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Transformative Learning: The Role of Language in Supporting a Self-Reflective
Process in a Context of Crisis

by

Ana Lia Oliva

A dissertation submitted in partial fulfillment
of the requirements for the degree of

Doctor of Education

in

Learning and Leading

University of Portland

School of Education

2021

Transformative Learning: The Role of Language in Supporting a Self-Reflective Process in a Context of Crisis

by

Ana Lia Oliva

This dissertation is completed as a partial requirement for the Doctor of Education (EdD) degree at the University of Portland in Portland, Oregon.

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Abstract

Research has shown that adult learning is a complex and integrative process that requires an interdisciplinary lens of study. Thus, to understand the cognitive dimensions of learning, a multidisciplinary approach is needed. This single case study aimed to examine how the role of language function in self-reflection supports the socio-cognitive and neurobiological processes associated with transformation through a model of neuroeducation that considers the role of language function. Based on a multidisciplinary review of transformative learning through the lenses of cognitive and cultural psychology, cognitive neuroscience, and language function, a reflective semi-structured interview protocol was implemented with six speech-language pathologists working in educational settings during COVID-19. The analysis of the responses demonstrated that the role of language function was associated with supporting relationships, self-reflection, and learning during a context of crisis. The results suggest how the role of language function contributed to the socio-cognitive and neurobiological processes associated with transformative learning. On this basis, it is recommended that organizations design nurturing, culturally and linguistically responsive learning environments that promote language as a tool for transformation.

Dedication

To my soul mate, best friend, and partner in life, Alex. Your unconditional support, love, encouragement, and understanding made this journey possible. Your thoughtful perspectives helped me stay strongly connected to my long-term goals and purpose during very difficult times. You made sure our family worked efficiently and took care of our essential needs when I was immersed in my scholarship work. The completion of this work would not have been possible without your strength and selfless love. I love you.

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Chapter 1: Introduction

The critical events produced by the COVID-19 pandemic presented educational institutions and communities with a significant challenge to transition from a traditional educational model to distance learning. The need to transition to a distance-learning model created a disorienting dilemma for leadership and educators who lacked knowledge with online educational approaches (Bojović et al., 2020; Darling-Hammond & Hylér, 2020; Kaden, 2020). Within the context of this study, a disorienting dilemma relates to a life crisis that triggers a questioning of assumptions and the initiation of a transformative learning experience (Laros, 2017). The adaptive change to distance learning activated focused efforts and created conditions requiring adult learning of both leadership and educational staff while navigating a context of crisis. Educational leaders and educators experienced a complex set of conditions and demands that challenged how they could function and engage in their work (Kaden, 2020). The abrupt shift in educational models catalyzed the transformation of educators' roles and functions to support a community in need. Given the complexities of the challenges presented within a distance-learning model in a context of crisis, adult learning and transformation became a central focus of educational systems (Darling-Hammond & Hylér, 2020; Kaden, 2020).

This chapter provides an overview regarding the role of language function in the transformative learning process of adult learners navigating a context of crisis. This qualitative case study examined the role of language function within self-reflection to support the transformative learning processes of school-based speech-language pathologists (SLPs) during the COVID-19 pandemic. Given the pandemic's

extreme conditions, this study utilized a triangulated body of research to enhance the interpretation of findings to better understand the complexities of adult learning, while simultaneously analyzing the neurobiological phenomenon of transformation. This chapter also presents the complexities of the setting, statement of the problem, the purpose, significance of the study, and summary of methodology.

Increasing the awareness and understanding of how adults learn has been a prevalent topic across educational settings (Falasca, 2011; Henschke, 2011; Merriam, 2004). Human learning and development is a complex and integrated process that requires a transdisciplinary lens of study (Arwood, 2011; Blevins, 2013; Taylor, 2017). Developing a comprehensive understanding of adult learning is crucial to understanding the multidimensional and holistic phenomenon of transformation. One adult learning theory related to this phenomenon is called transformative learning. The field of study in adult transformative learning founded by Mezirow (1978, 1987, 1991, 2003) acknowledges how formative learning begins in childhood and progresses into adulthood through interactions within our social world. Given social-cultural interactions, Mezirow's (2000) concept of transformation begins with the conception that adult learners have *habits of mind*, "a set of assumptions that orient their predispositions and act as a filter for interpreting meaning of experiences" (p. 17). Mezirow's (1991, 2003) transformative learning theory centers on the adult learner's sociolinguistic and metacognitive processes associated with critical self-reflection and discourse to examine and reinterpret assumptions within the learner's existing perspectives.

Adult learning is a brain-based neurobiological process influenced by language and sociocultural experiences (Arwood, 2011; Chiao, Harada, et al., 2010; Han et al., 2013). The use of the Arwood Neuroeducation Model (ANM) (Arwood, 2011; Robb, 2016) provides a transdisciplinary lens to integrate literature from the fields of cognitive psychology, neuroscience, and the function of language to understand the processes involved with learning. The ANM provides insight into how a person's neuro-semantic language learning system supports the construction of meaning neurobiologically. The evolution of research dedicated to the neurobiological aspects of learning offers an expansive lens on brain functions and the impact of stress on cognitive systems that support learning (Bangasser & Shors, 2010; Freeman et al., 2009; Pulvermüller, 2012b; Summak et al., 2010).

Context of Crisis: Impact on Educational Systems

Many countries worldwide have felt the impact of COVID-19 (*COVID-19 Dashboard by the Center for Systems Science and Engineering*, 2020). The COVID-19 incidence in the United States lead confirmed case rates (28.5 million cases as of February 27, 2021). The COVID-19 pandemic context presented adults with many hardships and changes, creating disorienting dilemmas in every aspect of life (Bojović et al., 2020; Hagger et al., 2020). Kennegati et al. (2020) predict that COVID-19 will be marked in history as the global health crisis that caused significant loss of life and massive economic and social disruption across the world.

In the early stages of the pandemic in the United States, state leaders monitored the COVID-19 data and engaged in the risk assessment process of this health crisis. On February 28, 2020, Kate Brown, Oregon Governor, announced the

convening of a state Coronavirus Response Team. The statewide focus on protecting the health of students, educators, and community members at large from the spread of COVID-19 resulted in the issue of executive order 20-08, “Stay Home, Save Lives,” that closed schools and non-essential businesses. Shortly after that, the Oregon Department of Education (ODE) developed a Distance Learning for All (DLFA) guidance document to support K-12 students and families' needs within the context of crisis presented during the COVID-19 pandemic. The Distance Learning for All framework's guiding principles centered on collaboration to ensure care, connection, and continuity of learning for students (*Oregon’s Extended School Closure Guidance: Distance Learning for All: Ensuring Care, Connection and Continuity of Learning*, 2020). The closure of schools presented leadership and educational communities with a significant challenge and a moral imperative to protect the health of students, educators, and communities while developing guidance for supporting ongoing access to educational opportunities.

The official shift to a distance-learning model prompted districts and educational teams to reimagine and construct a variety of distance learning instructional approaches with a focus on leveraging online access to education. During this crisis, the ODE’s call to action highlighted inequities across the state characterized by limited access to resources, technology, internet accessibility, and staff knowledgeable with technology (Kaden, 2020). Consequently, leaders in school districts and specialized programs swiftly engaged in identifying resources and assessing the accessibility needs of students in their community.

Given the significant need for support and resources, school districts across the state of Oregon connected to their respective regional Education Service Districts (ESDs) to collaborate on resource needs and access technology training. The role and function of state-funded regional ESDs in Oregon center on “assisting school districts and the Oregon Department of Education in achieving Oregon’s educational goals by providing equitable, high quality, cost-effective and locally responsive educational services at a regional level” (*Constitution and Bylaws*, 2020). The ESD structure was specifically designed to support access to resources and services to school districts within a region. During this time, ESDs provided districts with support accessing online instructional platforms, professional learning in online instruction, and online-specialized services for students with learning needs. Specialized ESD programs, such as the regional Speech-Language Pathology (SLP) Program in this study, collaborated with school districts to support access to student services within a distance-learning model. As the regional SLP Program engaged in assessing the needs of learning communities to support school-based speech-language pathologists (SLPs), the barriers presented by limited resources, access to technology, and technology literacy needs became evident.

The demand to shift to distance learning with a lack of established structures, resources, or leadership knowledge presented educational systems and adult learners with a disorienting dilemma. Learning communities across the region experienced limited access to connectivity and technology for both educators and students. The rapidly changing timelines exacerbated these circumstances as guidance shared by the ODE confirmed the longevity of school closures. Leadership and educators

experienced stressors with learning new approaches to instruction, limited resources, and managing increased workloads to meet the complex needs of students and families who were experiencing their own crises (Kaden, 2020).

As time progressed, the ODE's guidance in special education accountability required special educators and support specialists to partner with families to provide services to the maximum extent possible (ODE: *Distance Learning for ALL*, 2020). The pressure to provide educational services for children with special education needs intensified demands for special educators and direct service support specialists, like SLPs. As the educational leader for a regional SLP Program, I was presented with the task of leading the development of a distance-learning infrastructure to provide direct services to students throughout a region. The special education compliance requirement within a distance-learning educational model shifted the SLP Team's efforts to design, develop, and implement a telepractice model for diverse communities within a large region. The planning and development of a telepractice service model included researching telepractice guidelines, processes, and implementation factors to increase the SLP team's competency. The extensive process involved developing telepractice guidelines, obtaining the appropriate technology and online tools, collaborating and onboarding school districts, and supporting learning opportunities for a diverse group of SLPs with limited to no telepractice experience. This significant shift from direct in-person services to a telepractice model presented the SLP team with a significant disorienting dilemma. This unforeseen shift to distance learning presented a problematic frame of reference that directly challenged

the SLPs' experience, deeply held beliefs, and at times confidence in their school district's organizational response (Kim & Niederdeppe, 2013; Wyse et al., 2020).

During this time of transition, SLPs navigated high demands from remote work environments as they settled into their newly constructed telepractice professional roles within the distance-learning model. During this time, SLP team members met online daily and on an as-needed basis via the SLP Program's community of practice or individual colleague collaboration. Given the SLP team's limited knowledge of telepractice practices and tools, SLPs worked to meet the needs of students and families by engaging in professional learning, connecting to their existing knowledge, and reflecting on how to best support distance learning of displaced students. The collective online collaboration and engagement of the SLP team in the SLP Program's supported community of practice provided SLPs with an opportunity to engage in the critical dialogue and reflection to support their learning process.

In this study, the SLP participants ($N = 6$) were significantly affected by the shift to distance learning given their limited knowledge with telepractice intervention. The unique SLPs' previous exposure to professional learning with neuroeducation concepts connecting to the role of language, social thinking, and learning exposure was also a factor in the transition to the distance learning context and widely adopted telepractice practices. The adjustment to implement accessible instructional strategies and connection with students in virtual environments challenged the professional perspectives, values, and beliefs of the SLPs. These conditions consequently triggered a re-evaluation of the SLPs' established assumptions and led them to a transformative process.

Transformative Learning in a Context of Crisis

From a neuroeducation perspective, how adult learners apply their language function during these crises influences the neurobiological connections that lead to meaning construction and the ability to navigate stressors in social environments (Immordino-Yang, 2011; Pulvermüller, 2012b, 2013b). The use of language to appraise, interpret, and mitigate the subjective sensing and perception of stressors supports coping mechanisms and the adaptive neurobiological and physiological response during stressful conditions (Hagger et al., 2020; Joëls & Baram, 2009).

Learning in a context of crisis provided the SLPs with an opportunity to analyze their understanding and roles within established socio-cultural perspectives (Kilgore & Bloom, 2002; Mezirow, 2003). Leaning into the current body of knowledge in adult transformative learning and examining how learners reflect on their deeply held assumptions to reconstruct meaning during a triggering event for transformation provides a path toward better understanding adult learning processes in a context of crisis (Arwood, 2011; Cranton, 2016; Kroth & Cranton, 2014).

Statement of the Problem

Educational communities have been functioning under high levels of stress given the climate of crisis caused by the pandemic. This has revealed the need to understand the psychosocial, cognitive, and neurobiological processes that guide adult learning during a disorienting event. The demands to re-imagine educational approaches, implement newly designed online education systems, and provide social-emotional support to students and families leads one to wonder, “How can we better support educators and their learning in an inclusive and constructive way?”

As educational leaders examine how to best support the learning needs of educators during a context of crisis, an opportunity exists to apply a comprehensive transformative learning lens (Arwood, 2011; Mezirow, 1991) that considers the following: a) learner's agency, b) the role of critical reflection, c) the social nature of learning, d) the impact of stress on the brain, and e) the neurobiological aspects of the transformative learning process. It is important to understand how all of these learning processes happen simultaneously, as each of these components contribute to a holistic study of how adults go through dynamic transformational processes.

Adult transformative learning can be promoted through culturally responsive workplace environments. As noted by McWhinney and Markos (2013), engaging in the process of learning to meet the needs of its community is an institutional responsibility that promotes the exploration of assumptions and constructs of normalized systems. Institutions are in positions to promote caring and culturally responsive learning spaces influenced by thoughtful communication that supports member engagement and the construction of meaning from multiple perspectives. Therefore, the role of discourse and language as a leadership tool within learning environments influences and supports change and ongoing stakeholder engagement (Sisman, 2016; Valle, 1999). Prosocial and constructive learning environments acknowledge the idea that learners socially construct meaning and acquire knowledge for themselves that is relevant, meaningful, and practical (Arwood, 2011). As noted by Hein (1991), "We have to focus on the learner in thinking about learning" (p.1). Unfortunately, the nature of our standardized, accountability-centered system

influences the emphasis of learning environments and priorities, which can limit the learner's thinking and scope of learning (Sparapani & Perez, 2015).

Current pedagogical and environmentally centered approaches for supporting adult learning have primarily utilized a cognitive psychology foundation based on behaviorism (Chan, 2010; Henschke, 2011; Thul, 2019; Webster-Wright, 2009). Therefore, conventional education culture grounded in ideals of "learning" aligns with pedagogical practices that are behaviorist or developmentally behaviorist in nature. This pedagogical and cultural idea of learning emphasizes efficiency, measurable behavioral outcome, and teaching products. This ideological orientation founded in accountability-based systems focuses on compliance, skill-building, and habituated rule and pattern-based learning (Chacko, 2018; Terehoff, 2002). Per Mezirow (1991), within the transformative learning theory, content and process knowledge acquisition is "commonly mistaken as a model of learning" (p. 80); however, it does not necessarily contribute to emancipatory learning leading to transformation. Emphasis on content and knowledge within a developmental paradigm suggests that educators teach what they want the learner to show or demonstrate, which means learning mirrors teaching. Therefore, understanding the transformative learning process of adults within a more expansive multidisciplinary neuroeducation perspective that considers the role of language function within the conceptual learning process of adults contributes knowledge about adult learning within crisis (Arwood, 2011; Cranton, 2016; Kroth & Cranton, 2014b; Merriam, 2008, 2009; Stuckey et al., 2014; Taylor, 2007).

One of the dilemmas associated with the current educational paradigm is that teaching is not differentiated from the learning process (Arwood, 2011; Merriam, 2001; Taylor, 2006). In spite of organizational attempts to design professional learning environments geared to support learning in technical areas, an adult learner's readiness to learn determines what they "need" to learn, and self-determination defines the learner's connection and level of engagement (Knowles, 1984). Therefore, when adult learners have access to learning within culturally responsive and learner-centered environments that value the process of learning, adults have an opportunity to reflect on their learning in meaningful ways. Learners engage within their existing knowledge and socio-cognitive understanding mediated by language function (Arwood, 2011) that further supports the construction of new meaning within learning environments in a meaningful, relevant, and practical manner. Given this level of learner engagement, adult learners connect socio-cognitively and neurobiologically with their embodied beliefs, values, and assumptions to support their learning (Baily et al., 2014).

Increasing our understanding of the interconnected complexities of culture, social cognition, and the neurobiological adult learning processes offers the potential for supporting meaningful adult learning (Blevins, 2013; Falasca, 2011; McWhinney et al., 2003; Thul, 2019). Expanding our horizon of knowledge into the neurobiological, language-mediated socio-cognitive learning processes promotes deeper understanding of how to promote safe, nurturing, and inclusive learning environments for adult learners (Arwood, 2011; Dix, 2016; Merriam, 2009; Stuckey et al., 2014).

Purpose Statement and Research Questions

The challenges presented by COVID-19 highlighted the need to expand the body of knowledge and understanding of the transformative adult learning processes while navigating disorienting dilemmas within educational environments. As previously stated, a connection exists between the role of language function and the process of self-reflection in the neurobiological process of meaning construction that supports transformative learning within socio-cultural environments (Arwood, 2011; Dirx, 2000; Dix, 2016; Mezirow, 2003; Pulvermüller, 2002; Thul, 2019).

The identified research gap in the body of knowledge in transformative learning centers on the role of language function in the neurobiological and socio-cognitive processes of learning (Arwood, 2011). A thorough literature review identified the need to expand the body of knowledge about adult transformative learning through a multidisciplinary neuroeducation model (ANM: Arwood, 2011; Robb, 2016) theoretically grounded within the fields of cognitive psychology, neuroscience, and language. This study aims to expand the body of knowledge in the field of transformative learning (Kroth & Cranton, 2014; Mezirow & Taylor, 2011; Roberts, 2006; Taylor, 2017) by further examining the role and function of language in the neurobiological and socio-cognitive processes of learning through a neuroeducation paradigm (Arwood, 2011; Pulvermüller, 2018).

Hence, by analyzing adult transformative learning through multiple overlapping lenses, including cognitive psychology, neuroscience, and language function, a deeper understanding can emerge regarding the nature of what it means for

adults to transform during a context of crisis. (Arwood, 2011; Henrich, 2015; Kitayama & Uskul, 2011; Kroth & Cranton, 2014; Mezirow, 1991a; Pulvermüller, 2003, 2013, 2018). Consequently, the purpose of this qualitative case study was to examine the role of language in the self-reflective transformative learning process of school-based speech-language pathologists (SLPs) serving K-12 students in a diverse region during the COVID-19 pandemic. Therefore, the study focuses on addressing the following question: *How do SLPs, who have specialized professional knowledge in the area of language, use their own language in self-reflection to support their transformative process during a disorienting dilemma?*

Significance of the Study

Conventional educational practices founded on existing learning theory research predominantly align with pedagogy that focuses on the expansion of knowledge in technical areas where manipulation of content and learning environment is a priority (Baily et al., 2014; Bierema & Eraut, 2004; Chris & Lee, 1998). Therefore, the existing research in transformative adult learning narrowly focuses on the reflective action and behavioral response; however, it does not recognize or address the neurobiological and socio-cognitive processes mediated by language function that promote thinking (Arwood, 2011; Blevins, 2013; Graham, 2007; Hein, 1991; Stuckey, Taylor & Cranton, 2013; Taylor, 2006; Thul, 2019).

In order to examine the role of language function in the transformative learning process of adults, this study applied a multidisciplinary lens to translate research within a neuroeducation learning paradigm (Arwood, 2011; Boux et al., 2021; Bower,

2004; Johnson & Munakata, 2005; Pulvermüller et al., 2014; Small & Watkins, 2015; Wells, 2007) and incorporated current adult transformative learning research (Cranton, 2016; Mezirow, 1987, 1991; Taylor, 1994; Taylor & Laros, 2014). The use of research from multiple disciplines provides support for understanding adult learners' use of reflective language within a neurobiological transformation in a socio-cognitive context of crisis.

As educators struggle with systems and widely adopted standardized pedagogical approaches that do not consider the individual needs of learners within communities, the narrative regarding education systems and equitable access to education will continue to grow (Au, 2016). Expanding the adult transformative learning lens to incorporate an understanding of the neurobiological processes associated with learning in socio-cultural environments offers an opportunity to promote culturally responsive learning spaces that challenge widely adopted assumptions, beliefs, and values in the culture of power (Arwood, 2011; Arwood & Merideth, 2017; Delpit, 1992; Merriam, 2004; Thul, 2019). As noted by Shields (2018), examining and critically reflecting on widely adopted knowledge frameworks and existing assumptions promotes transformation that provides access to alternate ways of thinking and knowing. The process of transformative learning requires learners to re-examine presuppositions grounded in long held beliefs, values, and social norms (Mezirow, 1991). Given that learning is a social action (Kapucu, 2012), understanding the transformative processes of learning within educational communities offers hope in supporting the development of a prosocial, multicultural knowledge society.

Hence, this qualitative case study's research methodology and design obtained data to understand the lived experiences, perspectives, and learning processes of SLP participants ($N= 6$) to understand how language was used in their self-reflective transformative process during the COVID-19 pandemic. The interpretive qualitative single case study design (Merriam, 1998) was bound by the shared experience of SLP team members in a regional SLP Program within a community of practice of a regional SLP Program in the Pacific Northwest.

Definition of Terms

Given the use of a multidisciplinary conceptual frameworks, transformative learning theory (TLT) (Mezirow, 1991), and the Arwood Neuroeducation Model (ANM), a definition of key terms is provided in this study.

Agent (ANM): Someone who does something with someone or something; part of a semantic relationship that develops across ages and stages of learning processes.

Communicative competence (TLT): Necessary for significant learning and development in adulthood. Involves the ability to negotiate meanings and purposes instead of passively accepting the social realities defined by others to participate in rational communicative action.

Four levels of learning (ANM): Represents how meaning is constructed neurobiologically via a learner's neuro-semantic language learning system. The first level in Neuro-semantic Language Learning Theory (Arwood, 2011) occurs at the sensory level, where sensory input is received, recognized, and connected by receptors at a cellular/neuronal level based on semantic features. During the second level, sensory input connects via semantic features; perceptual patterns are recognized and

overlapped by pathways in the brain to create meaningful access to semantic patterns. In the third level, the overlapped semantic patterns connect via neuronal circuits as images, symbols resulting in the acquisition of concepts. These semantic relationships support meaningful connections that promote semanticity in learners via a neurosemantic process of language learning. Ultimately, concepts are acquired in the cerebrum resulting in “thinking.” The fourth step involves the interconnection of overlapping circuits to form expansive networks that utilize language to refine concepts that support increased function and learning (Arwood, 2011).

Function of language (ANM): A cognitive tool that represents and mediates critical thinking, problem-solving, and planning according to cultural and social norms (Arwood, 2011; Thul, 2019).

Layers of learning (ANM): Occur as a result of complex neurological integration and inhibition of sensory input that forms patterns, creating interconnected circuits of neurosemantic meaning (Arwood & Merideth, 2017).

Meaning perspectives (TLT): A broad set of predispositions resulting from psychocultural assumptions, which determine the horizons of our expectations; comprised of sociolinguistic, epistemic, or psychological (Mezirow, 1991).

Meaning schemes (TLT): The constellation of concept, belief, judgment, and feelings that shape a particular interpretation (Mezirow, 1994).

Meaning structures (TLT): Are composed of perspectives and schemes that are understood and developed through reflection (Mezirow, 1994).

