posters
- Dictionaries
- Infographics
- Online exercises
- Textbooks
- Book companion software or website
- Standardized test mockups or simulators
- Blogging or wiki spaces
- Shared cloud drives (such as Box, Dropbox, OneDrive, Google Drive, etc)
- Collaborative online tools
- Other
19. Which text books do you currently use to teach L2 English academic writing?

   

20. What is your major concern about teaching L2 English academic writing? *

   

21. What is your major concern about using digital instructional technologies in your L2 English writing classes? *

   

Demographic information

22. What is your age group? *

   - Younger than 25 years old
   - 25-32
   - 33-40
   - 41-48
   - 49-55
   - 56-65
   - Older than 65 years old
23. How do you identify racially and/or ethnically? *

24. How do you identify in terms of gender? *

25. Which pronouns should I use to refer to you? *

Invitation to continue in the next phase of data collection

26. This study includes two more phases of data collection. The second phase includes two individual interviews (each interview will be about one hour long). The interviews can happen in person or online at a convenient time according to the participant’s availability. One interview will be scheduled immediately after this recruitment survey and the second interview will happen about four weeks later. The third phase requires the participant to write four (4) weekly reflections about their current teaching. Each reflection will be about 300 words or a page long. The reflections will be submitted online. All the instructions for the weekly reflections will be shared during the first interview.

If selected, would you be interested in moving forward as a participant in the next two phases of this research study? *

☐ Yes

☐ No

Thank you

Thank you for your participation in this survey and for your contribution to my research study on L2 English academic writing and instructional technologies.

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This content is neither created nor endorsed by Microsoft. The data you submit will be sent to the form owner.

27. How do you prefer to be contacted? *

☐ Text message on your phone number

☐ Email

☐ Private message on social media (WhatsApp, Messenger, GroupMe, Skype, Teams)

28. Please, inform your contact information according to the preference selected in the previous question *

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Appendix D – Interview instruments

First semi-structured interview

Teaching experience background

1. What made you choose a career in language teaching?
2. How/where/when did you get your education in second language teaching?

Target audience/student population

3. How do you describe your students in terms of linguistic, sociocultural, and academic backgrounds?
4. Why do your students study academic English language? What are their goals?

Literacy concepts

5. How do you define writing?
6. How do you define academic writing or English writing for academic purposes?
7. What are some of your core beliefs about second language English writing?
   a. Examples of follow-up questions:
      i. What do you think students should learn? Why?
      ii. How do you think it should be taught? Why?
8. How do you approach teaching second language English writing for academic purposes?

Instructional technology
9. How do you incorporate instructional technologies in the teaching of L2 academic English writing?

10. Why?

11. Why is that important?

12. Do you use different IT resources/strategies depending on your students’ level of English proficiency? Linguistic background? Cultural background?

13. In the recruitment survey, you wrote ______ about your biggest concerns when you teach L2 English academic writing. Can you speak some more about that?

14. In the recruitment survey, you wrote ______ about your major concern when using instructional technologies in your writing classes. Can you speak some more about that?

15. How do instructional technologies help or hinder academic writing learning?

16. Can you describe some of the materials you use in your writing classes (multiple modalities)?

17. Can you describe some of the strategies you use in your writing classes?

18. How does your students’ background inform your choices of instructional technologies for academic English writing?

Second round of semi-structured interviews

Natalia

Date:

1. In the first interview you described the program where you work, and I have a few questions about it I would like to clarify.
a. Tell me about the student placement. When a student arrives at that program, how are they placed in the different program levels and courses? Which factors count toward the classification of the levels?

b. You mentioned that most degree seeking students are interested in aviation, so the English program at Embry-Riddle meets their needs. What kinds of literacy skills do students need in the aviation-specific courses? How is technology involved in those skills?

c. You said in one of the assignments the students choose their writing topics. Can you tell me more details about that assignment? What are the parameters of assessment?

2. Let’s talk about your point of view. What is your philosophy of teaching and learning?

3. Have you ever participated in writing workshops and/or training courses specifically geared toward teaching writing? What is something interesting you learned from them?

4. Let’s talk a little bit about technology and digital media. It’s 2022, and we are surrounded by technology in almost everything we do. There is artificial intelligence and digital resources in our hands, in our houses, in our cars, at the gym, at schools, at the grocery store, etc. How do you see your efficacy in this scenario?

5. What does digital technology and new media allow you to do in your writing class that traditional resources would not allow?

