

EXPLORING THE PERSPECTIVES OF PRE-SERVICE TEACHERS REGARDING THE
USE OF DIGITAL LITERACY PRACTICES FOR CULTURALLY SUSTAINING
PEDAGOGY

by

CIGDEM YUREKLI

(Under the Direction of DONNA E. ALVERMANN)

ABSTRACT

The purpose of this study was to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy. This study used Q methodology to inquire about pre-service teachers' perspectives. The 34-item Q-set consisted of statements designed to examine participants' perspectives regarding the use of digital literacy practices for culturally sustaining pedagogy. Seventeen pre-service teachers participated in the study by completing a Q-sort, pre- and post-Q-sort questionnaires. The data analysis revealed three factors representing participants' perspectives about digital literacy practices, culturally sustaining pedagogy, and their implementation in the classroom. The results of the study also showed that pre-service teachers agreed on the relevance and potential advantages of using digital literacy practices for culturally sustaining pedagogy.

INDEX WORDS: literacy, digital literacy, culturally sustaining pedagogy, pre-service teachers, Q methodology

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CHAPTER ONE

INTRODUCTION

Although I cannot define myself as a digital native, I was born when technology and digitalization began to become widespread in the era of globalization. However, technology long remained a phenomenon with which I felt unfamiliar. I must also admit that I thought that technology and digitalization had some negative effects on educational activities. To some extent, I was one of the teachers to whom Hagood (2013) referred as “resist[ing] teaching with digital literacies, even as they are aware of these literacies’ centrality in students’ lives” (p. 221). When I think of my prejudices now, I realize that I did not provide enough conditions in which to read, write, produce, learn, and experience with my students. As I consider these shortcomings in light of what I have learned and the perspective I have now, I am embarrassed by my attitudes and feel the need to question the reasons behind them.

First of all, I think that since the new technologies started to become widespread, some educators, researchers, and decision-makers, have focused on their drawbacks for education, and I have kept up with these perspectives without considering what is going around the world. However, I believe that the most significant reason for my views was my own education process into the profession of teaching the Turkish language and literature. Even though I received an outstanding education in my country’s circumstances, something important was missing from my preparation: The awareness of new literacy practices, specifically digital literacies, which were stapled of the challenges and affordances of rapidly changing technology. The definition of literacy, than I am used to know, is broadened to the new literacies since it “focuses on ways in

which meaning-making practices are evolving under contemporary conditions that include, but are in no way limited to, technological changes associated with the rise and proliferation of digital electronics” (Knobel & Lankshear, 2014, p. 97).

I have kept questioning my position and responsibilities toward this newly developed area that I have been introduced by my graduate studies. What more I can do, how I can improve my skills, and how I can guide my students to save them the similar gap I felt. Reading and learning about new literacy practices have opened new doors to my world of thought and aroused my curiosity while they allow me to start exploring issues that I often thought of but could not make sense of many topics in which I knew nothing.

My personal realization is discovering that language and literacy education cannot be carried out only in the form of information transfer. I, also, have understood that literacy touches elements that shape every moment of our lives, which constitutes our cultural beings. Hence, language and culture are two interwoven elements of our lives. Furthermore, these two major elements have become even more inseparable with the development of today’s technologies. Since diverse cultures, even indigenous ones, have found a venue in which they can represent themselves by means of technology (New London Group, 1996), we become connected within a vast diversity without even being aware of it. Thus, we need to consider the function of culture in literacy education.

Paris (2012), who conceptualized culturally sustaining pedagogy, suggested that culturally sustaining pedagogy has a significant role in today’s world where diversity increases rapidly for various reasons. Besides, the internet and communication technologies bring diversity and cultural interaction to the forefront in almost every aspect of our lives. In consideration of these developments, it becomes even more vital for students to realize and utilize diversity by

acquiring new skills such as engaging different people, exploring various cultures and perspectives through technological access.

As a language arts teacher, I believe that teachers have many opportunities for recruiting in culturally sustaining pedagogy thanks to digital literacy. However, pre-service teachers may have thoughts and prejudices towards technology and digital practices like me. Hence teachers' beliefs become important factors within this study since they affect and shape teaching practices in and out of the classroom. In this respect, it is crucial to explore the perceptions of pre-service teachers as they prepare to take an active teaching role.

Background of the Study

According to the PISA 2021 ICT Framework, information and communication technology proficiency and digital literacy are essential skills that students need to develop in the digital age of the 21st century (Lorceau, Marec, & Mostafa, 2019). Because literacy and literacy education have dramatically changed in the digital world, teachers need to guide students, so they acquire these necessary skills and the capacity for further learning as changes continue to occur. In the digital age, new literacy practices combine technology competencies with traditional literacy practices such as reading and writing printed texts. As new technologies have evolved, new ways of text dissemination have emerged as well as the ontological form of the text has changed (Alvermann, Young, McGrail, Damico, & Zucker, 2019). As Coiro, Knobel, Lankshear, and Leu (2008) stated, digital technologies have substantially transformed how we read, write, and communicate.

With these changes in literacy and literacy education, teaching and learning have inevitably gained new dimensions that require teachers to guide students. Along with linguistic materials, multimodal materials such as images and videos are included in the text making. More

importantly, reviewing the information obtained and creating new content with the aforementioned materials become the crux of the new literacy practices. Moreover, digital technologies have facilitated the dissemination of texts produced in various formats to a worldwide audience. Thus, digital literacy can be seen as a tool that potentially provides greater access to diversity. In the words of Rowsell, Morrell, and Alvermann (2017),

Digital literacies suggest a world where everyone has constant access to technologies, apps, videos, and social media that allow for exploration, knowledge work, and connections between people, and this is simply not the case for so many people, particularly children and adolescents. (p. 157)

On the other hand, educational environments have also changed over time due to people's mobility and have gained more diverse and complex features in recent years. The rapid changes in the populations of many countries have resulted in a greater diversity of their student population. However, this vivid diversity has brought some obstacles into the educational domains. As Alim and Paris (2017) pointed out, the social and educational inequality, which still exists, is coupled with major demographic changes in the USA and Europe and even in other regions. This hindrance has them repeated the question of what the purpose of education is in pluralist societies. They also stated that they believe "centering the dynamic practices and selves of students and communities of color in critical, additive and expansive vision of schooling" (Alim & Paris, 2017, p. 3) is crucial for providing equity and access.

Although many of teachers would welcome the new cultures in the classroom, the range of cultural diversity present among students today has many implications for them. Therefore, teachers should understand the literacy need of students who are from various racial, ethnic, socioeconomic, linguistic and religious backgrounds. Díaz-Rico (2002) stated that although

teachers are not entirely familiar with every nuance of different cultures, they should understand that there are general patterns of behavior that all human societies have but are expressed in different ways. In addition, teachers' literacy instruction and practices should align to meet the needs of culturally and linguistically diverse students. Alvermann and Phelps (2005) pointed out that:

Without knowledge of the different norms, values, myths, traditions, and symbols that have meaning for different cultural groups, you will find it difficult to access or build on your students' rich and diverse backgrounds when introducing new concepts and strategies for learning from texts.

Although developing an awareness of your students' cultural backgrounds is important, it is not enough. Too often we think of "other" people as having a diverse set of beliefs and values and yet remain blind to our own. (pp. 40-41)

Along with the cultural diversity in the classroom, individual differences of students might interfere with the classroom teaching. According to Alvermann and Qian (1994), there may be discrepancies among students with diverse cultural and linguistic backgrounds in their adaptations to social interactions, learning activities, traditional classroom structure, and literacy practices. Teachers need to be aware of students' varying interests and beliefs about what is essential as subject matter. They should develop strategies to provide language support and guide students' socialization. It is also wise to consider that while there may be misunderstandings even among people who speak the same language, both verbal and non-verbal communications will diversify considerably depending on social and cultural contexts (Alvermann & Phelps, 2005).

Since teachers' understandings and practices can affect the academic achievement and self-esteem of students having diverse cultural backgrounds, culturally sustaining teaching practices have gained importance (Childs, 2017). Alim and Paris (2017) pointed out that culturally sustaining pedagogy is increasingly necessary by emphasizing the culturally sustaining pedagogy's call for as schools be a place to pursue cultural ways of being color communities. They also claimed that culturally sustaining pedagogy provides to re-evaluate schools as places where diverse and heterogeneous practices are not seen as only valuable but also sustainable. In addition to this, by developing a multicultural and multilingual perspective or competence, students' expanding their cultural repertoire allows them to operate more conveniently in a globally interconnected world (Ladson-Billings, 2017).

The conundrum that is presented by mobility and diversity in the classroom prompts literacy researchers to find to inform classroom instruction. One of the prominent suggestions was using the ubiquitousness of technology to reach diverse and inclusive education (New London Group, 1996). Moreover, digital literacy platforms create a venue in which diverse cultures and literacies have become more apparent than ever. So, the potential benefits of combining digital literacy practices and culturally sustaining pedagogy are manifold. While out of school literacies have grown as much as traditional literacies by means of technology (Jenkins, 2016), teacher education, unfortunately, has not been able to catch this fast growth (New London Group, 1996).

Statement of the Problem

The ubiquitousness of new literacy practices that young students have developed using digital media in the current century has changed students' modes and styles of learning. The ELATE Commission on Digital Literacy in Teacher Education pointed out that "digital

technologies offer new opportunities to read, write, listen, view, record, compose, and interact with both the texts themselves and with other people” (Lynch et al., 2019, p. 307). Alvermann and Sanders (2019) also mentioned that “young people are eager to engage with digital literacy practices in spaces that afford what they view as authentic learning opportunities” (p. 3). Moreover, according to the International Reading Association (IRA) (2009), students need to be proficient in the new literacies of 21st century technologies to become literate, and language arts teachers play a crucial role in preparing students ready for their future literacy needs by effectively integrating new technologies into the curriculum.

Teachers need to provide learning experiences for students in digital reading and writing as social literacy practices by which they can access their community and beyond to a global audience (Lynch et al., 2019). Accordingly, pre-service teachers should develop ways of promoting digital literacy for building collaborative knowledge, sharing learning experiences, and valuing diversity. To create such curriculum in teacher education, it is crucial to understand pre-service language arts teachers’ perspectives related to digital literacy and its use to promote culturally sustaining pedagogy.

Although there are many studies of pre-service teachers’ opinions on digital literacy or culturally sustaining pedagogy, studies examining pre-service teachers’ views on digital literacy practices for maintaining culturally sustaining pedagogy is scant.

Purpose of the Study

The purpose of this study is to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy. To reveal the perspectives of pre-service teachers, this study uses Q methodology, a mixed-methods interdisciplinary approach, which will be discussed in detail in

Chapter Three. In order to identify pre-service teachers' perspectives and beliefs about the use of digital literacy practices for culturally sustaining pedagogy, a Q-sort will be conducted. It is expected that the proposed study can contribute to gaps in the literature with regard to the perspectives and beliefs of prospective teachers about pursuing culturally sustaining pedagogy with digital literacy practices. The goal is to contribute to the literature by revealing teacher candidates' perspectives on digital literacy, culturally sustaining pedagogy, and culturally appropriate ways to promote students' skills in digital literacy.

Theoretical Framework

The purpose of this study is to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy. Thus, this purpose can be achieved through the culturally sustaining pedagogy as the aim of culturally sustaining pedagogy is “to perpetuate and foster - to sustain - linguistic, literate, and cultural pluralism as part of the demographic project of schooling” (Paris, 2012, p. 93).

Paris (2012) has built culturally sustaining pedagogy on the tenets of culturally relevant pedagogy (Ladson-Billings, 1995). Ladson-Billings (1995) suggested culturally relevant pedagogy as an asset-based approach, stated that teachers should help students realize, comprehend, and criticize existing social inequalities alongside promoting cultural competence and academic achievement. Besides, Ladson-Billings (2017) pointed out that one of the components of culturally relevant pedagogy is cultural competence which means the skill that will help students learn to develop fluency in at least one other culture in addition to their own culture of origin.

On the other hand, Paris (2012) offered the term culturally sustaining pedagogy as a new way to make available cultural heritage continue beyond being responsive or relevant to cultures. Moreover, Ladson-Billings (2014) agreed with Paris's offer for the shift in terminology from culturally relevant to culturally sustaining by emphasizing the changing nature of scholarship. According to Paris (2012), the purpose of culturally sustaining pedagogy is to be that teachers “support young people in sustaining the cultural and linguistic competence of their communities while simultaneously offering access to dominant cultural competence” (p. 95). By emphasizing the need for erasing the deficit perspective in the educational system, Paris (2012) mentioned one of the goals of culturally sustaining pedagogy as promoting “multilingualism and multiculturalism in practice and perspective for students and teachers” (p. 95). Therefore, this study will use culturally sustaining pedagogy as a theoretical approach to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy.

Definition of Terms

For the purposes of clarification, the following terms were identified. These definitions were based on how these terms used in the study.

1. Literacies — Emphasizing the necessity of understanding literacy as multiple rather than defined as a singular phenomenon, Lankshear and Knobel (2011) described literacies as follows “socially recognized ways in which people generate, communicate, and negotiate meanings, as members of Discourses, through the medium of encoded texts” (p. 33).
2. New Literacies — By pointing out “the idea of literacies that can be regarded as ‘new’ in an ontological sense - being composed of different kinds of ‘stuff’ from conventional literacies” (p. 55), Lankshear and Knobel (2011) stated that there is “a distinction

between new technical ‘stuff’ and new ethos ‘stuff’. At the heart of the idea of new technical stuff is digitality: the growth and ongoing development of digital-electronic technologies and the use of programming languages (including the use of source code and binary code) for writing programs, storing and retrieving data, establishing electronic networks, collaboration platforms, and so on. At the heart of the idea of new ethos stuff is the idea of technological change aligning with a range of increasingly popular values” (p. 55).

3. Digital Literacy — Snyder and Bulfin (2008) defined digital literacy as “the ability to use and understand information in multiple formats from a range of sources, when it is presented via the electronic screens of digital technologies. Core digital literacies include Internet searching, hypertextual navigation, content evaluation, and knowledge assembly” (p. 807).
4. Culture — According to Ladson-Billings (2017), “culture involves every aspect of human endeavor, including thought, perceptions, feelings, and attitudes. It is not merely the visible and tangible components of a community such as artifacts, foods, and customs, although those things are indeed a part of culture” (p. 143).
5. Diversity — “Differences among groups of people and individuals based on ethnicity, race, socioeconomic status, gender, exceptionalities, language, religion, sexual orientation, and geographical area” (National Council for Accreditation of Teacher Education, 2008, p. 86).
6. Culturally Sustaining Pedagogy (CSP) — The term culturally sustaining pedagogy was offered by Paris (2012) as an alternative to culturally relevant pedagogy framed by Ladson-Billings (1995). Culturally relevant pedagogy, while questioning structural

inequality, racism and injustice in society, argues that teachers should respect the cultural practices that the student brings to the classroom (Ladson-Billings, 1995). However, Paris (2012) presented the term culturally sustaining pedagogy that “embodies some of the best research and practice in the resource pedagogy tradition and as a term that supports the value of our multiethnic and multilingual present and future” (p. 93). Alim and Paris (2017) indicated that “CSP seeks to perpetuate and foster - to sustain - linguistic, literate, and cultural pluralism as part of the democratic project of schooling for positive social transformation” (p. 1). Even though culturally relevant pedagogy was commonly used in teaching and learning research, this study focuses on the term of culturally sustaining pedagogy.

7. Pre-service teacher — In this study, the pre-service teacher is defined as an undergraduate or graduate student who is trained to be a teacher and seeking entry into the teaching profession.
8. Perspective — In this study, perspective is defined as a particular thought about a phenomenon or event with the influence of personal beliefs, experiences, and knowledge.

Research Questions

The purpose of this study is to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy. The following research questions guided the study:

1. What are the perspectives of pre-service teachers who have trained in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy?

2. Is there a relationship between demographic factors (such as age, gender, race, education level) and the perspectives of pre-service teachers on the use of digital literacy practices for sustaining culturally sustaining pedagogy?

Organization of the Thesis

The organization of this study consists of five chapters. Chapter One is the introduction to the study. In chapter one, the researcher first addresses the introduction and background of the study followed by the statement of the problem, the purpose of the study, the research questions, the theoretical framework, and definition of terms. This chapter ends with an overview of the organization of the thesis. Chapter Two is a review of the literature. Chapter Two reviews articles, books, and educational literature that represents recent research and commentary on the topic of digital literacy, new literacies studies, culturally sustaining pedagogy. Chapter Three presents the research methodology. The outline of Q-methodology, a description of the concourse and Q instrument used for data collection in this study, and an explanation of Q-factor analysis will be given in Chapter Three. Chapter Four presents the research findings. In Chapter Five, the researcher provides a summary of the findings and implications for practice and further research.

CHAPTER TWO

REVIEW OF THE RELEVANT LITERATURE

By the advent of the 21st century, technology was witnessed to change the world and people's lives in various ways (Manderino & Castek, 2016; Phillips & Manderino, 2015). Technology has also opened a new and effective way to address issues of voice, representation, and power (Alvermann & Hagood, 2000), as people have created new channels of social interaction through which they act fluidly online and offline (Gee & Hayes, 2011).

For many people, the digital world has become an essential part of the real world. Consequently, classrooms, schools, and various educational environments cannot be considered separately from this trend (Tour, 2015). Studies in literacy studies in recent years have made significant contributions to the re-consideration the domain of literacy and understanding the relationship between digital technologies and literacy education (Coiro et al., 2008). According to most researchers, students need opportunities to beyond print-based literacy to develop digital technology skills to function effectively in today's society (Lorenceau et al., 2019). Therefore, new literacy studies and digital literacy have become an integral part of language and literacy education.

New Literacies Studies in the 21st Century

As a critical component of these recent developments, the concept of multiliteracies, which acknowledges the importance of sociocultural diversity, has gained importance in literacy education, beginning with the manifesto of the New London Group (1996). The concept of "multiliteracies" has been used to emphasize the need for new competencies given the

proliferation of literacy communication media. Apart from being defined as reading and writing ability, literacy, as a collection of cultural and communicative practices shared among members of a particular group (Gee, 2010), involves the ability to understand and use culturally meaningful symbol systems, construct and share ideas, experiences, knowledge, and affective meanings (Hobbs, 2016).

According to Gee's (2008) notion of "ways of being in the world" (p. 3), being literate requires being proficient in several discourses. Similarly, Moje (2015) argues that literacy instruction includes teaching students specific ways to participate in and between discourse communities. According to the New London Group (1996), cultural and linguistic diversity are significant issues that cannot be ignored, and the role of schools has changed accordingly:

Instead of states that require one cultural and linguistic standard, we need states that arbitrate differences. Access to wealth, power, and symbols must be possible no matter what one's identity markers - such as language, dialect, and register - happen to be. States must be strong again, but not to impose standards: they must be strong as neutral arbiters of difference. So must schools. And so must literacy pedagogy. This is the basis for a cohesive sociality, a new civility in which differences are used as a productive resource and in which differences are the norm. (p. 69)

In keeping with this principle, the area of new literacies studies has become essential to explore ways to take advantage of the opportunities of new technologies (Leu, Kinzer, Coiro, & Cammack, 2004). Of particular importance is the embeddedness of new literacies studies in authentic contexts and practices. Within the wide scope of new literacies studies, digital literacy comprises both technological competency and contextualized practices within associated

discourses (Gee, Hull, & Lankshear, 1996; Street, 2003). Digital literacy entails much more than learning technical skills as it promotes the concept of text as a multimodal resource that includes, for example, print, photographs, videos, music dramas, and dance (O'Brien & Scharber, 2008), all of which can be created and reconstructed within the framework of digital literacy.