Metacognition (ANM): The language used to think about thinking (Arwood & Merideth, 2017).

Neurobiological (ANM): How cells interact based on their biological nature (Arwood & Merideth, 2017).

Neuroeducation (ANM): References the Arwood Neuroeducation Model that fully triangulates known literature regarding the brain, mind, and language to understand neurobiological and socio-cognitive learning processes.

Neuronal circuits (ANM): Several connections of cell clusters of nuclei, which form circuits (Arwood & Merideth, 2017).

Neuro-semantic Language Learning Theory (NsLLT) (ANM): Consists of four levels of meaningful (semantic feature) acquisition: sensory input, perceptual patterns, concepts, and language. Each of these levels parallels neurobiological function (Arwood & Merideth, 2017).

Reflection (TLT): The process of critically assessing the content, process, or premise(s) of our efforts to interpret and give meaning to an experience (Mezirow, 1991).

Restricted Language (ANM): Refers to limited linguistic function of language (Arwood & Merideth, 2017).

Schema (ANM): A semantic network of the mind that represents an understanding of a multifaceted concept (Arwood & Merideth, 2017).

Semanticity (ANM): The ability to acquire depth of meaning in concepts. The depth of meaning occurs through adding layers of meaning (Arwood & Merideth, 2017).

Semiotics (ANM): The study of signs and symbols, especially as elements of language, which also include the value of the signs and symbols (Arwood & Merideth, 2017).

Sensory input (ANM): Information from the skin, eyes, ears, and motor system (Arwood & Merideth, 2017).

Socio-cultural: The influences of social and cultural environments on behavior (Chirkov, 2020).

Telepractice: The application of technology to deliver professional services at a distance by linking the provider to the student for various services, including intervention (ASHA, 2020).

Chapter one provided the background, the purpose, significance, and theoretical lens utilized to examine the multidimensional phenomenon of transformative learning (Arwood, 2011; Mezirow, 1991). The circumstances presented by COVID-19 and the shift to a distance-learning educational model created a disorienting event that provided a unique opportunity to examine the process of adult transformative learning. Hence, this study examined how the role of language function, which mirrors conceptual growth in adults, supported the transformative learning processes of SLPs in educational settings. The research findings reveal how the role of language function facilitated the role of relationships within community and supported critical reflection of stressors and the learning processes of participants.

Chapter two presents an integrated review of literature reflected in the existing research connected to transformative learning theory (Mezirow, 1991). Chapter two also provides an understanding of transformative learning theory within a

neuroeducation perspective (Arwood, 2011) to increase understanding of how language mediates transformation through a neurobiological and socio-cognitive process. Chapter three details the research methodology and design of the study, followed by documentation of findings in chapter four. Lastly, chapter five presents the interpretation for the findings and provides an interconnection with current literature in cognitive psychology, neuroscience, and language.

Chapter 2: Literature Review

The purpose of this study was to investigate whether or not speech-language pathologists who have special training in language strategies use those types of strategies to navigate their transformational processes during a time of crisis. To measure whether these SLPs used language strategies, this case study focused on the SLPs' reflective process of how they transformed their ability to function in new situations created by the COVID-19 pandemic. This chapter will provide supportive literature that addresses the characteristics of adult learners through the lens of Mezirow's Transformational Learning Theory (TLT) (Mezirow, 1987, 1991, 2003). Learning as mediated by language in adult learners is discussed from a multidisciplinary approach within cognitive psychology, neuroscience, and language function neuroeducation model. Finally, how a crisis situation like COVID-19 affects the human learning system will be described (Hagger et al., 2020; Joëls & Baram, 2009; Peters et al., 2017). This chapter will summarize the literature basis for this study that leads to the research question, *How do SLPs, who have specialized professional knowledge in the area of language, use their own language in self-reflection to support their transformative process during a disorienting dilemma?*

Introduction to the Adult Learner

Malcolm Knowles (1913-1997) is often referred to as the father of andragogy, or the study of adult learning. As established by Knowles, the field of andragogy remains the most learner-centered approach to adult education by intentionally engaging and empowering the learners within a constructive environment (Merriam, 2001). Much of the continued progress and advancement of adult learners' knowledge

rests on Knowles' foundational andragogical principles (1984). According to Knowles' andragogical principles, the adult learning process is more than the organized acquisition and storage of new information or behavioral outcomes (Cranton, 2016; Merriam, 2001). Instead, Knowles (1984) identified vital components of environmental conditions and how the central role of the adult learner as an agent helped adults engage in meaningful learning. A change in the environment creates a need for the learner to transform their thinking or cognition to navigate socially. The adult learner's agency supports the conscious need for change. How well an adult navigates this change is based on the learner's self-concept, experience, readiness to learn, orientation to learn, motivation to learn, and the need to know.

According to those who use Knowles' andragogical principles (Chan, 2010; Kaufman, 2015; Taylor & Kroth, 2009), learner engagements rest on adults who want learning to be relevant, practical, and meaningful. Learners connect to a reason or purpose for learning, as well as a value for learning. In this way, adult learners invest resources and seek out the knowledge they want to learn during high levels of intention and consciousness (Jordi, 2011; Taylor & Kroth, 2009). The andragogical principles (Knowles, 1984) provided a pathway for Mezirow's (1978, 1987, 1991, 2000, 2003) transformative adult learning theory that considered the central role of culture and psychological assumptions in a learner's interpretation of their experiences (Kitchenham, 2008).

Mezirow's Transformative Learning Theory

Since 1978, research associated with Mezirow's Transformative Learning Theory (TLT) continues to constructively reveal the central role of a learner's socio-cultural orientation and reflection in the process of adult transformation (Lundgren & Poell, 2016). Research in the field of transformative learning has focused on the central role of critical reflection and discourse in the construction of meaning and how learning can lead to change (Clemson & Samara, 2013; Coryell, 2013; Kucukaydin & Cranton, 2013; Malkki, 2012; Nohl, 2015; Romano, 2018; Taylor & Laros, 2014).

The TLT (Mezirow, 1978) was developed using Jürgen Habermas' (1971) three interrelated domains of Dynamic of Communicative Action. The three interrelated domains connect a learner's cultural and socio-linguistic experience: lifeworld, learning, and social interaction. The lifeworld is "the symbolically pre-structured world of everyday life" (p. 69). The lifeworld domain highlights the indoctrination of culturally transmitted and linguistically organized perspectives. This indoctrination process occurs through the reproduction of cultural codes during social integration and socialization. The unquestioned world of everyday social activity provides the context of culturally transmitted assumptions and cultural convictions. These cultural convictions are linguistically organized and transmitted via a vast inventory of codes, norms, roles, social practices, and psychological patterns of interaction with others (Kincaid, 2010; Mezirow, 1991b). These cultural convictions are sustained through cultural reproduction, social integration, and socialization through cultural scripts. Hence, the role and influence of socio-linguistic interactions develop a "common language that binds an individual into a dialogic community" (p.

56), resulting in collectively held meaning perspectives or frames (Goffman, 1974). A “frame” is a term that describes a psychological context interconnected with tacit knowledge of collectively held perspectives. Frames connect to how adults see and experience their cultural-linguistic world and support the interpretation of meaning, consequently influencing the perception of adult beliefs and perspectives (Cranton, 2016; Mezirow, 1991). The embodied tacit knowledge helps individuals interpret the meaning of an experience within social situations (Goffman, 1974; Mezirow, 1991). Within the lifeworld domain, cultural codes serve as the regulatory principles established through tacit knowledge or ideology that guide appropriate discourse and develop the collectively held meaning perspectives (Cranton, 2016; Mezirow, 1991).

The second domain, learning, highlights the learning process's transformative nature through a learner-centered, critical reflection and discourse process. Learning connects to how adult learners translate their experiences into speech acts that integrate individual interpretations, awareness of presuppositions, and propositions of experiences (Arwood, 1983). Habermas (1984) noted that the learning process requires individuals to challenge indoctrinated ideology by engaging in critical reflection of the prejudicial power of the lifeworld (Mezirow, 1991).

The adult learner is self-determined and guided by their interests based on social interactions and seeking an understanding of their world (Cranton, 2016; Mezirow, 1991). Within the scope of the third domain, social interaction, the nature of appropriate discourse within dialogic community functions to sustain consensual communication systems that seek mutual understanding (Mezirow, 1991). According

to Mezirow (1991), the adult learning process is influenced by cultural reproduction, social integration, and socialization through cultural scripts. In this view, cultural convictions and worldviews are linguistically organized and transmitted via a vast inventory of codes, norms, roles, social practices, and psychological patterns of interaction with others (Kincaid, 2010; Mezirow, 1991). This dialogic process is thought to contribute to developing human interest that leads to learning and acquiring knowledge (Habermas, 1984).

Types of Learning and Corresponding Levels of Reflection in TLT

The adult learner is self-determined and guided by their interests based on social interactions and the need to seek an understanding of their world. Therefore, the adult learning process is an individual multidimensional process (Cranton, 2016). TLT recognizes and differentiates between two types of learning that contribute to meaning construction: instrumental and communicative (Mezirow, 1991).

Instrumental learning relates to empirical and technical forms of learning. During instrumental learning, knowledge is acquired deductively through task-oriented problem-solving. Levels of instrumental learning can be measured through cause-and-effect relationships via observable events, products, or behavioral action. This type of learning tends to be prescriptive and curriculum-centered. Through instrumental learning, a learner's meaning schemes change by becoming reinforced, elaborated, created, negated, confirmed, or problematized (Mezirow, 1991). Learning within existing or established meaning schemes by examining previous technical knowledge or actions is not transformative in nature.

During instrumental learning, individuals engage in both content and process reflection. In content reflection, the learner expands their existing knowledge and focuses on thinking about the experience itself and how to handle the experience via technical knowledge acquisition process (Merriam, 2001; Mezirow, 1991). As adult learners find themselves in situations that require an expansion of existing knowledge to meet external demands, they engage in process reflection to identify what needs to be learned and the course of action for engaging in the process. Process reflection supports learning by constructing new meaning schemes to meet the identified demands within a context.

When an individual is presented with a disorienting dilemma (or event), existing meaning perspectives become problematized. The disorienting experience provides an opportunity to learn through meaning perspective transformation. The process of learning through meaning perspective transformation engages the learner in redefining a problem and identifying a resolution via critical reflection of assumptions (meaning perspectives) constructed via existing meaning schemes. The process of critical self-reflection, also known as premise reflection, offers the learner an opportunity to reorganize existing meaning schemes and perspectives to incorporate new insights (Mezirow, 1991). Critical self-reflection helps learners examine their assumptions and gain a larger view or perspective of what is operating within their value system. The process of critical self-reflection results in transformative learning (Cranton, 2016; Kitchenham, 2008; Mezirow, 1991). In order to engage in critical self-reflection, communicative competence supports the ability to introspectively

negotiate meaning and purpose instead of just accepting the reality defined by others (Mezirow, 1991).

In *communicative learning*, meaning construction is shaped by interactions governed by cultural-linguistic codes, social norms, and expectations. During communicative learning, individuals are concerned *with* understanding and *being* understood by others within their social relationships. Individuals navigate and negotiate their way with language and nonvocal communication such as gestures to understand social experiences within environments. TLT highlights the role of reflection in transformative learning. As noted by Mezirow (1991), "reflection is the process of critically assessing the content, process, or premise(s) of our efforts to interpret and give meaning to an experience" (p. 104). During reflection, the use of metaphors as tools reflects the role of language in reflection. Mezirow (1991) stated, "...language does not merely describe things and events that we experience, but constructs them..." (p. 58). Learning through metaphors is a process governed by established social norms and cultural systems; therefore, this process involves the construction of meaning within existing meaning schemes (ways of knowing). As noted by Mezirow (1991), "Understanding comes from finding the right metaphor to fit the experience into our meaning schemes, theories, belief systems, or self-concept" (p. 80). In metaphorical abduction, learners move from concrete (what is known to the individual) to abstract knowledge (understanding the experience within the context of others). Learners that participate fully in critical dialectical discourse demonstrate highly developed metacognitive abilities of critical self-reflection and reflective judgment of emotions or feelings. Emotions are deeply involved in the transformative

learning process, particularly during critical reflection. When learners engage in critical reflection or discourse, they have an opportunity to process emotional experiences or "disorienting dilemmas" by engaging in self-examination of feelings of fear, anger, guilt, or shame (Merriam, 2004). The learner's expression and experience of emotion within the learning experience provides them a unique reflective opportunity to establish a dialogue with the unconscious aspects of themselves that seek expression in various forms of images, feelings, behaviors within the learning environment (Dirkx, 2006). Past experiences help form the basis for future transformations.

Per Mezirow (1995), "Creating meaning refers to the process of construal by which we attribute coherence and significance to our experience in light of what we know" (p. 40). Adult learners tend to make associations to their current knowledge by carrying over their perspectives from the past (Gill, 2001; Illeris, 2014). Through communicative learning, the role of culture and language contrive to create meaning perspectives associated with epistemic, socio-linguistic, and psychological assumptions supporting cognitive interpretation (Mezirow, 1991). The essential role of communicative competence is evident in emancipatory learning (Habermas, 1984). Emancipatory learning impels adult learners to examine and question their positions, values, and beliefs during life events that present disorienting dilemmas. Consequently, communicative competence in adults is necessary for significant learning and development.

The role of *communicative competence* supports the critical self-reflection process of premise reflection of assumptions. In premise reflection, adult learners

negotiate meanings, purpose, and the social realities ascribed by others. During premise reflection, adults engage in an introspective self-reflective process to identify and challenge socially constructed cultural indoctrination. The self-reflective process supports a learner's recognition of distorted meaning perspectives (Mezirow, 1991). During this critical self-reflection journey, the adult processes alternate ways of interpreting existing meaning schemes that support a shift of established meaning perspectives (Mezirow, 1991) achieves new insight. These critical self-reflection processes are mediated through the learner's language function (Arwood, 2011) and opportunities to participate in communicative action. This socio-cultural process of transformation mediated through communicative action and reflection, as noted by Mezirow (1991), examines the role of language function in transformation. Current brain literature adds to this socio-cognitive theory of TLT by offering an expansion of how the neurobiological processes of the brain also show a different lens to learning.

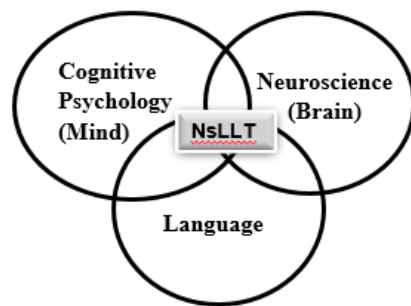
Neuroeducation Lens: Arwood Neuroeducation Model

The Arwood Neuro-Education Model (ANM) (E. Arwood, 2011; Robb, 2016) provides a transdisciplinary model to integrate literature from cognitive psychology, neuroscience, and the function of language to understand the social and cognitive processes involved with neurobiological learning. A multidisciplinary approach provides access to a broader lens of research so as to increase the understanding of learning from the three disciplines (Arwood, 2011; Thul, 2019). The ANM adds to the socio-cognitive processes of transformative learning a brain-based paradigm to offer insight into how constructing meaning is a socio-cognitive and neurobiological set of processes mediated by the function of language (Arwood, 2011; Pulvermüller, 2013).

Per the ANM, the function of language represents the cognitive processes of thinking, problem-solving, and planning within cultural and social norms. The function of language specifically represents the neurobiological process of neuro-semantic language learning in the construction of meaning, refinement of knowledge, and an iterative process to mediate thinking expansion (Arwood & Merideth, 2017). In this way, learners make meaning of their experiences in various ways. An individual's view of the world is based on a set of lived experiences, upbringing, culture, and education (Arwood, 2011; Kroth & Cranton, 2014). Figure 1 shows how the Arwood Neuroeducation Model triangulates of literature regarding the brain, mind, and language that centers the neuro-semantic language learning system.

Figure 1

Arwood Neuroeducation Model (ANM) (Robb, 2016)



Note. Figure 1 illustrates the ANM (Arwood 2011; Robb, 2016) brain-based learning paradigm reflecting the triangulation of research in cognitive psychology, neuroscience, and language, centering Neuro-semantic Language Learning Theory (NsLLT)

The ANM offers insight into the acquisition of meaning through the Neuro-semantic Language Learning Theory (NsLLT) (Arwood, 2011), which considers how language represents the mind (cognitive psychology), mirrors the brain (neuroscience),

and provides insight regarding social-cognitive processes. Through NsLLT, the ANM presents a synergistic four-step learning process that supports the construction of meaning and conceptual growth via a neurobiological and social-cognitive set of processes.

As an understanding of the learning process is applied to the adult learner, it is essential to note that although all brains are synergistic, the efficiency of the aging brain, stressors, and environmental factors can influence the neurochemical function and the levels of engagement with new learning (Blevins, 2013; Cozolino & Sprokay, 2006; Lubin et al., 2008; Siegel, 2012). According to Robb (2016) and Thul (2019), when the conceptual learning process is examined using the lens of neuroeducation, a deeper understanding of the learning process can be attained. The socio-cognitive function of language mirrors the conceptual growth in adults (Arwood, 2011; Bauer & Just, 2017; Tomasello et al., 2017).

The Neuro-semantic Language Learning Theory (NsLLT): Four Levels of Brain-Based Learning

The synergistic processes of change in the brain and the engagement of mechanisms that underlie cognitive development result in learning (Johnson & Munakata, 2005). The Neuro-semantic Language Learning Theory (Arwood, 2011) considers how language represents the mind (cognitive psychology), mirrors the function of the brain (neuroscience), and uses language as an internal and external set of processes for higher-order thinking and language function. The NsLLT centers on the role of the learner so to access their strengths through language to support the

neurobiological learning process (Lam, 2016). In NsLLT, Arwood (2011) proposes a synergistic four-level learning process that supports the construction of meaning and conceptual growth via a neurobiological and social-cognitive set of processes. Given the availability of current cognitive neuroscience research (Egorova et al., 2016; Grisoni et al., 2017; Pulvermüller, 2012; Pulvermüller et al., 2005; Tomasello et al., 2017), the NsLLT offers a brain-based learning theoretical model that addresses the synergy between the neurology of acquiring meaning and the acquisition of knowledge (Arwood, 2011). This construction of meaning process utilizes concepts as organizing frameworks to facilitate thinking and learning (Arwood, 2011; Clark, 2011). The four levels depict a synergistic neurobiological learning process toward the acquisition of language:

The first level of learning occurs at the sensory level. Sensory receptors within the human body system receive input (Ritter et al., 2019). The sensory input received is processed according to the input's properties (e.g., light waves, sound, touch, taste). At the sensory level, sensory input is received, recognized, and connected by receptors at a cellular/neuronal level based on semantic features.

During the second level, the recognized sensory input connects in many forms to create patterns. Once overlapped patterns are recognized at the cellular level via semantic features, pathways in the brain create meaningful access to semantic patterns, mainly in the subcortical level (i.e., imitation) (Carota et al., 2017; Fang et al., 2018).

In the third level, once patterns continue to bundle (overlap) and create more overlapped semantic features, the neuronal circuits connect to existing patterns and

begin to create layers of neuronal circuits as images and symbols (i.e., creation of conceptual meaning) (Pulvermüller, 2018b).

The fourth level involves the layering and scaffolding of concepts via the expansion of neuronal circuits within the cortex, across hemispheres, to develop patterns of meaning for language functions. The conceptual network connections in the cerebrum provide the maximum level of integration, synchrony, and efficiency, resulting in thinking (Arwood, 2011; Lam, 2016).

Given the availability of neuroimaging technology and research, increased information is available in the neural representation of concepts and semantic processing to examine how relationships between concepts impact neural connection (Bauer & Just, 2017). A study conducted by Egorova, Shtyrov, and Pulvermüller (2016) examining the brain's neural correlates of speech acts via functional magnetic resonance imaging (fMRI) showed that the brain processes speech acts through distinct brain activation patterns. The scientific discoveries regarding the intrinsic link between predictive processing of action and perception mechanisms of sensory input have been documented in many studies (Egorova et al., 2014, 2016; Pulvermüller, 2012; Pulvermüller & Grisoni, 2020). As noted by Bauer and Just (2017), "concept knowledge underlies all human thought, communication, and daily activity" (p. 1).

Within this brain-based learning paradigm, the overall synergistic neurobiological processes are greater than the sum of the additive parts. Meaning is a multidimensional dynamic semantic representation that allows an individual to use language to engage in various speech acts (Arwood, 2011; Clark, 2011; Garagnani &

Pulvermüller, 2016; Pulvermüller, 2013). Per Arwood (2011), semantic relationships "function to connect the individual to their world and the world to the individual's thinking" (p. 59). All human beings develop meaning from social interactions and experiences within environments; therefore, language represents a person's thinking and social-cognitive development of their neurosemantic language learning system (NsLLT) (Arwood, 2011; Pulvermüller, 2012).

When individuals continue to acquire meaning through their neuro-semantic language learning system, expanded language functions underlying cognitive understanding (thinking) expands into more complex thinking (Arwood, 2011). Expanded language functions allow individuals to use more complex meanings within interactions. Linguistic functions represent the most complex use of language that extends the meaning of concepts and structures into formal levels of thinking (Arwood, 2011).

Linguistic Functions. Linguistic functions represent the semantic extension of basic language function through ever-increasing levels of displacement, semanticity, flexibility, and productivity, resulting in increased efficiency (Arwood, 2011; Knox, 2016; Pulvermüller, 2012, 2013). Within NsLLT (Arwood, 2011), displacement is a language principle that refers to how far away an idea is from its physical referent. Semanticity occurs as concepts increase in complexity from the overlapping and layering of meaning. Increased semanticity allows complex meanings to be shared through higher-order thoughts. The term "flexibility" refers to the ability to think about others. Through linguistic flexibility, individuals can understand ideas from

many different perspectives. Productivity refers to an individual's ability to use language in various ways to communicate complex ideas. Lastly, linguistic efficiency refers to the process of refining concepts. In linguistic efficiency, individuals can convey information in specific and efficient ways due to their higher-order concept processing (Arwood, 2011; Bruner, 1987; Clarke & Tyler, 2015; Tomasello, 2003; Tomasello et al., 2017b).

Within the lens of linguistic function, the neural networks that develop and provide the overarching development of learning capacity known as the "formal mind" require the most cerebral feedback and the highest level of linguistic function. Within a socio-cognitive perspective, the linguistic functions provide access to a learner's mental, social cognitive processes that support a learner thinking about using their language for learning to conceptualize about the "unknown" and evaluate options from other's perspective (Arwood, 2011).