6. How do you see your own growth in terms of technology learning?
7. In your reflections, you shared a graphic organizer, the header of thesaurus.com, your feedback comments on student work, and the jeopardy game. Those are four different multimodal resources.

   a. How were those choices of digital material specifically helpful for your students’ writing?
   b. How does your students’ background inform those choices?

8. The definition of writing is evolving, and technology is influencing it. What is your understanding of a multimodal approach to writing?

9. By multimodal, I mean the use of different modes to make meaning. So, for example, I can imply meaning by showing you an infographic, or a meme, or a video, or a paragraph, etc, and you will interpret each of them according to the context. As another example, when I sent you a Google form, you knew that the link meant a path to get to the online form and not a sentence that you must read, and then buttons and icons on the actual form have a meaning too. In that sense, some researchers believe that each word we use is a mode because they carry specific meaning in specific contexts. Does that make sense? What do you think of that concept?

   a. With that in mind, do you think your students use multiple modes (or multiple meaning making processes) when they write in English as their second language? Explain.
   b. Does that change depending on your students’ level or proficiency?
   c. Does that change depending on your students’ cultural background?
10. I sent you an image with seven affordances of new media, which includes multiple modalities, but they are not specific to teaching writing. What are your thoughts about those affordances?
   a. How are these affordances applicable to teaching L2 English academic writing?
   b. Can you think of any other advantage of digital media for teaching L2 English writing?

11. Is there anything else you would like me to know or that I should ask about these topics?

Isabella

Date:

1. Let’s talk a little bit about technology and digital media. It’s 2022, and we are surrounded by technology in almost everything we do. There is artificial intelligence and digital resources in our hands, in our houses, in our cars, at the gym, at schools, at the grocery store, etc. How do you see your efficacy in this scenario?

2. How do you see your own growth in terms of technology learning?

3. What is your philosophy of teaching and learning?

4. What does digital technology and new media allow you to do in your writing class that traditional resources would not allow?

5. In your reflections, you shared an exercise from the companion website, a scene of a video about vocabulary, a piece of student work on vocabulary, and an image extracted from the video from the companion website.
a. How were those choices of digital material specifically helpful for writing?

6. Have you ever participated in writing workshops and/or training courses specifically geared toward teaching writing? What is something interesting you learned from them?

7. The definition of writing is evolving, and technology is influencing it. What is your understanding of a multimodal approach to writing?

8. By multimodal, I mean the use of different modes to make meaning. So, for example, I can imply meaning by showing you an infographic, or a meme, or a video, or a song, or a paragraph, etc, and you will interpret each of them according to your own context. As another example, when I sent you a Google form, you knew that the link meant a path to get to the online form and not a sentence that you must read, and then buttons and icons on the actual form have a meaning too. In that sense, some researchers believe that each word we use is a mode because they carry specific meaning in specific contexts. Does that make sense? Do you agree with that concept?

   a. With that in mind, do you think your students are using multiple modes (or multiple meaning making processes) when they write in English as their second language? Explain.

   b. Does that change depending on your students’ level or proficiency?

   c. Does that change depending on your students’ cultural background?
9. I sent you an image with seven affordances of new media, which includes multiple modalities, but they are not specific to writing. What are your thoughts about that?
   a. How are these affordances applicable to teaching L2 English academic writing?
   b. Can you think of any other advantage of digital media for teaching L2 English writing?

Hannah

Date:

1. In the first interview you described the program where you work, and I have a few questions about it I would like to clarify.
   a. Tell me about the student placement. You mentioned that students are not tested when they enter the program, or at least it is not called a test. What criteria indicates the levels where students are placed?
   b. You mentioned that there is a lot to teach in the writing class and not enough time to cover everything, especially grammar. What are the teaching topics in the curriculum?

2. Let’s talk about your point of view. What is your philosophy of teaching and learning?

3. Have you ever participated in writing workshops and/or training courses specifically geared toward teaching writing? What is something interesting you learned from them?
4. Let’s talk a little bit about technology and digital media. It’s 2022, and we are surrounded by technology in almost everything we do. There is artificial intelligence and digital resources in our hands, in our houses, in our cars, at the gym, at schools, at the grocery store, etc. How do you see your efficacy in this scenario?

5. How do you see your own growth in terms of technology learning?

6. In the first interview, I asked you what digital technology and new media allow you to do in your writing class that traditional resources would not allow? You asked me to come back to this question later. Have you thought of anything that would not be possible in the writing class without the use of technology?