Digital Literacies

Studies in literacy studies in recent years have made significant contributions to the re-consideration and understanding of literacy in terms of the relationship between digital technologies and literacy education. Kajee (2018) referred to digital technology as “a sign of social change” (p. 3), suggesting that computers have gained meaning beyond their function as information devices among all people of all ages. In a similar vein, Manderino and Castek (2016) pointed out that digital literacies do not represent only the ability to use technology-based texts and tools, but include the many ways in which people cooperate, produce, and interact using digital texts and tools.

In addition to offering the same conceptualization of the new literacies, Lankshear and Knobel (2011) made a significant differentiation between the “technical stuff” and the “ethos stuff” (p. 55) of new literacies. While the “technical stuff” includes multimodal processing such as mixing text, image, and sound, the new aspects of “ethos” refer to more participatory and collaborative forms of communication. That is, digital literacies not only reflect competency in the use of digital tools to consume and create the knowledge, but they also cover the ways of thinking and abilities needed to make choices and to engage with, attend to, and affect each other in a connected society (Lankshear & Knobel, 2007).

On the other hand, digital literacy has brought along significant challenges for policy, pedagogy, and research in education (Knobel & Lankshear, 2006; Phillips & Manderino, 2015).

As a result of the new channels of information and communications, multimodality is becoming more significant because ways of both making and communicating meaning are shifting from linear alphabetical modes to “oral, visual, audio, gestural, tactile and spatial patterns of meaning” (Kalantzis, Cope, Chan, & Dalley-Trim, 2016, p. 2). Digital literacy practices have presented various possibilities for telling stories, presenting images, and expressing identities; they also provide creative opportunities for play and new ways to reach the students’ worlds. By providing unique ways of creating and conveying meaning, new digital tools enable using multiple media modes in addition to printed texts (Kajder, 2007). Thus, digital media literacy requires a more complex level of literacy than textual literacy alone (Lankshear & Knobel, 2008).

Moreover, young people are taking their place not only in a particular society but also in the world as active media producers and consumers (Kajee, 2018), as shown in their preference for connecting and socializing with peers online. As a consequence, given the rich resources of digital technologies, the relationship between literacy and technology has become increasingly interconnected and efficient in language and literacy education (Cope & Kalantzis, 2009; Mills, 2016). For example, digital texts, tools, and spaces are becoming increasingly central to literary engagement (Hobbs & Jensen, 2009) as they bring out new possibilities for both questions and methods of literary analysis (Rainey & Storm, 2017).

Digital Literacy Practices in Education

Kalantzis et al. (2016) have observed that with this flourishing of technology, conceptions of education have also changed. Studies have shown that it is increasingly important to use digital literacy not only to support learning but to enable new ways of learning (Alvermann, 2010; Hobbs, 2010), especially in light of the growing importance of digital media in the lives of young people (Buckley-Marudas, 2016). Accordingly, several education

organizations, including the International Literacy Association (2018; 2019) and the National Council of Teachers of English (2019), have expressed their expectations for the integration of technologies into school curricula at all levels to provide students with the knowledge and skills required both today and in the future.

In this context, teachers need to learn appropriate ways to integrate technology into their literacy education practices and support students' acquisition of digital literacy. Coiro, Killi, and Castek (2017) stated that to be effective, teachers should actively engage students in profound, original, and personally relevant learning experiences, which promote not only their digital sophistication but also their academic achievement and preparation for civic engagement. Also, teachers should consider multimodality of the literacies with which students interact, rather than adhering to only traditional alphabetic modes and skills (Coiro et al., 2017).

Emphasizing the need for effective technological skills required for teaching in the 21st century, Pasternak et al. (2016) investigated the English education programs in the United States. The authors discussed that although digital literacies have a significant role in teaching and learning, technology is used inconsistently in the method courses and field experiences of teacher education programs. Pasternak et al. (2016) also stated that when teacher educators asked pre-service teachers to transfer their learnings on technology integration, pre-service teachers less frequently integrated technology into their own classrooms or field experiments.

Lei (2009) found that, as members of the generation of digital-natives, preservice teachers reported strongly positive opinions about, attitudes toward, and experiences with technology, but they lacked sufficient experience in using classroom technologies. Garcia-Martin and Garcia-Sanchez (2017), in a study of the perspectives on and beliefs about digital literacy competencies of pre-service teachers in secondary vocational and language education, found that those in

language and literature education were more likely to reflect on and want to learn theories about literacy learning, read related articles, and write about related topics. Shively and Palilonis (2018) investigated pre-service teachers' perceptions of the role of design thinking in teaching digital literacy and ways to promote it through curriculum development. Although some made strong statements on how design thinking can serve as a pedagogical strategy for generating curricula that support digital literacy, the results were inclusive as most of the pre-service teachers were not familiar with the concept of digital literacy.

Akayoglu, Satar, Dikilitas, Cirit, and Korkmazgil (2020) explored of pre-service foreign language education teachers' understanding of digital literacies and practices that they could integrate into their future teaching. They found that these teacher candidates understood digital literacy and that teaching it required practices that were "critical, creative, and collaborative" (Akayoglu et al., 2020, p. 85). They pointed out that that while the pre-service teachers used social media platforms intensively for different purposes, they needed more guidance in how to use these platforms pedagogically for promoting digital literacy and their own professional improvement. Akayoglu et al. (2020) recommended that teacher preparation programs should offer courses that integrate technology-related and pedagogical instruction to support pre-service teachers' competency in design of digital materials.

Diversity in a Digital World

As societies become more culturally and linguistically diverse in the age of globalization, new potentials in the creation of varieties of texts have made literacy more complex and vital (New London Group, 1996). One aspect of this complex and blended nature of the new literacy is the ubiquitous use of social media to stay connected in personal and business life, providing access to knowledge and new ideas, which create meaningful engagement at local and global

levels (Gibbons, 2015; Lankshear & Knobel, 2011). In this regard, Pegrum (2011) emphasized the vital role of proficiency in digital literacy, arguing that those who have not acquired adequate digital literacy exist on the margins of the digital culture, in which digital presence has become an essential part of mainstream existence. Moreover, Buckley-Marudas (2016) underscored the diverse profile of young people in today's schools and the importance of tapping into their shared digital culture to promote appreciation of differences:

With increasing diversity in our schools, according to factors including race, class, and sexuality, it is critical that students are equipped to examine the power of various markers of difference, today and in the past. Given the increasing significance of digital media in young people's lives, it makes sense to consider the potential of new media to support teaching and learning about difference. (p. 2)

Understanding, valuing, and negotiating the different points of view, experiences, and knowledge can advance all students' learning. Therefore, Rainey and Storm (2017) suggested providing rich opportunities for young people to participate in the community of literary studies as a way of promoting digital literacy, disciplinary, and critical literacies and developing a diverse literacy community. Gibbons (2015) explained the type of life and society for which students today need to be prepared as follows:

Today's children are entering a world in which they will need to be able to read and think critically, embrace new technologies, live and work in intercultural contexts, solve new kinds of problems, and be flexible in ever-changing work contexts—in short, to make informed decisions about their own lives and their role in a multicultural and multilingual society. (pp. 96-97)

Considering these developments and the opportunities and features that students are expected to have today, and, in the future, providing them with an education that responds to and sustains cultural diversity in classrooms and schools is a vitally important.

From Culturally Responsive to Culturally Sustaining Pedagogy

Due to today's contingencies and opportunities, many individuals are mobile and live in different places during their lifetimes. Thus, classrooms are filled with students from diverse cultural backgrounds. In the period from fall 2017 to fall 2029, it is predicted that the percentage of White students enrolled in U.S. primary and secondary schools will continue to decrease, while the percentages of students with Hispanic, Asian/Pacific Islander, and two or more racial identities will increase in the United States (National Center for Education Statistics, 2020). Not only the United States but also many countries all around the world are witnessing such changes in the diversity of student populations in their schools (Alim & Paris, 2017).

The culture which provides the foundation for how we think, believe, and act goes much deeper than ordinary understandings of ethnicity, race, and/or belief (Ladson-Billings, 1994; Nieto, 2008). Accordingly, each individual increases the cultural diversity of a classroom. Such diversity requires teachers to recognize the variety of students' cultures, interests, and lived experiences and to continually reflect on all aspects of teaching and learning in the classroom, not just within a specific time frame (Childs, 2017). Hence, literacies of culturally and linguistically diverse communities have been identified as a quality indicator in the preparation of prospective teachers as it allows teachers to identify the factors that shape students' literacy learning and help them provide instruction that is responsive to students' backgrounds (International Literacy Association and National Council of Teachers of English, 2017).

The range of cultural diversity present among students brings many implications for teachers such as awareness of teaching in ways that are culturally relevant for all students. Since teachers' lack of knowledge of their students' cultures and appreciation of diversity may negatively impact the academic success of students of color (McKown, Gregory, & Weinstein, 2010), there is a need for teachers who understand the literacy needs of students from various racial, ethnic, socioeconomic, linguistic, and religious backgrounds. Accordingly, teachers' literacy instruction and practices should align to meet the needs of culturally and linguistically diverse students.

To avoid the consequences of teachers' failure to understand the cultural backgrounds and interests of their students, researchers have emphasized the importance of preparing teachers who embrace and appreciate cultural diversity (Alim & Paris, 2017; Banks, 2008; Gay, 2002; Irizarry, 2017; Ladson-Billings, 1995; Nieto, 2008; Paris, 2012; Paris & Alim, 2014). Over the years, a large body of research has focused on culturally mediated teaching, such as Gay's (2002) "culturally responsive," Ladson-Billings's (1995) "culturally relevant," and Paris's (2012) "culturally sustaining" pedagogy. While these approaches have primarily aimed to respond to the needs of students by engaging their identities, languages, and cultures in meaningful ways, each term has brought new perspectives to the research.

Culturally Responsive Pedagogy

Culturally responsive pedagogy was defined by Gay (2002) as "using the cultural characteristics, experiences, and perspectives of ethnically diverse students as conduits for teaching to them more effectively" (p. 106) as a way of building effective and student-centered relationships between teachers and students (Bell, 2011; Gay, 2010). According to Gay and

Kirkland (2003), culturally responsive teaching should be a fundamental element of teacher preparation and classroom practice.

With the goal of increasing learners' success, critical consciousness, and self and cultural knowledge, culturally responsive pedagogy is based on the premise that all children can be successful if teachers sufficiently develop cultural awareness and competence (Gay, 2010). Moreover, culturally responsive teaching recognizes the importance of validating students' cultures by including references to them in all aspects of learning (Ladson-Billings, 1994). Because students and teachers come together in the classroom setting with different cultural characteristics, it is important for them to acknowledge and accept each other's communication practices, learning styles, and relationship norms which differ between students and teachers (Gay, 2002).

Gay (2002) also pointed out that culturally responsive teachers need to provide "classroom climates that are conducive to learning for ethnically diverse students" (p. 109). The ability of teachers to integrate their pedagogical field knowledge and skills with students' cultural values and individual differences can enable a classroom where good communication is established with and among students, and all students can participate in all educational activities (Banks, 2008; Gay, 2002; Ladson-Billings, 1995).

Culturally Relevant Pedagogy

By using cultural references to transfer students' knowledge, skills, and attitudes, Ladson-Billings (1995) suggested culturally relevant pedagogy, as a theoretical framework that aims to promote their learning and well-being. According to Ladson-Billings (2014), a culturally relevant approach often requires changes in habitual attitudes and a broadening of educational values instilled by the dominant culture. She pointed out that culturally relevant pedagogy "not

only addresses student achievement but also helps students to accept and affirm their cultural identity while developing critical perspectives that challenge inequities that schools (and other institutions) perpetuate” (Ladson-Billings, 1995, p. 469).

Learning the nuances of diverse cultures requires deliberate work, and culturally relevant teachers should attempt to learn about the communities in which they work and manage to integrate more familiar cultural forms in the classroom (Ladson-Billings, 2017). In this way, teachers would acknowledge students’ cultural strengths and foster their intellectual, social, emotional identity and belonging. As highlighted in the tenets of culturally relevant pedagogy, such teachers are knowledgeable about the students they teach and are able to foster academic success, sociopolitical consciousness, and cultural competence (Ladson-Billings, 1995). On the other hand, she cautioned that cultural competence is often misunderstood and added the aim of ensuring that students are supported in adhering to their culture of origin while gaining the knowledge and skills to succeed in at least one other culture (Ladson-Billings, 2017).

Referring to the intellectual development students can gain with the help of a multiculturally talented teacher, Ladson-Billings (2017) stated that such a teacher carefully evaluates the knowledge and skills students have developed naturally and acquired in their education. In this process, Ladson-Billings (2017) emphasized that standardized tests may fail to show these aspects. Also, culturally relevant teachers are concerned with the reasoning, problem-solving skills, and moral development of students, which cannot be conveniently measured by standardized tests.

Because the aim of culturally relevant teaching is to focus on what works with students of diverse ethnicities, culturally relevant pedagogy focuses on teaching that increases achievement, critical awareness, and self and cultural knowledge (Ladson-Billings, 2014). In addition to

building bridges between children's home and school experiences, teachers need to not only implement educational practices that are responsive to cultural diversity but also resist deficit beliefs (Howard, 2003). Although the school is not expected to completely revise its culture in the short term, culturally relevant teachers find ways to include more familiar cultural forms that are more familiar to students (Ladson-Billings, 2017).

Culturally Sustaining Pedagogy

While the culturally relevant pedagogy is increasingly used in classrooms for ethnically, linguistically, and culturally diverse student population, it has been argued that identifying and celebrating cultural differences for students is not satisfying to sustain them (Paris, 2012). Building upon the theory of culturally relevant pedagogy (Ladson-Billings, 1995), Paris (2012) proposed a new term, culturally sustaining pedagogy (CSP), which is concerned not only with “relevance or responsiveness, but in sustaining and extending the richness of our pluralist society” (p. 96), including all languages, literacies, and cultural forms of existence in which students and communities. With this new term, Paris (2012) demonstrated the necessity of going beyond acceptance or tolerance of students' cultures and towards explicitly supporting their languages, literacies and cultural traditions.

An important part of both culturally relevant pedagogy and culturally sustaining pedagogy is to move away from deficit-based thinking that is dominated by White supremacist ideologies. Paris (2012) not only emphasized the purpose of deficit approaches as “eradicate the linguistic, literate, and cultural practices many students of color brought from their homes and communities and to replace them with what were viewed as superior practices” (p. 93) but also advocated the transition to an asset-based mindset that seeks to remove barriers to success culturally and linguistically marginalized students in educational contexts. He questioned

whether the culturally relevant pedagogy adequately progressed to sustain students' cultures and claimed that the terms of relevance or responsiveness are not sufficient to support the purpose of an educational program that honors the language and cultural practices of oppressed communities (Paris, 2012).

Alim and Paris (2017) emphasized that culturally sustaining pedagogy is “necessary to honor, value, and center the rich and varied practices of communities of color, and is a necessary pedagogy for helping shape access to power in a changing nation” (p. 6). Besides, Kuttner (2016) also recommended the analysis of harmful practices not only in the dominant culture but also in specific cultural contexts and indicated that CSP practices should be thought of in related to civic engagement and cultural practices. Hence CSP demands that schools be a place to pursue cultural ways of being color communities and necessitates to re-evaluate schools as sites where diverse and heterogeneous practices are not seen as not only valuable but also sustainable (Alim & Paris, 2017). CSP considers the experiences and prior knowledge of students from different linguistic and cultural backgrounds as a valuable resource rather than as deficits (Kidwell & Pentón Herrera, 2019). According to Alim and Paris (2017):

CSP positions dynamic cultural dexterity as a necessary good, and sees the outcome of learning as additive rather than subtractive, as remaining whole rather than framed as broken, as critically enriching strengths rather than replacing deficits. Culturally sustaining pedagogy exists wherever education sustains the lifeways of communities who have been and continue to be damaged and erased through schooling. (p.1)

In addition to engaging with local languages and cultures, it is also important to broaden students' perspectives to increase their global awareness (Kidwell & Pentón Herrera, 2019). CSP

also urges a broader understanding of culture to include the ever-evolving practices and ways of life of popular youth culture, in which young people express their own values and identity in their clothes, languages, dances, arts, music, and technology (Paris & Alim, 2014). Similarly, Ladson-Billings (2017) argued that youth culture is a significant but missing component of culturally relevant pedagogy.

Alongside of the CSP's interest in providing children with survival and development opportunities, it is about an enthusiasm that can help young people to be seen as a whole, not broken, in the school environment. Arguing the multiethnic and multilingual population in schools present valuable resources in education, especially for the diverse cultural practices of young people, Alim and Paris (2017) stated that:

CSP shifts toward contemporary understandings of culture as dynamic and fluid, while also allowing for the past and present to be seen as merging, a continuum, or distinct, depending on how young people and their communities' live race/ethnicity, language, and culture. (p. 8)

According to Kidwell and Pentón Herrera (2019), teachers who learn about students' families, communities, interests, and lives outside of school and consider their students as individuals will be able to meet the learning needs of each student more effectively. In this way, teachers and students can establish positive one-on-one relationships, which form the basis for future learning. Honoring students' backgrounds and language practices as resources in the classroom and using materials that present diverse and inclusive perspectives on students' cultures are some of the substantial ways that teachers can practice culturally sustaining pedagogy in their instruction (Puzio et al., 2017).

Even though studies have focused on culturally responsive and relevant pedagogies in classrooms, researchers are increasingly examining culturally sustaining pedagogy. In recent years, research has concentrated on theorizing and studying how culturally sustaining pedagogy can be implemented in school and classroom settings (Buckley-Marudas, 2016; Kidwell & Pentón Herrera, 2019; Laman, Davis, & Henderson, 2018; Machado, Vaughan, Coppola, & Woodard, 2017; Price-Dennis, Wiebe, & Fowler-Amato, 2014; Puzio et al., 2017; Strekalova-Hughes & Wang, 2019; Woodard, Vaughan, & Machado, 2017).

To contribute to the existing literature by focusing on language arts classes instead of schools where most culturally sustaining studies are mostly focused, Machado et al. (2017) examined a nine-week poetry unit that implemented the basis and tenets of culturally sustaining pedagogy to an English language arts classroom. In this poetry unit, students “examined, celebrated, and even critiqued their cultural affiliations” (Machado et al., 2017, p. 367). Students engaged in different activities, including discussing the featured youth poets’ compositions and reading, writing, and performing modules constructed to explore the meaning of culture and identity. Machado et al. (2017) also pointed out that students also continued exploring the poetic forms across several languages and cultures through a classroom blog created for them to share their poems and provide feedback.