Constructing Meaning Through Language: A Socio-Cognitive Perspective

Language function provides insight regarding the acquisition of new knowledge and supports the refinement or interpretation of information or interactions. As adults move through stages of life, their brains also progress through various ways of perceiving, organizing, and learning about the world (Cozolino & Sprokay, 2006). The function of language that mediates socio-cognitive development represents a learner's understanding of their social world and role within environments (Arwood, 2011). As noted by Siegel (2001), "Human development occurs within a social world in a transaction with the functions of the brain that give rise to the mind" (p. 67). The

cognitive psychology lens offers a constructivist view in which the learner makes meaning from the environment based on experiences that facilitate an opportunity to construct meaning to form concepts (Arwood, 2011; Clark, 2011; Hein, 1991; Vygotsky, 1962). The internal meaning construction consequently increases the learner's engagement and social-cognitive function (Arwood, 2011). The role of language in the metacognitive process supports a learner's ability to think about their thinking. The process of metacognition mediated by language supports a learner's ability to plan, monitor, and assess their understanding or perspective (Dix, 2016).

In the transformative learning framework, Mezirow depicts meaning-making to a construal, appropriation, and interpretation perceptual and cognitive process that guides action within an individual's culturally transmitted and linguistically organized perspectives. Individuals create meaning within the bounds of their particular knowledge, beliefs, value judgments, and feelings, resulting in an individual's meaning scheme. Meaning schemes are comprised of the "constellation of concepts, belief, judgment, and feelings which shape a particular interpretation" (Mezirow, 1994, p. 223). Consequently, the use of language shapes, limits, and distorts our beliefs as we create and share meaning through signs and symbols that result in the development of schemas (Arwood, 2011; Mezirow, 1991). Language facilitates understanding of the cultural phenomena and shared beliefs and values within a community and assigns meaning to the cultural perspectives that shape the mind (Takaya, 2008).

Based on a prevailing view in cognitive psychology, schemas are organized representations of what individuals notice and determine what is not noticed via

perceptual input (Dirkx, 2006; Dix, 2016). Consequently, the role of "our language bonds us into a dialogic community" and connects individuals to the values, beliefs, and norms within environments (Mezirow, 1991, p. 56). Within the ANM, adult learners "learn their development" via socio-cultural experiences where others use language to assign meaning to the relationship between agents, actions, and objects that shape their values and belief systems (Arwood, 2011). Therefore, the social nature of learning within environments influences how language supports the construction of meaning.

The Social Nature of Learning

The social nature of cultural interactions represented and shaped by language mirrors the beliefs, values, and socio-cognitive levels of thinking. Learning is a social and cognitive process where socio-linguistic functions assign and construct meaning in socio-cultural contexts (Christie et al., 2015b; Glenberg & Gallese, 2011; Mezirow, 1991a; Robb, 2016; Thul, 2019). The socio-cognitive function of language contributing to transformation is developed based on the socio-cultural experiences that influence the neurobiological acquisition of concepts that contribute to learning (Blevins, 2013; Frith & Frith, 2012).

Cultural Psychology

The literature in cultural psychology supports the interdependence between language, symbol systems, and the development of the human mind, all embodied within culture (Bruner, 1991; Takaya, 2008). According to Bruner (1991), "...we must accept the view that the human mind cannot express its nascent powers without the

enablement of the symbolic systems of culture" (p. 20). Language is a primary tool for navigating cultural contexts and orienting to established norms and social constructs, ultimately influencing meaning perspectives (Arwood, 2011; Jackendoff, 2002; Merriam, 2009; Mezirow, 1991a; Zafran, 2020). Because social concepts are learned, individuals learn these concepts once they acquire the meaning from interactions with others in their environment and engage in constructive reflection (Kitayama & Park, 2010; Wells, 2007). The narrative construction of reality is captured in the work of Bruner (1991) and documented in the seminal work of Vygotsky that centers on the formation of the mind with a connection to social, cultural, and historical contexts (Daniels, 2012). In other words, cultural products like language and other symbolic systems mediate thought (Arwood, 1983) and place their stamp on our representation of reality and the construction of personal narratives (Bruner, 1991).

Learners make meaning of their experiences in various ways, influenced by social structures and belief systems. The learner's personal view of the world is based on life experiences, upbringing, culture, and education. The dynamic construal of language and meaning is subject to the evolutionary needs of its users and their changing world (Krawczak, 2005). Making meaning from our experiences is a relational process that integrates various elements of our consciousness or thinking with personal and social aspects, externally between ourselves and others, and within a shared collective (Jordi, 2011).

A Learner's Agency: Concept of Self

A learner's self-concept relates to the process of identity formation. The process of personal and professional identity formation consists of a dynamic, ongoing, multidimensional interpretive process of experiences and interactions within cultural contexts (Beijaard et al., 2004). Constructing one's identity involves a dialogic process that leads to making meaning of one's values and experiences within a society that sustains those identities through informal discourse and dialogue (Flores & Day, 2006; Gee, 2000b). Over time, the culturally shaped cognitive and linguistic processes that guide the development of "self" begin to construct life narratives and influence perceptual experiences (Bruner, 1987). Language use integrated with internalized cultural values and beliefs contributes to the sense of self in two aspects: agency and possible self. An individual's agency-level is defined by their ability to act independently and make their own choices (Flores & Day, 2006).

The concept of the self involves three aspects: the private self, the public self, and the collective self. The private self involves cognitions that encompass traits, states, and assessments of the self by the self. The public self involves assessing the self the generalized other, whereas the collective self involves an assessment of the self by a specific reference group, such as family or co-workers (Triandis, 1989). According to Takaya's review of Bruner's (1996) work, the concept of agency connects to a sense that one can initiate and carry out activities on one's own, whereas the "possible self" regulates aspiration, confidence, optimism, and their opposites (Takaya, 2008). Ultimately, "the self is an active agent that promotes differential

sampling, processing, and evaluation of information from the environment, which leads to differences in social behavior" (Triandis, 1989, p. 506).

The relationship between socio-cultural conditions of teacher education and the professional collective agency was examined to understand how professional agency was promoted during a program transition through multilevel supports (Hökkä et al., 2017). The main components of the multilevel support program included addressing personal identity (individual life-story, strengths, areas of development), professional identity (professional history, competencies, values), organizational identity (position, sense of belonging, commitment), and relationship identity (social relationships, roles). The findings of the study suggest that participants first needed to address their individual narratives and identify their learning pathway. Furthermore, the findings revealed the role of collective agency among learners and the value of creating shared learning platforms and processes to support critical reflection and dialogue relating to continuous changes, work, and professional identity. Consequently, the role of a community of practice designed to promote a social arena that encourages exchanges and reflection among professionals contributes to advancements in educational ecosystems (Hökkä et al., 2017).

The concept of collective agency leads back to thinking about the social nature of brain-based learning and the role of environments in supporting adult transformative learning. How adults see themselves, think, and act in the context of others within a society and culture within environments influences the construction of

meanings, practices, and priorities (Arwood, 2011; Freeman et al., 2009; Mezirow, 1991).

The Role of Workplace Culture: A Socio-Cognitive Perspective

Workplace culture and context contribute substantially to a learner's experience and influence the interdependent process of participatory practices and learners' positive or negative perceptions. Educator perceptions and experiences within the workplace contribute to the co-construction of the educator's professional identity. Educators are situationally embedded in environments influenced by cultural norms and adopted practices (Billett, 2004; Flores & Day, 2006; Han et al., 2013).

A growing body of research in cognitive and cultural neuroscience, cultural anthropology, and sociology support the consideration and value of educational environments and self-determination of the adult learner in supporting the learning process (Assun Cao Flores, 2004; Kitayama & Park, 2010; Merriam, 2008; Yu et al., 2015). The collective identity of groups influences how they navigate roles and engage within particular social environments (Evans et al., 2006; Han et al., 2013). The widely adopted concept of a community of practice in educational contexts has shaped how organizations support developing a shared vision and implementing practices. The role of a community of practice is to help align the work of educators, cohesively explore problems of practice, connect their instructional roles to standardized curriculums, and operate within a set of shared norms to support student achievement (Patton & Parker, 2017; Thompson et al., 2004; Trayner, 2015; Wenger, 1998; Wood, 2007).

Educational Culture and Communities of Practice

According to a study conducted by Patton and Parker (2017), communities of practice provide a platform for professional growth by engaging educators in a shared vision with sustained social interaction and shared commitment. Learning opportunities for educators are typically aligned and regulated by organizational norms, standardized practices, and priorities that provide direction to the role and function of educators (Billett, 2004; Patton & Parker, 2017).

School leadership influences the culture and the context for promoting teacher collegiality and identity. The literature suggests that professional identity is constructed during a long-term interactive process within a group or organization (Ben-Peretz et al., 2003; Seyranian, 2014). The role of transformational leadership and the use of language in promoting a shared vision was examined by Molenberghs et al. (2017). The study specifically examined how different leadership statements, inspirational collective versus non-inspirational personal oriented, influenced neural mechanisms involved with semantic processing in twenty participants. The study results (Molenberghs et al., 2017) suggest that people process information subjectively. The results revealed that "people selectively process and encode information in a manner that aligns with their existing beliefs" (p. 2188).

Based on the information presented on neurobiological and socio-cognitive processes of learning in previous sections, the literature suggests that accessible learning opportunities for adult learners are facilitated when information is comprehensively linked with context and purpose and the learner engages with increased agency. Adult learners need to know the reason, purpose, and value for

learning something during professional and community-based learning opportunities. As adults connect meaningfully to learning experiences, they seek out knowledge with higher levels of intention and consciousness (Jordi, 2011; Taylor & Kroth, 2009). Therefore, understanding how adults connect within their socio-cultural learning community and construct meaning is essential to facilitating meaningful learning experiences.

In the workplace, people may differ in their beliefs about their competencies and success. The socio-cultural context of adult learning highlights the positive impact of workplace learning on supporting human change through the interconnection of humans and their cultural engagement (Merriam, 2008). When beliefs, behaviors, or demands in an environment change too rapidly over time, social learning is less effective because learners cannot track the rapid changes (Mesoudi, 2009). With the rapidly changing environments and demands within the workplace, the cognitive demands on learners increase significantly. Given the demands and stressors in work environments, one is led to ponder, how do high-demand contexts and stressors affect the function of the brain?

Impact of Stress on the Brain

As human beings interact within their environments and meet the demands of life, they experience stress to some degree. The brain is considered the central organ that perceives stress, senses an experience, and initiates a response to support adaptation (Esch & Stefano, 2010; McEwen et al., 2015). A definition of stress more focused on the central nervous system (CNS) involves a view of stress "as alterations

in psychological homeostatic processes" centering on the brain's interpretation of what is stressful (Heuser & Lammers, 2003, p. 369).

The climate of the crisis created by the COVID-19 pandemic has exposed individuals to prolonged levels of chronic stressors. A study conducted by Hwang et al. (2020) has begun to document the consequential physical and mental health repercussions associated with essential quarantine and social isolation measures. Although quarantine and social isolation measures were needed to prevent the virus from spreading, the secondary effects of social isolation impacted the mental health and cognition of study participants over time (Hwang et al., 2020).

An individual's appraisal of stressors, given their frame of reference and language function, is key to determining whether the response to the stressor will be adaptive or maladaptive and is known to induce large-scale network organization (Hagger et al., 2020; Liu et al., 2021). Using language to assign meaning at the highest level of function supports the management or perception of stressors. Individuals who appraise their stress as a "challenging opportunity" cope more effectively versus individuals that perceive stressors as "threatening" and are debilitated by a fixed mindset (Hagger et al., 2020). Individual perception of stress prompts a cascading neurobiological effect in psychological and neural mechanisms (LaBar & Cabeza, 2006). As neurobiological mechanisms respond to the perceived stressors, changes in the brain underlie social, behavioral coping strategies that promote adaptation to challenges (Sandi & Haller, 2015).

Neurobiological Response to Stress

Studies focused on the neurobiological response to stressors (Esch & Stefano, 2010; Heuser & Lammers, 2003; Liu et al., 2021; Mcewen et al., 2015; Peters et al., 2017) suggest that prolonged exposure to severe stress can have long-lasting neurobiological and physical effects. The adverse neurobiological effects impact structural, functional, and molecular changes in the brain via the activation of a neurophysiological response to stress (Sandi & Haller, 2015). The neural mechanism of the brain connected to the feelings of perceived stress, life-threatening conditions, and intense loss leads to a release of molecules that send a stress signal to the central nervous system (CNS) (Joëls & Baram, 2009). These stress mediators (molecules) bind to receptors in localized regions of the brain that act on specific neuronal populations in specific regions of the brain, resulting in physical or psychological stressors (Joëls & Baram, 2009).

A review of existing literature connected to the critical brain circuits and learning suggests that the perception of stressful events initiates a neurochemical release of stress-related hormones or mediators (molecules). These stress-related hormones impact how receptors affect the brain circuitry used to form, store, and retrieve memories (Bangasser & Shors, 2010). Shortly after, a stressful event catalyzes the release of cortisol, noradrenaline, norepinephrine, dopamine, and serotonin send stress signals throughout the CNS. These signals result in functional changes in the amygdala, hippocampus, prefrontal cortex, and nucleus accumbens (Esch & Stefano, 2010).

Stress and Brain-Based Learning

The neurobiological response to stress impacts cognitive processes (Popoli et al., 2012). The three main classes of stress-related hormones secreted due to stress are cortisol (glucocorticoid), which crosses the blood-brain barrier, adrenaline, and noradrenaline (catecholamines) that impact the sensory vagus system (Lupien, 2007).

Glucocorticoids have the most significant impact on cognition. Research has shown that prolonged exposure to glucocorticoids affects the neurodegeneration of dendritic branches in the hippocampus and prefrontal cortex (PFC). These dendritic alterations result in decreased neuronal function (Bangasser & Shors, 2010; Heuser & Lammers, 2003). The neuronal disruption impacts brain regions that work synergistically to sub-serve emotion (amygdala and prefrontal cortex), learning and memory (hippocampus), and decision-making (prefrontal cortex) (Joëls & Baram, 2009). The ongoing exposure to stress has been documented to alter glucocorticoid receptors in the hippocampus, resulting in various effects in target systems that allow for increased energy availability to support adaptation to demands. Continuous exposure to severe or prolonged stress has been documented to contribute to the over-activation and dysregulation of the hypothalamic-pituitary-adrenal axis (HPA) that inflicts changes in the structure and function of the brain (Lupien, 2007). The results of impacted brain function translate to issues with memory operations, emotional associations, and learning (LaBar & Cabeza, 2006).

Transformation in Stressful Contexts

The process of transformative learning within environments impacted by stressful situations illuminates the influence of contextual stress in the psychosocial

process of adult learners. The neurobiological impact of stress on human cognitive functions related to memory, emotions, and learning has been widely studied (Bangasser & Shors, 2010; Dix, 2016; McEwen et al., 2015; McEwen & Morrison, 2013). As the brain responds and adapts to stress, a shift in cognitive resources presents both physical and psychological manifestations of stress (Palmer, 2015). Lupien (2007) noted that the effects of emotionally arousing and stressful experiences share many characteristics that impact the neurocognitive processes associated with learning and memory (Lupien, 2007).

Therefore, understanding how individuals emotionally respond to stressors and conceptualize demands in psychosocial environments is essential to understanding the influence of core affective states of adult learners (Lindquist et al., 2012). In the psychological constructionist model, conceptualization relates to how individuals make meaning of their core affective state via stored representations of prior experiences connecting to the cognitive appraisal of situations. Psychological constructivism states that a person learns by mentally organizing and reorganizing new information and experiences connected to prior knowledge. The psychological constructivist model attributes the construction of meaning in contexts to the role of language in acquiring concepts that help individuals understand their subjective experiences (Lindquist et al., 2012). Given that knowledge is constructed within a socio-cognitive process, the role of environments and how to manage psychosocial stressors is essential to adult learning during the critical self-reflection transformative process associated with existing psychological assumptions and culturally transmitted perspectives (Mezirow, 1991).

Taylor et al. (2010) conducted an extensive study ($N = 3,995$) in Australia to measure the impact of psychosocial stress and strategies for managing adversity. The findings suggest that when participants were asked, "What are the things that get you through tough times?", the vast majority of respondents (>90%) were able to identify at least one strategy they found helpful. A higher percentage of the participants identified the importance of key people or groups, such as family, friends, and neighbors. The findings suggest that social support is fundamental to handling adversity effectively (Taylor et al., 2010). The work of leaders in organizations to develop and support an adaptive organizational culture that is supportive is essential during turbulent times. Understanding the social nature of learning within complex real-world contexts is key to promoting relationship-centered communities (Hansman, 2001).

Building a community with a responsive structure to cope with rapidly changing demands and environments is also essential in an era of increasing pressure or crisis (Valle, 1999). Gainey (2009) indicated the language used by leadership and communication centered on problem-solving and a philosophy of care and concern aids in framing the meaning of a crisis event with a collective community-centered lens. Ultimately, recognizing the synergy of neurobiological and socio-cognitive processes associated with the constructive role of language function within cultural environments presents an opportunity to understand the transformative learning process of adult learners.

Conclusion

This chapter presented current research to address the identified gap in adult transformative learning theory (Mezirow, 1991) related to the role of language function in the neurobiological process of adult transformative learning within a context of crisis. The comprehensive literature review introduced adult learning theory principles and Mezirow's Transformative Learning Theory (TLT) (Mezirow, 1978, 1991, 2003), and current transformative learning research. The TLT-related literature provided a framework to understand the central role of a learner's socio-cultural orientation and processes associated with critical self-reflection and discourse with emancipatory learning.

To address the identified gap in the literature, the Arwood Neuro-Education Model (ANM) (Arwood, 2011) framework was utilized as a transdisciplinary model to integrate literature from cognitive psychology, cognitive neuroscience, and the function of language. The ANM provides a multidisciplinary brain-based learning paradigm to understand how the function of language represents the cognitive processes of thinking in adult transformation; specifically, to better understand how the neurobiological processes of an individual's neuro-semantic language learning system facilitates the construction of meaning and ultimately transformation. The inclusive literature review supports an understanding of how language represents the neurobiological acquisition of the socio-cultural input for improved cognitive function. This review of literature also provided literature to address the social nature of learning through cultural psychology to address learner agency, the role of workplace culture, and the role of communities of practice. Given the study's setting in

a context of crisis, the neurobiological processes of learning literature included research regarding the impact of stress on the brain, the neurobiological response to stress, and the impact of stress on learning and transformation.

To further examine the role of language function in the transformative process of adult learners in a context of crisis, this study addressed the following research question: Do SLPs, who have specialized knowledge in the area of language, use their own language in self-reflection to support their transformative process during a disorienting dilemma?

Chapter 3: Methodology

This chapter discusses the methodology utilized to conduct a qualitative single case study to examine whether SLPs used their knowledge of language as part of self-reflective transformative support during a context of crisis. The chapter includes the purpose of the study, the guiding research question, the rationale for the chosen methodology, research procedures, participant selection, instrumentation, data analysis procedures, trustworthiness, ethical considerations and precautions, role of the researcher, and limitations.

Research Purpose and Research Question

The purpose of this study was to investigate how six speech-language pathologists (SLPs) used their language to navigate demands within their school district work setting during the unexpected shift to a distance-learning context during the COVID-19 pandemic. This study specifically focused on the SLPs' use of language as part of a self-reflective transformative process to support their learning and roles during a context of crisis. Despite the currently available research in the field of transformative learning (Kroth & Cranton, 2014; Merriam, 2004; Mezirow, 2003a; Taylor & Laros, 2014), there exists a gap in the literature centered on how transformative adult learning reflects the use of language function based on socio-cognitive and neurobiological processes involved with learning.

This study specifically aims to understand the role of language in the self-reflective transformative learning process of school-based speech-language pathologists (SLPs) serving K-12 students in a diverse region during the COVID-19

pandemic. The primary research question that guided this study was: *How do SLPs, who have specialized professional knowledge in the area of language, use their own language in self-reflection to support their transformative process during a disorienting dilemma?*

The implementation of a reflective semi-structured interview protocol was utilized to collect data on how SLPs ($N = 6$) used their language to navigate stressors and the abrupt shift to distance learning in the context of a pandemic (Arwood, 2011; Kroth & Cranton, 2014a; Mezirow, 1991b; Mezirow & Taylor, 2011a). I applied a multidisciplinary lens to translate research within a neuroeducation learning paradigm (Arwood, 2011; Boux et al., 2021; Bower, 2004; Johnson & Munakata, 2005; Pulvermüller et al., 2014; Small & Watkins, 2015; Wells, 2007) and incorporated current adult transformative learning research (Cranton, 2016; Mezirow, 1987, 1991; Taylor, 1994; Taylor & Laros, 2014) to address the focal research question. This comprehensive triangulation of research incorporated a multidisciplinary approach to understanding the underlying socio-cognitive and neurobiological mechanisms influencing the transformative learning processes of participants.

The following section will describe the research design and rationale for the chosen methodology to examine whether SLPs used their knowledge of language function as part of their self-reflective transformative learning process.

Research Design and Rationale for Methodology

In order to understand how SLPs used their language to support their transformative learning process, a qualitative interpretive single case study

methodology was applied to gain insight into whether participating SLPs used their language function to navigate experiences, relationships, and demands in educational environments during the COVID-19 context of crisis. Hence, an interpretive social constructivist lens aimed to understand how the role of language function influenced the socio-cognitive and neurobiological processes of transformative learning.

An interpretive framework of social constructivism with a methodological approach to inquiry was utilized to identify the constructs or mental realizations of participants (Lincoln & Guba, 2013). The interpretive framework provided an opportunity to capture and identify the socially constructed realities of participants through their lived experiences and interactions with others in a context of crisis. As noted by Lincoln and Guba (2013), “Interpretivism proposes a relativist work of multiple realities that are constructed and co-constructed by the mind(s) and required to be studied as a whole” (p. 88). To capture the participants’ transformative process in a context of crisis, a case study design was implemented.

Case Study Design

A single case study design was utilized to study the lived experiences and perceptions of school-based SLPs working in a diverse region during the COVID-19 pandemic. The interpretive focus of the case study centered on capturing the experiences and perceptions of adult learners exposed to high levels of stress and demands to understand how they used their language to support ongoing engagement. Specifically, I wanted to examine whether SLPs used their language in self-reflection to support their transformative learning process and engagement during a context of

crisis. The data were obtained via a semi-structured reflective interview process designed to understand how school-based SLPs used their language to support their engagement, learning needs, and ultimately transformative learning processes while working remotely (Merriam, 1998). The single case study was bound by a regional SLP Program's response and engagement of SLPs to provide access to guidance, processes, and resources to support school districts throughout a region during the COVID-19 crisis (Creswell & Poth, 2018; Merriam, 1998).

Participants and Context

The participants in this study consisted of speech-language pathologists (SLPs) working in a regional education district SLP program of 30 SLP team members in the northwest region of Oregon. Based on the SLP program's role in providing equitable SLP services, the SLP staff were assigned to serve students in K-12 public education school districts within a diverse demographic four-county region in the Pacific Northwest. The region served by the education service district supports 20 component school districts located in rural and urban areas that serve nearly 104,000 students. The regional district SLP program served 1,625 students during the 2019-2020 school year.