7. In your reflections, you shared a screenshot showing a video that illustrates how to organize an essay, an online assignment where students had to write a paragraph, a deck of slides, and a short sample of group work on Google Docs. Those are four different multimodal resources.
   a. How were those choices of digital material specifically helpful for your students’ writing?
   b. How does your students’ sociocultural and linguistic backgrounds inform those choices?

8. The definition of writing is evolving, and technology is influencing it. What is your understanding of a multimodal approach to writing?

9. By multimodal, I mean the use of different modes to make meaning. So, for example, I can imply meaning by showing you an infographic, or a meme, or a video, or a paragraph, etc, and you will interpret each of them according to the
context. As another example, when I sent you a Google form, you knew that the link meant a path to get to the online form and not a sentence that you must read, and then buttons and icons on the actual form have a meaning too. In that sense, some researchers believe that each word we use is a mode because they carry specific meaning in specific contexts. Does that make sense? What do you think of that concept?

a. With that in mind, do you think your students use multiple modes (or multiple meaning making processes) when they write in English as their second language? Explain.

b. Does that change depending on your students’ level or proficiency?

c. Does that change depending on your students’ cultural background?

10. I sent you an image with seven affordances of new media, which includes multiple modalities, but they are not specific to teaching writing. What are your thoughts about those affordances?

a. How are these affordances applicable to teaching L2 English academic writing?

b. Can you think of any other advantage of digital media for teaching L2 English writing?

11. Is there anything else you would like me know or that I should ask about these topics?

Jessica

Date:

Clarification questions from the 1st interview:
1. In the 1st interview, when you talked about standards and critical thinking, you mentioned SLOs. What does the acronym stand for?

2. You also mentioned that once a week, the writing class meets at the computer lab and all the computers are Macs. What kinds of activities do they do in that lab?

3. You mentioned your concerns about Grammarly and electronic translation tools. Has anything changed in your perspective in these past weeks?

4. Let’s talk a little more about technology and digital media. It’s 2022, and we are surrounded by technology in almost everything we do. There is artificial intelligence and digital resources in our hands, in our houses, in our cars, at the gym, at schools, at the grocery store, etc. You mentioned that you have a graduate certificate in e-learning, so you understand this scenario. How do you see your efficacy in this scenario?

5. What does digital technology and new media allow you to do in your writing class that traditional resources would not allow?

6. How do you see your own growth in terms of technology learning?

7. In everything I have read about the incorporation of instructional technologies, the choices depend on the beliefs instructors have, so let’s talk about your point of view. What is your philosophy of teaching and learning? What are your core beliefs about teaching and learning?

8. Have you ever participated in writing workshops and/or training courses specifically geared toward teaching writing? What is something interesting you learned from them?
9. In your reflections, you shared the rubric for discussion posts based on a video analysis, a PPT to guide the students in the analysis of multimodal texts, the link to a Youtube video, and a screenshot of your feedback on student work. Those are four different examples of new media and multimodal resources.
   a. In the first reflection you said the students had to engage in discussion in response to a video. What was in that video, and how did that resource impact their writing skills?
   b. How were those choices of digital media specifically helpful for your students’ writing?
   c. How does your students’ background (sociocultural/linguistic/generational) inform those choices?
   d. In our first interview, you mentioned that sometimes you make choices according to the students’ age group. How did the different age groups interact with these multimodal text analysis and resources?

10. The definition of writing is evolving, and technology is influencing it and I see that you have incorporated multiple modalities in your writing class. What is your understanding of a multimodal approach to writing?

11. By multimodal, I mean the use of different modes to make meaning. So, for example, I can imply meaning by showing you an infographic, or a meme, or a video, or a paragraph, etc, and you will interpret each of them according to the context. As another example, when I sent you a Google form, you knew that the link meant a path to get to the online form and not a sentence that you must read, and then buttons and icons on the actual form have a meaning too. In that sense,
some researchers believe that each word we use is a mode because they carry specific meaning in specific contexts. Does that make sense? What do you think of that concept?

a. With that in mind, do you think your students use multiple modes (or multiple meaning making processes) when they write in English as their second language? Explain.

b. Does that change depending on your students’ level or proficiency?

c. Does that change depending on your students’ cultural background?

12. I sent you an image with seven affordances of new media, which includes multiple modalities, but they are not specific to teaching writing. What are your thoughts about those affordances?

a. How are these affordances applicable to teaching L2 English academic writing?

b. Can you think of any other advantage of digital media for teaching L2 English writing?