The researchers observed the classroom across nine weeks by “writing fieldnotes, audio-recording lessons, and collecting artifacts that included student writing, worksheets, and rubrics” (Machado et al., 2017, p. 370). After completing the unit, while all students in the classroom participated in a survey that contained questions about their experiences and learnings during the nine-week poetry unit, some of the students were interviewed to further explore their writing processes and their reflections. As a result of the study, Machado et al. (2017) found that the

inclusion of culturally sustaining pedagogy in this poetry unit helped students understand their cultural affiliations more thoroughly. As students interacted with their culture in various ways, their stories presented collective learning opportunities for all students when language arts teachers took advantage of their students' cultural ties in the classroom. Machado et al. (2017) also shared that some students interacted with the digital young culture by referring to memes and non-traditional texts.

In a study, Price-Dennis et al. (2014) aimed to investigate how a pre-service teacher in a language arts methods course leveraged his own process of writing and creating digital text to support students' writing development and how he brought culturally relevant pedagogy principles to life in the 21st century classroom. By emphasizing the interconnectedness of youth culture and 21st century literacy practices, Price-Dennis et al. (2014) concluded that teaching writing with a culturally relevant implementation would lead to pre-service teachers gaining experience in both digital and print-based literacy practices. Additionally, the authors mentioned that although the pre-service teacher participant started to gain self-confidence in teaching writing with digital tools, he also reflected his concerns about the process and outcome of integrating digital tools into the writing curricula.

With the purpose of exploring pre-service teachers' understandings about their perceptions of students and their families, Laman et al. (2018) conducted a study that examines the learning outcomes of prospective teachers in a field-based Language Arts methods course explicitly guided by the culturally sustaining pedagogy framework. In this qualitative study, data was collected through pre-service teachers' written conference reflections, their final papers synthesizing students' learnings during the course working with second graders, and a focus group interview. The findings from this research showed that these experiences were useful for

revealing and changing the deficit views of pre-service teachers regarding the race and class-based presumes about children, their families, and the community they live in. Besides, teacher candidates have started to realize the subtle and deliberate steps teachers must take to foster students' learning.

In another study, Woodard et al. (2017) examined how culturally sustaining pedagogy that promotes linguistic and cultural pluralism can be addressed in teaching writing through the data collected from the interviews of nine urban elementary and middle school writing teachers' conceptualizations and implementations of culturally sustaining writing pedagogy. Findings indicated that teachers focused on the language in the writing curriculum by promoting linguistic awareness and pluralism, recognizing that language is not neutral, and appreciating communication rather than the performance of the dominant language. In this manner, they had implemented culturally sustaining in writing pedagogy by various strategies from the embracement of culture to criticism, and they had "problematized dominant culture and the curriculum by using texts by authors of their students' backgrounds and by recognizing nondominant forms of cultural capital" (Woodard et al., 2017, p. 220).

Digital Literacy Practices for Culturally Sustaining Pedagogy

Although digital literacy and culturally sustaining pedagogy are different research fields, they can be integrated to foster the learning and teaching processes in the classroom as they feed each other. As mentioned by Paris (2012), culturally sustaining pedagogy seeks to foster "multilingualism and multiculturalism in practice and perspective for students and teachers" (p. 95). Thanks to the ubiquitousness of technology, diverse cultures have found new domains where they can represent themselves (New London Group, 1996), and digital literacy practices can make diverse cultures and literacies more apparent to provide inclusive education in the

classrooms. Accordingly, digital literacy practices might provide valuable opportunities for teachers to explore their students' cultures and interests and bring linguistic and cultural pluralism into the classrooms, thus perpetuating culturally sustaining pedagogy.

The potential advantages of combining digital literacy practices with culturally sustaining pedagogy include access to an abundance of resources that make diverse cultures and literacies more visible and opportunities to interact with them more available than ever before. However, few studies have addressed this combination. As a rare example of a study examining the relationship between digital media and culturally sustaining pedagogy, Buckley-Marudas (2016) questioned the potential of digital media, specifically networked technologies, to foster the multicultural characteristic of classrooms and encourage teachers to design their instruction in the light of culturally sustaining pedagogy. According to this study, the pedagogy in these classrooms involved a balanced combination of face-to-face and online interactions that supported a new literacy learning culture that required students to improve their literacy practices in a new way.

Buckley-Marudas (2016) found that the ways adolescents practice the new literacies that are relevant and linked to their identities changed the possibilities of how they could communicate to their classmates as well as how teachers could bring culturally sustaining pedagogies into the classroom. The provision of student-centered forums generated school-sanctioned places for adolescents to actively make sense of their experiences, ideas, and beliefs, and students used digital media to establish a deeper relationship with each other. Thus, the practice demonstrated the potential for providing spaces where students could communicate with each other and improve each other's ways of thinking, especially on differences.

Summary of Chapter Two

Given today's technological and cultural diversity, teachers need to consider the multimodality of literacy and learn appropriate ways of integrating digital literacy practices into their teaching to nurture students' engagement and learning. When exploring the literature related to teachers' perceptions of digital literacy practices, a substantial body of literature focused on digital literacy in instruction and in-service teachers' perspectives. Even though there are many studies exploring pre- and in-service teachers' perceptions of digital literacy practices in the classrooms from various aspects to date, studies specifically explored pre-service teachers' perceptions on digital literacy practices for maintaining culturally sustaining pedagogy is scant. For this reason, the purpose of this study is to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy.

CHAPTER THREE

METHODOLOGY

The purpose of this study was to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy. To achieve this goal, Q methodology was used in this study, which is described as a unique mixed methods interdisciplinary approach to gather viewpoints and beliefs (Brown, 1980; Stephenson, 1953). This chapter describes the study design, an overview of Q methodology, a description of the concourse, the Q-set used for data collection, pre- and post-Q-sort questionnaires, participants, data collection procedures, and an explanation of the Q factor analysis used to analyze the data in this study.

Q Methodology

Q methodology, defined as a research methodology for the study of subjectivity, was first developed by William Stephenson in the 1930s through an adjustment of factor analysis (Stephenson, 1953). Subjectivity refers to communication that embodies an individual's personal opinions (McKeown & Thomas, 2013; Stephenson, 1953). As an alternative to the process of finding correlations between variables in traditional factor analysis, Stephenson (1953) originated Q methodology as a way to find correlations among individuals.

Q methodology has therefore been proposed as an approach that is used to identify individuals' different perspectives, thoughts, attitudes, and beliefs (Brown, 1980; McKeown & Thomas, 2013; Stephenson, 1953). As a research method designed specifically to measure diverse views and consensus on a given topic within a group of people, researchers consider Q

methodology as advantageous for studies focusing on human behavior (Brown, 1980; McKeown & Thomas, 2013). According to Ramlo (2017), the strength of the Q methodology is that it offers a way to identify the different points of view on a topic, unlike typical Likert scale surveys.

A combination of qualitative and quantitative methods is systematically used in Q methodology to gather and interpret individuals' opinions on a particular subject within a group (Newman & Ramlo, 2010). Due to the use of both quantitative and qualitative methods, Q methodology has widely been considered a mixed method approach (Newman & Ramlo, 2010; Ramlo, 2016; Tashakkori & Teddlie, 2010). Therefore, Q methodology also provides a new path for researchers to explore topics related to subjectivity (Walker, Lin, & McCline, 2018).

The purpose of Q methodology is to reveal subjective views, attitudes, and perspectives (Brown, 1980). Q methodology allows participants to express their beliefs and thoughts regarding a subject by sorting statements that is called Q-set (Brown, 1980). Moreover, this approach demonstrates how different perspectives are represented among a group of people (Akhtar-Danesh, Baumann, & Cordingley, 2008). To state their views on a topic, participants systematically sort a set of statements depending upon their worldview, viewpoint, socio-economic, and educational backgrounds. As Brown (1993) stated, "the statements are matters of opinion only (not fact), and the fact that the Q sorter is ranking the statements from his or her own point of view is what brings subjectivity into the picture" (pp. 93-94). Thus, the Q-sorting process provides an active engagement in the communication of participants' points of view by placing statements related to the topic into a grid (Ramlo, 2017).

The Q methodology not only uses a data collection method named Q-sort but also consists of "by-person factor analysis method and a philosophical framework" (Walker et al., 2018, p. 451). When the Q methodology is used in studies, Q-sorting data are collected

qualitatively, analyzed quantitatively, and the results are interpreted qualitatively (Newman & Ramlo, 2010). To capture subjective beliefs, Q methodology uses a measurable structure for these beliefs using factor analysis (Brown, 1980). Unlike other quantitative methods, Q methodology draws on by-person factor analysis to identify groups of participants that rank comparably and give meaning to the statements while analyzing the results (Watts & Stenner, 2012).

Over the years, Q methodology has been used in a wide range of disciplines such as marketing research, psychology, communications, health, and political science (Brown, 1980; McKeown & Thomas, 2013). Due to its potential effectiveness and convenience in educational research, Q methodology has been used frequently in the examination of different topics in the educational research in recent years (Barnes, Angle, & Montgomery, 2015; Lim, 2010; Lundberg, de Leeuw, & Aliani, 2020; McLain, 2018; Mesci & Uzoglu, 2020; Pruslow & Owl, 2012; Yang & Montgomery, 2013). Q methodology, however, is an underused research methodology in language and literacy education research. Moreover, there is a limited number of studies that used Q methodology in the field of language and literacy education research.

A study that uses Q methodology consists of five essential steps. The first step is concourse development, followed by a Q-set selection, Q-sort implication, Q factor analysis, and Q factor interpretation. The following sections provides descriptions of these five steps, participants, data collection procedures, and pre- and post-Q-sort questionnaires.

Concourse Development and Q-Set

A study that uses Q methodology begins with concourse development, a theoretical collection of all the possible viewpoints about a particular topic or theme (Brown, 1993; van Exel & de Graaf, 2005). The concourse contains the population of heterogenous statements that

surround a topic of interest. Watts and Stenner (2012) refer to the characteristics of the discourse as having common knowledge, cultural heritage of individuals, and being able to lead new subjectivities.

The discourse can be built in various ways. It predominantly consists of written statements that represent the topic. In addition to written statements, discourse may also involve images, objects, videos, sounds, and other sources of information (Bartlett & DeWeese, 2015; Brown, 1993; Newman & Ramlo, 2010; Rieber, 2020; Walker et al., 2018; Watts & Stenner, 2005, 2012). According to Stephenson (1986), the field of discourse can be created for every concept, expression, and object in nature with a subjective perspective. However, Watts and Stenner (2005) suggest excluding statements with technical or complex terms unless the participants in the study have expertise in the subject area of the study. In addition, they recommend that researchers avoid the negative statements in a Q-set (Watts & Stenner, 2012).

The discourse can be elicited from several sources, including extensive literature reviews, conducting pilot studies, a set of test or scale items, focus groups, interviews, and newspaper articles (Brown, 1993; Brown, Baltrinic, & Jencius, 2019; van Exel & de Graaf, 2005; Watts & Stenner, 2005). In addition to interviewing participants to collect views on a specific topic, the written comments on the subject can be gathered via cards or emails (Coogan & Herrington, 2011). Statements can carry various meanings that people can agree, disagree, or have neutral perspectives about the topic (Brown, 2004). In order for the participants to be able to express their perspectives precisely, statements should be compiled from various stances to cover as many subtopics within the main topic as possible. Once all possible statements are gathered, these statements should be categorized to ensure that all aspects of the topic are

covered. Thus, it aims to reveal the participants' subjective perspectives by including all possible stances (Watts & Stenner, 2012).

Following the development of the concourse, a Q-set (Q sample) is selected from the population of statements of the concourse as the second step. A Q-set refers to a balanced and representative sample of statements that the participants will sort on a Q-grid (Brown, 1980). In a Q study, it is essential to shape the content and boundaries of the Q-set under the concourse because statements in a Q-set should broadly reflect the topic (van Exel & de Graaf, 2005). Even though there are different views on the exact number of statements that should be included in a Q set, the number of statements in a Q-set ranges from 30 to 70 as typically expected (Rieber, 2020).

I started this study by developing the concourse that represents a diverse sample of expressions about the topic. In this study, the concourse was first generated from a thorough literature review on digital literacy and culturally sustaining pedagogy. As a second resource of the concourse development, an informal pilot study was conducted in a graduate course of the Language and Literacy Education department. Students who enrolled in that class were asked to write short responses to the two following open-ended questions: "What does 'culturally sustaining pedagogy' mean to you?" and "What does 'digital literacy' mean to you?" After the written answers were collected, these written statements were edited or removed to diversify the statements from the literature review and to create a population of broad statements. At the end of the concourse development, 110 statements were recorded. These recorded statements reflected what pre-service teachers actually thought and what they expected to implement in their prospective teaching about this topic.

The concourse was then thematically organized in four categories: (a) beliefs on digital literacy, (b) beliefs on culturally sustaining pedagogy, (c) beliefs on digital literacy and culturally sustaining pedagogy practices in the classroom, and (d) personal opinions and thoughts. After organizing the concourse, the statements were extracted to obtain the final Q-set. When refining the statements, high attention was paid to ensure a balanced selection of diversifying perspectives so that the Q-set would not favor any specific stance. The final Q-set consisted of 34 statements that represented the four categories in which the concourse was thematically grouped, as shown in Table 3.1.

Table 3.1

The final Q-Set.

Q-Set
1. Digital literacy practices may be beneficial to assist students with diverse cultural backgrounds.
2. To connect students to different cultures, I may teach a lesson through movies, music or pop culture the students would enjoy.
3. Digital literacy practices may improve communication between teachers and students.
4. I enjoy seeking cross-cultural experiences to understand people different from myself.
5. I think digital literacy practices motivate students to explore and learn.
6. I feel confident about using digital literacy practices to pursue culturally sustaining pedagogy in my class.
7. Digital literacy may provide an environment for multicultural information, resources, and materials in all subjects and skills.
8. I think that students should be encouraged to share their stories in the classroom.
9. Digital literacy practices may bridge the gap between what students do at home and school.
10. I believe that I am trained specifically to ensure that my students from diverse cultural backgrounds will be successful.

(table continues)

Table 3.1 (continued)

Q-Set
11. Digital resources should be used as a component of culturally sustaining pedagogy.
12. I feel comfortable communicating through digital resources with students and families, who don't speak English.
13. Digital literacy practices can support students during the process of understanding and observing the communities that they inhabit.
14. I think digital literacy practices and culturally sustaining pedagogy are not related to each other.
15. Digital literacy introduces new ways of knowing, thinking, questioning, reflecting, sharing, and acting.
16. Digital literacy practices do not create enough meaningful spaces where students are willing to actively engage.
17. I believe digital literacy practices support students' language and literacy learning.
18. Providing a culturally sustaining classroom may increase students' classroom engagement and motivation to learn.
19. Digital literacy practices provide the opportunity to follow youth culture and pop culture.
20. I feel confident that I can be responsive to students' needs in consideration of their cultural backgrounds.
21. Digital literacy practices may cause less interaction between students.
22. I think building authentic relationships with the students is important.
23. Digital literacy practices may affect students' ability to empathize with each other by reducing the amount of face-to-face interaction.
24. I define myself as a person who does not belong to any specific culture.
25. Culturally sustaining pedagogy can give me new strategies to manage my classroom.
26. I believe that each student's culture has value and should be represented in the classroom.
27. I think culturally sustaining teaching requires the teacher to connect with every child individually in the classroom.
28. I believe I am capable of using digital literacy to deliver educational content in my teaching.
29. Culturally sustaining pedagogy is a method of teaching that forefronts the various aspects of cultures and improves cultural competency.

(table continues)

Table 3.1 (continued)

Q-Set
30. Digital literacy practices may result in students reading and learning content in little snippets and not in a sustained manner.
31. It is important for me to understand who my students are and to actively connect with all of them.
32. Digital literacy develops the ability to use and navigate a variety of technological tools (e.g., computer, Internet, social media, etc.) with relative ease.
33. I am willing to organize my lesson plans to include digital literacy practices relevant to students' backgrounds.
34. I am not sure how to integrate culturally sustaining pedagogy into my lessons.

Q-Sort Procedures

Q-sorting is the general name given to obtaining data in Q methodology that refers to obtaining participants' perspectives (Brown, 2004). This process is called Q-sorting because participants are asked to sort items (i.e., statements) in a particular order on a grid (Watts & Stenner, 2012). In a typical Q-sort, statements with randomly assigned numbers in the Q-set are written/printed on small-sized cards for participants to sort, and each card has one statement (Brown, 1993). Following the instructions, the participants are asked to place the cards on the grid according to their point of view.

Even though there is no specific rule in terms of the Q-grid shape and size, it is generally shaped as a semi-normal distribution. The format of the Q-grid demonstrates that the statements are placed between furthestmost ends (from Most Disagree to Most Agree) of the Q-grid. First, participants are encouraged to sort the statements into three piles that they disagreed with, agreed with, and were neutral about. In the next step, the participants start to place the statements on the Q-grid to fill out the open boxes of agreement with statements until all agreed with statements

are used up. Participants should complete the Q-grid from outside to inside by placing the cards to the -4 and +4, then -3 and +3, then -2 and +2, -1 and +1, and then the 0's.

Data collection is generally conducted face-to-face through a sorting activity using paper cards and a grid to help participants engage with the Q-sorting process actively (Watts & Stenner, 2012). As an alternative option to face-to-face data collection, an online tool can be used for participants to complete the Q-sorting procedure (Walker et al., 2018). For both options, participants are provided instructions to follow the sorting process adequately. Since participants sort statements according to their own perspective, the sorting process provides each participant's views on the topic studied and it grasps their operant subjectivity (Brown, 1980).

Description of Participants

Another critical issue in Q methodology is the decision of the participants who attend the Q-sorting. Participants can also be referred to as the P-set by Q researchers (McKeown & Thomas, 2013; Ramlo, 2017). Since Q methodology attempts to explore and compare particular viewpoints on the topic studied (Brown, 1980), participants should be people whose perspectives are significant for the study's subject and research question (Watts & Stenner, 2012).

Q methodology aims to identify and interpret the different perspectives held by a target population rather than generalizing the results to a population (Watts & Stenner, 2012). For this reason, studies using the Q methodology generally need a relatively small number of participants (van Exel & de Graaf, 2005). According to Watts and Stenner (2005), there is no requirement for a large number of participants in a Q methodology study because a Q research design aims to explore subjectivity within a group (Bartlett & DeWeese, 2015). Researchers also recommend that the number of participants in a Q study can be at least as many as half of the number of statements in the Q-set (Watts & Stenner, 2012).

Because the aim of this study was to explore the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy, the target population of the study comprised undergraduate and graduate students in the Department of Language and Literacy Education at the University of Georgia. Therefore, undergraduate and graduate courses offered in this department were selected to as the target participants who enrolled in the aforementioned courses.