School-based speech-language pathologists (SLPs) are master's level, State Board licensed, and nationally credentialed professionals through the American Speech and Hearing Association (ASHA). To obtain and maintain the required national credentials and certificate of clinical competence, SLPs are required to demonstrate advanced levels of field-related knowledge and meet a set of rigorous academic and ongoing professional development expectations. Licensed and

nationally certified school-based SLPs provide services within a scope of practice and abide by a code of ethics (ASHA, 2010). ASHA provides SLPs guidance and resources to support school-based service delivery in schools to provide the highest quality of service. As noted in ASHA's guidance document, SLPs support students in various service models with communication needs and have increased knowledge of how the role of language facilitates learning (ASHA, 2020) as well as how children learn language. As a result of the SLP professional learning requirement, the SLP program has promoted and provided access to ongoing professional learning, at various levels, regarding the role of language and learning for over the past eight years. This ongoing exposure to professional learning and reflection on instructional practices centered on language has afforded the ESD SLPs a unique opportunity to understand the role and function of language in supporting the learning process. Among many roles, the SLPs' role with supporting language connects to promoting a student's social thinking while navigating complex, high-demand educational environments in districts.

Based on district requests for SLP services, the regional education district's SLP program partners with districts to provide highly qualified school-based SLPs and expertise that supports their students' communication and learning needs. The mission and vision of the SLP program supports and provides equitable levels of access to high-quality services for students from diverse backgrounds and experiences throughout the region. In partnership with educational teams, speech-language pathologists assigned to districts support students served in special education that experience a full range of communication and learning needs. Through collaborative

partnerships with educational teams, SLPs address the changing needs of students throughout the school year by applying specialized instructional strategies to address student needs in the broader educational environment. The services provided by speech-language pathologists are critical to students' access to their educational programs in the least restrictive environments (ASHA, 2020).

Because of the COVID-19 context and the closure of schools in Oregon, SLPs abruptly transitioned to a distance-learning framework. This transition involved developing and learning how to implement a telepractice service delivery model. In speech-language pathology, telepractice is defined as the application of technology to deliver professional services at a distance by linking the provider to the student for various services, including intervention. The guidance regarding telepractice services states that telepractice services must be equivalent to the quality of services provided through in-person services (ASHA, 2020).

In order to support students and districts throughout the region, the SLP program supported the learning and engagement of SLPs by creating an accessible, shared Google Drive to store meeting agendas and notes, remote student support services, and telepractice resources. A regularly scheduled daily meeting check-in structure provided updates, professional learning opportunities, obtained feedback, and provided timely guidance. These online meetings were semi-structured with updates from the Oregon Department of Education and meeting information obtained from leadership meetings. The overall purpose of the scheduled online SLP team meetings via Google Meets was to create a space for the SLP community of practice to engage in learning, support an organized structure for accessing resources, and create

opportunities for SLPs to engage in collaborative and critical reflection. The pathway to telepractice services for SLPs included understanding the scope of practice within a telepractice service model, licensure requirements, and implementing an onboarding process with districts and families. All of the SLPs in the program participated in this transition process.

Speech-language pathologists (SLPs) who work in school-based settings play an integral role in education. In this study's ESD, speech pathologists work in educational teams. Teams within the school-based role of an SLP provided focused intervention based on language to support linguistic and metalinguistic student learning. Given their educational background and knowledge in a range of communication disorders, SLPs supported the educational success of students by addressing personal, social-emotional, academic, and vocational needs by ensuring access to socio-cognitive development via language intervention, program design, assessment, and collaboration with others (American Speech and Hearing Association, 2010). Considering the level of foundational knowledge used by SLPs to support student's language growth to navigate the complexities of the social world, a question regarding the acknowledgment and implementation of the role of language in their self-reflective process during a context of crisis emerged. The question centered on whether SLPs formally trained to support language strategies of their students or clients applied those types of language strategies to support their own transformation during a demanding context of crisis. Through professional learning opportunities, SLPs in the SLP program learned about the role of language function within the ANM (Arwood, 2011) neuroeducation paradigm. The exposure to this knowledge provided

program SLPs a specialized lens to strategically identify how to support learning through language-centered accessible intervention strategies.

Participant Recruitment and Selection. In the Fall of 2020, I emailed SLPs ($N = 30$) employed in the SLP program a brief introduction to the research study. The email requested voluntary participation in completing a demographic survey with an embedded consent form (Appendix B) detailing participant rights. The demographic survey collected information in the following areas: a) years of experience in the field of speech-language pathology (0-2; 3-10; 10-30 years), b) length of employment with the school-based SLP program (0-2; 3-5; 5-10; >11 years), c) size of the assigned school district (< 1,000; < 2,000; <5,000, >10,000 students), and d) level of prior knowledge with telepractice or distance learning (1. none, 2. limited, 3. basic, 4. proficient, 5. highly proficient). The initial survey also prompted participants to share their interest in participating in a follow-up interview, if selected.

During the first phase of data collection, an embedded Qualtrics survey (Appendix B) link was emailed to all SLPs ($N = 30$) in the SLP ESD program to introduce the study and collect demographic information. A follow-up email was sent one week after the initial request to encourage high levels of participation. The survey closed after three weeks with 26 responses. The survey data contributed to the participant selection process. Information regarding the SLP team member's length of employment, years of professional experience, size of a school district, and level of knowledge level with telepractice or distance learning of the broader SLP program team provided information to engage in a purposive random selection process of participants for the second phase of data collection.

In the second phase of data collection, a purposive random participant selection process was implemented to identify six participants for the second phase of the research (Dworkin, 2012). Participants were selected and invited to participate in a semi-structured interview process via the Excel program randomization function. Participants with a minimum of three years of experience in speech pathology and employment with the SLP program were included in the second phase of random purposive sampling. An attempt was also made to select SLPs who served small rural districts as well as larger districts. Through this selection process, I invited six candidates to participate out of the 26 respondents. The six interview candidates who met the selection criteria were formally invited to participate in the study via email. The email contained details about the purpose and procedures of the study and my role. All of the participants contacted agreed to participate in the study within a week of receiving the email request. Prospective interviewees ($N = 6$) were then contacted via email to schedule their Zoom interview on a convenient day and time outside of work hours. The participants interested in participating in the semi-structured interviews were asked to sign a consent form (Appendix C) created in Qualtrics that outlined background information, study procedures, voluntary nature of participation, risks, benefits of participation, and privacy measures (Creswell & Poth, 2018; Merriam, 1998). A few days before the participant's scheduled interview, I sent a reminder email to interview participants ($N = 6$) with the Qualtrics consent form (Appendix C) link. The interview consent form also highlighted the process, scheduling, anticipated length of the interview, and opportunities for participants to share post-interview written reflections and artifacts. Participants confirmed their

agreement to the outlined interview consent form by selecting consent choices and acknowledged the review of their participant rights by providing their electronic signature. All interviews were scheduled during outside of work hours during a one-week timeline to delineate a clear separation between my role as a program coordinator and researcher. It was also important that the interview process not interfere with work-related responsibilities or student service schedules.

Instrument

To obtain data regarding the participants' lived experiences and perceptions within the transition to distance learning as a result of the pandemic, a reflective semi-structured interview protocol was created (Appendix D). The role of critical reflection is well documented in the literature and is a key concept in transformative learning theory (Mezirow, 1991a). According to the assumption that adult learners construct meaning from experiences through interactions and communication with others, the development of the interview questions reflected Cranton's (2016) guidelines for asking reflective questions. The interview questions for this study were designed with an understanding that socio-cultural experiences and the role of language in communicative action supports the construction of meaning and perception of lived experiences (Arwood, 2011; Cranton, 2016; Mezirow, 2003a). The reflective interview protocol contained questions to understand the SLPs' role of language in meaning construction as part of the transformative process as a result of the COVID pandemic. The interview questions were designed to foster critical reflection and self-awareness. According to transformative learning theory, reflection involves an interpretive process of meaning-making of lived experiences. The implemented

interview protocol promoted an interactive critical reflection discourse interaction with participants to promote reflective thinking (Mezirow, 2003a). As noted in the literature, language and the construction of meaning influences how adult learners navigate their social world and critical events (Arwood, 2011; Mezirow, 1991).

To examine the role of language in the SLPs' transformative process during a context of crisis, the interview questions focused on the SLPs' use of self-reflective language. The reflective interview questions specifically targeted how SLPs used their language as part of a socio-cognitive process to engage in learning, problem-solving, and navigating stressors associated with the shift to distance learning during a crisis. The interview instrument aimed to gather data regarding the SLPs' frame of reference created by their lived experiences and perception of how they navigated demands within their professional roles during a time of high demand and uncertainty in their educational settings. The constructed questions also aimed to access information regarding how the SLPs' perceptions and lived experiences in a high-demand context contributed to their meaning schemes and perspectives during the pandemic. Ultimately, the interview process gathered information regarding how SLPs used their knowledge of language to navigate and support themselves during a context of crisis riddled with uncertainty and high demand. They provided insight to deepen understanding regarding the function of language facilitated thinking, problem-solving, and planning to support transformation within a context of crisis.

The interview questions and protocol development encompassed a review and feedback process with a fellow neuroeducation doctoral candidate and a non-participating SLP from another program. The two reviewers received an email copy of

the protocol for review. Both reviewers returned the draft protocol document via email with edits and engaged in a debrief phone conversations regarding their feedback. The provided feedback addressed increased awareness regarding the flow of interview questions, definition of terms, focus of the questions, and complexity of the questions. The feedback obtained supported the revision process of the reflective interview questions. As a result, the interview questions were simplified and paired with follow-up questions to increase clarity and flow. The interview protocol structure was also revised to start with open-ended questions to ease the participants into the interview process, then proceed to more context-targeted questions.

The following questions (Appendix D) engaged participants in the semi-structured interview process:

- As we begin, please share how the pandemic has impacted you and your educational community.
- What activities or resources did you find most helpful during this time (in supporting your role)?
- What helped you to stay connected to your work while working remotely?
 - How was this helpful to your own learning process (as an adult learner)?
- Thinking back to the time when service providers, like yourself, quickly pivoted to a distance-learning framework last April, what strategies or resources did you use (as an adult learner) to help you navigate professional challenges and stressors?

- The following follow-up questions also engaged participants in deeper reflection:
 - Based on your experience and perception, what role did (your) language play in supporting your transitions to a distance-learning context? (Think about your own language and what you needed to do for yourself.)
 - Do you believe that a prior understanding of the function of language helped guide your perspective? If so, in what way?
 - Tell me more about this; how did you implement language strategies to manage the stress during this time? (...and with your interactions with others, colleagues)

- As we have transitioned back into a new school year with a focus on comprehensive distance learning (CDL), will you use your professional knowledge about language strategies to support your continued learning and engagement?
 - If so or if not...how will you support your continued learning and growth? (How will you continue to grow?)
 - (Moving forward) What will you do differently or the same?

- Is there anything you would like to add (as an adult learner) or share before we end this interview?

Data Collection Procedures

Data collection was completed in two phases.

Phase One

During phase one, I emailed all SLPs ($N = 30$) employed by the regional SLP program a demographic survey created in Qualtrics with an embedded consent form sharing information about the study and its purpose. Upon receipt of the demographic data, I reviewed responses indicating their interest for participating in individual interviews and identified candidates that met the established selection criteria of a minimum of three years of experience and employment and representative district size. The interview candidate information was entered into a spreadsheet and a randomization formula was utilized.

Phase Two

Upon completion of the interview participant recruitment and email communication process, six semi-structured interviews were scheduled. Due to the COVID-19 pandemic and physical isolation guidance, all interviews and interactions with participants were conducted online or via email communication. The scheduling process focused on identifying a convenient day and time during non-work time to complete the online interview via Zoom. The Zoom platform was selected for the online interviews because of its recording and transcription features. All participants were familiar with the Zoom platform, given their professional online experiences with distance learning and remote work setting. To support the completion of the scheduled interviews, participants were sent a reminder email a few days prior with an embedded Qualtrics link to the interview consent form (Appendix C). To promote a seamless process with participants, I tested the Zoom recording and transcription

settings and the implementation of a back-up audio recording with the use of the Rev iPhone app prior to the interview session.

On the day of the scheduled interviews, I checked Wi-Fi connectivity and set up the technology in a quiet location, and opened up the Zoom meeting session 15 minutes ahead of time. As the participants logged into the Zoom meeting via the link provided, I greeted the participants and provided them with time, as needed, to check their audio and camera settings. After greeting the participants, I reviewed the emailed interview consent form and confirmed their willingness to move forward with their volunteer participation. I then followed a written interview protocol that highlighted the assurances of confidentiality, the participant's right to withdraw from the study, and an overview of the follow-up member check process (Creswell & Poth, 2018; Merriam, 1998). All participants were provided with the university's IRB contact information. The scheduled interview sessions began with my sharing a brief introduction of the study and its purpose with all participants.

The semi-structured interview protocol was designed to ease the participants into the interview process. The protocol incorporated a participant check-in, an introduction to the study, and a definition of the function of language in the study. I then transitioned participants to the interview process with open-ended questions. The implemented interview protocol provided time for participants to critically reflect on their lived experiences linked to their educational role and setting during the abrupt shift to distance learning as well as their awareness of the role of language in supporting their learning process.

Participants were presented with the following questions during the initial interview process.

- As we begin, please share how the pandemic has impacted you and your educational community.
 - What activities or resources did you find most helpful during this time (in supporting your role)?
 - What helped you to stay connected to your work while working remotely?
 - How was this helpful to your own learning process (as an adult learner)?

As the interview progressed, more targeted questions inquired about the role of language in supporting the participants' abrupt transition to distance learning during the spring of 2020. Participants were prompted to reflect on how they navigated professional demands and stressors while working remotely.

- Thinking back to the time when service providers, like yourself, quickly pivoted to a distance-learning framework last April, what strategies or resources did you use (as an adult learner) to help you navigate professional challenges and stressors?
- The following follow-up questions also engaged participants in deeper reflection:
 - Based on your experience and perception, what role did (your) language play in supporting your transitions to a distance-learning

context? (Think about your own language and what you needed to do for yourself.)

- Do you believe that a prior understanding of the function of language helped guide your perspective? If so, in what way? Tell me more about this; how did you implement language strategies to manage the stress during this time? (...and with your interactions with others, colleagues)

The final questions of the interview guided the participants to reflect on the transition back to the new 2020-2021 school year. During this portion of the interview, I encouraged increased reflection by lengthening pause time.

- As we have transitioned back into a new school year focusing on comprehensive distance learning (CDL), will you use your professional knowledge about language strategies to support your continued learning and engagement?
 - If so or if not...how will you support your continued learning and growth? (How will you continue to grow?)
 - (Moving forward) What will you do differently or the same?
- Is there anything you would like to add (as an adult learner) or share before we end this interview?

The last question provided participants an opportunity to share additional information produced from the reflective interview process. Participants were encouraged to share relevant additional information relating to their experience or

perceptions within the context of crisis that perhaps was not included in the previous questions.

The process of exiting the interview involved thanking the participants for their time and contributions. I also shared information about the next steps regarding the transcription process and member checks, as needed, to obtain clarification in intended meaning. During the final interactions, I encouraged the participants to share any additional reflections via email in writing or consider sharing artifacts connected to their adult learning experience. I also systematically inquired whether the participant would like a copy of the study.

In addition to the semi-structured interview data collection process, participants were also encouraged to submit any post-interview reflections in writing or copies of artifacts connecting to their shared experiences. I maintained a researcher's reflection journal and captured observations during interviews and memos to clarify participant perspective. My reflection journal supported the identification and processing of impactful context complexities and the impact of the shifting state guidance provided. The journaling process supported my objectivity throughout the research process and captured my thoughts to address my subjectivity and reflexivity given my shared experience with participants. For example, as the ODE continued to shift their guidance, my researcher's journal captured my feelings, thoughts, and perceptions of how this influenced participants and their experience. The information contained in the research journal also reflected the trauma of the context of crisis: "Although there is a high level of trauma being experienced by SLPs, I can see how their engagement and commitment to supporting their students and families has helped

them connect to a larger purpose and role.” The use of analytic memos also helped to connect and clarify the participant’s intended meaning during the transcription of the transcript data. Specifically, the implementation of analytic memos supported the processing of my thoughts, impression, and interpretation of the data during the analysis process.

Upon completing the online interview process, I completed observation notes and logged in to a password-protected Zoom account to ensure audio and video recordings were uploaded and processed. The Rev app was also checked to ensure back-up audio recordings were saved. Once the Zoom video recordings and transcripts were available, I downloaded the transcripts and video recordings to a password-protected Google drive account and folder dedicated to saving research data. The research data were backed up in a secure secondary location. The downloaded Zoom transcripts were transcribed verbatim, line by line, while watching the recording of each interview to increase my familiarity with the datum corpus. To ensure the accuracy of the verbatim transcription, a second review of the transcribed interviews was completed by listening to the saved recordings.

In order to ensure confidentiality, all participant data was assigned a participant number. Once the audio transcripts and video recordings were available in Zoom, I downloaded the transcripts for each participant, saved the documents in a password-protected location, and began the transcription process. I comprehensively reviewed and transcribed all participant transcripts by viewing the video recordings and ensuring the transcript’s accuracy, line by line. The individual participant datum

was formatted into short passages or sentences depending on the participant's level of response on a Word document.

Data Analysis

To analyze the interview data, I utilized Quirkos Cloud (www.quirkos.com) (Turner, 2014), a CAQDAS cloud-based software package designed to support the qualitative analysis of coded text data. Quirkos Cloud provided a visual and colorful way to interface with the data and engage in the coding process. All the participant interview transcripts were imported into a password-protected project folder created for the study. The analysis process using the Quirkos software provided an alternative way to manually coding with highlighters. During the data coding analysis process, I was able to highlight and drag key words, phrases, or passages and create bubbles (or “quirks”) to represent the codes, include descriptions, and identify relationships and categories. The interface with the data and program tools allowed me to focus on the transitional coding processes with the data.

The initial preliminary data analysis process focused on the demographic survey data received from SLPs ($n = 26$). The demographic data were analyzed via a descriptive frequency analysis to contribute information regarding the SLP program team ($N = 30$). Data obtained from the demographic survey contributed to the description of the broader program context. The demographic survey data were also utilized to identify prospective interview candidates via a purposive random sampling selection process.

The second phase of the data analysis process focused on my familiarization with the data via the transcription review and listening to the recorded interviews over two weeks. I revisited the transcript data sources to learn the content, identify and extract meaningful quotes, and document emergent codes, themes, and concepts (Saldana, 2009, 2016). During this time, I reviewed the data to clarify the intended meaning, participant perspective, and experiences shared to rule out misinterpretation (Creswell & Poth, 2018; Maxwell, 1996; Saldana, 2009).

In order to promote my reflection and reflexivity during the review of data, the implementation of analytic memos within a journaling system supported the interpretive process on the more profound and complex meaning of the text (Saldana, 2009). The memo-writing process documented how the process unfolded by reflecting the thinking and interpretive process of the researcher (Saldana, 2016).

The data were analyzed using Saldana's (2016) coding cycles. The data coding began as an inductive process based on the "symbolically assigned a word or short phrase to assign a summative, salient, essence-capturing, and evocative attribute to language-based data" (Saldana, 2016, p. 4). The transitional coding process supported the interpretive act of data analysis. I reviewed the transcript datum line by line to engage in an emergent inductive process to capture an initial data set.

The initial codes generated were inductively translated to capture the "interpreted" meaning of each transcript to support pattern detection, categorizations, assertion or proposition development, and theory building (Saldana, 2016). The transitional process of coding involved both decoding and encoding functions. During

decoding, I reflected on a passage of data to decipher its core meaning, whereas, in encoding, I determined the appropriate code and labeled it. For this study, the term “coding” is used as a reference to account for encoding and decoding. The coding process supported the cyclical act to make meaning of the data via a dynamic and malleable process that promoted insightful qualitative analytic discoveries (Saldana, 2016). This research study utilized two coding cycles to analyze and interpret the data.

Coding Cycles

The analysis and interpretation process utilized two cycles of coding. The foundational principle of the transitional coding process included both inductive and deductive coding methods to connect the data-based discoveries. Implementing coding flexibility before and during the data corpus' coding process supported my flexibility and discoveries. The analysis process integrated the transcript data, analytic memos, and a research journal to gain insight regarding the experiences shared by participants and their process with the phenomenon being studied (Saldana, 2016). The applied coding approach aligned with the methodological and conceptual framework of the study by the initial implementation of holistic coding in the preparatory phase of the data organization and analysis.

The first cycle of coding implemented a combination of basic coding methods to support an orientation to the data. Attribute coding provided a notation at the beginning of each data set to provide descriptive information regarding the setting, participant characteristics or demographics, and other pertinent variables. To obtain a preliminary sense of the data, I implemented a holistic coding approach by reviewing chunks of data to capture a sense of the overall content idea and broad topics before

engaging in a more detailed analysis. After the initial holistic review of the data, a descriptive coding process was utilized to provide a method to categorize data at a basic level to support an organizational grasp of the study. After that, I implemented descriptive coding to summarize emerging topics in passages with a word or short phrase. The descriptive coding process provided an organizational grasp of the data resulting in a categorized inventory of the data (Saldana, 2009). As I engaged in the transitional data review process with an inductive lens, the language found in the data record was utilized to identify InVivo codes to denote the identified categories' various dimensions. The InVivo coding process provided an opportunity to use words and phrases from the participant's language as codes as a method to attune to the participant's perspectives and actions (Saldana, 2016). As the coding process progressed, I engaged in the re-analysis of the data to condense the InVivo codes via focused coding. Furthermore, I also implemented a focused coding process to identify the emergence of prominent themes (Corbin & Strauss, 1990).

Upon completing the first cycle of coding, I transitioned to an analytical, focused coding process. The transition to the second cycle promotes the construction of categories from the classification of first cycle codes, draws preliminary models of the primary actions in the data, and reorganizes the data with the direction of the study (Creswell & Poth, 2018; Saldana, 2016). The second cycle of coding's primary purpose centered on engaging in successive levels of analysis to reanalyze the data coded in the first cycle to develop a sense of categorical, thematic, conceptual, and theoretical organization. (Creswell & Poth, 2018; Saldana, 2016). In the initial stages of the second cycle of coding, a focused coding method was implemented to identify

categories and emergent themes across participant data (Creswell & Poth, 2018; Saldana, 2009).

Focused coding supported identifying the most frequent or significant codes to identify the most salient categories in the data corpus. This process required me to decide which initial codes made the most logical sense (Saldana, 2016; Thornberg & Charmaz, 2014). The focused coding process supported identifying significant themes from the data and enabled the comparison of newly constructed codes by reorganizing and categorizing participants' data. This comparative and collective view of participant data contributed to the construction of emergent themes.