13. Is there anything else you would like me know or that I should ask about these topics?

Sarah

Date:

1. Let’s talk a little more about technology and digital media. It’s 2022, and we are surrounded by technology in almost everything we do. There is artificial intelligence and digital resources in our hands, in our houses, in our cars, at the gym, at schools, at the grocery store, etc. You mentioned that you have a graduate
certificate in e-learning, so you understand this scenario. How do you see your efficacy in this scenario?

2. What does digital technology and new media allow you to do in your writing class that traditional resources would not allow?

3. How do you see your own growth in terms of technology learning?

4. In everything I have read about the incorporation of instructional technologies, the choices depend on the beliefs instructors have, so let’s talk about your point of view. What is your philosophy of teaching and learning? What are your core beliefs about teaching and learning?

5. Have you ever participated in writing workshops and/or training courses specifically geared toward teaching writing? What is something interesting you learned from them?

6. In your reflections, you shared a photo of your students at work in the classroom, screenshots of the Pathways activity, screenshots of LearnHip and Poll Everywhere grammar activities, and the Quizlet game. Those are four different multimodal resources.
   a. In the first reflection you said the students had to write in response to an image. What was in that image, and how did that resource impact their writing skills?
   b. How were those choices of digital media specifically helpful for your students’ writing?
   c. How does your students’ background (cultural/linguistic) inform those choices?
7. The definition of writing is evolving, and technology is influencing it and I see that you have incorporated multiple modalities in your writing class. What is your understanding of a multimodal approach to writing?

8. By multimodal, I mean the use of different modes to make meaning. So, for example, I can imply meaning by showing you an infographic, or a meme, or a video, or a paragraph, etc, and you will interpret each of them according to the context. As another example, when I sent you a Google form, you knew that the link meant a path to get to the online form and not a sentence that you must read, and then buttons and icons on the actual form have a meaning too. In that sense, some researchers believe that each word we use is a mode because they carry specific meaning in specific contexts. Does that make sense? What do you think of that concept?
   a. With that in mind, do you think your students use multiple modes (or multiple meaning making processes) when they write in English as their second language? Explain.
   b. Does that change depending on your students’ level or proficiency?
   c. Does that change depending on your students’ cultural background?

9. I sent you an image with seven affordances of new media, which includes multiple modalities, but they are not specific to teaching writing. What are your thoughts about those affordances?
   a. How are these affordances applicable to teaching L2 English academic writing?
b. Can you think of any other advantage of digital media for teaching L2 English writing?

10. Is there anything else you would like me to know or that I should ask about these topics?
Appendix E – Weekly Reflections and Artifacts

Research - Weekly reflections

Weekly reflections and artifact guidelines (adapted from Center for Teaching Excellence - UofSC, n.d.).

This data collection form is part of the dissertation research study "Affordances of New Media: Instructional Technologies Applied to L2 English Academic Writing," approved by the Office of Research Compliance of the University of South Carolina. IRB protocol #Pro00118521, reviews on 01/25/2022.

You are receiving the link to this form because you have volunteered to participate in this study, and have read and submitted the research consent form.

* Required
1. Name *

2. Date *

Example: January 7, 2019

Part 1 - Reflection on the use of instructional technologies for the teaching of L2 English writing for academic purposes

Written reflections are more than summaries or descriptions of what happened in the classroom. Written reflections have the purpose of an opportunity to think about what happened and what you learned from an activity. Consider and discuss what happened during a teaching and learning activity where you used instructional technologies to teach L2 English academic writing. Throughout the writing, reflect upon how the experience you gained with this activity can improve your teaching skills and future interactions with students.

Although the reflections do not have a fixed format, each item should be addressed in a separate paragraph discussion of at least 4-5 sentences. The complete weekly reflection should be about 300 words or one page long.
3. Provide a brief description of the activity you will be reflecting upon to provide the context. Please inform how you applied instructional technologies in that specific activity. Describe the impact of that instructional technology in your students’ learning of L2 English academic writing. Why did you choose that form of instructional technology? What can you and/or your students do with that form of technology that would not be possible otherwise? (approx. 100 words)

4. What are two important points you got from your lesson? Reflect upon (a) Why you made certain choices regarding instructional technologies for L2 academic English writing; (b) How you might reproduce or adapt this activity in the future; (c) What you want to reconsider for the next time, and why that is important; (d) How you might incorporate this reflection into your future teaching of L2 English writing. (approx. 100 words for each point)

5. Alternative media: If you prefer to compose your reflection on a separate document or through an audio recording, please upload the files here. (optional)

Files submitted:

Part 2 – Teaching artifact

An artifact may be (but it is not limited to) a screenshot of an online resource used in class, a video clip, a picture of electronic devices, a piece of student work (deidentified), a piece of feedback (deidentified), a diagram of the classroom layout, or a copy of your lesson plan. Since I will not perform classroom observations, the artifacts can help me better understand what you have described in your reflection and what you speak about the instructional
technologies used in your writing classes. The purpose of the artifact is to illustrate and enhance the information you are providing in your reflection.