Pre- and Post-Q-Sort Questionnaires

To obtain demographic information about the participants, a pre-Q-sort questionnaire was used in this study. The seven questions were prepared to gather demographic information from the participants. The questions focused on age, gender, race/ethnicity, education level, and major (see Appendix D). At the beginning of the survey, information about voluntary participation was included to inform participants that they did not have to answer any of the questions if the questions made them feel uncomfortable. The intent was to place the pre-Q-sort questionnaire at the beginning of Q-sort. However, it was placed at the end of the Q-sort and just before the post Q-sort questionnaire due to technical limitations of the web-based Q-sort tool.

The purpose of the post-sorting questionnaire was to understand why participants sorted the statements the way they did and to ensure that their viewpoints were adequately represented in the Q-sort. In Q methodology, it is recommended by many Q researchers to interview participants (Brown, 1993; Shemmings & Ellingsen, 2012) following Q-sorting to understand the participants' motivations to sort the statements on the grid. However, a questionnaire with questions similar to those of an interview can be used for collecting written answers (Rieber, 2020). In this study, a post Q-sort questionnaire with eight open-ended questions was conducted to explore participants' sorting rationale at the end of the Q-sorting process (see Appendix E).

Description of Data Collection

In this study, the data collection procedure could not be carried out in a face-to-face format due to the circumstances of COVID-19. When the data collection cannot be completed in face-to-face settings, it is possible to use online technology to meet the criteria of the by-hand sorting process (Watts & Stenner, 2012). For this reason, the data collection procedure of this study was completely carried out online via HTMLQ, which is a web-based Q methodology software program. HTMLQ is a freely available tool that enables participants to complete a Q-sort online and answer the questions at the end of the Q-sorting.

Participants completed the online Q-sort procedure with pre-and post-Q-sort questionnaires in approximately 30 minutes. The researcher had immediate access to all of the Q-sort data and survey responses in HTMLQ. To complete the Q-Sort, participants sorted 34 statements related to digital literacy practices and culturally sustaining pedagogy from “most agree” to “least agree” based on their personal experiences and opinions. A Q-sort grid ranging from -4 (most disagree) to +4 (most agree) was created in a quasi-normal pattern, as shown in Figure 3.1. The Q-sort grid had 34 slots, with most disagree statements tending to the left, most agree statements tending to the right, and neutral statements in the center of the grid.

any given column was not important. This process was repeated for the other piles until all statements were placed into slots on the Q-sort grid.

After completing the sorting procedure, participants were asked to explain why they agreed the most or disagreed the most with the following statements in +4 or -4 that they placed. In the last step, participants were asked to answer the demographic questions (pre-Q-sort questionnaire) and open-ended questions (post Q-sort questionnaire). The intent of including this set of demographic questions was to learn about participants' backgrounds, points of view about the Q-set's statements, and overall opinions about the Q-sorting and the topic of the study. The responses to the demographic and open-ended questions were collected to interpret the data results more accurately. According to Watts and Stenner (2012), the number of participants in the study should be at least half the number of Q-set statements. Moreover, the number of participants should not exceed the number of statements in the Q-set of the study (Watts & Stenner, 2012). As the Q-set had 34 statements, the minimum number of participants appropriate for this study was 17.

As a first step, I applied to the University of Georgia Institutional Review Board (IRB) to receive the ethical permission to conduct the research. Following IRB approval (see Appendix A) for the study procedures, I actively contacted and worked with the instructors of selected courses and/or the program coordinators in the Department of Language and Literacy Education to identify and reach out to potential participants who met the inclusion criteria for the study. The potential participants were invited through a recruitment email with the consent letter (see Appendix B and C), a link to the online survey, and Q-set and Q-sort grid handouts that would be helpful for the sorting process. Also, descriptive sorting instructions that explain the process were provided to the participants in every step of the online survey. The data collection process

was carried out from 21st January to 22nd March in 2021. At the end of the data collection process, a total of 17 participants completed the Q-sorts and pre- and post- Q-sort questionnaires. Each participant was given a random identification code.

Although I aimed to recruit the targeted number of participants, most of the potential participants did not respond to the survey. Therefore, I offered gift cards as incentives to increase the participation rate. Also, I expanded the scope of the recruitment by sending the survey to all of the remaining Department of Language and Literacy Education undergraduate students enrolled in the courses offered in the department. However, some of the graduate students may have taught already, so they would have been called in-service teachers. To ensure that the graduate students who reply to my survey were pre-service, I mentioned in the consent letter and recruitment e-mail that the purpose of this study is to examine the perspectives of pre-service teachers. I also stated that only pre-service teachers need to respond at the start of the online survey. Besides, I sent a follow-up e-mail to participants who were graduate students to confirm if they were pre-service teachers. All of graduate student participants confirmed that they were pre-service teachers.

Q Factor Analysis

Once data collection is completed, the Q-sorts are analyzed statistically through correlation and factor analysis, which is a data clustering method. A factor analysis, which illustrates similarities and differences between participants' Q-sorts, provides a holistic view of how the statements are sorted. People clustered on a factor have a common aspect apart from those clustered with other factors (Valenta & Wigger, 1997). In other words, the Q-sorts of participants with similar sorting patterns significantly load on the same factor that expresses their subjective perspectives.

Even though Q factor analysis can be performed by hand, Q researchers widely use software programs specially designed for Q methodology studies, such as PQMethod (Schmolck, 2014) and Ken-Q (Banasick, 2019). In this study, the Ken-Q analysis software (KADE) program was used for all statistical analyses. The data analysis of a Q methodology study consists of the steps such as correlation, factor analysis, and the computation of factor scores.

As the first step of the analysis, the correlation matrix that reflects the level of agreement between the Q-sorts is calculated. The next step of the factor analysis involved the grouping of Q-sorts with regard to similarities and differences. The Q-sorts concentrated on the same factor have similar viewpoints or perspectives on the topic (Watts & Stenner, 2012), and the group members in the same factor show a strong connection. After the implementation of principal component or centroid factor analysis, several factors are extracted to keep the significant factors for rotation.

Even though Q methodology has no firm rules on the number of factors that should be extracted from the analysis, the eigenvalues of each factor loading are generally considered significant for this decision. The Kaiser-Guttman Criterion (Guttman, 1954; Kaiser, 1960) serves as a measure for factor extraction in Q methodology, and all factors with an Eigenvalue at or above 1.0 are considered defining sorts and kept in general. Factors with Eigenvalues less than 1.0 are omitted from the factor rotation process (Brown, 1980; Watts & Stenner, 2012).

Factor rotation provides that the factors are viewed from different angles, and unexpected relationships can be distinguished (Watts & Stenner, 2012). Most Q researchers prefer to use varimax rotation for this step (Watts & Stenner, 2005) since it maximizes the amount of variance explained. As the final step of the analysis, factors are flagged by defining Q-sorts that best represented the viewpoint of the factor, and factor scores are converted to z scores to allow

cross-factor comparison before proceeding to factor interpretation. Once the factor analysis is completed, tables and output are produced, including factor loadings, factor scores, z scores, distinguishing and consensus statements (Ramlo & Newman, 2011).

Q Factor Interpretation

Following the statistical analysis of the data, the final phase of a Q methodology study is the interpretation of factors. Each factor represents a unique viewpoint that emerged from the analysis of participants' Q-sorts. Through interpretation, researchers aim to understand and capture the participants' viewpoints that loaded significantly on each factor (Watts & Stenner, 2012). In this study, extracted and rotated factors were interpreted using the crib sheet method as described by Watts and Stenner (2012).

The crib sheet method provides a factor interpretation system that can be applied consistently to any factor (Watts & Stenner, 2012). This method enables the researcher to see statements with salient meanings in the factor array, thus allowing for a holistic interpretation. Watts and Stenner (2012) suggested this method as “a way of ensuring that nothing obvious gets missed or overlooked” (p. 150). The first draft of the crib sheet includes four categories: highest statements, statements ranked higher in a particular factor array than in other factor arrays, statements ranked lower in a particular factor array than in other factor arrays, and lowest statements. Because of these categories, the researcher can identify how each factor polarized and broadly interpret the factors. According to Watts and Stenner (2012), the crib sheet method also allows identification of significant statements ranked in the middle of the Q-sort grid. They pointed out that even statements ranked in the neutral pile might provide crucial meanings about the factors.

Factor arrays are used to create a crib sheet for each factor. First, the highest and lowest statements are recorded on the crib sheet of a particular factor. Then, lower and higher ranked statements are identified by comparing each statement in the particular factor array with other arrays. The interpretation of the factor's perspective starts to emerge based on the crib sheet. In the next phase, the first interpretation can improve with demographic and supporting information gathered from participants. The statements that may be useful can be identified in the second draft. Last, the interpretation phase can be completed by naming the factor and explaining the factor's viewpoint.

Summary of Chapter Three

This chapter presented information about the Q methodology used for this study. Q methodology is used to explore perceptions, opinions, and beliefs. Because this study aimed to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy, Q methodology was used. A study that uses Q methodology follows five steps: (a) development of concourse, (b) creating Q sample, (c) Q-sorting activity, (d) Q factor analysis, and (e) interpretation of factors. The steps that this study followed to reveal the perspectives of pre-service teachers were described in this section. In addition, participants, the data collection process, and pre- and post-Q-sort questionnaires were explained in detail.

CHAPTER FOUR

FINDINGS

The purpose of this study is to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy. The methodology outlined in Chapter Three was used to carry out the research process. This chapter presents the findings from the current study, including a description of the participants and the results of the data analysis.

Given that this study aimed to inquire about pre-service teachers' perspectives, Q methodology, a unique mixed method research design, was utilized. In this study, a multiple participant design was used with supportive data provided from pre- and post-Q-sort questionnaires. The 34-item Q-set consisted of statements designed to examine participants' perspectives regarding the use of digital literacy practices for culturally sustaining pedagogy.

Seventeen pre-service teachers from the Department of Language and Literacy Education at the University of Georgia participated in the study by completing a Q-sort. The data were entered into the Ken-Q software (KADE) (Banasick, 2019) and a principal component analysis was performed followed by a varimax rotation. The final factor solution resulting from the statistical analysis constituted a three-factor solution. The three factors were extracted and rotated, which together explained 64% of the study variance. Finally, the data was holistically interpreted using qualitative data gathered from participants' answers to both demographic and open-ended questions.

Participants

This study aims to explore the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy. Since participants whose viewpoints matter on the subject studied should be selected for a Q methodological study (Watts & Stenner, 2012), the study's target population were undergraduate and graduate students in the Department of Language and Literacy Education at the University of Georgia. I reached out to the potential participants who enrolled in undergraduate and graduate courses in the Department of Language and Literacy Education.

A large number of participants is not considered a requirement in a Q methodology study. According to Watts and Stenner (2012), the number of participants is expected to be at least half of the number of the statements in Q-set. Going by this criterion, 17 participants were recruited for the study. The 17 participants in this study were pre-service teachers from the Department of Language and Literacy Education at the University of Georgia. All of the study participants completed the Q-sort as well as the pre- and post-Q-sort questionnaires. An identification code was randomly assigned to each participant when they had completed their anonymous online Q-sort. More information about the study participants is provided in the interpretation of factors below.

Pre and Post Q-Sort Questionnaires

In this study, the seven questions were used in the pre-Q-sort questionnaire to gather demographic information from the participants, including questions on age, gender, race/ethnicity, education level, and major. Additionally, the post-Q-sort questionnaire was conducted at the end of the Q-sort instead of an interview. The captured demographic information about participants was used to interpret the factors that emerged from Q factor

analysis. Participants were asked to answer eight open-ended questions in the post-Q-sort questionnaire to understand their sorting rationale. I wanted to obtain more information about participants' thoughts about the topic of the study, the sorting process, and selection of the most agree, most disagree, and neutral statements. All 17 participants responded to these open-ended questions substantially. The explanations which the participants provided in the post-Q-sort questionnaire were helpful in clarifying the factors extensively.

Analysis of Data

Q-methodology is a convenient and effective choice for examining various perspectives and consensus on a topic among a group of people (Brown, 1980). In a Q Methodological study, factor analysis provides a basis in which factors can reflect participants' perspectives. Factors produced following factor analysis are groups of Q-sorts completed by participants. Participants with a similar point of view about the subject are clustered in the same factor, and each factor expresses a specific view about the topic.

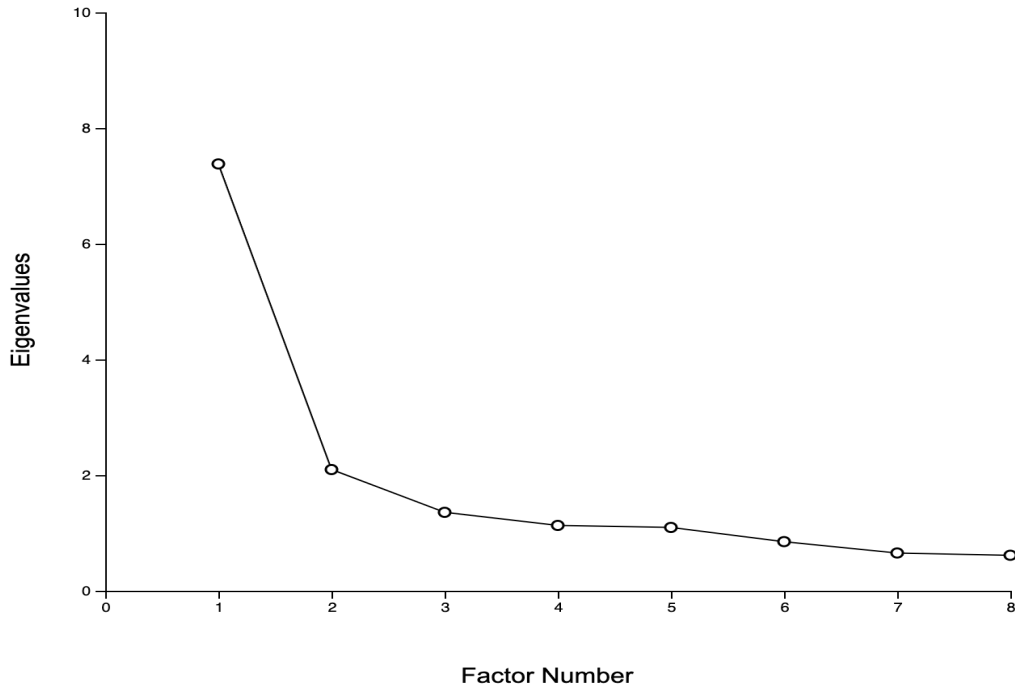
The software programs such as PQMethod (Schmolck, 2014) and Ken-Q (Banasick, 2019) are convenient for the researchers, in that they provide choices of the centroid or principal component factor analysis and varimax or judgmental rotation. After factor extraction and rotation, the output is tabulated to represent each factor, including factor loadings, factor scores, z scores, and distinguishing and consensus statements (Ramlo & Newman, 2011). The Ken-Q analysis software program (KADE) was used in this study for data analysis.

Once the data collection process was completed, I recorded the data as a JSON file and transferred it to an Excel sheet. After the 17 Q-sorts were entered into Ken-Q for factor analysis, the first step of the analysis was to correlate 34 statements to indicate the similarities and differences between the participants' Q-sorts. The correlation matrix of 17 Q-sorts is at

Appendix F. The next step was the factor analysis of correlations to generate the unrotated factor matrix. I used Principal Components Analysis (PCA) to generate a final solution. When PCA was run, KenQ automatically extracted eight unrotated factors and calculated the strength of each Q-sort on those factors. Five out of these eight extracted factors reached an eigenvalue above 1.0, and most of the Q-sorts loaded on Factor 1 (see Appendix G). In addition, Figure 4.1 below presents a scree plot that visualizes the eigenvalues of unrotated factors.

Figure 4.1

Scree plot of unrotated factors



The next step, factor rotation, determining the number of factors kept has a pivotal role in a Q method study. However, there is no agreement in the field as to which criteria are most favorable. Q researchers widely use statistical measures and criteria such as factor eigenvalues, factor variances, and correlation between factors to decide the number of factors that will be retained. Generally, the factors that reach an eigenvalue at or above 1.0 are retained for further

analysis in the Q methodology (Brown, 1980; Watts & Stenner, 2012). Another criterion is to retain those factors that have at least two Q-sort loadings. According to Brown (1980), a factor needs to have at least two Q-sorts to be considered meaningful.

To decide the correct number of factors, I first used eigenvalues and five-factor solution was initially run. Varimax rotation was used to rotate the factors in this study. However, only a single Q-sort loaded on the fifth factor which was not meaningful in the participant group. For this reason, I conducted a four-factor solution, followed by varimax rotation. Even though each factor had at least two loadings in the four-factor solution, some of the correlations between factors were significantly high with reference to Brown (1980). I therefore decided to compare the two-, three-, and four-factor solutions by looking at the Q-sort loadings on factors and correlation between factors. Since the correlation between factors was relatively lower in the three-factor solution, it was finally decided to continue the analysis keeping three factors followed by varimax rotation. Lastly, defining Q-sorts for each factor were auto-flagged in the Ken-Q software program. The number of Q-sorts that loaded on each factor is the number of individuals clustered on that factor. Table 4.1 below presents the factor solution of this study, with the flagged sorts for each factor. In this way, each factor was assigned with individual Q-sorts, and factor scores were calculated for factor arrays.

As a result of flagging, 16 Q-sorts achieved significance on a factor and were considered defining sorts for that factor. However, one sort was not defined on any factor. Last, detailed output and tables were created, including factor loadings, factor scores, distinguishing statements, and consensus statements significant for factor interpretation. In this study, three extracted factors together explained 64% of the study variance. Overall, eight Q-sorts defined the first factor, four Q-sorts defined the second factor, and four Q-sorts defined the third factor, as in

Table 4.1 below. The number of Q-sorts loaded on Factor 1 is larger than for Factor 2 and Factor 3, showing an agreement in perspectives among half of the participants.

Table 4.1

Factor Matrix with Defining Sorts Flagged

Q-sort	Factor 1		Factor 2		Factor 3	
1MRMW7	0.5622		0.4141		0.4174	
2MSMRzN	0.8274	Flagged	0.1913		0.2001	
3MSiHib	-0.0942		0.6496	Flagged	0.1207	
4MTI7R7	0.6699	Flagged	0.5361		0.008	
5MTWr4i	0.6522	Flagged	0.0203		0.4187	
6MURujz	0.1427		0.9067	Flagged	0.0226	
7MULaB1	0.8233	Flagged	0.0277		0.0898	
8MWjNyP	0.077		-0.0087		0.7632	Flagged
9MUy-7w	0.6288	Flagged	0.5442		0.2159	
10MUfGJ	0.2937		0.2155		0.5949	Flagged
11MVS88	0.0923		0.3713		0.5331	Flagged
12MWPzI	0.6487	Flagged	0.2731		0.3258	
13MWDdY	0.4997		0.1904		0.5596	Flagged
14MW0na	0.3011		0.7686	Flagged	0.2094	
15MWeKl	0.7086	Flagged	-0.0742		0.4969	
16MWPwX	0.2442		0.6874	Flagged	0.1602	
17MWkE9	0.573	Flagged	0.4432		-0.3031	
%Explained Variance	% 28		% 21		% 15	

In addition, Table 4.2 below presents the factor characteristics that emerged from the analysis in this study. The reliability coefficient, which refer to the likelihood that a participant who has completed a Q-sorting will sort similarly when doing an additional Q-sorting. The reliability score ranged from 0.941 to 0.97, indicating that the factors were reliable.