The construction of the emergent themes in the collective data set supported the exploration of recurrent (patterned) participant experience and its variant manifestations. The final step in the second cycle of coding captured the connection to deductively theming the data connected to the theoretical frameworks referenced in the study (Saldana, 2016). I incorporated theming of the data to “capture and unify the nature of the participants' experience into a meaningful whole” (DeSantis & Ugarriza, 2000, p 362). Within the context of this study, categories were labeled based on the inductive analysis of words, phrases, and sentences abstracted from the coded interview transcripts.

The theming process of the participants' data corpus ultimately constructed collective meaning and resulted in overarching themes. The weaving of overarching themes (Saldana, 2016) subsequently contributed to a deductive analysis and narrative development process within the phases of perspective transformation (Mezirow,

1991). The deductive coding process involved identifying how the inductively themed data were represented within the existing adult transformative learning theory and ANM framework. The phases of thematic analysis implemented leveraged the cycle one data familiarization and coding processes, resulting in emergent themes. I further expanded the theming process by triangulating information from analytic memos, notes reflecting my reflexivity, and reasoning (Creswell & Poth, 2018; Nowell et al., 2017; Saldana, 2016).

Once the two cycles of coding were completed, the coding analysis involved generating themes and contexts based on the theoretical constructs to further address the research question (Creswell & Poth, 2018; Saldana, 2009).

The theoretical interpretive process of the data incorporated Mezirow's (1991) TLT phases of transformative learning Mezirow's (1991) phases of transformation can take place in some variation within the following 10 phases:

“ 1. A disorienting dilemma; 2. self examination; 3. critical assessment of assumptions; 4. recognition of a connection between one's discontent and the process of transformation; 5. exploration of option for new roles, relationships, and actions; 6. planning course of action; 7. acquisition of knowledge and skills for implementing one's plan; 8. provisional trying of new roles; 9. building of competence and self confidence in new roles and relationships; 10. a reintegration into one's life on the basis of conditions dictated by one's new perspective.” (pp. 168-169)

Additionally, the multidisciplinary ANM was utilized to interpret the deductively themed data through prominent representative participant quotes by examining how language function supports the socio-cognitive and neurobiological processes of learning within a context of crisis. This ANM offers insight regarding the acquisition of meaning through the Neuro-semantic Language Learning Theory

(NsLLT) brain-based learning paradigm. The transdisciplinary review of literature supported an understanding regarding the socio-cognitive process of the construction of meaning through language functions, the social nature of learning, and the impact of stress on the brain and cognition.

Trustworthiness

According to Gay et al. (2009), to establish the qualitative research study's trustworthiness, I documented the credibility, transferability, dependability, and confirmability of the processes and findings. The data were triangulated using multiple sources of research, member checks, peer review of the research process, and documenting my position and bias supported the credibility of the study (Lincoln & Guba, 1986; Merriam, 1998). I implemented analytic memos, bracketing, a researcher's journal, and an organized, detailed data analysis process to support the qualitative study's interpretive validity (Gay et al., 2009). Bracketing was incorporated into the analysis of the data to capture researcher assumptions connected to the topic (Creswell & Poth, 2018). I engaged with reflexivity via bracketing during the data's transition coding process aimed to capture pre-understandings, preconceptions, and bias to address the author's subjectivity and theoretical orientation (Creswell & Poth, 2018). A research journal captured my reflections, ideas, challenges, and personal feelings during the research and data analysis process (Saldana, 2016). The interpretive approach also provided the reader with detailed information regarding the participants, context, and researcher's role to interconnect ideas and support the transition from general connections to a narrower connection of details (Creswell & Poth, 2018; Maxwell, 1996; Merriam, 1998).

Credibility

To increase trustworthiness, I promoted credibility by establishing a detailed description of the analysis and interpretive process of the data regarding the target research question (Creswell & Poth, 2018; Merriam, 2009). The semi-structured interview questions and protocol development involved a peer-reviewed process by doctoral cohort members, faculty, and a non-participating SLP outside of the regional SLP program before implementation (Lincoln & Guba, 1986). The interview transcripts were member checked to ensure the highest level of clarity and participant meaning and intent of the language utilized in responses (Creswell & Poth, 2018; S. Merriam, 1998; Stake, 1992). The triangulation of the research data along with the implemented research methodology that supported my reflexivity (demographic survey, interviews, researcher analytic notes, and researcher journal) promoted increased credibility (Lincoln & Guba, 1986). The outlined research design and processes demonstrated a solid, research-based foundation in qualitative research methodology (Creswell & Poth, 2018; Maxwell, 1996; Merriam, 1985; Saldana, 2013, 2016; Thornberg & Charmaz, 2014)

Transferability

Given the nature of the qualitative descriptive single case study research approach with six participants within a specific context, I provided a description of the findings and systematic research approach through detailed descriptions of the research design and processes (Slevin & Sines, 2000). Although this qualitative study implemented a cyclical and transitional coding data analysis approach, I comprehensively outlined the coding process and incorporated information from

bracketing, analytic memos, and research journal to increase my insight (Creswell & Poth, 2018; Merriam, 1998). The outlined interview protocol development and process were connected to the research questions and identified target data. Given the number of participants and the nature of examining the lived experiences and perceptions of participants within a specific context, the transferability of the finding of this study will be limited (Creswell & Poth, 2018).

Dependability

Adhering to the outlined research process and remaining consistent throughout the study with documentation, data collection records, transcription processes, and data coding and analysis ensured a high level of dependability (Creswell & Poth, 2018; Merriam, 1998). Any variables or pertinent unaccounted information identified through the data collection or analysis process were documented through bracketing, memos, and reflections captured in a research journal.

Confirmability

The implementation of analytic memos and the researcher's journal captured my reflections and reflexivity process during the coding process. The use of these reflection tools promoted an acknowledgment of bias and captured experiences associated with the challenges presented in a context of crisis (Merriam, 1998).

Role of the Researcher

In this study, my role was well defined to increase transparency with bias, values, theoretical orientation, and experiences. The disclosure of my academic and

professional background in speech-language pathology, educational leadership, and neuroeducation is as follows.

I self-identify as a purpose-driven servant leader who highly values the learning process and meeting the needs of program staff. My professional role is firmly rooted within the construct of a social justice lens that aims to contribute to the growth and engagement of stakeholders to address racial and educational equity issues throughout a region. I am cognizant of the potential biases created by my prior academic and professional experiences over a twenty-plus year period as a speech-language pathologist and neuroeducator; it is noteworthy to mention the potential influence of this experience in the interpretation and methodological approach of the study (Creswell & Poth, 2018; Merriam, 1998). On a personal level, I am a bicultural first-generation immigrant who highly values all learners' educational process and learning potential, particularly under-represented or under-served populations. My beliefs align strongly with a sense of service and the power of collaborative partnership efforts to meet the diverse learning needs of students and adult learners.

I have been working in an educational leadership position for over twelve years. This educational leadership position directly involves managing program activities, identifying initiatives, and supporting the professional learning process of staff in the regional SLP program. As a program leader, I infuse professional learning opportunities in all areas of instruction and intervention strategies connected to the field of school-based speech-language pathology. Over the past nine years, I have supported SLP staff professional learning opportunities with exposure to the function of language and the neurobiology of learning via the ANM (Arwood, 2011). Although

the SLP team has experienced expansion and staff transition over time, recruitment and staff retention are a strength for this program. A few SLP program staff have worked for the SLP program for two decades, and most staff have over three years of employment.

My immersion in research, continued learning in the field of neuroeducation, reflection on student outcome data, and support of implementing ANM concepts with implemented instructional approaches have contributed to the expansion and ongoing narrative within the SLP program staff. Given my leadership position in the program and role in supporting professional learning in language and learning, it is essential to note the shared values and understanding among SLP staff members regarding the role of language and communication.

As the program leader, I focus on creating a safe environment for adult learning and engagement by working closely with SLP staff to identify their learning needs and coordinate professional learning sessions with increased collaboration among SLP staff. It is important to note that I consistently promote a supportive adult learning environment and implemented an instructional coaching model to support the acquisition of new concepts to address the diverse learning needs of students. My professional relationship, including my perceived role as a supervisor and instructional leader, is noted in the limitations section of this study.

During the unforeseen COVID-19 pandemic, which prompted a shift to distance learning within a context of a crisis in the spring of the 2019-2020 school year, I was instrumental in engaging and supporting the SLP team with the co-

construction and development of a distance-learning service model framework and processes for the delivery of SLP services via telepractice. To support the staff transition to home-based work environments, I created a supportive and collaborative online meeting environment where SLP staff accessed professional learning in the area of telepractice, technology tools, resources, and processes. Online daily informative and check-in meetings provided social-emotional support, updates regarding guidance provided by the Oregon Department of Education (ODE), and professional learning and reflection opportunities during a time of crisis and uncertainty. During these daily meetings, the program staff contributed to the development and implementation of a student and family-centered telepractice and distance learning model to support students' educational and social-emotional needs during a context of crisis.

Human Participant: Ethics Precautions

Before conducting the study, documentation was submitted to the University Institutional Review Board (IRB) to approve and consider ethical standards. The recruitment process of participants included a review of participant rights and an initial consent form outlining information about the study, the data collection process, and the implementation of confidentiality procedures (Creswell & Poth, 2018).

Upon receiving university IRB approval to proceed with the research study, I emailed the SLP program staff a brief description of the study with an embedded Qualtrics link. The survey request email confirmed their voluntary participation and reiterated information regarding the general purpose of the study, assurances of their voluntary rights (Appendix A). In order to confirm the participants' voluntary participation and reiterate information regarding the study, the demographic survey

included an embedded survey consent form before proceeding to the demographic survey (Appendix B). Upon receiving the demographic survey data responses, I reviewed the demographic data and created a list of participants who indicated a willingness to participate in an interview. Interview participants were randomly and purposively selected as potential interview candidates. I emailed the identified participants to schedule their interviews and reiterate their voluntary participation. In order to minimize the impact to participants and delineate a separation from the work setting, I provided options for an interview during convenient days and times outside of work hours. Participants responded with their preferred day and times via email, and the interviews were scheduled accordingly. I also designed an interview consent form (Appendix C) in Qualtrics and emailed the link for each participant to review before the scheduled day and time. The participants were emailed the interview consent form Qualtrics link one week to preview the interview consent form and were encouraged to email any questions or concerns.

Interviews took place in an online environment via Zoom, given the COVID-19 physical distancing guidelines. Before beginning the interview process, I checked in with participants regarding the signed consent form, confidentiality, and voluntary participation and inquired whether participants had any questions. Participants were provided with information regarding security and confidentiality measures detailed in the study (Creswell & Poth, 2018). Once participants signed the interview consent form in Qualtrics, I proceeded with the pre-interview process. The initial interview check-in process incorporated information regarding the interview process and the tools used to collect the data. Before turning on any recording device, participants

were provided with an explanation of the data collection methods, member check process, and the voluntary nature of their participation. I confirmed the participant's willingness to participate in the study before turning on the recording settings in Zoom and the Rev transcription iPhone app. I also verbally asked the participants if they had any questions regarding any of the interview process information presented.

To ensure the privacy of participants and anonymity, respondent numbers were assigned during the data analysis and reporting process. The data analysis process ensured the representation of multiple perspectives as well as unexpected or contrary findings. My implemented reflexivity was incorporated to ensure transparency in the triangulation and interpretation of data. Once the dissertation defense process was approved, participants were provided with a copy of the dissertation upon request (Creswell & Poth, 2018).

Conclusion

The information covered in this chapter shared the rationale for the study's chosen methodology and research design. This study aimed to understand how school-based SLPs in a region supported their transformative learning process and made sense of their world while navigating a context of crisis and uncertainty. Specifically, how SLPs' specialized knowledge in language supported self-reflection and transformation during a disorienting dilemma. In the interpretive qualitative case study design, I constructively examined the role of language function in the transformative learning process of SLPs in the Pacific Northwest region during the COVID-19 pandemic. The target data obtained via reflective semi-structured interviews aimed to access data regarding the role of language in framing experiences in a context of crisis.

Chapter 4: Results

The purpose of this qualitative interpretive single case study explored whether or not six speech-language pathologists (SLPs) working within a regional SLP Program used their language as part of a self-reflective transformative process to navigate the unforeseen demands during the shift to a distance learning educational model due to the COVID-19 pandemic, and, if they used language strategies to help them transform their learning during a disorienting dilemma, how they used their language. Therefore, this qualitative single case study's central research question was the following: *How do SLPs, who have specialized knowledge in the area of language, use their own language in self-reflection to support their transformative process during a disorienting dilemma?*

This chapter presents the results of the study. The context implications and the role of the researcher included in the following sections describe demographic data of the SLP Program staff relevant to the study. The data analysis is then discussed, followed by evidence of trustworthiness and the implementation of credibility strategies.

Setting

The single case study was bound by the collective experience of SLPs within a regional K-12 SLP Program in the Pacific Northwest during the unforeseen shift to distance learning as resulting from the COVID-19 pandemic. Six SLPs were identified via pre-established criteria: a minimum of three years of professional experience and employment with the SLP program and district size. Given the nature of the

collaborative SLP Program structure, demographic survey data of SLPs ($n = 26$) from the regional SLP Program team ($N = 30$) is shared to reflect relevant SLP community context information.

SLP Program Demographics

The demographic data as shown below provides an overview of the number of years of professional experience (Table 1), years of employment (Table 2), size of school district (Table 3), and level of prior telepractice knowledge (Table 4) of the regional SLP Program staff.

Table 1

SLP Program Staff: Years of Professional Experience ($n = 26$)

Years	SLP Staff
0 - 2	1
3-10	7
11 - 20	13
More than 20	5

The SLP Program staff is predominantly highly experienced (96%) with many years of service within school-based environments, special education guidelines, and processes. As noted in Table 2, the SLP Program has a high (86%) number of staff that the program has employed for over three years.

Table 2*SLP Program Staff: Number of Years Employed (n =26)*

Years	SLP Staff
0 - 2 years	4
3 - 5 years	9
6 -10 years	7
>10 years	6

Recruitment and retention of highly experienced staff is a strength for this SLP Program. Most SLP staff hired into school district positions have remained in their designated school district assignments for the duration of their employment to support program development and collaborative professional relationships. Table 3 provides information regarding school district size for SLPs (n =26).

Table 3*SLP Program Staff: School District Size (n =26)*

# of Students in District	SLP Staff
<1,000	9
1,001 to 2,000	8
2,001 to 5,000	3
5,001 to 10,000	1
> 10,000	5

Given the diverse regional service area of the regional SLP Program, there are a variety of school district sizes and community cultures. The SLP program staff currently provides speech-language pathology services to 16 out of 20 school districts in the region, plus additional support to five specialized programs (Deaf and Hard of

Hearing classroom and four alternative school programs) within the regional education district.

As a result of the shift to distance learning during the COVID-19 pandemic, the level of prior telepractice knowledge to support students in online environments were highly relevant to their transformation process. Table 4 shares information regarding the SLPs' prior level of knowledge with telepractice.

Table 4

SLP Program Staff: Level of Prior Telepractice Knowledge (n = 26)

Level	SLP Staff
None	11
Limited	10
Basic	4
Proficient	1

Although telepractice has been a service method in the various community contexts, Table 4 reflects the lack or limited level of prior telepractice knowledge of the SLP Program staff (81%). Consequently, a shift to distance learning during the COVID-19 pandemic presented the SLP staff with an opportunity to engage in learning to transform their service delivery model. It is essential to note my role and positionality as the educational leader guiding and collaborating with the SLP Program staff to support the transition to a distance-learning, telepractice service delivery model.

Role of the Researcher

As a result of my leadership affiliation with the SLP program, I maintained a journal to acknowledge bias and preconceptions during this research process. My notes and reflections focused on processing the unfolding events, noting the SLPs' emotional response and process, and identifying context variables that influenced the participants' experiences. I implemented a research journal and memos to support my objectivity and to identify my bias.

As the educational leader, I supported the SLP Program activities by creating a supportive community of practice for staff to connect on a social-emotional level, access current guidance, contributing to developing a telepractice service model, and engage in ongoing learning and critical reflection. Therefore, I wanted to know how the role of language function supported the critical reflection and transformative learning process of SLPs serving school districts from remote work locations in a distance-learning model within a context of crisis.

I approached this process by developing a reflective semi-structured interview protocol. I collected data via the completion of semi-structured interviews. All participant online interviews ($N = 6$) were scheduled within one week after completing the SLP Program demographic survey. The following section will address individual participant information and relevant data.

Participant Background Information

As noted in Chapter 3, interview participants were selected via a random purposive selection process. Six SLPs participated in reflective semi-structured

interviews. Interview participants were assigned a number (P1, P2, P3, P4, P5, P6) to maintain confidentiality. Table 5 highlights the demographic information of interviewed participants. Although the selected participants had a high level of experience with in-person instruction, their knowledge of technology and online instructional approaches via telepractice was significantly limited or non-existent.

Table 5

Demographics of the participants (N = 6)

Participant #	Years of Experience	# of Years Employed	# Students in SD	Prior Telepractice Knowledge
1	20+	3 to 5	10,000+	None
2	20+	10+	10,000+	Limited
3	11 to 20	3 to 5	< 1000	Basic
4	11 to 20	6 to 10	1,001 – 2,000	None
5	11 to 20	6 to 10	1,001 – 2,000	Limited
6	11 to 20	10+	2,001 – 5,000	None

Data Analysis

The transcribed interview data set was analyzed for each individual and then compiled using Saldana's (2016) first and second cycles of coding strategies that involved numerous transitional reviews of the data. During the first cycle of coding, the datum corpus were analyzed via an inductive process. The first step in the process captured the broad and main ideas shared in the interview via a holistic approach. I then identified significant words, phrases, and statements expressed by participants to identify codes during several transitional descriptive coding cycles. The codes were then organized into categories based on key ideas related to the context or

characteristics of each category. As the coding of the significant words, phrases, and statements progressed, I identified a relationship between categories leading to further theming of the data into inductive themes. Once the inductive themes were identified during focused coding, the data were further themed through Mezirow's (1991) phases of perspective transformation that address the cultural and sociolinguist processes of adult transformative learning. Furthermore, to address the research gap, the multidisciplinary ANM was utilized to offer a perspective on language function and the neurobiological processes of learning in a context of crisis. The data analysis plan encompassed a review of responses from participants for each interview question aligned with obtaining information regarding the SLPs' lived experience and how they used language to support their engagement, learning, and transformative process to address the research question.

During the first cycle of coding, I identified words, phrases, and statements relating to the impact of stress, relationships, a reflection of the role of language, and learning process. Table 6 shows the number of code words identified, samples of the code words, and their corresponding category.

Table 6*Frequently used code words found in data*

Categories	#	Words
Relationships	328	support; role; students; parent/families; team/colleagues; community; social; interact; meetings; sharing; relational; connection; collaborate; expectations; together; social-emotional
Stress Related	301	time; stress; challenge; emotional; trauma; crisis; pandemic; political climate; struggling; exhausting; shut-down; survive; memory; confusion; loss; isolated; worry; feeling; vulnerable; fear; anxiety; impact; intimidated
Learning Process Reflection	250	learning; technology; resources; self; strategies; mindset; brain; expectations of self; routine/schedule; pacing; being a learner; adjusting; transition-learning process; thinking; evolving; grow; perspective shift
Role of Language Reflection	205	language; reflection; navigate; language level; knowing; communicate; constructive; problem-solve

As noted in Table 6, the two most prominent categories related to stress and relationships, followed by reflection of the learning process and role of language.

The descriptive coding process identified the keywords and phrases that characterized the passages. Table 7 displays the emerging themes and the corresponding descriptive codes.

Table 7*Emergent Themes and Corresponding Prominent Inductive Codes*

Themes	Codes that led to themes
Educational Community	SLP Program support; supporting student learning; family connection; school district support; community impact
Relationships in a Context of Crisis	Student communication; parent communication; colleague communication; family/friend communication
Stressors	Feeling / emotion; dealing with unknown; remote work setting; coping mechanism; impact of stress on learning; isolation; wellness strategy; political climate; trauma related to pandemic; memory issues; family concerns
Adult Learning Reflection: Implementing Language	Reflection of self as a learner; perceived role; learning new technology; learner organization; reflection of other adults as learners; identifying learning strategies; language - instructional practice; language - SLP process; language - supporting other adults

As the transitional coding process progressed, prominent InVivo quotes with verbatim participant language were identified and related to the identified categories (Corbin & Strauss, 1990). Lastly, I further examined the identified categories and InVivo prominent quotes to further analyze through a focused coding process. The categories were constructed emergently to form the reorganization and categorization of participant data (Saldana, 2016). The focused coding process

contributed to identifying how the data related to the deductive themes related to Mezirow's (1991) phases of perspective transformation.

Participant Data

The individual data provide an overview of the inductive category analysis results for each participant that contributed to the emergence of deductive themes in this study.

Participant 1 (P1). P1 is a highly experienced clinician who serves secondary-level students in a larger school district across four schools and programs. This participant has a history of working closely with educational staff across educational settings to meet the unique needs of students.

As noted in Table 8, the role of relationships, the conception of self as a learner, the intentional implementation of language strategies, and being part of a learning community were prominent areas identified by Participant 1. This participant contributed 67 codes to the data set.

Table 8*Inductive Categories and Prominent Quotes for Participant 1*

Category	Prominent Quotes
Critical reflection of feelings, assumptions, stressors	"...it's [challenges presented by distance learning] still is a very significant challenge that I work on every day.;" "I would have moments where I was stopped in my tracks..."
Educational community: roles, relationships, communication	"I felt significantly supported by the team I'm on...the guidance there, the support, the grace.;" "There's a lot of kids that need a different way of learning...;" "This is what we do [referring to creating accessible learning for students]."
Relationships: student, family, colleague communication	"It certainly changed the dynamics of how I function and interact with kids with teams with staff...;" "I leaned into the relationships I already had established with my families..."
Adult learning reflection	"I am a person with a growth mindset.;" "...we can do hard things.;" "...strategies [empowering social language] I was using for myself.;" "I basically put into action, what I'm teaching and expecting my students to do. It really made me shift my lens in that way with my co-workers, my teammates."

Participant 2 (P2). P2 is also a highly experienced SLP who has been serving the same district for over ten years. This SLP serves elementary-level students at two school sites while also providing student services in the neighborhood private school to students with identified communication needs.

Table 9*Inductive Categories and Prominent Quotes for Participant 2*

Category	Prominent Quotes
Critical Reflection of feelings, assumptions, stressors	"...it's really frustrating at times when families don't engage."; " I'm emotionally putting myself out there more."; "Because this was totally different, I mean seriously, it was so exhausting."; "I reduce my level of engagement [with new information shared]... so that I can survive."
Educational community: roles, relationships, communication	"...you're basically relying on a wider scope of individuals to make it all come together."; "...I get most of my most useful resources from my colleagues sharing ideas."
Relationships: student, family, colleague communication	"...there's a little bit more relational, relationship building that goes on with students."; "I think it was important to remain really positive ... thinking constructive."; "Making sure that my language wasn't causing them [colleagues and families] more stress...being very careful about how I said things and being very clear of what I said."
Adult learning reflection	"I have to be a not just a sponge, but more of a sifter..."; "For my own learning engagement ... all goes back to pacing."; "there were times when I tried to source information and there's other times when things just didn't matter..."