6. Attach an artifact that illustrates your use of instructional technologies for the teaching of L2 English academic writing, and which is connected to this week’s reflection. Please, do not include photos of students or any materials that may identify them (cover names, ID numbers, faces, or any other forms of student identification).

Files submitted:

7. Please, add a brief description of the artifact you selected this week and why you chose it.

Thank you for completing the second weekly reflection.

Please, hit the submit button.

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### Appendix F - Coding

**Table F.1 Emergent codes from the first round of coding**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Samples from the data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7 affordances - theoretical framework (Kalantzis &amp; Cope, 2015)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active knowledge making</td>
<td>Students use digital media to be more productive about their learning than mere receptacles of passive knowledge.</td>
<td>“Technology such as computers, and online library allowed the student to access information in class. Also, the student could save articles they found.” (Natalia, weekly reflection #1)</td>
</tr>
<tr>
<td>Collaborative intelligence</td>
<td>Learning is a sociocultural process, and students can learn more as they can develop knowledge in collaboration.</td>
<td>“It was something that they collaboratively edited and revised together.” (Sarah, interview #2)</td>
</tr>
<tr>
<td>Differentiated learning</td>
<td>Learning activities can be tailored to the needs of individual learners.</td>
<td>“We don't have a true-beginner material or anything, So I have to adapt the level-one material for the basics. With level one, I use more of the companion website. They have a lot of resources in those sites (...) When I go to level two and three, I use more of the Internet. So, I go beyond their companion websites, and I look for articles.” (Isabella, interview #1)</td>
</tr>
<tr>
<td>Metacognition</td>
<td>Teachers and students may reflect on the learning processes, and they can register their reflections in various modalities.</td>
<td>Explaining how she introduced close reading to her students: “The essayist also does a great job of editing scenes from <em>Lilo and Stitch</em> together with comparisons from other films, to SHOW the specific points she is analyzing. It's a great way for students to really SEE the analysis, in a way that just text doesn't quite do.” (Jessica, weekly reflection #2)</td>
</tr>
<tr>
<td>Multimodal meaning</td>
<td>Students can generate their learning content through videos, audio, images, and much more than simply writing a unidimensional paper.</td>
<td>“things like (...) showing them how to do a video presentation where they record themselves with the PowerPoint, using Zoom.” (Jessica, interview #1)</td>
</tr>
<tr>
<td>Recursive feedback</td>
<td>Feedback can be timelier throughout the learning process. Additionally, immediate feedback can come from peers as well as from instructors.</td>
<td>“In the comments in Canvas, (...) I provide within the document, you know, when you submit your assignment, I will comment on all the mistakes.” (Hannah, interview #1)</td>
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</tr>
<tr>
<td>Ubiquitous learning</td>
<td>Learning happens beyond the boundaries of the classroom and of the class time, and it can occur anywhere and anytime.</td>
<td>“We can access these materials from anywhere. We don't need to travel to the location to go to the library. We can use this in our personal computers at home. We can pull up our phones from our pocket.” (Isabella, interview #2)</td>