Table 4.2

Factor Characteristics

Factor	Participants Loaded	Eigenvalues	Variance	Reliability	SE of Factor Scores
1	8	7.380	%28	0.97	0.173
2	4	2.096	%21	0.941	0.243
3	4	1.357	%15	0.941	0.243
Total Variance			%64		

Correlation Between Factors

Factor score correlations illustrate the levels of agreement and resemblance between factors (Brown, 1980; Watts & Stenner, 2012). The three factors were extracted using principal component analysis and varimax rotation, which produced a correlation between factors 1 and 2 ($r = .4507$), factors 1 and 3 ($r = .5238$), and factors 2 and 3 ($r = .3088$), as seen in Table 4.3 below. Factor loadings of + 0.44 or greater were significant at the $p < 0.01$ level, using the formula $[1/\sqrt{N}$ (the number of statements in the Q-set)] $\times 2.58$ (Brown, 1980).

Table 4.3

Factor Score Correlations

	Factor 1	Factor 2	Factor 3
Factor 1	1	--	--
Factor 2	0.4507	1	--
Factor 3	0.5238	0.3088	1

Two of the factor correlations are significantly positive, whereas there is lower positive correlation between Factor 2 and Factor 3. The consensus in the participants' perspectives

contributed to the relatively high correlation between factors. While the consensus among participants' perspectives contributed to the relatively high correlations, there were still discernable distinctions as seen in factor arrays and distinguishing statements.

Factor Arrays

Once the Q-sorts are flagged within a factor, factor arrays are produced, which indicate the extent to which statements demonstrate each of the factors. Factor arrays that are formed based on the rank of z-scores also differentiate the factors (McKeown & Thomas, 2013). The factors that emerge are represented by factor arrays, like individual Q-sorts that reflect the perspective on a certain factor (Watts & Stenner, 2012).

Watts and Stenner (2012) explain that factor arrays are used to create crib sheets for each factor because there are “many clues contained in a factor array to lead us back to the viewpoint and to a full explanation of the whole viewpoint” (p. 149). They serve, thereby, as a basis for factor interpretation by reflecting the holistic viewpoints of participants in a group about the subject (Watts & Stenner, 2012). Table 4.4 presents the factor arrays for the three factors that emerged in this study.

Table 4.4

Factor Arrays for the Three Factors

No	Statement	Factors		
		1	2	3
1	Digital literacy practices may be beneficial to assist students with diverse cultural backgrounds.	2	-1	-1
2	To connect students to different cultures, I may teach a lesson through movies, music or pop culture the students would enjoy.	0	2	0
3	Digital literacy practices may improve communication between teachers and students.	0	-1	1

(table continues)

Table 4.4 (continued)

No	Statement	Factors		
		1	2	3
4	I enjoy seeking cross-cultural experiences to understand people different from myself.	+1	+3	+3
5	I think digital literacy practices motivate students to explore and learn.	0	-2	+4
6	I feel confident about using digital literacy practices to pursue culturally sustaining pedagogy in my class.	-1	-2	-3
7	Digital literacy may provide an environment for multicultural information, resources, and materials in all subjects and skills.	+1	0	+4
8	I think that students should be encouraged to share their stories in the classroom.	+1	+4	-3
9	Digital literacy practices may bridge the gap between what students do at home and school.	+1	-3	0
10	I believe that I am trained specifically to ensure that my students from diverse cultural backgrounds will be successful.	-2	-3	+3
11	Digital resources should be used as a component of culturally sustaining pedagogy.	0	-1	+3
12	I feel comfortable communicating through digital resources with students and families, who don't speak English.	-1	0	-1
13	Digital literacy practices can support students during the process of understanding and observing the communities that they inhabit.	0	0	+1
14	I think digital literacy practices and culturally sustaining pedagogy are not related to each other.	-4	-4	-4
15	Digital literacy introduces new ways of knowing, thinking, questioning, reflecting, sharing, and acting.	+3	-3	-1
16	Digital literacy practices do not create enough meaningful spaces where students are willing to actively engage.	-3	-1	-1
17	I believe digital literacy practices support students' language and literacy learning.	0	-2	+1
18	Providing a culturally sustaining classroom may increase students' classroom engagement and motivation to learn.	+2	+3	+2
19	Digital literacy practices provide the opportunity to follow youth culture and pop culture.	-1	0	+1

(table continues)

Table 4.4 (continued)

No	Statement	Factors		
		1	2	3
20	I feel confident that I can be responsive to students' needs in consideration of their cultural backgrounds.	-1	0	-2
21	Digital literacy practices may cause less interaction between students.	-3	+2	-2
22	I think building authentic relationships with the students is important.	+3	+3	+1
23	Digital literacy practices may affect students' ability to empathize with each other by reducing the amount of face-to-face interaction.	-4	+1	0
24	I define myself as a person who does not belong to any specific culture.	-3	-4	-3
25	Culturally sustaining pedagogy can give me new strategies to manage my classroom.	-1	-1	0
26	I believe that each student's culture has value and should be represented in the classroom.	+4	+4	+2
27	I think culturally sustaining teaching requires the teacher to connect with every child individually in the classroom.	+2	+1	-2
28	I believe I am capable of using digital literacy to deliver educational content in my teaching.	-2	+1	-2
29	Culturally sustaining pedagogy is a method of teaching that forefronts the various aspects of cultures and improves cultural competency.	+4	0	0
30	Digital literacy practices may result in students reading and learning content in little snippets and not in a sustained manner.	-2	+1	0
31	It is important for me to understand who my students are and to actively connect with all of them.	+3	+2	+2
32	Digital literacy develops the ability to use and navigate a variety of technological tools (e.g., computer, Internet, social media, etc.) with relative ease.	+1	+1	+2
33	I am willing to organize my lesson plans to include digital literacy practices relevant to students' backgrounds.	+2	+2	-1
34	I am not sure how to integrate culturally sustaining pedagogy into my lessons.	-2	-2	-4

Factor Interpretation

As the final phase, the interpretation of factors is a significant component of a Q methodology study (Brown, 1993; Watts & Stenner, 2012). The factor interpretation in the Q methodology aims to reveal, understand, and holistically explain the perspectives of participants captured as factors. The naming and description of the factors are obtained by engagement of the researcher with the data.

Factor interpretation is generally carried out by summarizing and providing a detailed explanation of the perspectives expressed for each factor (Watts & Stenner, 2012). In Q methodology, interpreting the factors involves examining the data analysis output such as the factor loading table, factor arrays, distinguishing and consensus statements, and participants' descriptive comments collected through the responses to the post-Q-sort questionnaire. The demographic information of participants can also contribute to understanding more about their perspectives as represented in the factors.

As explained above, factor arrays provide a holistic view of the order in which statements are placed in each factor. However, distinguishing statements can reflect implicit discrepancies between factors (Coogan & Herrington, 2011) and thus provide additional information that facilitates interpretation (Newman & Ramlo, 2010). While distinguishing statements are those statements which are sorted significantly differently in the relevant factor from the other factors, consensus statements are those sorted with similar positions in all of the factors by participants. Although the consensus statements may be positioned similarly within the factors when sorted, their meaning can be interpreted differently in every factor.

The factor interpretation in this study followed Watts and Stenner's (2012) crib sheet method because this method is quite useful for identifying the "statements that a particular factor

has ranked in a significantly different way to all the other factors” (p. 213). Thus, this method provides information that differentiates each factor from the others. Once Q factor analysis was complete, I began factor interpretation by creating crib sheets for each factor, as described in Chapter Three. I first focused on identifying and analyzing differences between factors. The first draft of the crib sheet gave an understanding of each factor’s likely themes and meanings. In addition to crib sheets prepared for each factor and distinguishing and consensus statements, I used participants’ responses to pre- and post-Q-sort questionnaires to interpret the factors holistically. Each of the three factors was presented along with the demographics of participants whose sorts defined the relevant factor.

Factor 1: Pre-Service Teachers Having Positive Beliefs But Needing Self-Confidence

Factor 1 was defined by eight Q-sorts, thus accounting for the most significant number, with 50% of the participants in this study. This factor explained 28% of the variance. This factor was named “Pre-service teachers having positive beliefs but needing self-confidence.” Table 4.5 provides a full crib sheet, and Table 4.6 presents the distinguishing statements of this factor. In addition, Appendix H is a visual representation of the factor array of this group.

The demographics of these participants included both undergraduate and graduate students from different backgrounds. Seven female participants and one male defined this group. All participants indicated they were in the 18–24 age range. Three participants self-identified as White, three as Asian, one as Latino or Hispanic, and one as Other/Prefer to self-describe. While six participants were in an undergraduate degree, two were pursuing Master of Education. Participants’ majors were English Education or TESOL and World Language Education. Three of the participants in Factor 1 reported that they had taken a course emphasizing digital

literacy/new literacy practices. Only one participant mentioned not taking a course before that emphasizes culturally responsive/relevant/sustaining pedagogy.

According to the crib sheet analysis of Factor 1, participants had highly positive views on both digital literacy and culturally sustaining pedagogy. Participants believed that maintaining a classroom environment in which students feel their culture is represented and valued is crucial, and that digital literacy benefits students by offering many different ways and occasions to learn and engage. Moreover, these participants expressed the desire to actively apply what they learn about both digital literacy and culturally sustaining pedagogy in their future teaching. However, they considered themselves inexperienced and lacked self-confidence. Participants also reported that they recalled the learnings from their courses while sorting the statements.

Participants sorted in Factor 1 sorted statement 26, “I believe that each student’s culture has value and should be represented in the classroom.” and statement 29, “Culturally sustaining pedagogy is a method of teaching that forefronts the various aspects of cultures and improves cultural competency.” in array position +4, which is the highest ranking. They demonstrated a strong belief in the value of students’ cultures and placed particular emphasis on the representation of all students’ cultures in the classroom. Also, they considered it is important to create a sense of engagement and connection in the classroom and teach inclusivity (Statement 31 and 22 both in array position +3). They believed that it is crucial to identify every student’s needs and help them acquire the resources in order to succeed. Some participants especially emphasized in the post-Q-sort questionnaire that these statements reflect respect for students and their cultures, as illustrated in the following comments:

“Students should feel open to be themselves and not have to hide a large portion of who they are in the classroom.”,

“Every individual needs respect and recognizes their personal identity is unique to them. Every student deserves the chance in study and realize in their personal identity.”,

“Students should have a voice in their classrooms. It is important that they feel heard and accepted.”,

“That's [the] teachers' responsibility to know their students, including their identity, educational background, and their family as well.”

Participants in Factor 1 identified culturally sustaining pedagogy as a teaching method that emphasizes different aspects of cultures and encourages both the teachers and the students to learn about, understand, and respect various cultures. Also, they believed that integrating culturally sustaining pedagogy into the classroom might be beneficial to motivate students to learn (Statement 18 in array position +2). One participant noted that “I aim to achieve a classroom where students feel that their culture is valued and represented.”

Regarding digital literacy, participants in Factor 1 considered digital practices to be a meaningful and powerful component of learning and expressed positive opinions related to contributions of digital literacy practices to communication between students (Statement 21 in array position -3). Also, they rejected the statements that digital practices have adverse effects on students' ability to empathize (Statement 23 in array position -4) and do not provide a sustained path to support students' learning (Statement 30 in array position -2). They considered digital literacy an invaluable opportunity to connect students, share resources and ideas, and create a space that supports students' learning (Statement 15 in array position +3; Statement 5 in array position 0; Statement 16 in array position -3). In the post-Q-sort questionnaire, one participant stated that:

“Blog posts and online dialogues are very popular and have benefits those face-to-face conversations don't. I can take my time to debate on my reply, decide my wording. I also have a chance to write my thoughts without the interruption of time or others wishing to speak. I also know that my generation knows how to connect to each other on the internet. We have been doing it our entire lives. The internet opens things to the students.”

Moreover, participants in Factor 1 sorted Statement 14 in array position -4, indicating that they largely perceived that digital literacy and culturally sustaining pedagogy are relevant to each other. Related to this statement, one participant noted, “Culturally sustaining pedagogy and digital literacy are quite important in the educational field, and I believe they are closely related.” According to another participant, there is no strong link between them, but “they overlap together to some extent.” The participants in Factor 1 thus considered digital literacy practices as beneficial for pursuing in culturally sustaining pedagogy in their teaching. Besides, they were eager to actively use digital literacy practices relevant to students’ backgrounds in their future classrooms (Statement 33 in array position +2).

According to participants in Factor 1, digital literacy practices’ have the potential to benefits students with diverse cultural backgrounds by providing a way to connect students’ homes and schools (Statement 1 in array position +2; Statement 7 and 9 both in array position +1; Statement 13 in array position 0). One participant stated that “digital literacy allows students to connect in ways that go well beyond the classroom.” Another participant noted that digital literacy is “not only multimodal, but also [a source of] multicultural resources for all subjects. In language learning classes, digital literacy helps teachers to show various interesting cultures of the languages in a multimodal way.” Nevertheless, these participants did not think digital literacy

is particularly useful in following youth culture and pop culture (Statement 19 in array position - 1). Besides, participants’ beliefs about using movies, music, or popular culture were relatively neutral, and they did not consider using them in relation to opportunities to connect with students’ different cultures (Statement 2 in array position 0).

Another remarkable finding revealed from the analysis was Factor 1 participants did not think they were adequately prepared to support the success of diverse students (Statement 10 in array position -2). Furthermore, they considered themselves lacked self-confidence and unpracticed (Statement 28 in array position -2; Statement 20 in array position -1; Statement 12 in array position -1; Statement 6 in array position -1). Some participants mentioned that they were inexperienced, and they needed to gain real teaching experience. One participant stated that “I feel inexperienced in a lot of teaching ideas because I have learned about them, read about them, seen them, but I have never attempted them.”

Table 4.5

Crib Sheet for Factor 1

No	Highest Ranked Statements	Rank
26	I believe that each student’s culture has value and should be represented in the classroom.	+4
29	Culturally sustaining pedagogy is a method of teaching that forefronts the various aspects of cultures and improves cultural competency.	+4
Statements Ranked Higher in Factor 1 Array than in Other Factor Arrays		
15	Digital literacy introduces new ways of knowing, thinking, questioning, reflecting, sharing, and acting.	+3
22	I think building authentic relationships with the students is important.	+3
31	It is important for me to understand who my students are and to actively connect with all of them.	+3

(table continues)

Table 4.5 (continued)

No	Statements Ranked Higher in Factor 1 Array than in Other Factor Arrays	Rank
1	Digital literacy practices may be beneficial to assist students with diverse cultural backgrounds.	+2
27	I think culturally sustaining teaching requires the teacher to connect with every child individually in the classroom.	+2
33	I am willing to organize my lesson plans to include digital literacy practices relevant to students' backgrounds.	+2
9	Digital literacy practices may bridge the gap between what students do at home and school.	+1
Statements Ranked Lower in Factor 1 Array than in Other Factor Arrays		
2	To connect students to different cultures, I may teach a lesson through movies, music or pop culture the students would enjoy.	0
13	Digital literacy practices can support students during the process of understanding and observing the communities that they inhabit.	0
12	I feel comfortable communicating through digital resources with students and families, who don't speak English.	-1
19	Digital literacy practices provide the opportunity to follow youth culture and pop culture.	-1
20	I feel confident that I can be responsive to students' needs in consideration of their cultural backgrounds.	-1
25	Culturally sustaining pedagogy can give me new strategies to manage my classroom.	-1
28	I believe I am capable of using digital literacy to deliver educational content in my teaching.	-2
30	Digital literacy practices may result in students reading and learning content in little snippets and not in a sustained manner.	-2
16	Digital literacy practices do not create enough meaningful spaces where students are willing to actively engage.	-3
21	Digital literacy practices may cause less interaction between students.	-3
No	Lowest Ranked Statements	Rank
14	I think digital literacy practices and culturally sustaining pedagogy are not related to each other.	-4

(table continues)

Table 4.5 (continued)

No	Lowest Ranked Statements	Rank
23	Digital literacy practices may affect students' ability to empathize with each other by reducing the amount of face-to-face interaction.	-4

Table 4.6

Distinguishing Statements for Factor 1

No	Statement	Q-SV	z Score
29	Culturally sustaining pedagogy is a method of teaching that forefronts the various aspects of cultures and improves cultural competency.	+4	1.41*
15	Digital literacy introduces new ways of knowing, thinking, questioning, reflecting, sharing, and acting.	+3	1.11*
1	Digital literacy practices may be beneficial to assist students with diverse cultural backgrounds.	+2	0.78*
4	I enjoy seeking cross-cultural experiences to understand people different from myself.	+1	0.48
8	I think that students should be encouraged to share their stories in the classroom.	+1	0.36*
9	Digital literacy practices may bridge the gap between what students do at home and school.	+1	0.3
5	I think digital literacy practices motivate students to explore and learn.	0	0.17*
6	I feel confident about using digital literacy practices to pursue culturally sustaining pedagogy in my class.	-1	-0.33
10	I believe that I am trained specifically to ensure that my students from diverse cultural backgrounds will be successful.	-2	-0.5*
30	Digital literacy practices may result in students reading and learning content in little snippets and not in a sustained manner.	-2	-1.43*
21	Digital literacy practices may cause less interaction between students.	-3	-1.62*
16	Digital literacy practices do not create enough meaningful spaces where students are willing to actively engage.	-3	-1.63*
23	Digital literacy practices may affect students' ability to empathize with each other by reducing the amount of face-to-face interaction.	-4	-1.63*

Note: Statements with asterisks () are significant at $p < .01$.*

Factor 2: Pre-Service Teachers Having Negative Beliefs Of Digital Literacy Practices

Factor 2 accounted for 21% of the variance, as defined by four Q-sorts that featured 25% of the participants. This factor was named “Pre-service teachers having negative beliefs of digital literacy practices.” Table 4.7 provides a full crib sheet, also showing the distinguishing statements of this factor. In addition, Appendix I is a visual representation of the factor array of this group.

Three female participants and one male constituted this group. Two participants indicated they were in the 18–24 age range, and the other two participants indicated they were in the 25–34 age range. Three participants self-identified as White and one as Asian. While two participants were in undergraduate degrees, one participant was in Master of Education degree, and one participant in Master of Arts degree. Participants’ majors were Education, English Education or TESOL and World Language Education. All participants in Factor 2 reported that they had taken a course that emphasizes culturally responsive/relevant/sustaining pedagogy. However, they all reported that they had not taken a course that emphasizes digital literacy/new literacy practices.