As noted in Table 9, the role of reflection on managing stressors and feelings, the power of language during interactions with others, and increased self-awareness of one's learning and processing were key ideas depicted. This participant contributed 95 codes to the data set.

Participant 3 (P3). P3 has over eleven years of experience and has been employed by the SLP Program for over three years. This SLP serves the needs of students in K-12 in a rural school district with less than 1,000 students. Given the size

of the community and its remote location, school district services are central to students and families within this community. As noted in Table 10, P3's responses resonated with the demands created by the political climate, the value of established relationships of trust, the demand created by online technology, and a collaborative approach to learning as an adult. This participant contributed 79 codes to the data set.

Table 10

Inductive Categories and Prominent Quotes for Participant 3

Category	Prominent Quotes
Critical Reflection of feelings, assumptions, stressors	"...it [distance learning context] also gave us an opportunity to collaborate more than we usually did in the past..."; "Being on video all day, that is harsh."; "How did it become a political pandemic? That, I think, is probably one of the hardest things that I've had to approach."
Educational community: roles, relationships, communication	"...we [SLP Team / colleagues] problem solve together many things that had to do with technology and distance learning..."; "...the partnership with parents has become stronger..."
Relationships: student, family, colleague communication	"...it was critical that we [student/SLP] had that social-emotional connection."; "I use my language to try to draw the kids out and see how they were feeling."; " I feel more like a counselor than I do an SLP because my kids [students], they want to get on [telepractice session] and talk to me and tell me about what they're struggling with..."
Adult learning reflection	"...[learning new technology] has been time-consuming and just the learning curve is steep."; "...as an adult learner, I had to almost go back to being a child again and reaching out and trying to understand concepts in areas I had never dreamed of."; "... my internal body message is to be positive"

Participant 4 (P4). P4 is a highly experienced clinician with over eleven years of experience and has been employed by the SLP Program for close to ten years. P4 has served K-12 students in a rural school district community with less than 2,000 students for close to ten years. As noted in Table 11, the data reflect the impact of stressors on information processing, the role of community, and the process of acquiring the language to expand learning and engagement opportunities. This participant contributed 102 codes to the data set.

Table 11

Inductive Categories and Prominent Quotes for Participant 4

Category	Prominent Quotes
Critical Reflection of feelings, assumptions, stressors	"...when the panic was there, I didn't have my language... it went away."; "I didn't expect to be shut down..."; "...not knowing when we would be able to come back. I think that was the biggest impact."
Educational community: roles, relationships, communication	"...one of the things that ended up being good is that we [SLP Team] did have a lot of meetings..."; "I've enjoyed watching my students learn [via telepractice]..."
Relationships: student, family, colleague communication	"I'm tickled with the new generation that has helped me learn and has had patience with me."; "...we meet almost on a daily basis... and we share everything..."
Adult learning reflection	"... it's [learning new technology and challenging age related assumptions] empowered me to want to learn more."; "If the pandemic had not happened, I would have never learned the technology that I know now, and the benefit of it."; "I'm still a learner and there's a lot for me to learn."; "I had to write stuff down so that I could think about it later."; "...if you don't learn the language, there's no way that you can be a part of it [learning technology / new information]."

Participant 5 (P5). This Participant has over 11 years of experience and has been employed by the SLP Program for close to ten years. P5 has supported students in K-12 in the same rural school district with less than 2,000 students since joining the team. Given the number of years in the district, P5 has developed strong working relationships with educational colleagues. As noted in Table 12, P5 relates to reflecting on the impact of stress with the process of emotion, professional role expansion, and the role of social-emotional language with families and colleagues during the context of crisis. This participant contributed 113 codes to the data set.

Table 12

Inductive Categories and Prominent Quotes for Participant 5

Category	Prominent Quotes
Critical Reflection of feelings, assumptions, stressors	"...so it's understanding the stress and you're in the middle of that same stress..."; "we don't know what we're doing"; "...there was a lot of stress and there was a lot of concern."; "evaluating what it is my job is when I'm connecting with them [students/families] when it's like that concern of, their surviving."; "...we're definitely a moving target in our settings, so it is a constant evolution of what we're trying to adjust."
Educational community: roles, relationships, communication	"...using social language in connecting with others...one way that I used my language skills during this time."; "we're [SLP team] feeling vulnerable and allowing that... having that space to acknowledge that [feelings within the reality of the context]... it wasn't all just tunnel vision of work [completion of tasks] and having that opportunity to share..."; "I have had greater clarity [this fall] with what I need and what my students or families need and how to verbalize that..."

Category	Prominent Quotes
Relationships: student, family, colleague communication	"...that connection really has to come, not just with the students, but with the family in order to access that education."; "...I really tried to be respectful and mindful as the weeks went by and people [families] were getting exhausted."; "one of the strongest things that have come out from all of this is how much I have connected with families..."
Adult learning reflection	"...that social-emotional connection was primary compared to the rest of the job."; "I had to carry over what I felt worked in the spring into the fall..."; "...finding those adjustments and being open to those adjustments...really important for me because it's just everything's constantly evolving."

Participant 6 (P6). This participant has over eleven years' experience as an SLP and has been employed by the SLP Program for over ten years. P6 has worked in many school-based settings, in varying size districts, and has worked on a specialized team supporting educational teams. P6's current work setting of over four years is a smaller district with slightly over 2,000 students. This SLP has in-depth knowledge of language, learning, and the brain that translates to instructional supports for students and helps define the SLP role and perspective. As noted in Table 13, P6 reflected on the impact of stress, isolation, and the role of language and community in supporting a level of function and engagement. This participant contributed 88 codes to the data set.

Table 13*Inductive Categories and Prominent Quotes for Participant 6*

Category	Prominent Quotes
Critical Reflection of feelings, assumptions, stressors	"...I stay connected because I do my job, but you're also just so isolated."; "it's kind of been an exhausting time..."; "...there's just a lot of a mental and emotional demands."; "I've had to think a lot about my own learning and my own framework for approaching a time of crisis on multiple levels."; "...my identity as an experienced practitioner is being challenged"
Educational community: roles, relationships, communication	"I think a community aspect [SLP Team connecting] of it is still important, even though we're all really isolated."; "I understanding the process of learning has allowed me to be able to function as well as understand why sometimes what I'm presenting over screen isn't going to work for some kids."
Relationships: student, family, colleague communication	"Accessing the community has been huge... I couldn't have learned anything without them...truly that kind of grounding in... an overlap really from other people."; "...I'd have conversations [with colleagues], but then I'd have to like get that written follow-up down to help with my memory."
Adult learning reflection	"...it's [telepractice - technology tools] pushing the boundaries of what I know and it's making me apply what I know to the new format in a new situation."; "...my language allowed me to problem solve and plan in a new format...all these things I knew already and then I had to try to figure out how to apply them and make connections to the new situation we were in."

Evidence of Trustworthiness

I maintained detailed records of the data collection procedures, adhered to the developed semi-structured interview protocol, and implemented an accurate coding and analysis tracking system to ensure the dependability of the research process

(Creswell & Poth, 2018; Saldana, 2016). These implemented research processes supported the construct validity and quality of the study. The triangulation of data using multiple sources of data, member checks, implementation of an outlined research process, and my documentation supported the credibility of the study (Lincoln & Guba, 1986; Merriam, 1998). I reviewed the data following an outlined coding process consistently to confirm the data's saturation to identify relevant emerging patterns and themes as suggested by Saldana (2016). My engagement in critical reflection throughout the study helped to promote ongoing alignment with the stated purpose, research question, and proposed theoretical frameworks to support the validity of the study. Given the nature and scale of this qualitative study grounded in the limited experiences of SLPs working in a specific program, the transferability of the findings of this study is limited (Creswell & Poth, 2018).

Results

The following sections provide the collective findings per interview questions as noted in each interview question through identified deductive themes using Mezirow's (1991) phases of perspective transformation. Furthermore, the deductive data are also associated with the role of language function within a neuroeducation lens using the ANM (Arwood, 2011; Robb, 2016).

Deductive Themes: Mezirow's Phases of Perspective Transformation

The data contained in this section reflect the focused coding in the second cycle. I reviewed Mezirow's (1991) phases of perspective transformation and related the inductively derived categories and themed data to deductive themes from each

participant's data for each interview question. This process allowed me to frame the transitional inductive analysis via the interview questions I reviewed the codes from each participant and identified the most prominent coded categories. As noted in Table 14, the inductive data aligned to four specific phases of Mezirow's (1991) perspective transformation phases that contribute to transformational learning. The coded data reflect the process of transforming meaning schemes via the self-reflection process of assumptions, feelings, and stressors; the exploration of options, relationships, and roles; the reflection of the role of relationships. The data also provide insight into how participants navigated and constructed new meaning using their language to reflect on the transition process and their actions to support a shift to distance learning within their learning communities in a context of crisis. I selected the most representative InVivo codes for each inductive category per interview question.

The data in Table 14 suggest that adult learners need to critically reflect on the impact of stress, the emotional processes, and use coping mechanisms that present a demand on the role of language to support the function of individuals within a community during a traumatic disorienting dilemma.

Table 14

Deductive Themes and Inductively Identified Categories from Interview Question

Question #1: As we begin, please share how the pandemic has impacted you and your educational community.

Theme	Category	Exemplar Quotes
Reflection of assumptions, feelings, stressors	Feelings Trauma Coping Impact of Stress	(P6) "I don't want to get sick so, every action I take in my life is a very thought about very deeply..."; (P5) "...you're just kind of in this constant state of stress ..."; (P4) "I was very

Question #1: As we begin, please share how the pandemic has impacted you and your educational community.

Theme	Category	Exemplar Quotes
		worried and concerned about my family ..."; (P5) "... not knowing what was going to happen ...puts you in sort of a very high heightened state..."
Exploration of new role and actions	Student Learning Family Connection Community Impact	(P2) "...there's more [family] communication going on a regular basis..."; (P3) "the impact to my community has been devastating ...the kids are worried where their next meal is coming from"; (P1) "...I'm highly aware of my students and what I'm teaching them..."
New role and relationships	Communication: Student / Parent Colleague	(P3) "Parents are so overwhelmed...They'll apologize about not making a session and I'm like, hey, it's okay..."; (P1) " It certainly changed the dynamics of how I function and interact with kids [students] ..."; (P1) "I basically put into action [strategies] what I am teaching and expecting my students to do...."; (P3) "...it [distance learning] has made that collaboration process that we have much stronger and much more effective."
Reintegration into new role and perspective	Role Technology	(P3) "...I can teach my kids how to think, that's going to be my primary job"; (P3) "...we problem solve together many things that had to do with technology and distance learning and how are you doing this..."; (P5) "... trying to connect with that educational community in a capacity of what my role is as an educator"; (P3) " ...I am now a counselor and their anxiety their self-regulation to me right now is the most important thing."

Note. P1 = Participant 1, P2 = Participant 2, P3 = Participant 3, P4 = Participant 4, P5 = Participant 5, P6 = Participant 6.

The data in Table 15 connect to the participants' reflection of what activities or resources they found most helpful to support their role. The participants' responses aligned with identifying coping mechanisms to adjust to working in isolation, the role

of relationships, and membership of a professional learning community (SLP Program). Participants also reflected on the importance of embedding social-emotional communication strategies and acknowledging their role and own level of learning needs.

Table 15

Deductive Themes and Inductively Identified Categories from Interview Question

Question # 2: What activities or resources have you found most helpful in supporting your role?		
Theme	Category	Exemplar Quotes
Reflection of assumptions, feelings, stressors	Feelings Remote setting Coping	(P5) "...we're feeling vulnerable... having that space to acknowledge that"; (P3) "Being on video all day, that is harsh. I don't think people know or realize how harsh that is"; (P2) "...there's just so much [information] out there and to the point where sometimes I just kind of not shut off..."
Exploration of new role and actions	Program support Family connections	(P1) "I felt significantly supported by the team [SLP program]... Support, guidance, structure, and focus... "; (P5) "... social emotional support [SLP Program / colleagues] we're all feeling very human...having that space to acknowledge that it wasn't all just tunnel vision work..."; (P4) "...I felt like I had to be strong for them (family members)..."
New role and relationships	Communication: Parents and colleagues	(P5) "...that social emotional connection primary compared to the, the rest of the job ... as we continued connecting with families that was priority..."; (P6) "...a community [learning] aspect of it is still important, even though we're all really isolated"; (P2) "... I get most of my most useful resources from my colleagues sharing ideas"

Question # 2: What activities or resources have you found most helpful in supporting your role?		
Theme	Category	Exemplar Quotes
Reintegration into new role and perspective	Role Technology	(P5) "...really evaluating what it is my job is when I'm connecting with them you know when it's like that concern of, their surviving" "...I need to attend to my job, like how to do my job in a different way"; (P4) "...has been time consuming... the learning curve is steep" (P2) "...I've been able to participate in a few webinars..." (P2) "I find it better not to get too divergent"

Note. P1 = Participant 1, P2 = Participant 2, P3 = Participant 3, P4 = Participant 4, P5 = Participant 5, P6 = Participant 6.

Interview question three inquired whether the participant's conscious actions and thinking supported their ongoing learning and engagement while working in isolation during the quarantine. The data noted in Table 16 suggest that the role of relationships with others while using their language to engage in self-reflection as a learner within the scope of the newly defined role provided significant support during this context of crisis.

Table 16

Deductive Themes and Inductively Identified Categories from Interview Question

Question #3: What helped you stay connected to your work while working remotely? How was this helpful to you learning process as an adult learner?		
Theme	Category	Exemplar Quotes
Reflection of assumptions, feelings, stressors	Feelings Dealing with unknown Coping	(P4) "...I was in complete panic...because when we left...I didn't have anything..."; (P4) "...one day I couldn't log into my computer. I was so stressed out..."; (P1) "... in order to cope or function, I had to kind of do it that way [compartmentalize]"; (P5) "...from an emotional point of view that [SLP team meetings] helped..."; (P6) "my own self talk in my own language is allowing me to stay connected to my

Question #3: What helped you stay connected to your work while working remotely? How was this helpful to you learning process as an adult learner?		
Theme	Category	Exemplar Quotes
		work..."; (P5) "...we don't know what we're doing... we're all just doing the best"
Exploration of new role and actions	Student Learning Program support	(P3) "...it was critical that we had that social emotional connection"; (P4) "...helping the kids with all this knowledge that we're gaining through technology..."; (P4) "...I've enjoyed watching my students learn"; (P2) "I think it was the collegial support from the other SLPs, we connected with each other a few times a week..."; (P5) "... video conferencing and seeing my coworkers [consistency]..."
New role and relationships	Communication: Student and colleagues	(P2) "...there's a little bit more relational, relationship building that goes on with students"; (P1) "I felt more connected because online or distance learning...much more intentional planning and meeting..."; (P4) "...we'll help you [colleague SLPs extending support]... knowing that grounded me...I can be calm and I can get through this."
Reintegration into new role and perspective	Self-reflection Role Organization Technology	(P2) "I have to be not just a sponge, but more of a sifter [process of identifying relevant resources]"; (P1) "... I am organized..."; (P4) "it's empowering to know that I can learn and grow in a field that I felt I was at the top of... There's always something to learn."; (P6) "... kind of having to let go of expectations on myself... to allow me to do my job ... letting go of having to have all the answers all the time"; (P4) "...I had to reinvent a new routine [schedule]"; (P6) "...it's [telepractice] pushing the boundaries of what I know and it's making me apply what I know to the new format in a new situation."

Note. P1 = Participant 1, P2 = Participant 2, P3 = Participant 3, P4 = Participant 4, P5 = Participant 5, P6 = Participant 6.

The first two parts of question four targeted a deeper learner reflection into what strategies or resources helped the learner navigate the challenges and stressors

within their own learning and school district learning communities. The follow-up question specifically asked whether participants used their own language to support their transition to a distance-learning context. The prominent codes and data in Table 17 suggest that once participants were able to use their language to manage the stress, impact of trauma, and their emotions, they were able to engage in more profound levels of reflection of themselves as learners to identify learning strategies and increase their confidence with their new role and own learning continuum.

Table 17

Deductive Themes and Inductively Identified Categories from Interview Question

Question # 4: (a) What strategies or resources did you use as an adult learner to help you navigate professional challenges and stressors? (b) Based on your experience and perception, what role did your language play in supporting your transition to a distance-learning context?		
Theme	Category	Exemplar Quotes
Reflection of assumptions, feelings, stressors	Feelings Dealing with unknown Impact of stress	(P2) "I found myself a bit frustrated ...'Okay, we've talked about this [referring to distance learning processes]. Now let's give us some time to go do this stuff"; (P5) "...there's a lot of information that's coming at you and it's frightening...it elicits these emotions of stress, and fear, and anxiety"; (P4) "...initially when the panic was there... I didn't have my language. It [language] went away... I was in survival mode."; (P2) "... it was so exhausting."; (P4) "...I just knew that everything was going to change and I didn't know what to expect."

Question # 4: (a) What strategies or resources did you use as an adult learner to help you navigate professional challenges and stressors? (b) Based on your experience and perception, what role did your language play in supporting your transition to a distance-learning context?

Theme	Category	Exemplar Quotes
Exploration of new role and actions	Student Learning Program support	(P3) " I had to navigate the stressors that kids were under again staying very positive and trying to find out what their needs were..."; (P3) "...they [students] were socially impacted and I had to encourage them to reach out socially..."; (P1) "the guidance and support that SLP team [program] provided...we were navigating together... just felt very inclusive and supportive."; (P2) "we [SLP Team] were just way ahead of what they [districts] were doing..."
New role and relationships	Communication: Student and colleagues	(P3) "I felt like I had to use much of the language a social worker would use."; (P1) "...I already had established relationships with the students and families ..."; (P5) "...there were times with coworkers... I would call...and I was arghhh [expressing frustration]"; (P6) "...I relied on a little community of people like my friends and my colleagues..."
Reintegration into new role and perspective	Self-reflection Role Organization Technology	(P4) "...once I passed that panic mode, I realized that I'm a quick learner and... you know, 'come on let's do this!' [self-talk]."; (P2) " ... what I had to do as a as an adult learner was block out time for myself to process and reflect on what was going on and what I needed to do; (P4) "... technology, it's a language on its own...so if you don't learn the language, there's no way that you can be a part of it."; (P5) "... separate from the language of anxiety and stress and even trying to be a little more mindful of how I was presenting myself..."; (P3) "I had to self talk. I had to use a lot of language to talk to myself..."

Note. P1 = Participant 1, P2 = Participant 2, P3 = Participant 3, P4 = Participant 4, P5 = Participant 5, P6 = Participant 6.

The second part of question four specifically targeted prior understanding of the function of language and how participants implemented language strategies to manage stressors and interactions with others. As noted in Table 18, the most prominent categories centered on reflection of self as a learner and their SLP process along with the implementation of a language lens to evaluate instructional practice and how to best support other adults within their learning communities.

Table 18

Deductive Themes and Inductively Identified Categories from Interview Question

Question # 4: (c) Do you believe that a prior understanding of the function of language helped guide your perspective? If so, in what way? (d) How did you implement language strategies to manage the stress during this time and your interactions with others?		
Theme	Category	Exemplar Quotes
Exploration of new role and actions	Student Learning Program support	(P6) "...my understanding of language and learning... helps me with my students..."; (P1) "I'm always talking to my students about it [growth mindset]"; (P4) "Well, one of the things that ended up being good is that we did have a lot of meetings..."; (P4) "...because we weren't able to connect in person, but being able to have the meetings and communicate with colleagues was very helpful for me..."

Question # 4: (c) Do you believe that a prior understanding of the function of language helped guide your perspective? If so, in what way? (d) How did you implement language strategies to manage the stress during this time and your interactions with others?

Theme	Category	Exemplar Quotes
New role and relationships	Communication: Parent and colleagues	(P3) "I had to figure that out [language level] for the parents... there is this feeling that all parents know all... parents are just as confused as the rest of us and I had to really watch what language [level of language] I used with the parents."; (P3) "...visuals are very important [for sharing information]... I learned most of my parents don't take directions by written directions they take directions by video."; (P5) "...can't just be about my picture [agenda]... there has to be some reciprocity."; (P2) "it's really important to let people know that we're there for each other."; (P4) "we were constantly communicating with peers that we wouldn't necessarily see or communicate on a weekly basis at all."
Reintegration into new role and perspective	Self-reflection Learning strategies Language reflection Technology	(P4) "...once I passed that panic mode, I realized that I'm a quick learner and... you know, 'come on let's do this!' [self-talk]."; (P2) "... what I had to do as a as an adult learner was block out time for myself to process and reflect on what was going on and what I needed to do; (P4) "technology, it's a language on its own...so if you don't learn the language, there's no way that you can be a part of it."; (P5) "... separate from the language of anxiety and stress and even trying to be a little more mindful of how I was presenting myself..."; (P3) "I had to self talk. I had to use a lot of language to talk to myself..."

Note. P1 = Participant 1, P2 = Participant 2, P3 = Participant 3, P4 = Participant 4, P5 = Participant 5, P6 = Participant 6.

The focus of interview question five supported the participants' reflection of their return-to-work process under the guidance of the Comprehensive Distance Learning guidelines provided by the Oregon Department of Education in the fall of 2020. This question targeted the participants' implementation of newly acquired professional knowledge and their perception of their continued learning process. The data in Table 19 emphasize colleague communication and relationships that support student learning and the focus on SLPs expanding their concepts in the area of learning new technology to continue to grow. The use of language to reflect on their individual learning process is noted.

Table 19

Deductive Themes and Inductively Identified Categories from Interview Question

Question # 5: (a) As we have transitioned back into a new school year with a focus on comprehensive distance learning, will you use your professional knowledge about language strategies to support your continued learning and engagement? If so, how will you support your continued learning and growth?		
Theme	Category	Exemplar Quotes
Reflection of assumptions, feelings, stressors	Feelings Trauma	(P3) "We have a lot of loss [of life and opportunities] here..."; (P2) "Trying not to get my hopes up [realization process] that we're going back into the school setting."; (P5) "...people [colleagues and families] were still coming into this situation exhausted... it was a traumatic spring.";
Exploration of new role and actions	Student Learning	(P6) "I use a lot of drawing and writing [instructional strategy]."; (P1) "... using other modalities for students [instructional strategies] ... I'm allowing them to problem solve in whatever way is best for their learning."

Question # 5: (a) As we have transitioned back into a new school year with a focus on comprehensive distance learning, will you use your professional knowledge about language strategies to support your continued learning and engagement? If so, how will you support your continued learning and growth?