</tr>
<tr>
<td><strong>Concerns</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authentic assessment issues</td>
<td>Problems encountered in writing assessments students complete online.</td>
<td>“I had 25 students [in remote learning]. I don't know what they learned to be honest with you.” (Isabella, interview #1)</td>
</tr>
<tr>
<td>Clear expectations</td>
<td>When course instructors select a certain digital media, it is important to clearly explain to students what their expectations are so that students can work with it adequately.</td>
<td>“Despite the popularity of discussion posts, it seems instructors and professors haven't quite figured out how to assign them or explain their expectations.” (Jessica, Weekly reflection #1)</td>
</tr>
<tr>
<td>Compatibility</td>
<td>Issues encountered when various apps or devices do not work well together.</td>
<td>“other options like Google Docs, which do not always interface well with Microsoft products.” (Sarah, Weekly reflection #1)</td>
</tr>
<tr>
<td>Cost</td>
<td>Some multimodal digital media can be costly, which hinders student access.</td>
<td>“The MyELT platform is under constant criticism for being expensive for the students.” (Sarah, weekly reflection #2)</td>
</tr>
<tr>
<td>Cumbersome access</td>
<td>Some digital tools may require several steps to get to the resources we really need.</td>
<td>“I hate the fact that every time I turn on the TV, I have to press 30 buttons instead of just one on and off.” (Isabella, interview #2)</td>
</tr>
<tr>
<td>Different skill levels</td>
<td>This code may include the description of students who lack basic digital literacy skills such as typing on a keyboard, saving documents, and submitting assignments.</td>
<td>“So sometimes I hear students say, Oh, you have found this on YouTube, versus students who never had the computer or didn't have access to it don't even know what YouTube is.” (Hannah, interview #1)</td>
</tr>
<tr>
<td>Lack of interpersonal connection</td>
<td>By using digital tools and relying on online resources, students and teachers may become detached.</td>
<td>“To be honest with you, I didn't like it at all because I couldn't connect with the students. I couldn't see what they were doing [in online classes].” (Isabella, interview #1)</td>
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</tr>
<tr>
<td>Plagiarism and cheating</td>
<td>Concern about students using digital tools to cheat or misusing digital media to plagiarize the content of their writing.</td>
<td>“They find ways to hide their translation pages. They find ways to check, double check in Google, and then they turn in a graded assignment, and you don't know if they cheated or not.” (Isabella, interview #1)</td>
</tr>
<tr>
<td>Tech dependency</td>
<td>Concern that students may become dependent on technology to write in English.</td>
<td>“I kind of mostly use Google Doc, like Google Doc, but I tell students to turn off, like turn off editing, so it feels like paper (...) to make sure they know how to write.” (Natalia, interview #1)</td>
</tr>
<tr>
<td>Tech instability</td>
<td>Internet signal and electronic devices can be unstable and unreliable sometimes.</td>
<td>“Yesterday, we had a problem with the internet, and I had to wait for some time to continue working on giving feedback to students.” (Natalia, weekly reflection #3)</td>
</tr>
<tr>
<td>Time constraint</td>
<td>Sometimes, the use of new digital media can be time consuming for teachers and students.</td>
<td>“Students don't know how to type, so that slows them down on any tests. Yeah, I mean, it just slows them down with everything.” (Hannah, interview #1)</td>
</tr>
</tbody>
</table>