In general, participants in Factor 2, who all indicated not taking a course that emphasized digital literacy/new literacies expressed negative beliefs about and attitudes toward digital literacy practices in Q-sorting. The statements related to digital literacy were ranked negatively might reflect the lack of background in digital literacy practices in participants. These participants agreed that digital literacy practices are disadvantageous for students’ learning and communication rather than encouraging. Even though there was a consensus among all factors concerning the positive relationship between digital literacy and culturally sustaining pedagogy, participants in Factor 2 reflected a different perspective than those in other factors.

Factor 2 participants sorted Statement 14, “I think digital literacy practices and culturally sustaining pedagogy are not related to each other.” in -4, which is the highest negative ranking. However, they exhibited some hesitations about using digital literacy as a component of culturally sustaining pedagogy (Statement 9 in array position -3; Statement 6 in array position -2; Statement 11 and 1 both in array position -1; Statement 7 in array position 0). However, participants' sorting indicated that digital literacy could be useful and effective only to connect students with different cultures and maintain culturally sustaining pedagogy. (Statement 2 in array position +2). They only considered using digital literacy practices in their classrooms to deliver instructional content and organize their lesson plans relevant to students' backgrounds (Statement 33 in array position +2; Statement 28 in array position +1).

Furthermore, their clear opposition to digital literacy practices was unique to this group, which they did not believe could be more beneficial. In conspicuous contrast with participants in other factors, the participants in Factor 2 sorted most of the statements about digital literacy in higher negative rankings (Statements 3, 5, 9, 15, 17). Besides, they viewed digital literacy practices not only as detrimental to interactions and empathy among students (Statement 21 in array position +2; Statement 23 in array position +1), but also as ineffective for promoting student and teacher relationships (Statement 3 in array position -1).

Participants in Factor 2 expressed a narrow and pessimistic view about functionality of digital literacies in students' motivation. They did not believe that digital literacy practices could motivate students to explore or support students' learning by them with new ways of knowing, thinking, questioning, and sharing (Statement 15 in array position -3; Statement 5 in array position -2; Statement 17 in array position -2). They reported that digital literacy could provide some new learning opportunities to students but that it was not an essential aspect of instruction.

In the post-Q-sort questionnaire, one participant stated that: “I think it has a lot of potentials to bring new information and engaging ways of interacting with that information. However, I also think that it distracts students, gives them more chances to get off-topic, may isolate them.”

On the other hand, they strongly agreed that culturally sustaining pedagogy would be very useful to improve students’ motivation and classroom engagement (Statement 18 in array position +3). However, they considered themselves not well enough trained to ensure that their students from diverse cultural backgrounds would be successful (Statement 10 in array position -3). Related to this statement, one participant stated that “I do not think that teachers are adequately trained to ensure that all students from different backgrounds will be successful.” They did not feel competent enough to be responsive to the needs of students with different backgrounds (Statement 20 in array position 0).

As with participants in Factor 1, participants in Factor 2 attached great importance to representing students’ cultures in the classroom and to building and maintaining authentic relationships with students (Statement 26 in array position +4; Statement 22 in array position +3). This group is focused on the importance of recognizing and involving all students in the classroom, as illustrated by the following statement from the post-Q-sort questionnaire: “teachers should keep in mind that every student’s culture is unique and valuable. They should give every student an equal chance to represent their unique culture in the classroom.” According to another participant, “teachers need to get to know their students and give students the affection and care they need.” Also, they strongly agreed that students need to be encouraged to share their stories in the classroom (Statement 8 in array position +4). One participant noted that students “should have opportunities to share who they are,” and another participant pointed out that this is important “to give students a voice.”

Lastly, participants in Factor 2 strongly indicated that they feel belonged to a specific culture (Statement 24 in array position -4). While these participants valued their own cultural belonging, they also expressed their interest to interact with other cultures and people from different cultural backgrounds (Statement 4 in array position +3).

Table 4.7

Crib Sheet for Factor 2

No	Highest Ranked Statements	Rank
8*	I think that students should be encouraged to share their stories in the classroom.	+4
26	I believe that each student's culture has value and should be represented in the classroom.	+4
Statements Ranked Higher in Factor 2 Array than in Other Factor Arrays		
4	I enjoy seeking cross-cultural experiences to understand people different from myself.	+3
18	Providing a culturally sustaining classroom may increase students' classroom engagement and motivation to learn.	+3
22	I think building authentic relationships with the students is important.	+3
2	To connect students to different cultures, I may teach a lesson through movies, music or pop culture the students would enjoy.	+2
21*	Digital literacy practices may cause less interaction between students.	+2
33	I am willing to organize my lesson plans to include digital literacy practices relevant to students' backgrounds.	+2
23	Digital literacy practices may affect students' ability to empathize with each other by reducing the amount of face-to-face interaction.	+1
28*	I believe I am capable of using digital literacy to deliver educational content in my teaching.	+1
30	Digital literacy practices may result in students reading and learning content in little snippets and not in a sustained manner.	+1
12	I feel comfortable communicating through digital resources with students and families, who don't speak English.	0
20	I feel confident that I can be responsive to students' needs in consideration of their cultural backgrounds.	0

(table continues)

Table 4.7 (continued)

No	Statements Ranked Lower in Factor 2 Array than in Other Factor Arrays	Rank
7	Digital literacy may provide an environment for multicultural information, resources, and materials in all subjects and skills.	0
13	Digital literacy practices can support students during the process of understanding and observing the communities that they inhabit.	0
29	Culturally sustaining pedagogy is a method of teaching that forefronts the various aspects of cultures and improves cultural competency.	0
1	Digital literacy practices may be beneficial to assist students with diverse cultural backgrounds.	-1
3	Digital literacy practices may improve communication between teachers and students.	-1
11	Digital resources should be used as a component of culturally sustaining pedagogy.	-1
25	Culturally sustaining pedagogy can give me new strategies to manage my classroom.	-1
5*	I think digital literacy practices motivate students to explore and learn.	-2
17*	I believe digital literacy practices support students' language and literacy learning.	-2
9*	Digital literacy practices may bridge the gap between what students do at home and school.	-3
10*	I believe that I am trained specifically to ensure that my students from diverse cultural backgrounds will be successful.	-3
15*	Digital literacy introduce new ways of knowing, thinking, questioning, reflecting, sharing, and acting.	-3
Lowest Ranked Statements		
14	I think digital literacy practices and culturally sustaining pedagogy are not related to each other.	-4
24	I define myself as a person who does not belong to any specific culture.	-4

Note: Distinguishing statements are indicated italic. Statements with asterisks () are significant at $p < .01$.*

Factor 3: Pre-Service Teachers Having Ambivalent Opinions But Believed To Be Well-Trained

Factor 3, which accounted for 15% of the variance, was defined by four sorters; that is, 25% of the participants. This factor was named “Pre-service teachers having ambivalent opinions but believed to be well-trained.” Table 4.8 provides a full crib sheet, and Table 4.9 presents the distinguishing statements of this factor. In addition, Appendix J is a visual representation of the factor array of this group.

This group constituted three female participants and one male participant. Two participants indicated they were in the 18–24 age range, and the other two participants were in the 25–34 age range. Three participants self-identified as Asian and one as White. While two participants were in Master of Education degrees, one was in undergraduate degree, and one participant was in Master of Arts in Teaching degree. All the participants’ majors were TESOL and World Language Education. Two participants reported that they had already taken a course that emphasizes culturally responsive/relevant/sustaining pedagogy. Two participants in Factor 3 stated that they had not taken a course emphasizing digital literacy/new literacy practices.

The crib sheet for Factor 3 indicates that these participants held positive views on digital literacy practices, which they believed could strengthen students' learning and communication between students and their teachers. They also believed that digital literacy practices might be supportive for culturally sustaining pedagogy. More importantly, these participants in Factor 3 felt well-trained to ensure that the students from diverse cultural background will be successful in their classroom. However, they did not feel confident enough and were not seem very willing. With regard to culturally sustaining pedagogy, they have some opinions on issues such as

connecting with students in the classroom and being responsive to their needs that were different from those of participants in the other factors.

Participants in Factor 3 sorted statements 5, “I think digital literacy practices motivate students to explore and learn.” and 7, “Digital literacy may provide an environment for multicultural information, resources, and materials in all subjects and skills.” in +4, which is the highest ranking. They strongly agreed that digital literacy practices can increase students’ willingness to explore and foster their learning by giving them access to diverse multicultural information. In the post-Q-sort questionnaire, one participant summarized the group’s view that digital literacy “can create an optimal learning environment in the classroom for students with a multicultural background.”

As seen in other factors, participants in Factor 3 sorted Statement 14 in array position -4, rejecting the view that digital literacy and culturally sustaining practices were unrelated. Regarding this statement, one participant stated that “digital literacy and culturally sustaining pedagogy can be closely related to and incorporate with each other.” Moreover, Statements 11 (in array position +3), 13 and 19 (both in array position +1) were sorted higher by participants in this factor. According to another participant, “It would be advantageous if they complimented each other, only then can they be utilized to their fullest.” In addition, Statement 19 is sorted in +1, a positive ranking, by only Factor 3 and participants in this group think that digital literacy practices are useful in following the youth and popular culture.

A noteworthy result was Factor 3 participants’ strong agreement with Statement 10 (array position +3), indicating they felt well prepared to ensure the success of students from diverse cultural backgrounds, whereas participants in the other groups felt unprepared. This response was consistent with their very strong disagreement with the statement that they were not sure

how to integrate culturally sustaining pedagogy into their lessons (Statement 34 in array position -4). One participant noted that “I am confident that I can integrate culturally sustaining pedagogy into my lessons.” Another participant stated that “every course I am taking, or I have taken always reminded me [of] the importance of cultural backgrounds.”

However, participants in Factor 3 held a distinctly different view than the others when it came to representing culturally sustaining pedagogy in the classroom. Unlike other factors, this group moderately valued providing culturally sustaining pedagogy that involved representing each student’s culture in the classroom (Statement 26 in array position +2). Moreover, they believed that it is not essential for teachers to reach each student individually (Statement 27 in array position -2). As one Factor 3 participant commented: “I do not quite agree with this, since it requires the teacher to connect with every student, and I think it is too much for a teacher.” Also, participants in Factor 3 illustrated a negative approach to the statement that students should be encouraged to share their stories in the classroom, by sorting this statement in array position (Statement 8 in array position -3).

Furthermore, the participants in Factor 3 expressed some inconsistent opinions. Even though they disagreed that digital literacy has negative effects on interactions between students and teachers (Statement 21 in array position +2) and agreed it could facilitate communications among students (Statement 3 in array position +1), they disagreed with innovative possibilities of digital literacy and its provision of a space for student engagement (Statement 15 and 16 both in array position -1). Even though this group indicated that they believe to be well-trained and sure how to integrate culturally sustaining pedagogy in their lessons as mentioned above, they had negative or neutral views about statements related to implementing culturally sustaining pedagogy and digital literacy in the classroom (Statement 29 in array position 0; Statement 33 in

array position -1; Statement 1 in array position -1). Besides, they did not have confidence in their ability to use digital literacy practices and culturally sustaining pedagogy in their teaching (Statement 6 in array position -3; Statement 28 in array position -2) and being responsive diverse student's needs (Statement 20 in array position -2).

Table 4.8

Crib Sheet for Factor 3

No	Highest Ranked Statements	Rank
5	I think digital literacy practices motivate students to explore and learn.	+4
7	Digital literacy may provide an environment for multicultural information, resources, and materials in all subjects and skills.	+4
Statements Ranked Higher in Factor 3 Array than in Other Factor Arrays		
4	I enjoy seeking cross-cultural experiences to understand people different from myself.	+3
10	I believe that I am trained specifically to ensure that my students from diverse cultural backgrounds will be successful.	+3
11	Digital resources should be used as a component of culturally sustaining pedagogy.	+3
32	Digital literacy develops the ability to use and navigate a variety of technological tools (e.g., computer, Internet, social media, etc.) with relative ease.	+2
3	Digital literacy practices may improve communication between teachers and students.	+1
13	Digital literacy practices can support students during the process of understanding and observing the communities that they inhabit.	+1
17	I believe digital literacy practices support students' language and literacy learning.	+1
19	Digital literacy practices provide the opportunity to follow youth culture and pop culture.	+1
25	Culturally sustaining pedagogy can give me new strategies to manage my classroom.	0

(table continues)

Table 4.8 (continued)

No	Statements Ranked Lower in Factor 3 Array than in Other Factor Arrays	Rank
2	To connect students to different cultures, I may teach a lesson through movies, music or pop culture the students would enjoy.	0
29	Culturally sustaining pedagogy is a method of teaching that forefronts the various aspects of cultures and improves cultural competency.	0
1	Digital literacy practices may be beneficial to assist students with diverse cultural backgrounds.	-1
12	I feel comfortable communicating through digital resources with students and families, who don't speak English.	-1
33	I am willing to organize my lesson plans to include digital literacy practices relevant to students' backgrounds.	-1
20	I feel confident that I can be responsive to students' needs in consideration of their cultural backgrounds.	-2
27	I think culturally sustaining teaching requires the teacher to connect with every child individually in the classroom.	-2
28	I believe I am capable of using digital literacy to deliver educational content in my teaching.	-2
6	I feel confident about using digital literacy practices to pursue culturally sustaining pedagogy in my class.	-3
8	I think that students should be encouraged to share their stories in the classroom.	-3
Lowest Ranked Statements		
14	I think digital literacy practices and culturally sustaining pedagogy are not related to each other.	-4
34	I am not sure how to integrate culturally sustaining pedagogy into my lessons.	-4

Table 4.9

Distinguishing Statements for Factor 3

No	Statement	Q-SV	z Score
5	I think digital literacy practices motivate students to explore and learn.	+4	1.4*

(table continues)

Table 4.9 (continued)

No	Statement	Q-SV	z Score
7	Digital literacy may provide an environment for multicultural information, resources, and materials in all subjects and skills.	+4	2.03*
10	I believe that I am trained specifically to ensure that my students from diverse cultural backgrounds will be successful.	+3	1.13*
11	Digital resources should be used as a component of culturally sustaining pedagogy.	+3	1.22*
26	I believe that each student's culture has value and should be represented in the classroom.	+2	1.02*
13	Digital literacy practices can support students during the process of understanding and observing the communities that they inhabit.	+1	0.84*
12	I feel comfortable communicating through digital resources with students and families, who don't speak English.	-1	-0.67
15	Digital literacy introduces new ways of knowing, thinking, questioning, reflecting, sharing, and acting.	-1	-0.27*
33	I am willing to organize my lesson plans to include digital literacy practices relevant to students' backgrounds.	-1	-0.37*
20	I feel confident that I can be responsive to students' needs in consideration of their cultural backgrounds.	-2	-0.763
21	Digital literacy practices may cause less interaction between students.	-2	-0.77*
27	I think culturally sustaining teaching requires the teacher to connect with every child individually in the classroom.	-2	-0.83*
8	I think that students should be encouraged to share their stories in the classroom.	-3	-1.18*
34	I am not sure how to integrate culturally sustaining pedagogy into my lessons.	-4	-1.98*

Note: Statements with asterisks () are significant at $p < .01$.*

Consensus Statements

Consensus statements are those that receive similar rankings by all sorters and so do not distinguish the factors (van Exel & de Graaf, 2005). Even though data analysis supports three different perspectives on digital literacy practices and culturally sustaining pedagogy, there are common themes among factors. In other words, there was partial agreement among participants.

In this study, a total of 13 consensus statements emerged. The consensus statements identified in this study are presented with factor array rankings in Table 4.10.

Statement 14, “I think digital literacy practices and culturally sustaining pedagogy are not related to each other.” was ranked in array position -4 in the arrays of all three-factors indicating that all participants held strong beliefs about the positive relationship between digital literacy practices and culturally sustaining pedagogy. Statement 24, “I define myself as a person who does not belong to any specific culture.” was the other lower-ranked consensus statement. Nevertheless, Statement 18, “Providing a culturally sustaining classroom may increase students’ classroom engagement and motivation to learn.” and Statement 31, “It is important for me to understand who my students are and to actively connect with all of them.” were the higher-ranked consensus statements, as shown in Table 4.10 below.

These statements showed that participants were aware that it is crucial to communicate effectively with all students and that culturally sustaining pedagogy can help the teacher provide an engaged classroom and to foster students’ learning. Although sharing ideas and beliefs were identified in this study as consensus statements among factors, participants’ views about digital literacy practices and culturally sustaining pedagogy varied among the three factors. Therefore, each factor that emerged in this study reflected a unique perspective.

Table 4.10

Consensus Statements

No	Statement	Factors		
		1	2	3
2*	To connect students to different cultures, I may teach a lesson through movies, music or pop culture the students would enjoy.	0	+2	0
3	Digital literacy practices may improve communication between teachers and students.	0	-1	+1

(table continues)

Table 4.10 (continued)

No	Statement	Factors		
		1	2	3
12	I feel comfortable communicating through digital resources with students and families, who don't speak English.	-1	0	-1
13	Digital literacy practices can support students during the process of understanding and observing the communities that they inhabit.	0	0	+1
14	I think digital literacy practices and culturally sustaining pedagogy are not related to each other.	-4	-4	-4
18*	Providing a culturally sustaining classroom may increase students' classroom engagement and motivation to learn.	+2	+3	+2
19	Digital literacy practices provide the opportunity to follow youth culture and pop culture.	-1	0	+1
20	I feel confident that I can be responsive to students' needs in consideration of their cultural backgrounds.	-1	0	-2
22	I think building authentic relationships with the students is important.	+3	+3	+1
24*	I define myself as a person who does not belong to any specific culture.	-3	-4	-3
25	Culturally sustaining pedagogy can give me new strategies to manage my classroom.	-1	-1	0
31*	It is important for me to understand who my students are and to actively connect with all of them.	+3	+2	+2
32*	Digital literacy develops the ability to use and navigate a variety of technological tools (e.g., computer, Internet, social media, etc.) with relative ease.	+1	+1	+2

*Note: All listed statements were non-significant at $p > .01$, and those flagged with an * are also non-significant at $p > .05$.*

Chapter Summary

This chapter presented the data analysis and results of the study. The data were collected online from 17 pre-service teachers in the Department of Language and Literacy Education at the University of Georgia, including Q-sort, pre- and post-Q-sort questionnaires. A statistical

analysis of the Q-sort data was conducted using the Ken-Q software program. The explained variance, eigenvalues, and defining sorts were calculated, and three factors were extracted. Each of the three factors was interpreted based on its Q-sort array, distinguishing and consensus statements, and participants' responses to pre- and post-Q-sort questions. All factors presented an overall positive view regarding the use of digital literacy practices for culturally sustaining pedagogy. However, each factor represented a unique perspective on digital literacy and culturally sustaining pedagogy. Chapter Five will present the discussion and study implications based on the results of this study.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

The purpose of this study was to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy. This chapter presents a brief overview of the study findings, discussion, and implications. The chapter concludes with validity and reliability followed by limitations of the study.