Theme	Category	Exemplar Quotes
New role and relationships	Communication: Parent and colleagues	(P5) "I had to carry over what I felt worked in the spring into the fall... making those connections with families right away... experiencing that kind of positive relationship..."; (P4) "...communicating [with colleagues] through a lot of meetings with a lot of people, we're still having those meetings and talking about what we need..."; (P6) "I always really rely on colleagues."
Reintegration into new role and perspective	Self-reflection Learning strategies Language reflection Technology	(P4) ..."being on the same level of the knowledge [technology] of the concepts that we've now learned and continue to learn every day....bringing them [concepts] together so that we can work as a team to support the students, and each other..."; (P3) "I think there's multiple levels of ways that I'll continue to grow. I mean, you could almost do a visual map of it."; (P2) "For my own learning engagement... that all goes back to pacing."; (P3) "I am learning more and speaking the language of loss."; (P1) "I've really gained an incredible understanding of how hard it is for adults to change the way they're doing things..."; (P3) "...we all now need trauma care and this is the language. I should be speaking with the kids and the parents."

Note. P1 = Participant 1, P2 = Participant 2, P3 = Participant 3, P4 = Participant 4, P5 = Participant 5, P6 = Participant 6.

The follow-up question for question five prompted participants to reflect on new learning based on their experience. Participants provided a reflection regarding their new learning function as a school-based SLP. The data captured in Table 20 reflect the participants' focus on supporting ongoing student learning, collaborating

with parents, identifying learning strategies, and an openness to learning new technology tools.

Table 20

Deductive Themes and Inductively Identified Categories from Interview Question

Question # 5 (c): Moving forward, what will you do differently or the same?		
Theme	Category	Exemplar Quotes
Reflection of assumptions, feelings, stressors	Feelings	(P5) "...everything's constantly evolving [stressor]."
Exploration of new role and actions	Student Learning	(P1) "..implement additional ways [multiple ways for students to demonstrate knowledge] when I'm when I'm presenting you know an activity"; (P3) "...much more focus on social, emotional [language/trauma informed care] and making sure that child or that parents ...figure out level of language..."
New role and relationships	Communication: Parent	(P2) "...will probably be an increase [communication/partnership] on the family side going forward."; (P5) "...continuing with the social language...having connection with families is really important...one of the strongest things that have come out from all of this is how much I have connected with families."
Reintegration into new role and perspective	Learning strategies Technology	(P4) "I won't be as intimidated by technology or taking an online class... or doing research online and doing more investigating."; (P5) "...keeping things in perspective is important...trying to find those opportunities to step back and find that quiet space...think about things, process information and ... develop strategize for myself "

Note. P1 = Participant 1, P2 = Participant 2, P3 = Participant 3, P4 = Participant 4, P5 = Participant 5, P6 = Participant 6.

The last interview question allowed participants to share any additional meaningful, relevant information regarding their experience as an adult learner that the interview questions did not cover. As noted in Table 21, participant reflections centered on the impact of the political climate, the importance of connecting with others to create a sense of community, and reflecting on the learning process related to the concept of self and other adults as learners.

Table 21

Deductive Themes and Inductively Identified Categories from Interview Question

Question # 6: Is there anything you would like to add or share as an adult learner before we end this interview?		
Theme	Category	Exemplar Quotes
Reflection of assumptions, feelings, stressors	Political Climate	(P3) "...just one traumatic event after another. [includes trauma induced by political climate]"; (P6) "...our socio political climate is huge...we're in the wake of a lot of... unpleasantness and racism and disturbing things happening or coming to light for some of us...things aren't okay out there."
New role and relationships	Communication: Parent and colleague	(P2) "...I think that's really, really key is to let people [parents] know that there are people out there [educational community] that care and we're not out."; (P2) "...even though we're separated by location, that relationship aspect of it is so, so [important]... to grow and to make it through this... people are made for community...were are not made to be isolated in even if you're an introvert, you still need some community."

Question # 6: Is there anything you would like to add or share as an adult learner before we end this interview?

Theme	Category	Exemplar Quotes
Reintegration into new role and perspective	Self reflection Adult learning Learning strategies	(P6) "I've had to think a lot about my own learning and my own framework for approaching a time of crisis on multiple levels."; (P5) "...it was interesting to see ... how different people learn in different ways..."; (P4) "... realizing, 'You're always going to be a learner and you're always going to have opportunities to learn and grow and just educate yourself and be a better person'."

Note. P1 = Participant 1, P2 = Participant 2, P3 = Participant 3, P4 = Participant 4, P5 = Participant 5, P6 = Participant 6.

The initial review of the inductively coded data resulted in identifying categories that emerged as theoretical constructs supported by the data through the focused coding process. Thereafter, the emergent themes were deductively interpreted using deductive based on the central elements associated with Mezirow's (1991) phases of perspective transformation. The following section represents the inductive data categories and exemplar participant quotes with neuroeducation principles centered on language and the neurobiological brain-based processes in a context of crisis.

The Role of Language Function Within a Neuroeducation Lens

The data contained in this section expand the data analysis to consider a neuroeducation perspective centered on the role and function of the socio-cognitive processes of language and the brain in connection to the neurobiological transformative adult learning process. I reviewed the existing coded data to identify prominent inductive categories related to the process of perspective transformation,

the role of language function in supporting increased agency and relationships, and brain-based neurobiological processes of learning in the context of crisis. As noted in Table 22, the role of language functions and communication action noted in the categorized data reflect the socio-cognitive and neurobiological processes involved with the construction of meaning and transformative learning. The inductive categories also resonate with the brain research of the neurobiology of stress represented via the role of language in reframing and depicting experiences (Esch & Stefano, 2010).

Table 22

Prominent Inductive Category Codes: A Language and Neuroscience Lens to Perspective Transformation in a Context of Crisis

Perspective Transformation	Language Function: Agency and Relationships	Neurobiological Impact: Brain and Stress
Learning process	Connection with team and colleagues	Impact of stress
Growth		Challenge
Being a Learner	Communication with students and families	Feeling – emotional
Accessing Resources	Role connection	Time constraints
Growth mindset	Language levels	Loss
Concept of self	Constructive language	Reflecting on brain
	Community	Stress response

I also reviewed prominent participant quotes within the phases of perspective transformation (Mezirow, 1991) to identify the role and function of language in

constructing new meaning schemes. As noted in Table 23, I identified how the construction of new meaning perspectives shaping the participants' habit of mind was mediated by how the SLPs' language reflected their learning process and developing meaning schemes. The prominent quotes exemplify how language shaped the SLPs' process of problem-solving, interactions with others, and shifts in roles.

Table 23

Applying a Language Lens to the Reconstruction of Meaning Leading to Perspective Transformation

Prominent Exemplar Quotes
(P6) "...my language allowed me to problem solve and plan in a new format...all these things I knew already and then I had to try to figure out how to apply them and make connections to the new situation we were in."
(P1) " It certainly changed the dynamics of how I function and interact with kids [students] ..."
(P5) "...I need to attend to my job, like how to do my job in a different way"
(P1) "I basically put into action [strategies] what I am teaching and expecting my students to do...."

Note. P1 = Participant 1, P5 = Participant 5, P6 = Participant 6.

The socio-cognitive role of language function within the context of the crisis was also examined. The data in Table 24 reflect how participants' utilized language to reflect on their individual process and learning experience within a collective and collaborative community. The data revealed how the socio-cognitive process mediated

by language function supported thinking, relationships, and a sense of community during a context of crisis.

Table 24

Applying a Socio-Cognitive Language Lens in a Context of Crisis: Language Function, Agency, and Relationships

Prominent Exemplar Quotes
(P5) "...everybody is enduring the stress..."; "...that social emotional connection [was] primary compared to the, the rest of the job ..."; "...from an emotional point of view that [SLP team meetings] helped..."
(P3) "...I can teach my kids how to think, that's my primary job."; (P3) "...it [distance learning] has made that collaboration process that we have much stronger and much more effective."; (P3) "...we problem solve together many things that had to do with technology and distance learning and how are you doing this..."
(P5) "...I need to attend to my job, like how to do my job in a different way."
(P2) "...I think I get most of my most useful resources from my colleagues sharing ideas."
(P6) "...my own self talk in my own language is allowing me to stay connected to my work..."

Note. P2 = Participant 2, P3 = Participant 3, P5 = Participant 5, P6 = Participant 6.

Within the scope of a language-centered neuroeducation brain-based perspective, the data analyzed in Table 25 represent the impact of stress on the cognitive functions of the brain. The data provide examples of how the neurobiological impact of stress on the brain affected the participants' experience while navigating a context of crisis. The prominent quotes denote the neurobiological response to stress noted by emotional responses and the realization of being in a

survival situation. These data demonstrate the impact of stress on cognition related to memory loss, emotional processing, and cognitive demand.

Table 25

A neurobiological perspective, the brain, and stress

Prominent Exemplar Quotes

(P4) "... I didn't expect to be shut down... I didn't know what to expect. I didn't know."; "...one day I couldn't log into my computer. I was so stressed out..."

(P2) "I reduced my level of engagement [with new information shared]... so that I can survive."; "...there's just so much [information] out there and to the point where sometimes I just kind of not shut off..."

(P5) "...you're just kind of in this constant state of stress ..."; "...we're all feeling very human...and we're feeling vulnerable"; "...we survived maybe the worst and we made it through"

(P6) "I write people more often than I maybe would before [to track communication and support memory]."; "...there's just a lot of a mental and emotional demands."; "...my own self talk in my own language is allowing me to stay connected to my work..."

Note. P1 = Participant 1, P2 = Participant 2, P3 = Participant 3, P4 = Participant 4, P5 = Participant 5, P6 = Participant 6.

The data analysis and results noted in the prominent inductive categories and deductive themes overlap with the existing research relating to the impact of stress on the brain and cognitive processes (Esch & Stefano, 2010; Heuser & Lammers, 2003).

Summary of Findings

I reported the findings and results of this study to address the focal research question. The analyzed inductive data were then associated with deductive themes

relating to the TLT (Mezirow, 1991) phases of perspective transformation theoretical process in adult transformative learning. I applied coding and analysis processes to analyze the data within multiple perspectives and dimensions within the focal research question and theoretical frameworks of transformative learning (Mezirow, 1991).

The data analysis process revealed prominent themes with individual participants and across all six participants. The commonly identified inductive categories identified various factors central to the critical reflection and transformation process of participants. During the critical reflection process, the data suggest participants used their language to understand the new social realities, newly established work related expectations, and process their own feelings and assumptions. Prominent participant data suggest SLPs used their language function to support their thinking and socio-cognitive processes to navigate the complexities in a context of crisis that the shift to distance learning created. The participants' use of language supported the socio-cognitive processes with managing stressors and navigating feelings, emotions, and assumptions associated with the pandemic's disorienting dilemma. The data also revealed a strong association between the role of relationships and language function in the reconstruction of identified roles within a learning community. The role of language function was also noted in the learning process reflection of participants, indicating increased levels of learner awareness relating to the acquisition and implementation process.

The data obtained and analyzed in this study to answer the focal research question suggest that SLPs utilized language function to engage in socio-cognitive and neurobiological processes of learning within a context of crisis.

Chapter 5: Discussion

The purpose of this study was to examine the role of language function in the transformative learning process of adult learners navigating a context of crisis during the COVID-19 pandemic. The demands to abruptly re-imagine a distance-learning educational approach while navigating a climate of crisis due to a pandemic presented a unique opportunity to study the transformative learning process of adult learners (Middleton, 2020).

As an educational leader, when the COVID-19 pandemic began, I focused on supporting adult learning and equitable access to services via a regional SLP Program as education systems abruptly transitioned to a distance-learning model. Thus, it was essential for me to understand how SLPs used their professional knowledge of language to navigate this transition and transformation. Therefore, this qualitative study examined how the role of language function within self-reflection supported the transformative learning process of six school-based SLPs transitioning to distance learning in K-12 settings in the Pacific Northwest.

The single case study design captured the lived experiences, perspectives, and learning process of school-based SLPs ($N = 6$), with limited to no distance learning experience, via reflective semi-structured interviews. The data obtained reflected how participants used their language function to navigate their professional role, process the situation, and engage in learning through socio-cognitive and neurobiological processes of learning, (Arwood, 2011; Robb, 2016). The coded and themed data revealed four prominent themes related to Mezirow's (1991) phases of perspective

transformation within TLT. The ANM provided the lens to examine how the role of language function supported the construction of new meaning and the neurobiological impact of stress on the brain. The following four themes were identified in the data analysis:

Theme: The role of language

Theme: The role of relationships

Theme: Critical reflection of stressors

Theme: Learning process reflection

This chapter provides an interpretation of the study's significant findings. Each theme includes prominent participant reflections and a connection to literature related to the use of language during adult transformative learning (Mezirow, 1987,1991) via a multidisciplinary neuroeducation lens (Arwood, 2011; Robb, 2016). The ANM offered a transdisciplinary approach to integrating literature from cognitive psychology, neuroscience, and language to address the gap in the literature centered on understanding the role of language function in the socio-cognitive and neurobiological phenomenon of transformation.

By examining the use of language function during a stressful period of crisis, the findings of this study provided a pathway to conceptualize the adult transformative learning process within a multidisciplinary lens that considers the synergistic socio-cultural, socio-cognitive, and neurobiological complexities of learning.

Furthermore, within this chapter, I discuss the limitations of the study, implications for practice, and recommendations for future research to address the need

for interdisciplinary research. The concluding remarks attempt to capture the critical need to expand understanding of how language can support transformative learning and promote inclusive learning spaces that pro-socially and constructively engage adult learners in examining their culturally transmitted perspectives and ideology influencing learning spaces and communities.

Interpretation of Findings

The following focal research question guided the interpretation of findings: How do SLPs, who have specialized professional knowledge in the area of language, use their own language in self-reflection to support their transformative process during a disorienting dilemma?

The data analyzed for this study consisted of coded interview transcripts from reflective semi-structured interviews targeting participant reflections, perceptions, and experiences during the transition to distance learning. The three-cycle coding analysis process (Saldana, 2016) revealed the emergence and saturation of keywords, phrases, and ideas that emerged into categories and themes by using Mezirow's (1991) phases of perspective transformation to address the adult and the multidisciplinary ANM framework to address the research gap.

The interpretation of findings were translated using the triangulation of cognitive psychology, cognitive neuroscience, and language research framework to examine how participants used their language functions during a period of crisis to support their transformation. I found that participants used concepts within their language function to support their thinking and role.

Arwood's Language Functions

The role of language and linguistic functions within the context of this study are central to the interpretation process of the data. The use of language as a tool to support the self-reflective process of transformation of participants provided insight regarding how complex ideas and meaning were acquired and shared through the use of advanced language functions (Arwood, 2011). Within the ANM, language function represents the underlying, culturally influenced, conceptual representation of an individual's neuro-semantically acquired knowledge (Arwood, 2011; Halliday, 2007; Vygotsky, 1962; Wells, 2007); therefore, prominent representative participant quotes were utilized within each theme.

Referencing the role of linguistic functions to reflect how participants used language to support their transformative process in a context of crisis, as noted in each theme, demonstrates how expanded language function supported the acquisition of meaning. Participants were observed to use linguistic functions of displacement, semanticity, flexibility, and productivity to engage in online learning, navigate high demands, and expand their roles in a context of crisis.

The linguistic function of displacement was noted across all participants as they engaged in acquiring knowledge to support the construction of online learning environments for students from remote work locations. As participants advanced their semantic knowledge by overlapping their existing knowledge of intervention with newly acquired concepts during collaborative professional learning opportunities, increased semanticity was shared over time. The increased semanticity was evident in the participant quotes referencing their implementation of new knowledge in the

online environment. The participants' level of flexibility was prominent in the data, reflecting the important role of relationships and learning within a community of practice. The linguistic function of productivity was evident in the participants' adaptation and implementation of their language to connect with families and colleagues impacted by the context of crisis.

Language and the Neurobiological Process of Learning

Per Arwood (2011), language represents a person's thinking and social-cognitive development. Within the Arwood Neuroeducation Model (ANM), language function represents both the social and cognitive processes of learning through an individual's neurosemantic language learning system. The development of semantic relationships function to connect a learner to their world and assists the learner's social and cognitive development (Arwood, 2011).

In our social world, language mediates adult learning by constructing meaningful schemes of connected socio-cognitive concepts through neural mechanisms. The brain is shaped by interactions between environment, culture, the brain, and genes (Arwood, 2011; Chiao, 2018; Han et al., 2013). From a socio-cognitive and neurobiological perspective, language is the tool for individuals to make meaning from their engagement within social contexts and experiences (Arwood, 2011).

The socio-cognitive processes associated with learning utilize language as the tool for individuals to make meaning from their engagement within social contexts. Neurobiologically, the NsLLT (Arwood, 2011) considers how language represents the mind, mirrors the function of the brain, and uses language as an internal and external

tool to facilitate higher-order thinking and language function. Within the NsLLT, the function of language shapes, assigns meaning, and can distort our beliefs as we construct meaning within socio-cultural experiences (Arwood, 2011; Pulvermüller et al., 2014). The social interactions within contexts promote functions of the brain that give rise to the mind. Each experience has contextual and background meaning that influences the way learners assign meaning to their experiences. Therefore, adult learning is transformative through socio-cognitive as well as neurobiological processes as demonstrated in the identified themes.

Theme: Reflection on the Role of Language

The role of language within the context of this study was central to the mediating cognitive and neurobiological processes of learning (Arwood, 2011; Kiefer & Pulvermüller, 2012; Mezirow, 2003). The coded data also revealed 205 codes representing the SLPs' reflection of the role of language in the participants' learning process. As participants reflected on how they used their language to learn, grow and reintegrate into new roles, keywords such as *reflection, navigate, language level, knowing, communicate, constructive, and problem solve* were shared in the context of the responses.

Since conceptual learning is both a social and cognitive process, and language functions as a tool to assign and construct meaning to lived experiences, the role of language reflected in beliefs, values, and socio-cognitive processes were examined (Arwood, 2011; Christie et al., 2015b; Glenberg & Gallese, 2011; Mezirow, 1987; Robb, 2016; Thul, 2019). The role and implementation of language to construct meaning and support ongoing engagement was evident across the participants'

reflections. During the initial transition phase to distance learning, participants used their language to support their emotional state (Havas & Matheson, 2013). As participants navigated their initial critical reflections, the use of language was implemented as a self-supportive mechanism and tool to cope with stressors and support others: (P5) "...I was like, okay, I need to quiet voices... to separate myself from all that...I mean as weird as it sounds like from the language of anxiety and stress and even trying to be a little more mindful of how I was presenting myself...". Neurobiologically, the increased awareness and understanding of the role of language and that appraisal of stress can influence emotional states encoded by the amygdala (Havas & Matheson, 2013). Therefore being cognizant of the impact of language that directly activates neural response to stressors supported the participants' level of function and their impact in work contexts.

Other participants identified how to use language within their new roles in providing social-emotional support to students and families: (P3) "I felt like I had to use much of the language a social worker would use" and (P6) "...my understanding of language and learning... helps me with my students..." All participants reflected on their increased awareness regarding the critical role of language in their work with others: (P4) "understanding that what we say and how we present information could impact someone's perception of us and what we're doing..." and (P6) "my understanding of language and learning... helps me with my students..."

The SLP Program constructed a learning space and climate centered on the implementation of language to empower participants and support critical reflection and discourse, as noted by (P5) "...there was a lot of stress and there was a lot of

concern being able to say, 'Okay, you know, let's think about it this way'...and so I think definitely the language had an impact..."

The participants' expression and emotional connection within their learning experience provided a self-reflective opportunity to increase awareness and participant consciousness (Dirkx, 2006). The process of critical self-reflection offered participants an opportunity to re-organize their existing knowledge and perspective to incorporate new insights with an opportunity to process their emotional responses (Dirkx, 2006; Mezirow, 2003). The process of learning the language of new technology prompted participants to recognize the role of language in mediating the expansion of concepts and growth: (P4) "...technology, it's a language on its own...so if you don't learn the language, there's no way that you can be a part of it". Participants also utilized their professional knowledge of language and learning to critically reflect on the effects of the learning challenge: (P6) "Because I understand the process of learning I can understand why sometimes it doesn't feel so good...has allowed me to be able to be able to function..."

As participants engaged in their continuum of learning, shared internal dialogue reflections connected to how the role of language supported their thinking processes. The learner's experience within social contexts consequently supports the cognitive processes that influence the ways of perceiving, organizing, and learning (Cozolino & Sprokay, 2006).

In some instances, participants were also navigating in community contexts with political tensions and used their language to support a higher level of thinking during telepractice sessions: (P3) "I had to self-talk. I had to use a lot of language to

talk to myself and say, 'No, no, don't take sides on that. Nope, that is a trap. Don't do that, you have to, you have to be positive and you can't take any sides and if a kid is using inflammatory language...' " The internal dialog and language function of participants enabled them to navigate complex interactions within virtual school district environments and during interactions with students and families.

As participants re-negotiated their new roles in distance learning, they also reconciled feelings and assumptions: (P6) "I also am kind of having to let go of expectations on myself... to allow me to do my job is also the letting go of having to have all the answers all the time." As a learner, being able to utilize language to develop a comfort for "not knowing" works to calm the reactive sensory response created by the stressors related to uncertainty (Peters et al., 2017). The role of language was also noted to contribute to supporting engagement as well as reframing: (P6) "it [language] guides my perspective...it helps me navigate challenging situations" and (P2) "I think it was important to remain really positive ... thinking constructive." Participants also used their language to identify how to engage with newly introduced information in a manner that worked with their learning process: (P5) "...knowing when I needed to be a part of that [learning activity]...or then phasing out, to where it was like... 'okay, now it's time for me to process, my own thoughts so that I'm not going down that dark hole' " and (P6) "... I have done a lot of thinking about my own thinking and learning process..."

The role of language in the participants' self-reflective dialogue, as noted by the participants, revealed a metacognitive capacity to process information as well as the internal processes and strategies one uses in acquiring knowledge (Takaya, 2008).

The theme centered on the role of language emerged from data codes and categories comprised of participant reflections focusing on the implementation of language functions and strategies. As noted by the representative quotes, participants reflected on their learning and perspective transformation connected to their new roles through the function of language.

Theme: The Role of Relationships and Community

The prominent theme of relationships and community was strongly noted in the participants' interview responses and coded data. The prevalence of 328 relationship-related codes revealed the essential role of relationships and community within a context of crisis. The most prominent codes — *social, relational, support, community, connection, collaborate, together, social-emotional* — reflected the role of the socio-cultural process and the importance of being part of a community. The relationship-related codes suggest participants used relationships to help them navigate increased demands, uncertainty, and new learning.