**Defining writing**

| multimodalities and semiotics    | This code gathers all the instances when the participants mentioned meaning making processes in different languages and how that can be related to the concept of L2 writing as a multimodal literacy in itself. | “I get the organization. It's so different than in Polish. In Poland, you just you want to kind of tease the reader with asking questions. You want the reader, at the end, to say, ‘that's interesting,’ but here, you want the reader to be satisfied. You don't want the reader to have any questions afterwards. You want the reader to know it all. You need to answer the questions in your writing.” (Hannah, interview #1) |

| What is writing?                 | Teachers describe their beliefs about writing, L2 writing, or academic writing.                  | “For me writing is as a way to express our opinions, beliefs and knowledge in a written form. And to be successful in writing. You need to be successful in reading and like reading, probably in grammar as well. So, the purpose of writing is to be able to express what you want to say so that |
Other affordances

<table>
<thead>
<tr>
<th>Access to authentic texts</th>
<th>Teachers and students can access authentic texts written in English using digital media.</th>
<th>“there is access to a lot of information that we didn't have before without technology, easy access, fast access.” (Isabella, interview #2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymity</td>
<td>Through technology, students can submit their questions, comments, and answers anonymously giving the teacher the chance to address everyone's needs.</td>
<td>“The last two screen shots show not only assessment but also engagement without anyone losing face or being called out for not knowing the material.” (Sarah, weekly reflection #4)</td>
</tr>
<tr>
<td>Convenience</td>
<td>This code is not to be confused with ubiquitous learning. Convenience is observed when all the course materials are conveniently stored and accessible in one place. Users don't need to carry loads of papers and office supplies.</td>
<td>“If we did not have access to those online dictionaries, the process would take much longer, and students would have to carry heavy dictionaries with them at all times.” (Natalia, weekly reflection #2)</td>
</tr>
<tr>
<td>Dissemination of information or resources</td>
<td>Teachers can use digital tools to distribute course materials and information to the students.</td>
<td>“a lot of these activities I use because I can embed them [on Canvas], and [the students] can use on their own time asynchronously when they're not sure what to do or how to do or what they need.” (Sarah, interview #1)</td>
</tr>
<tr>
<td>Intercultural understanding</td>
<td>Digital tools facilitate the conversation about diverse writing conventions.</td>
<td>“When we can use a creative tool and bring students together to write together, they can compare their writing styles, their rhetoric, their argumentative pattern, and they come they can come to a better understanding of what writing in English is.” (Sarah, interview #2)</td>
</tr>
<tr>
<td>Modeling</td>
<td>Using multimodal digital texts to model how to complete a writing task in a way that students can revise later at their own convenience.</td>
<td>“The video shows students how to search for articles, limit the search, download an article, copy the citation, and use proximity search on three databases through the libraries.” (Jessica, Weekly reflection #3)</td>
</tr>
<tr>
<td>Motivation and focus</td>
<td>Digital multimodalities can be engaging for students.</td>
<td>“I used Google Docs this time to provide a bit of variety and to spark students’ interest in trying something new.” (Hannah, Weekly reflection #4)</td>
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</tr>
<tr>
<td>Organization</td>
<td>Examples of how cloud storage can be convenient to keep learning materials organized.</td>
<td>“I do not require students to purchase a book, keeping documents organized and accessible to students is a must.” (Natalia, weekly reflection #2)</td>
</tr>
<tr>
<td>Plagiarism prevention</td>
<td>Digital tool can help teachers identify plagiarism in their students’ assignments.</td>
<td>“I enjoy working with the assignment tool [on Canvas] as it allows me to check for plagiarism.” (Natalia, Weekly reflection #3)</td>
</tr>
<tr>
<td>Preparing for success</td>
<td>The language class is a space where students can also practice new skills to be successful in future academic endeavors.</td>
<td>“Second, discussions posts had been gaining popularity pre-pandemic and the move to remote learning seemed to push that popularity into high gear. For students who are planning to study in the U.S. (and quite possibly for those studying around the world as well), having practice with discussion posts and responses seems appropriate.” (Jessica, Weekly reflection #1)</td>
</tr>
<tr>
<td>Productivity</td>
<td>Digital tools can enhance productivity.</td>
<td>“The LMS [Canvas] automatically calculates cumulative grades and generates students’ final grades for us.” (Isabella, Weekly reflection #1)</td>
</tr>
<tr>
<td>Saving material resources</td>
<td>By going digital, teachers and students can save money and other resources.</td>
<td>“Oh, [I can do] so much, so I don’t use that much paper anymore. It makes me really happy! And also, it puts the information right in students’ hands. So, pre-pandemic, I would type up the directions, print them out, and hand them to the students. And then at the end of class, I would find the paper on the desk because they forgot to take it with them. But now they have it.” (Jessica, interview #1)</td>
</tr>
<tr>
<td>Supplemental materials</td>
<td>Teachers can find multimodal materials online to supplement their coursebooks and selected curriculum.</td>
<td>“I have been using this National Geographic platform as supplemental materials to reinforce the content, vocabulary, and skills for this high beginner Academic reading and writing class.” (Sarah, Weekly reflection #2)</td>
</tr>
<tr>
<td>Teacher development</td>
<td>Teachers can also learn and grow professionally while selecting multimodal content for their classes.</td>
<td>“By watching the video from somebody else on a subject that I’ve been teaching forever, but I see a different perspective from this teacher that is talking about the same subject gives me maybe a new a new point of view in an easier way or a more interesting way to teach that to my students. So, I also grow as I am doing this type of research to prepare the classes to deliver to the students using these new technologies.” (Isabella, Interview #2)</td>
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</tr>
<tr>
<td>Q2 - underlying factors</td>
<td>What are some of the underlying factors that language instructors identify as affecting their choices of instructional technologies when they teach L2-EAP writing?</td>
<td>“The reason why I used the video and asked the students to watch it before the class meeting and discussing the new topic in class was to save the time in class.” (Hannah, Weekly reflection #1)</td>
</tr>
</tbody>
</table>
### Appendix G – List of artifacts submitted by the participants