Summary of the Study Findings

This section starts with an overview of the study. In this section, I will also briefly summarize and highlight the major findings of the current study to build connections to the discussion section.

This study was built upon the relevant literature on digital literacy as well as culturally sustaining pedagogy and pre-service teachers. Because this study aimed to capture pre-service teachers' perspectives regarding the use of digital literacy practices for culturally sustaining pedagogy, Q methodology (Brown, 1980; McKeown & Thomas, 2013; Rieber, 2020; Stephenson, 1953; Watts & Stenner, 2005, 2012) was used as the research design. From the concourse that is a group of statements representing a wide range of views (Brown, 1980; Watts & Stenner, 2012), 34 statements were selected to form as the Q-set of this study.

Participants completed pre- and post-Q-sort questionnaires in addition to the Q-sort with a forced ranked distribution. A total of 17 undergraduate and graduate students from the Department of Language and Literacy Education participated in this study. The number of

participants volunteered in this study conformed to Watts and Stenner's (2012) suggestion as they suggest that the number of participants should be less than the number of statements in a Q-set. Seventeen Q-sorts were factor analyzed with the Ken-Q software program (KADE) (Banasick, 2019).

Based on the factor analysis, three factors emerged; they were grouped with those who shared similar viewpoints. Interpretation of the three factors was built on exploring the differences and similarities among them in the light of crib sheets of factors, distinguishing and consensus statements, participants' responses to pre- and post-Q-sort questionnaires. The crib sheet is a factor interpretation method that allows the researcher to identify statements with salient meanings in the factor array. Because all the study participants were pre-service teachers who were being trained to be teachers, their perceptions were relevant to this study.

All participants expressed their views and stated that digital literacy practices would be helpful for culturally sustaining pedagogy in the classroom. Although there was a consensus among the three factors, each factor differentiated participants' approaches to digital literacy, culturally sustaining pedagogy, and implementation in the classroom. The three factors that resulted from the analysis and interpretation of the data presented both discrepancies and similarities in the participants' perspectives. Once the interpretation was complete, each factor was assigned with a name that reflects the groups' unique perspectives.

This study involved two research questions. The first research question was: What are the perspectives of pre-service teachers who have trained in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy?

To address the first research question, the three factors presented in this section to provide perspectives of the pre-service teachers participated in this study.

Factor 1 was named as “Pre-service teachers having positive beliefs but needing self-confidence.” This factor consisted of eight participants who indicated that they approached digital literacy practices and culturally sustaining pedagogy from a positive perspective and valued both of them as supportive aspects of the classroom. Participants were of the view that digital literacy practices promote learning by presenting new paths for students to explore, think, question, and participate. However, they shared a lack of confidence in implementing digital literacy and culturally sustaining pedagogy in the classroom. The results for this group exhibited that they did not feel well-prepared to teach in a diverse classroom, although they reported showing a willingness in this direction. In addition, they did not think that digital literacy would provide the opportunity to follow youth and popular culture.

Factor 2 was named as “Pre-service teachers having negative beliefs of digital literacy.” This factor consisted of four participants who indicated that they viewed digital literacy practices as disadvantageous for students’ learning and communication rather than encouraging. Participants in Factor 2 differentiate from other factors, depending on their fundamental perspective and assumptions about digital practices. While participants perceived digital literacy as a potential distraction source, positively considered using digital literacy practices in their future classrooms to deliver instructional content relevant to students’ backgrounds. Similar to Factor 1, participants in Factor 2 also considered themselves unprepared to teach in a diverse classroom.

Lastly, Factor 3 was named as “Pre-service teachers having ambivalent opinions but believed to be well trained.” This factor consisted of four participants who thought digital literacy practices would strengthen learning and communication between students and their teachers. Participants believed that digital literacy practices might be supportive for culturally

sustaining pedagogy, but they were not confident enough to apply digital literacies practices for culturally sustaining pedagogy in the classroom. Although participants believed that they were well trained to become inclusive teachers in a diverse classroom, they expressed some ambivalent opinions on issues connecting with students in the classroom and being responsive to their needs.

The second research question was: Is there a relationship between demographic factors (e.g., age, gender, race, and education level) and the perspectives of pre-service teachers on the use of digital literacy practices for culturally sustaining pedagogy?

Because participants with the same demographics did not cluster on the emerging factors, this study did not explore a direct relationship between demographic factors (e.g., age, gender, race, education level) and pre-service teachers' perspectives on the use of digital literacy practices for culturally sustaining pedagogy. Nevertheless, only participants in Factor 2, who all indicated not taking a course that emphasized digital literacy/new literacies before, illustrated a negative perspective on digital literacy practices in Q-sorting.

Drawing from the interpretation of Factor 2, pre-service teachers, who did not take a course that emphasizes how digital literacy could be used effectively in a classroom, might have negative beliefs and attitudes. In a study conducted by Friedman and Kajder (2006), pre-service teachers' perspectives who enrolled in an introductory educational technology course were examined throughout a semester. As a result of the study, it was revealed that the course positively affected pre-service teachers' perspectives regarding the integration of technology in various instructional areas. Moreover, pre-service teachers realized that technology strategies and tools might provide diverse and influential learning opportunities for students (Friedman & Kajder, 2006).

Discussion

This study contributes to the literature by revealing perspectives of pre-service teachers regarding the use of digital literacy practices for culturally sustaining pedagogy. Perspectives of pre-service teachers participated in this study provided understanding about their perceptions and appreciation of digital literacies, with regard to acquiring culturally sustaining pedagogy. In the discussion section, I aim to explain the major findings from the current study in relation to the literature on perspectives of preservice teachers about digital literacy practices and culturally sustaining pedagogy.

Overall, pre-service teachers agreed the relevance and potential advantages of using digital literacy practices for culturally sustaining pedagogy. Additionally, they strongly believed that digital literacy practices could also provide various ways to discover other cultures, resulting in more culturally aware and sustaining educational practices in language arts classrooms. As discussed by Paris (2012), culturally sustaining pedagogy supports “multilingualism and multiculturalism in practice and perspective for students and teachers” (p. 95). The literature also suggests that teachers should explore their attitudes and beliefs about other cultures and embrace cultural diversity during the early years in their profession (Banks, 2008; Gay, 2002; Ladson-Billings, 1995; Nieto, 2008; Paris, 2012). Digital literacy, as a window to diversity and global representations, can help teachers to accomplish this task (Buckley-Marudas, 2016). Thus, digital literacy practices can allow teachers to learn more about their students, which can help represent students’ cultures and interests in the classroom.

On the one hand, most pre-service teachers who participated in this study viewed digital literacy practices encourage students to explore, think, question, and learn, strengthen communication among students and with their teachers, providing engagement in the classroom.

These participants expressed highly positive views and beliefs about digital literacy practices. However, they also reflected on their lack of confidence in reflecting digital literacy practices into the classroom. Literature supports the result of the current study as pre-service teachers are mostly found to be aware of the potential benefits of digital literacy practices to support teaching and learning processes (Akayoglu et al., 2020; Lei, 2009). Akayoglu et al. (2020) found that pre-service teachers predominantly embraced digital literacy as a useful and effective component of teaching and learning. However, Akayoglu et al. (2020) also suggested that teacher candidates needed more guidance in using digital literacy practices in their professional improvement and future teaching. In addition, they suggested that teacher preparation programs ought to provide courses that integrate pedagogical and technology-related instruction to support pre-service teachers' competency (Akayoglu et al., 2020).

Similarly, Lei (2009) stated that pre-service teachers lacked sufficient experience and expertise in using classroom technologies despite their strongly positive beliefs and attitudes toward technology and digital literacy. In a national survey, Hutchison (2012) found that most of the teachers who participated in the research expressed their beliefs that integrating digital technology into literacy education would be useful for students. Participant teachers also stated that they were not well-trained to use and integrate digital technology into literacy education. In another national study, Pasternak et al. (2016) conducted a survey on English teacher educators about integrating technology into the teacher education programs in the United States. Pasternak et al. (2016) found that technology was frequently included in the method courses for instructional purposes. However, teacher educators who participated in the study mentioned that teacher candidates did not use technology in their own classes or field placements.

On the other hand, participants in Factor 2 reflected on a certain level of opposition to digital literacy practices. These participants reported keeping their distance from digital practices for reasons that could not be identified in this study. Participants mainly expressed that they perceived digital literacy as a potential source of distraction in the classroom, and they were not willing to explore the potential of digital practices in their profession. These participants, however, agreed that digital literacy can be beneficial only when connecting students with different cultures and maintaining culturally sustaining pedagogy. This finding of the current study was supported with Shively and Palilonis (2018)'s study. Shively and Palilonis (2018) found some mixed, mainly positive but also negative, perceptions of pre-service teachers regarding understanding and engaging in digital literacy. Given that the reasons for this unwillingness might vary, the expectations from teacher education courses are again underlined. Once pre-service teachers are introduced to digital practices in their courses, they might alter their negative or ambivalent feelings toward digital literacy practices.

The current study showed that most of the participants strongly expressed their beliefs on the value of students' cultures and importance of representing them in the classroom. These participants agreed that it was crucial to create a sense of engagement and connection in the classroom, identify and respond to every student's needs, and help them acquire the resources in order to succeed. However, only participants in Factor 3 reflected relatively negative opinions of connecting with each student individually and encouraging students to share their stories in the classroom, though they expressed their positive views for culturally sustaining pedagogy. This result aligns with literature that teachers may have different or deficit perceptions about culturally sustaining pedagogy (Puzio et al., 2017). Culturally sustaining pedagogy claims that schools should be places where diverse and heterogeneous practices are not seen as only valuable

but also sustainable (Alim & Paris, 2017). Starting from this point of view, Puzio et al. (2017) emphasized that honoring students' backgrounds, cultures, and language practices and involving them in the classroom are some of the tangible ways through which teachers can implement culturally sustainable pedagogy in their instructions. For this reason, the current study points out that supporting pre-service teachers' knowledge, awareness, and attitudes can help future teachers develop teaching strategies that make a positive difference for all students.

Besides the different views of the participants, feeling unprepared and not being ready to teach in a diverse classroom were highlighted by the participants in this study. Hence, it is also revealed that building self-confidence is crucial for pre-service teacher participants to implement what they have learned in their teacher education programs. Drawing from participants' statements that they did not feel confident to teach diverse classrooms, this study presents a need to create an environment in which participants will acquire more practical experience. This result was supported in the study by Laman et al. (2018). Even though Laman et al. (2018) did not clearly state the term "digital literacy" in their study, they aimed to provide a field-based mediated experience for teacher candidates throughout a language arts method course where children created digital stories. They pointed out that this mediated field experience substantially altered the perspectives and assumptions of pre-service teachers regarding students and families. Moreover, pre-service teachers also gained experience and started to perceive the purposeful actions that teachers should pursue to encourage students' learning (Laman et al., 2018).

As a last remarkable point revealed from the results of the current study, a section of pre-service teachers in this study did not consider that digital literacy practices might allow them to keep up with youth and popular culture. However, they shared a slight interest in using popular culture, movies, and music so that students get their students familiar with different cultures.

Similarly, a study conducted by Petrone (2013) found that while some pre-service teachers showed interest in considering popular culture in the context of literacy education, some pre-service teachers expressed confusing, even negative, opinions. As discussed by Paris (2012), one of the significant aspects of culturally sustaining pedagogy is not to limit the term of culture with heritage and community practices and emphasizes the culture as “dynamic, shifting, and ever-changing” (p. 95). Therefore, culturally sustaining pedagogy focuses on youth culture and acknowledges that youth are both producers and consumers of the culture (Paris & Alim, 2014). Furthermore, Price-Dennis et al. (2014) highlight the relevance of youth culture and 21st century literacy practices and the significance of considering culturally aware approaches for teaching with multimodal digital tools.

Study Implications

As the purpose of this study was to examine pre-service teachers' perspectives in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy, this study revealed perspectives that reflect participants' opinions and beliefs about digital literacy practices and culturally sustaining pedagogy. Thus, the results of the current study suggest implications for practice and research.

Implications for Practice

The current study contributed to the literature by showing that pre-service teachers' perspectives and beliefs about digital literacy practices, culturally sustaining pedagogy, and their implementation in the classroom varied. Because pre-service teachers' perspectives affect and shape teaching practices in and out of the classroom, understanding pre-service teachers' perspectives would be crucial to alter their negative opinions and beliefs positively and support them before taking an active teaching role.

Participants in this study reported that they recalled previously learnings about digital literacy practices in various teacher education courses in their academic programs. The results of this study suggest that teacher education courses are the primary source of information to build self-confidence and perspectives. This information suggests the effectiveness of the courses in teacher education programs that have shaped pre-service teachers' perspectives and beliefs. The three different perspectives reflected in the summary of findings may assist teacher education programs in planning educational occasions and courses that can address and positively change pre-service teachers' various beliefs and concerns before they proceed to the teaching profession. These educational occasions and practices might also provide to eliminate pre-service teachers' negative beliefs and opinions about digital literacy and culturally sustaining pedagogy.

Because the competencies and practices of future teachers might affect students' learning processes and outcomes, the integration of digital literacy is gaining importance as a required component of teacher education programs. Accordingly, Pasternak (2020) investigated how technology could be integrated more efficiently in English language arts teacher education and how pre-service teachers can be encouraged to use more active technology in their future classrooms. Pasternak (2020) emphasized the importance of content-specific method courses that can be designed more "thoughtful and consistent" (p. 30) to blend with multimedia platforms. Pasternak (2020) also mentioned that syllabuses should align with the NCTE national standards, which outline that teacher candidates are expected to "use contemporary technologies and/or digital media to compose multimodal discourse" (NCTE, 2012, p. 1). Similarly, the NCTE Position Paper on the Role of English Teachers in Educating English Language Learners (ELLs) (2020) and TESOL standards (2019) highlights the significance and benefits of technology integration into teacher preparation programs to guide teacher educators.

Moreover, Pasternak (2020) stated that technology awareness of pre-service teachers should be switched to active engagement level by “requiring multiple assignments or technology activities repeated throughout a semester for both teaching and learning the subject of the teaching” (p. 43). To this end, teacher educators should encourage pre-service teachers to implement the digital literacy practices they use in their own lives into their assignments, academic submissions, and activities. Purposeful and practical activities and assignments where technology and digital media are effectively used might positively change the beliefs and opinions of pre-service teachers about digital literacy and may provide insight into integrating these activities into their future teaching.

As an important guideline for K-12 teachers, teacher educators, and researchers, the NCTE position statement Beliefs for Integrating Technology into the English Language Arts Classroom emphasizes the requirement to follow technological developments and their influence on literacies and learning (Lynch et al., 2019). According to Lynch et al. (2019), social literacy practices such as digital reading and writing those teachers provide can help students gain learning experiences to access their communities and beyond to a global audience. Therefore, to support pre-service teachers in developing more positive attitudes and valuing the practical use of digital literacy practices for culturally sustaining pedagogy, teacher education programs and teacher educators could provide opportunities for online collaborative and multimodal practices. Such opportunities might also inspire future teachers to explore linguistic and cultural diversity more widely.

Furthermore, pre-service teachers could be guided to explore and implement various strategies mentioned in studies about digital literacy practices for culturally sustaining pedagogy, such as combining digital media and online forums into instruction to create deeper relationships

between students (Buckley-Marudas, 2016), creating classroom blogs for sharing students work and providing feedback (Machado et al., 2017), and creating digital stories that represent students' cultures (Laman et al., 2018). Some studies have emphasized that such practices could be lucrative when pre-service teachers are adequately trained and guided (Deroo, Farver, & Dunn, 2017; Laman et al., 2018; Price-Dennis et al., 2014). Accordingly, future teachers can achieve a more inclusive classroom for all students by honoring cultural diversity and exploring collaborative knowledge building through digital literacy practices.

The current study also revealed that pre-service teachers need more practical experience to improve their self-confidence and competency. Given that the study explores pre-service teachers' perspectives, this study suggests that, in addition to providing diverse learning occasions and practices in their courses, creating opportunities for them to gain more experience may be helpful to support them as future teachers. Kajder (2005) emphasized that pre-service teachers should be supported through field experiences and meaningful courses that connect their previous learnings with hands-on experiences. In another study, Price-Dennis et al. (2014) mentioned that pre-service teachers could improve self-confidence in teaching writing through digital tools by creating digital texts to support students' writing development in a language arts methods course. According to Pasternak (2020), integrating field experiences and student teaching as continuous learning opportunities might help pre-service teachers effectively transfer pedagogies and practices to their prospective classrooms. Hence, pre-service teachers may gain experience conveying learnings in their teacher education programs that they can practice in their future classrooms.

Implications for Research

The current study's findings may inform the future through more in-depth research about digital literacy practices and culturally sustaining pedagogy to reshape literacy teacher education for enhancing pre-service teachers' beliefs and thoughts. Because there is limited research about the relationship between digital literacy practices and culturally sustaining pedagogy, further research is necessary to explore and understand how these two fields might support teaching and learning in language arts classrooms.

Future research might also consider exploring why pre-service teachers feel inexperienced and unprepared and have negative beliefs and attitudes about digital literacy practices. Combined with the fact that the current study reveals the need for pre-service teachers' hands-on experience in the classroom, this study suggests further research to examine how hands-on experiences can be generated for supporting pre-service teachers. Also, conducting a longitudinal study might provide insight into the possible changes of pre-service teachers' perspectives when they proceed to professional life. Another recommendation that could be beneficial would be to repeat this research with in-service teachers to explore their perspectives regarding the use of digital literacy practices for culturally sustaining pedagogy.

Last, although there are intersection points between English Education and TESOL and World Language Education in terms of language and literacy education, these subject areas have different contexts and standards for the preparation of pre-service teachers. However, perspectives of preservice teachers and preparedness for integrating technology into the classroom might differ according to the nuances between English Education and TESOL and World Language Education. If the differences between these subject areas had been considered,

the results of this study might have been interpreted more comprehensively. Therefore, future researchers might consider the nuances of these subject areas and design a different Q-set.

Validity and Reliability

In the Q methodology, the concepts of validity and reliability have less significance, as participants sort the statements according to their perspective. According to Brown (1980), validity is not a crucial concern in Q methodology, and Q-sorts have clear differences from quantitative methodologies such as scaling and questionnaires. As Q-sorting is entirely up to the participants' viewpoints and how participants interpret these statements (Ramlo & Newman, 2011), it is impossible to apply an outside criterion to the participants' interpretation of statements (Brown, 1980). The Q-sorts are considered valid representations of participants' views (Watts & Stenner, 2012).

Ramlo (2016) pointed out that participants are objectively grouped according to their subjective Q-sorts, and participants' perspectives are not subject to validity. According to Brown (1980), the content validity of statements is also not essential as well; however, a broad and well-represented Q-set has a significant role in a Q methodology study. Thereby, the statements can be evaluated by experts or participants via pilot testing to maintain content validity (Watts & Stenner, 2012). These methods allow statements' wording and readability to be evaluated; hence, content validity may be increased. In this study, pilot testing was performed to ensure content validity.