**Table G.1 List of artifacts submitted by the participants**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Artifact thumbnail</th>
<th>Digital multimodality of choice</th>
<th>Instructional purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hannah</td>
<td>• Screenshot</td>
<td>• YouTube video and a</td>
<td>• Model how to write</td>
</tr>
<tr>
<td></td>
<td></td>
<td>hyperlinked essay sample on a</td>
<td>an opinion essay</td>
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<tr>
<td></td>
<td></td>
<td>Word document</td>
<td></td>
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<tr>
<td></td>
<td>• Screenshot</td>
<td>• Online assignment page</td>
<td>• Provide students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>containing textual instructions</td>
<td>with the instructions</td>
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<tr>
<td></td>
<td></td>
<td>to complete the assignment, a</td>
<td>and rubric of a</td>
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<tr>
<td></td>
<td></td>
<td>hyperlink to Word document,</td>
<td>graded writing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and a decorative image of a</td>
<td>assignment.</td>
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<tr>
<td></td>
<td></td>
<td>notebook and pencil.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Screenshot</td>
<td>• Power Point (PPT) slides</td>
<td>• Provide students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>containing writing prompts and</td>
<td>with group practice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>models of stated opinions.</td>
<td>on how to state</td>
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<tr>
<td></td>
<td></td>
<td>Hannah shared the PPT during a</td>
<td>opinions about given</td>
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<td></td>
<td></td>
<td>Zoom online synchronous</td>
<td>topics.</td>
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<tr>
<td></td>
<td></td>
<td>meeting where students were</td>
<td></td>
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<td></td>
<td></td>
<td>separated in breakout rooms</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and worked collaboratively.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Screenshot</td>
<td>Google Docs for group work and online synchronous collaboration.</td>
<td>Practice how to use quotes and in-text citations based on a text read in class.</td>
</tr>
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<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Isabella</td>
<td>Photo</td>
<td>Textbook companion website projected on the large screen. Students also had access to the same content from their personal devices.</td>
<td>Share instructions for a writing assignment.</td>
</tr>
<tr>
<td>Photo</td>
<td>YouTube video with colorful illustrations and sounds</td>
<td>Present target vocabulary in a memorable and multimodal way.</td>
<td></td>
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</tr>
<tr>
<td>Online assignment page on Canvas, where a student submitted his/her assignment</td>
<td>Submission of writing assignment and online written feedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annotated and color-coded text projected on the large screen</td>
<td>Provide feedback to the whole class</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• Photo

• Slides projected on the large screen with color-coded sentences and an illustrative image.

• Provide grammar instruction and model sentences.

Jessica

• Screenshots in Word document

• Assignment description posted on Canvas including rubric.
  o The snapshot shows detailed requirements and expectations, a hyperlink to the source material (video), highlights on important details, and font formatting to draw the students’ attention to specific elements of the rubric.

• Provide clarity on the formative assessment.
| • Slides in PDF format | • Graphic organizer for a video/text analysis  
| |  
| | • Activity steps  
| | • Hyperlink to the primary source material (video) which students can use as a mentor text for their follow up assessment.  
| | • The first and the third slides are similar. However, the first one serves as a space for brainstorming.  
| • YouTube link  
| https://youtu.be/mpv6lhiHx7s | • Hyperlink to a YouTube video  
| | • The video lesson shows students how to use databases to write their academic papers  
| • Screenshot | • Color coded feedback on a writing assessment. The feedback is provided on Canvas. It includes handwritten annotations on the text and typed comments on the margin.  
<p>| | • Provide individualized and specific feedback on an writing sample |</p>
<table>
<thead>
<tr>
<th>Natalia</th>
<th>Image</th>
<th>Graphic organizer shared through a Word document</th>
<th>Provide students with a structured guide for their library activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Screenshot of the top section of an online thesaurus</td>
<td>Demonstrate to students how to properly use an online thesaurus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Piece of feedback notes</td>
<td>Provide a student with timely feedback that is specific and individualized</td>
</tr>
<tr>
<td>Image</td>
<td>Screenshot of a Jeopardy style game constructed on PowerPoint</td>
<td>Dynamic practice of the target language in an engaging and motivating interface</td>
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<td>--------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Classroom photo accompanied by the handout and PPT used in the class</td>
<td>Photo of students using their devices to access course content and collaborate on an activity</td>
<td>Multimodal text analysis</td>
<td></td>
</tr>
<tr>
<td>Screenshots before and after exercises from the textbook’s companion website</td>
<td>Companion website exercises with prescribed answers</td>
<td>Highly controlled language exercises</td>
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<tr>
<td>• Word document for students to work collaboratively on revising and editing sentences.</td>
<td>• Shared Word document</td>
<td>• Raise awareness to common language errors that appeared in a recent assignment.</td>
<td></td>
</tr>
<tr>
<td>• Screenshots of Poll Everywhere</td>
<td>• Polling website</td>
<td>• General feedback on sentence construction</td>
<td></td>
</tr>
</tbody>
</table>
- Screenshots of LearnHip
- Online exercise website where students can receive immediate general feedback
- Language practice (word order)
• Screenshots of Checkpoint
• Screenshot of an online game meant for test practice.
• Anonymous feedback on common areas of need.
“Of making many books there is no end.”

Ecclesiastes 12:12

We will keep on writing.