Limitations of the Study

Although Q methodology uses both quantitative and qualitative component in conducting research, the results of a Q methodology study are not generalizable to a larger population (Rieber, 2020). Q methodology only seeks to identify "the existence of particular viewpoints and

thereafter to understand, explicate and compare them” (Watts & Stenner, 2012, p. 72).

Accordingly, this study explored the viewpoints and perceptions of only those pre-service teachers who participated in this study.

By design, this study was meant to explore the perspectives of pre-service teachers, and the target population of the study was undergraduate and graduate students from the Department of Language and Literacy Education at the University of Georgia. The targeted participants were contacted through the selected undergraduate and graduate courses in the department. Due to the limitations of the initial recruitment process, the scope of recruitment was expanded to the other courses in the department, with the intent of having more participants in the study. Even though the targeted population did not change, enlarging the scope of recruitment might have affected the results of this study.

The data were collected entirely online through a convenient web-based Q methodology software program. Also, the researcher did not conduct a follow-up interview with participants due to the time constraints of the study. However, a post-Q-sort questionnaire with questions similar to those of a follow-up interview was utilized for collecting written answers from participants. The post-Q-sort questionnaire provided information about participants’ sorting rationale and feedback on statements and the sorting process. Although participants’ responses were helpful to interpret the factors that emerged from Q factor analysis, a follow-up interview after Q sorting could be more beneficial for the study.

In this study, the data were collected during Spring 2021 while the Covid-19 restrictions were in effect for the classes of the aforementioned semester. Accordingly, the courses and field experiences of pre-service teachers had also encountered a shift to online and/or hybrid practices. The lack of self-confidence and need for more experience among pre-service teachers might

have resulted from the unique conditions and limitations of the 2020–2021 academic year. Thus, the results of the current study ought to be interpreted by considering this limitation.

Last, all participants fully completed the Q-sorts; however, some participants noted in the post-Q-sort questionnaire that they had difficulty with the sorting process. While some indicated that sorting the statements was challenging because of limited number of slots of piles, one participant mentioned having difficulty about deciding on the level of agreement about the statements. Future researchers might consider using a smaller Q-set to capture the perspectives of pre-service teachers regarding the use of digital literacy practices for culturally sustaining pedagogy.

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APPENDIX A: IRB Approval



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Human Research Protection Program

EXEMPT DETERMINATION

November 25, 2020

Dear [Donna Alvermann](#):

On 11/25/2020, the Human Subjects Office reviewed the following submission:

Title of Study:	Exploring the Perspectives of Pre-Service Teachers Regarding the Use of Digital Literacy Practices for Culturally Sustaining Pedagogy
Investigator:	Donna Alvermann
Co-Investigator:	Cigdem Yurekli
IRB ID:	PROJECT00003019
Funding:	None
Review Category:	Exempt 3(i)(B)

We have determined that the proposed research is Exempt. The research activities may begin 11/25/2020.

Since this study was determined to be exempt, please be aware that not all future modifications will require review by the IRB. For more information please see Appendix C of the Exempt Research Policy (<https://research.uga.edu/docs/policies/compliance/hso/IRB-Exempt-Review.pdf>). As noted in Section C.2., you can simply notify us of modifications that will not require review via the "Add Public Comment" activity.

A progress report will be requested prior to 11/25/2025. Before or within 30 days of the progress report due date, please submit a progress report or study closure request. Submit a progress report by navigating to the active study and selecting Progress Report. The study may be closed by selecting Create Version and choosing Close Study as the submission purpose. Please close this study when it is complete.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103).

Sincerely,

William Westbrook, IRB Analyst

Human Subjects Office, University of Georgia

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APPENDIX B: Consent Letter

Dear Participant,

My name is Cigdem Yurekli and I am a Master of Arts student in the Department of Language and Literacy Education at the University of Georgia. I invite you to participate in a research study entitled “Exploring the Perspectives of Pre-Service Teachers Regarding the Use of Digital Literacy Practices for Culturally Sustaining Pedagogy”. The purpose of this study is to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy.

Your participation will involve participating an anonymous, online survey, which is critical to my study. Completing the survey will take approximately 30 minutes. This study will utilize Q methodology, a mixed-methods interdisciplinary approach. First, you will be asked to multiple choice questions in the pre-Q-sort questionnaire to get demographic information. To complete the Q-Sort, you will sort the 34 statements related to digital literacy practices and culturally sustaining pedagogy from "most agree" to "least agree" based on your personal experiences and opinions. Finally, you will be asked to answer open-ended questions in the post-sorting questionnaire to explain your sorting rationale.

Study participants who complete the survey will receive a \$10 Amazon or Starbucks Gift card. Your participation in this study is completely voluntary, and you are free to refuse to participate or to withdraw your participation at any time without penalty or prejudice. Your decision to participate in research or not will have no impact on your grades or class standing. If you participate, your responses will be completely anonymous. The findings will be reported only in terms of overall views or those of groups of pre-service teachers in the field of language and literacy education. To protect your privacy, no individually identifiable information about you will be shared with others. Only the researcher will have access to identifying information and findings will be erased after the conclusion of the research.

There are no direct benefits to participating in this study except to add to your understandings about the use of digital literacy practices for culturally sustaining pedagogy. However, this study intends to contribute to the literature by revealing teacher candidates’ perspectives on culturally sustaining pedagogy, the nature of vital literacies in the 21st century and culturally appropriate ways to promote students’ skills in multiple literacies, in particular digital literacy. The de-identified data from this project might be used in publications or presented at conferences.

There are no anticipated risks to participating in this study. This research involves the transmission of data over the Internet. Every reasonable effort has been taken to ensure the effective use of available technology; however, confidentiality during online communication cannot be guaranteed.

If you have any questions about this research project, please feel free to contact Cigdem Yurekli at (706) 715-1300 or send an e-mail to cy47967@uga.edu. Donna E. Alvermann, the study's principal investigator, may also be contacted at dalverma@uga.edu. If you have any questions or concerns regarding your rights as a research participant in this study, you may contact the Institutional Review Board (IRB) Chairperson at 706.542.3199 or irb@uga.edu.

If you agree to participate in this research study, please sign below:

_____ Name of Researcher	_____ Signature	_____ Date
_____ Name of Participant	_____ Signature	_____ Date

You should retain a copy of this letter and your written consent for future reference.

Thank you very much for your time, and I greatly appreciate your help with this research study.

Sincerely,
Cigdem Yurekli

APPENDIX C: Recruitment Email

Hello,

My name is Cigdem Yurekli and I am a Master of Arts student in the Language and Literacy Education Department at the University of Georgia. I am inviting you to participate in a research study entitled “Exploring the Perspectives of Pre-Service Teachers Regarding the Use of Digital Literacy Practices for Culturally Sustaining Pedagogy”. The purpose of this study is to examine the perspectives of pre-service teachers in the field of language and literacy education regarding the use of digital literacy practices for culturally sustaining pedagogy.

I am asking for a few minutes of your valuable time to complete an anonymous, online survey, which is critical to my study. The completion of the survey should take about 30 minutes, and there will be a consent form for you to review before conducting the survey. I hope you will be willing to take a small amount of your time to help me by sharing your views and perceptions regarding the use of digital literacy practices for culturally sustaining pedagogy.

Study participants who complete the survey will receive a \$10 Amazon or Starbucks Gift card. If you would like to receive a gift card, you can indicate your e-mail at the end of the survey.

I would be very grateful for your participation in my research. If you have any questions or would like to discuss the survey, please send me an email at cy47967@uga.edu or feel free to contact me at (706)715-1300.

Sincerely,
Cigdem Yurekli

University of Georgia
Mary Frances Early College of Education
Language and Literacy Education Department

APPENDIX D: Pre-Q-Sort Questionnaire

Please answer the questions below. If any of these questions make you feel uncomfortable, you do not have to answer them.

1. Please indicate your age group.
 - a. 18-24 years
 - b. 25-34 years
 - c. 45-54 years
 - d. 55-64 years
 - e. >65 years

2. What gender do you identify as?
 - a. Male
 - b. Female
 - c. Trans-gender
 - d. Non-binary
 - e. Other
 - f. I prefer not to answer

3. How do you describe your ethnicity?
 - a. American Indian or Alaska Native
 - b. Asian
 - c. Black
 - d. African American
 - e. Native Hawaiian or Other Pacific Islander
 - f. Latino or Hispanic
 - g. White
 - h. Other/Prefer to self-describe
 - i. I prefer not to answer

4. What is the current degree you are pursuing?
 - a. Undergraduate
 - b. Master of Education
 - c. Master of Arts
 - d. Master of Arts in Teaching
 - e. Doctoral Degree

5. What is your major?

6. Did you take a course that emphasizes digital literacy/new literacy practices during your undergraduate and/or graduate education?

a. Yes

b. No

7. Did you take a course that emphasizes culturally responsive/relevant/sustaining pedagogy during your undergraduate and/or graduate education?

a. Yes

b. No

APPENDIX E: Post-Q-Sort Questionnaire

Thank you for completing the sorting activity. Please answer the questions below. There are no right or wrong answers. I want to learn about your point of view about the statements used in the sorting activity and your overall opinion about the sorting activity.

1. Please explain why you sorted the statements in the +3 and +4 piles.
2. Please explain why you sorted the statements in the -3 and -4 piles.
3. Please explain why you sorted the statements under the 0 column.
4. How do you feel about this topic?
5. What did you think while you were sorting the statements?
6. Did you feel any difficulty while sorting the statements? If so, which ones and why?
7. Did you feel that any of the items in the Q sort were inappropriate and why?
8. Is there anything else that you think it is important for me to know in order to understand your point of view?

APPENDIX F: Correlation Matrix of Q-Sorts

Participant	1MRM W7	2MSM RzN	3MSi Hib	4MTI 7R7	5MT Wr4i	6MU Rujz	7MUL aB1	8MWj NyP	9MU Y-7	10MU fGJ	11MV S88	12M WPzI	13M WDd	14MW 0na	15MW eKl	16M WPw	17MW kE9
1MRMW7	100																
2MSMRzN	55	100															
3MSiHib	34	7	100														
4MTI7R7	59	67	24	100													
5MTWr4i	56	56	4	42	100												
6MURujz	43	30	49	56	8	100											
7MULaB1	39	75	7	51	48	20	100										
8MWjNyP	39	26	0	18	33	-8	12	100									
9MUY-7w	75	61	23	74	51	56	56	29	100								
10MUfGJ	54	32	14	28	31	33	20	31	31	100							
11MVS88	18	34	6	31	37	43	18	32	43	24	100						
12MWPzI	73	56	18	48	48	41	53	9	63	59	25	100					
13MWDDd	51	55	26	38	46	23	58	41	48	45	32	59	100				
14MW0na	44	49	50	51	38	75	38	7	60	34	53	33	50	100			
15MWeKl	53	65	3	44	67	8	58	33	40	61	31	56	53	31	100		
16MWPw	49	39	26	56	23	57	14	37	54	27	26	38	28	51	15	100	
17MWkE9	36	42	10	59	30	39	28	-4	48	21	3	31	18	43	27	51	100

APPENDIX G: Unrotated Factor Matrix

Participant	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
1MRMW7	0.808	-0.042	0.0853	0.1758	-0.3465	0.1277	-0.1129	0.2918
2MSMRzN	0.7949	-0.2261	-0.2795	-0.1286	0.1456	0.0769	-0.0268	-0.1609
3MSiHib	0.3287	0.5173	0.2643	0.4512	0.0947	0.4419	0.2484	0.1112
4MTI7R7	0.7853	0.1987	-0.2831	-0.1968	-0.0813	0.0454	-0.0545	0.0101
5MTWr4i	0.6634	-0.3998	-0.0341	-0.1288	0.0792	0.0037	0.3028	0.4405
6MURujz	0.6013	0.6872	0.0951	0.0855	0.1231	-0.1916	-0.1302	-0.0365
7MULaB1	0.6589	-0.3115	-0.3942	0.0741	0.3307	0.2173	-0.1329	-0.1944
8MWjNyP	0.3646	-0.3677	0.566	-0.4171	-0.2989	0.2989	0.0259	-0.1282
9MUy-7w	0.8444	0.1295	-0.0916	-0.1567	-0.0195	0.0889	-0.259	0.2182
10MUfGJ	0.5759	-0.187	0.3463	0.3752	-0.2682	-0.4424	0.0823	-0.1958
11MVS88	0.4857	0.0408	0.4393	-0.3954	0.4874	-0.3183	-0.0887	0.1
12MWPzI	0.7585	-0.1494	-0.0623	0.37	-0.1265	-0.1624	-0.3393	0.0921
13MWDdY	0.6999	-0.2662	0.1958	0.1911	0.1671	0.2535	-0.0211	-0.3004
14MW0na	0.7205	0.435	0.13	-0.0034	0.3479	-0.0312	0.2335	-0.0711
15MWeKl	0.6863	-0.5321	-0.0202	0.1209	0.0367	-0.1845	0.2667	-0.016
16MWPwX	0.6148	0.4099	0.109	-0.3193	-0.3919	0.0476	-0.0404	-0.1728
17MWke9	0.5366	0.2925	-0.4932	-0.1613	-0.2988	-0.1582	0.353	-0.1098
Eigenvalues	7.380192	2.096763	1.35721	1.130794	1.096021	0.850691	0.654321	0.614997
% Explained Variance	43	12	8	7	6	5	4	4
Cumulative % Explained Variance	43	55	63	70	76	81	85	89

APPENDIX H: Idealized Q-Sort for Factor 1

	-4	-3	-2	-1	0	1	2	3	4
** ◀ Digital literacy practices may affect students'	I define myself as a person who does not belong to any specific culture.	** I believe that I am trained specifically to ensure that my students from	I feel comfortable communicating through digital resources with	Digital literacy practices can support students during	Digital literacy develops the ability to use and navigate a	Providing a culturally sustaining classroom may increase	It is important for me to understand who my students are and to actively	I believe that each student's culture has value and should be	
I think digital literacy practices and culturally sustaining	** ◀ Digital literacy practices may cause less interaction	I am not sure how to integrate culturally sustaining	Culturally sustaining pedagogy can give me new strategies to	** I think digital literacy practices motivate students to	* ◀ I enjoy seeking cross-cultural experiences to understand people	I am willing to organize my lesson plans to include digital literacy	** ▶ Digital literacy introduces new ways of knowing,	** ▶ Culturally sustaining pedagogy is a method of teaching that	
	** ◀ Digital literacy practices do not create enough	I believe I am capable of using digital literacy to deliver	Digital literacy practices provide the opportunity to	I believe digital literacy practices support	Digital literacy may provide an environment for multicultural	** ▶ Digital literacy practices may be beneficial to assist	I think building authentic relationships with the		
		** ◀ Digital literacy practices may result in students	I feel confident that I can be responsive to students' needs	To connect students to different cultures, I may teach a lesson	** I think that students should be encouraged to share their stories in the	I think culturally sustaining teaching requires the			
			* ▶ I feel confident about using digital literacy practices to	Digital literacy practices may improve communication	Digital literacy practices may bridge the gap between what				
				Digital resources should be used as a component of culturally					

Legend
* Distinguishing statement at P < 0.05
** Distinguishing statement at P < 0.01
▶ z-Score for the statement is higher than in all other factors
◀ z-Score for the statement is lower than in all other factors
□ Consensus Statements

APPENDIX I: Idealized Q-Sort for Factor 2

-4	-3	-2	-1	0	1	2	3	4
I think digital literacy practices and culturally sustaining	** ◀ I believe that I am trained specifically to ensure that my students from	I am not sure how to integrate culturally sustaining	Culturally sustaining pedagogy can give me new strategies to	Digital literacy may provide an environment for multicultural	I think culturally sustaining teaching requires the	It is important for me to understand who my students are and to actively	I enjoy seeking cross-cultural experiences to understand people	I believe that each student's culture has value and should be
I define myself as a person who does not belong to any specific culture.	** ◀ Digital literacy introduces new ways of knowing,	** ◀ I believe digital literacy practices support	Digital resources should be used as a component of culturally	Digital literacy practices can support students during	Digital literacy develops the ability to use and navigate a	I am willing to organize my lesson plans to include digital literacy	I think building authentic relationships with the	** ▶ I think that students should be encouraged to share their stories in the
	** ◀ Digital literacy practices may bridge the gap between what	I feel confident about using digital literacy practices to	Digital literacy practices may be beneficial to assist	Digital literacy practices provide the opportunity to	** ▶ I believe I am capable of using digital literacy to deliver	** ▶ Digital literacy practices may cause less interaction	Providing a culturally sustaining classroom may increase	
		** ◀ I think digital literacy practices motivate students to	Digital literacy practices may improve communication	I feel confident that I can be responsive to students' needs	Digital literacy practices may affect students'	To connect students to different cultures, I may teach a lesson		
			Digital literacy practices do not create enough	I feel comfortable communicating through digital resources with	Digital literacy practices may result in students			
				Culturally sustaining pedagogy is a method of teaching that				

Legend
* Distinguishing statement at $P < 0.05$
** Distinguishing statement at $P < 0.01$
▶ z-Score for the statement is higher than in all other factors
◀ z-Score for the statement is lower than in all other factors
◻ Consensus Statements

APPENDIX J: Idealized Q-Sort for Factor 3

-4	-3	-2	-1	0	1	2	3	4
I think digital literacy practices and culturally sustaining	I feel confident about using digital literacy practices to	I feel confident that I can be responsive to students' needs	** Digital literacy introduces new ways of knowing,	To connect students to different cultures, I may teach a lesson	* ► Digital literacy practices can support students during	** ◀ I believe that each student's culture has value and should be	** ► Digital resources should be used as a component of culturally	** ► Digital literacy may provide an environment for multicultural
** ◀ I am not sure how to integrate culturally sustaining	** ◀ I think that students should be encouraged to share their stories in the	** Digital literacy practices may cause less interaction	** ◀ I am willing to organize my lesson plans to include digital literacy	Culturally sustaining pedagogy is a method of teaching that	I think building authentic relationships with the	It is important for me to understand who my students are and to actively	I enjoy seeking cross-cultural experiences to understand people	** ► I think digital literacy practices motivate students to
	I define myself as a person who does not belong to any specific culture.	** ◀ I think culturally sustaining teaching requires the	Digital literacy practices may be beneficial to assist	Digital literacy practices may affect students'	Digital literacy practices provide the opportunity to	Providing a culturally sustaining classroom may increase	** ► I believe that I am trained specifically to ensure that my students from	
		I believe I am capable of using digital literacy to deliver	Digital literacy practices do not create enough	Culturally sustaining pedagogy can give me new strategies to	I believe digital literacy practices support	Digital literacy develops the ability to use and navigate a		
			I feel comfortable communicating through digital resources with	Digital literacy practices may result in students	Digital literacy practices may improve communication			
				Digital literacy practices may bridge the gap between what				

Legend

- * Distinguishing statement at $P < 0.05$
- ** Distinguishing statement at $P < 0.01$
- z-Score for the statement is higher than in all other factors
- ◀ z-Score for the statement is lower than in all other factors
- Consensus Statements