Language and the socio-cognitive processes of meaning construction. In order for SLPs to engage with their constituents with whom they are used to working face to face, the SLPs reflected on how they used their language to create support for collegiality, professional identity, deeper relationships, and a meaningful shared vision with purpose (Ma & MacMillan, 1999; Patton & Parker, 2017). As participants transitioned to remote work locations, they navigated the effects of social isolation. Participants reported seeking out interaction and support from key people and groups in their lives. Accessing colleague interactions and virtual learning spaces provided participants with valuable social supports while navigating a context of crisis from

remote work locations (Hansman, 2001; Taylor et al., 2010). The impact of isolation and the vital role of a community of practice was clearly stated by (P6), "...so having that outside support so that I can do my job and show up and learn this like brand new framework without feeling totally like alone in the world." The role of relationships was explicitly noted by a quote that captured a shared sense of connection between participants and the power of relationships: (P2) "...even though we're separated by location, that relationship aspect of it is so, so [important]...to grow and to make it through this...people are made for community...were are not made to be isolated in even if you're an introvert, you still need some community."

Given learning is an inherently social process that promotes interactions during complex real-world contexts (Hansman, 2001), prominent participant quotes denoted the value of the role of the professional learning community: (P6) "I always really rely on colleagues" and (P1) "the guidance and support that SLP team [program] provided...we were navigating together... just felt very inclusive and supportive." The importance of engaging in dialog and reflecting with others (Arwood, 2011; Habermas, 1984; Mezirow, 2003) to identify dilemmas, problem-solve, and examine existing assumptions supported the reconstruction of meaning for SLPs.

The role of language in reflection. Participants actively engaged in critical reflection and discourse with colleagues in online meeting spaces to acquire new concepts through their language function. The role of relationships and community provided increased engagement opportunities for participants to create shared meaning of new demands, reconcile expectations in distance learning, and identify areas of learning need. The participants' reflections indicated the essential role of

communication and connection with colleagues through their community of practice (Wenger, 1998). Participants accessed professional socio-cultural contexts online (Bandura, 2001) to navigate change and process the disorienting dilemma via reflective discourse (Mezirow, 2003). Daily and weekly online SLP team meetings supported critical reflection discourse opportunities and a dedicated space to reflect on the effects and processes associated with the transition to distance learning, remote working conditions, and access to timely guidance. Participants consistently indicated the value and benefit of a shared learning space to support their learning within the context of crisis: (P2) "I think it was the collegial support from the other SLPs, we connected with each other a few times a week..." The consistency and availability of online SLP Program team meeting opportunities provided participants an option to engage in the process of critical self-reflection and discourse. Through social interactions, SLPs were empowered to critically reflect on their individual learning to identify what they needed to engage in their learning process. This socio-cognitive process mediated by the participants' linguistic functions connected them to their new context and their new roles within distance learning (Arwood, 2011). Participants were provided opportunities to learn together and share beliefs and affective experiences in a prosocial learning environment (Salanova et al., 2011).

Consequently, the participants' level of interpersonal relationships with colleagues in their learning community increased given their newly defined roles in distance learning and remote work locations (Levinson, 1986; Tynjälä, 2008). Participants shared what helped them navigate the context of crisis: (P2) "I think it was the collegial support from the other SLPs, we connected with each other a few

times a week..." All participants consistently referenced the critical role of relationships with colleagues in the SLP Program, educational colleagues in school districts, families, and students as captured by this quote: (P2) "it's really important to let people know that we're there for each other." A strong social connection with colleagues and their learning community supported the SLPs' coping mechanism during this disorienting time (Taylor et al., 2010).

Within the community of practice, the function of language in the leadership discourse also was noted to facilitate the learners' interpretation and construction of meaning to adapt to their new role (Sisman, 2016). It was critical to promote an environment that fostered trust and respect among team members to support levels of collegiality, professional identity, deeper relationships, and a meaningful shared vision with purpose during this context of crisis (Ma & MacMillan, 1999; Patton & Parker, 2017).

Educational community. SLP participants identified the impact of stress on families and adapted their level of communication or language function to increase accessibility and engagement (Sandi & Haller, 2015). Participants' level of empathy was noted to be a mechanism of altruistic behavior as they navigated their stressors (Chiao & Bebko, 2011). Participants utilized language as a social tool to support cognitive function and prosocial environments with community members in crisis. The reflective responses of participants consistently mentioned their central role in building nurturing relationships with students and families during this challenging time. The shared perspective of participants reflected their use of language functions to assign meaning and support engagement with students and families in a distance

learning environment. Given the participants' specialized knowledge of language, they identified how to best support the engagement of students and families by implementing accessible communication strategies that nurtured the needs of students.

Participants shared an acknowledgment and sensitivity regarding the accessibility of language they used with students and families. Given the shift to distance learning, participants used their language function to promote relationships with parents so that students received online SLP services. Participants leaned into their increased understanding about the role of language and the need to support communities with a high level of sensitivity, as noted by P5: "...continuing with the social language...having a connection with families is really important...one of the strongest things that have come out from all of this is how much I have connected with families." Participants realized the impact of stressors on parents and the issues surrounding the accessibility of information.

As students' level of stress manifested in behavior and restricted social interaction in online environments, participants implemented social-emotional language to promote student connection and engagement. Consequently, participants implemented their knowledge of language functions to support students and acknowledged their own learning needs in the area of trauma-informed care: (P3) "...they [students] were socially impacted, and I had to encourage them to reach out socially..."

The practical application of their existing knowledge of how to implement their professional knowledge of language functions in a fragile context with families was also evident across all participants (Arwood, 2011; Mezirow, 1991). The

following quotation exemplified how the SLPs' knowledge of language was an important consideration in working with families: (P3) "I had to figure that out [language level] for the parents... there is this feeling that all parents know all... parents are just as confused as the rest of us, and I had to really watch what language [level of language] I used with the parents."

The role of language function and the social process of learning. The social grounding of the brain also connects to how the organized construction of meaning in cultural contexts supports the engagement and participation of learners (Kitayama & Park, 2010a). Participants valued the opportunities to share and learn from one another: (P2) "...I think I get most of my most useful resources from my colleagues sharing ideas." Participant responses consistently mentioned the importance and central role of communication with colleagues to support their processing of the disorienting dilemma presented by the pandemic as well as accessing information and new learning.

These socio-cultural experiences created additional input that contributed to the neurobiological acquisition of concepts to navigate complex situations (Arwood, 2011; Christie et al., 2015a). For example, (P6) "...I think, a community aspect of it is still important, even though we're all really isolated", "I learn how to use different things from other people" and (P2) "...I think I get most of my most useful resources from my colleagues sharing ideas". The construal of knowledge is acquired neurobiologically through the construction of meaning (Arwood, 2011; Pulvermüller, 2013c). Therefore, as participants interacted with colleagues within in the community of practice and engaged in acquiring and integrating new knowledge, their language

function facilitated their neurosemantic language learning system to support the expansion of concepts resulting in learning (Arwood, 2011). Given that learning is a socio-cognitive process, the interactive learning environment supported the use of language function of SLPs during the development of the distance learning service model.

Theme: Critical Reflection of Stressors

Given the exposure to a context of crisis throughout the learning communities in the region, the data revealed 301 codes within the category of critical reflection of stressors. Codes such as *challenge, emotional, trauma, crisis, struggling, exhausting, survive, loss, vulnerable, fear, anxiety, intimidated, memory, and confusion* were prominent in the data. These prominent codes demonstrate the impact of stress on the participants' learning system. The emotionally based code words highlighted the impact of stress on the cognitive processes, as noted by the literature (Lindquist et al., 2012; Liu et al., 2021). Through the use of language functions in the critical self-reflection process, participants were observed to construct meaning to develop the necessary concepts to support the subjective reconstruction of assumptions (Arwood, 2011; Kincaid, 2010; Kitchenham, 2008; Mezirow, 2003).

Stress and the brain. Participants' initial response to the climate of crisis elicited an emotional reaction (Kim & Niederdeppe, 2013; Peters et al., 2017). Data and codes relating to feelings, dealing with the unknown, isolation, coping mechanisms, the impact of stress on learning, trauma related to the pandemic, and memory issues provided insight regarding the impact of perceived stressors on the lived experiences and SLPs' process of transformation. Some participants were noted

to develop mechanisms by using their language function to support their engagement and response to work demands. Participant responses reflected increased agency with collecting information and assessing the information for relevancy during times of high demand.

As we consider the impact of chronic stress on the human learning system, it is essential to consider the brain's response and adaptation process that results in observable social, behavioral responses. As encountered during a pandemic, the perception and response to extreme situations elicit the most significant psychological response and adaptation to support an individual's survival and well-being (Lupien, 2007). The participants' subjective state of sensing and perceiving adverse changes in the environment promoted momentary behavioral responses connected to survival (Joëls & Baram, 2009). For example, one participant shared how the high level of stress affected their level of function: (P4) "...initially when the panic was there... I did not have my language. It [language] went away... I was in survival mode." As noted by Joëls & Baram (2009), when our psychological stress mediating brain regions and systems are activated, it impacts our emotions (amygdala and prefrontal cortex), learning and memory (hippocampus), and decision-making process (prefrontal cortex). The behavioral and psychological response associated with fear resonated in the reflection of participants: (P4) "...I just knew that everything was going to change and I didn't know what to expect." The stressors induced by the fast shift to distance learning paired with the level of crisis induced by the pandemic triggered a heightened participant awareness and response to the context: (P5) "...there's a lot of information that's coming at you and it's frightening...it elicits these emotions of stress, and fear,

and anxiety." During the initial stages of transition to remote work locations and given the narrative surrounding the risk factors associated with COVID-19, participants consistently shared the experience of an emotional response associated with stressors.

Although the SLP Program provided timely updates and guidance, the shifting guidance and demands within the educational contexts during the change to distance learning affected the participants' adaptive stress response within the broader context of uncertainty. According to Peters et al. (2017), the appraisal of stress influences how the brain prioritizes its adaptive response. This appraisal process directly ties to the role of language function. participants used their language functions as a tool to translate the demands within a context of crisis.

Language and stress. The role and function of language to mitigate the perception and appraisal of stressors was also evident as participants reflected on the use of language to support their well-being and function: (P6) "I've had to think a lot about my own learning and my own framework for approaching a time of crisis on multiple levels." The brain's connection to thinking (mind) and connection to socio-cultural modulates the neural mechanisms to support individual adaptation to change and pressures (Han et al., 2013). As noted by Bruner (1991), "The use of the mind is guided by the use of enabling language" (p. 15). The use of language to mitigate perceived demands and stressors supported their subjective reframing. Participants resolved their currently held assumptions about their roles and unrealistic expectations: (P6) "I also am kind of having to let go of expectations on myself...to allow me to do my job is also the letting go of having to have all the answers all the time."

Within the context of this study, understanding the neurobiological response to stress provided an opportunity to understand the cognitive and psychological homeostatic impact on processing (Esch & Stefano, 2010; Hagger et al., 2020; Heuser & Lammers, 2003). As noted by Heuser and Lammers (2003), “The brain is the master controller of the interpretation of what is stressful and of the behavioral and physiological responses that are produced” (p. 569). Furthermore, how an individual assigns meaning to a stressful lived experience through their neurosemantic language learning system influences how the brain engages in the thinking process (Arwood, 2011; McEwen, 2005). The role of language in assigning meaning was particularly evident through participant responses that situated the learner within the complexities of the situation. Participants resolved their currently held assumptions about their roles and unrealistic expectations through their thinking processes mediated by language: (P6) "I also am kind of having to let go of expectations on myself...to allow me to do my job is also the letting go of having to have all the answers all the time."

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this participant's socio-cognitive language function reflects higher-order thinking to construct meaning about the extenuating circumstances and think within a broader context.

Impact of stress in learning communities. The overarching effects of chronic exposure to stress in communities, resulting in trauma, were also noted during the participant interviews. The interpersonal experiences and communication between participants with students, families, and co-workers also shaped their perception of their role and connection to others within the constructs of reality (Siegel, 2012). Participants reflected on the impact of trauma in their communities and the need to adopt a trauma-informed care approach: (P3) "We have a lot of loss [of life and opportunities] here...we all now need trauma care..." The added layer of a tense political climate and the divided nation was also noted in two participants' interviews: (P6) "...our socio-political climate is huge...we're in the wake of a lot of... unpleasantness and racism and disturbing things happening or coming to light for some of us...things aren't okay out there."

Given the set of conditions created by the pandemic, the power of language was implemented by participants to assign meaning, support their function, and facilitate the processing of disorienting dilemmas within a context of crisis (Arwood, 2011). For example, (P3) "I had to navigate the stressors that kids were under again staying very positive and trying to find out what their needs were..." Participants reported supporting the social-emotional needs of students by implementing their language function to help students process the loss of loved ones, the fear of contracting COVID-19, and the issues relating to racial tension and political unrest. As

participants ultimately implemented their language strategies to support students' social-emotional well-being, they also continued to construct their own meaning to interpret their world. For example, (P3) "I use my language to try to draw the kids out and see how they were what were they feeling..."

Theme: Learning Process Reflection

The findings of this study revealed a third category related to the learning process reflection of the SLPs. The participant responses contained 250 coded words and key ideas that referenced *being a learner, mindset, resources, evolving, thinking, growing, perspective shift, learning strategies, the brain, and pacing* related to the participants' reflection of themselves as learners. During the shift to distance learning, professional and environmental demands prompted participants to use their language to reflect on their learning needs.

Role and agency. The data revealed many dimensions of the participants' epistemic reframing process and the construction of new meaning based on a learner's perception of self as a learner (Kitchenham, 2008). The construction of new meaning was noted to evolve via the bounds of the participants' level of socio-cognitive language function of existing knowledge, beliefs, value judgments, and feelings. The participant reflections were characterized by expanding their perceived role within the broader view of educational settings and communities. This theme reflected the participants' awareness of themselves as learners and perspective of their newly acquired knowledge. The participants' perspective transformation process was noted by their ability to re-negotiate their professional roles by connecting to their concept of self as learners. Participant quotes noted that the critical reflection and transformative

learning process of learners represented in the data showed that participants reflected on themselves as learners. For example, (P6) "... I have done a lot of thinking about my own thinking and learning process..." and "I also am kind of having to let go of expectations on myself... to allow me to do my job is also the letting go of having to have all the answers all the time." Participant responses demonstrated that expanded language functions supported their purpose and new roles by examining their existing beliefs, actions, and suppositions within their interpretation of their own learning process and actions (Arwood, 2011; Chiao & Bebko, 2011; Slay & Smith, 2011).

Given the epochal pandemic event, participants engaged in the critical re-evaluation of their role within the context of crisis. This required participants to examine their existing meaning schemes and identify how to expand their knowledge to meet the needs of students and families. Initially, participants expanded their existing knowledge via content and process reflection to overlap new learning with existing knowledge (Mezirow, 1991). As participants recognized the impact of the pandemic on the learning needs of their students, they quickly realized their shifting roles as SLPs. Several participants noted this: (P5) "...really evaluating what it is my job...when I'm connecting with them you know when it's like that concern of, their surviving". Another participant, P3, shared, "I am learning more and speaking the language of loss." Participants in the study identified the need to support a level of student and family need with a trauma-informed care approach.

As time progressed and participants implemented their new knowledge, participant reflections regarding their conception and philosophy regarding technology and their newly constructed roles with students and families shifted. This perspective

shift reflected a broader view of the value, purpose, and role of technology to connect with students and families at a deeper level during a critical time. The perspective transformation process allowed participants to critically reflect on their assumptions and implement their language as a tool in the subjective reframing of their assumptions (Arwood, 2011; Mezirow, 1991). The learning process for participants demonstrated an individual process, identifying their roles as learners, accessing and processing meaningful information, and working through their belief systems (Arwood, 2011; Cranton, 2016; Mezirow, 1991, 2003). This process from a socio-cognitive lens connects to how adults can use language to support functions of the mind that facilitate their learning (Arwood, 2011). The reflective learning process of participants connected to the role of language and new construction of meaning to organize experiences into personal narratives that reshaped their perspective and level of engagement (Bruner, 1991).

During the initial process of instrumental learning involving content and process reflection, participants used language and thinking to engage in organizing their thoughts, learning strategies, and time and space to process new information: (P5) "...keeping things in perspective is important...trying to find those opportunities to step back and find that quiet space...think about things, process information and ... develop strategize for myself ." The participants' use of language functions supported their engagement with the newly presented information. As adult learners, participants shared their awareness of their learning strategies and what they needed to do for themselves to access and process new information. This increased level of agency

supported how the participants navigated their environments and acquired knowledge (Arwood, 2011; Knowles, 1984; Taylor, 2000).

As adult learners, they could utilize their language to identify the most meaningful and relevant information needed to navigate the demands of their new role within their diverse educational contexts. The strategic perspective and implementation of learning strategies reflected the participants' language function within a context of high demand. Participants navigated their learning experience and emotional response to stressors; they were observed to establish an internal dialogue to support self-organizing behaviors (Dirkx, 2006). For example, (P4) "...once I passed that panic mode, I realized that I'm a quick learner and... you know, 'come on, let's do this!' [self-talk]." Given the level of stress experienced across educational settings, participants also incorporated internal dialog due to their awareness of the impact of constructive communication with educational colleagues in districts.

The participants' professional knowledge of language and increased awareness of learning processes and social interactions with educational colleagues increased their awareness of adult learning assumptions. As participants navigated district learning environments and attempted to partner with district staff, reflections on the complexity of the adult learning process and the implications of organizational supports were shared: (P1) "I've really gained an incredible understanding of how hard it is for adults to change the way they're doing things..." Participants shared their revelations and awareness of the negative impact of the rapid pace of change, emotional stressors, and demands of learning new technology on other adult learners. Participants also reflected empathetically on how they implemented their knowledge

of language and learning to support colleagues: (P2) "Making sure that my language wasn't causing them [co-workers] more stress...being very careful about how I said things and being very clear of what I said." The ongoing demands, paired with limited district organization and resources, provided participants with visibility to the implications of stress on the adult learning systems. Participants experienced first-hand the impact of stress of the learning process of colleagues: (P1) "...some of these adults [district staff] that have really struggled in these trainings...there isn't options for let's learn it this way [accessible learning systems], they [district staff] really have shut down...literally checked-out, shut down." Participants across school district settings referenced the hardships experienced by their educational colleagues who were not integrated members of an organized community of practice during this climate of crisis.

Given the drastic shift in the service delivery model, even the most experienced participants reflected on their process of acquiring knowledge to support their new professional role with the provision of online services. They also engaged in developing the knowledge to engage in a telepractice service model via a new and unfamiliar technology platform, which presented increased cognitive demands for participants. Time constraint stressors coupled with a shifting landscape of guidance regarding systemic special education compliance needs created a high-demand context for participants amid the crisis. The construal process of new knowledge facilitated by the SLP Program and individual participant effort demonstrated a high level of process reflection on behalf of the participants (Kitchenham, 2008; Mezirow, 1991). Participants considered their actions and factors for acquiring the necessary technical

knowledge (Mezirow, 1991; Arwood, 2011). Participants reflected on their learning process and identified the role of language in acquiring the necessary technology concepts: (P4) "language [language of technology] doesn't mean anything to me until I have a context...knowing that language is so powerful...we can share information, and we can be talking on the same level and learning." Participants acquired the language and concepts related to technology and engaged in implementing online services within their newly defined roles. The participants' acquisition and implementation of conceptual knowledge reflect Bruner's (1987) cognitive constructivist theory centering the role of language as the tool for constructing meaningful semantic input to facilitate knowledge acquisition.

After engaging in the provision of telepractice services, participants consistently shared their newly discovered broadened view and increased value for online telepractice services as well as their individual journey: (P6) "...I think of those resources that I've used while we've been remote and I can use them in some of them [students] in person..." As participants implemented their newly conceptualized knowledge within their roles, they were noted to share a newly discovered value for the purpose and application of online tools. Participants in this study reflected on how their learning and critical reflection of practices in an online environment influenced their beliefs, values, and comfort level with experiences in the new educational context. This expansion of knowledge reflects the relational and cognitive processes of meaning construction within a technology-dependent socio-cultural context (Jordi, 2011).

Perspective transformation. The evolution of the participants' self-reflection of themselves as learners was noted: (P4) "...it's empowering to know that I can learn and grow in a field that I felt I was at the top of...There's always something to learn." Participants' self-reflection also connected to their critical reflection of their journey as learners: (P3) "I think there's multiple levels of ways that I'll continue to grow. I mean, you could almost do a visual map of it." The connection of self as a lifelong learner was also noted in the participant reflection: (P4) "... realizing, 'You're always going to be a learner and you're always going to have opportunities to learn and grow and just educate yourself and be a better person.'" The subjective reframing and perspective transformation of systemic, culturally shaped assumptions regarding age and level of experience via the use of language was powerful. The reframing of narratives via a socio-cognitive process using the role of language consequently contributed to shifting the perspective and perceptual experience of participants (Arwood, 2011; Bruner, 1987).

Based on the triangulation of literature and the interpretation of findings in this study, learning is a neurobiological process influenced by a language-mediated context. The interpretation of this study's findings were consistent with the transformative learning literature and Mezirow's (1991) phases of perspective transformation. However, the context of a crisis created a dimension of learner demand that required a deeper perspective into the socio-cognitive and neurobiological impact of stressors on transformation. Applying a neuroeducation lens centered on the role and function of language on cognition during a pandemic provided a deeper multidimensional perspective of the learning system's synergistic

process. Per the review of data and connection to the literature, participants in this study used their language function to support their critical self-reflection processes, engage in learning, and support students and families within their new distance learning roles.

Conclusion

This study aimed to examine whether SLPs ($N = 6$), who have specialized professional knowledge in the area of language, used their own language in self-reflection to support their transformative process during the COVID-19 pandemic. Participants (SLPs) of this study were employed in a regional SLP Program and actively engaged in a proactive community of practice during the context of crisis. The findings of this study addressed the focal research question, *How do SLPs, who have specialized professional knowledge in the area of language, use their own language in self-reflection to support their transformative process during a disorienting dilemma?* The data analysis and findings provided four prominent themes with a generous representation of participant InVivo quotes connecting to the central role and function of language in the self-reflective process of SLPs during a context of crisis.

The interpretation of findings revealed the complementary roles between Mezirow's (1991) transformative learning theory and a connection to the current body of knowledge that considers the socio-cognitive and neurobiological aspects of transformation within a translational neuroeducation lens. The triangulation of literature in cognitive and cultural neuroscience, cognitive psychology, and language provided a powerful lens for interpreting findings. Within the ANM (Arwood, 2011) perspective, socio-cognitive language function within social contexts and experiences

influences how learners make meaning of their experiences. The data in this study highlight the critical role of relationships within the SLP Program and in the broader educational community. Participants engaged in SLP team meetings with purpose and increased agency level to access the necessary guidance and resources needed to serve the needs of students and families within their learning communities. Furthermore, participants focused on implementing their knowledge of language due to students, families, and co-workers' social-emotional needs.

During the pandemic, the context of crisis presented an opportunity to examine transformative learning with a deeper lens that considers the role of language in socio-cognitive processes and the impact of stress on the brain. The interpretation of findings revealed a strong connection to the role of language function in the process of constructing new meaning and knowledge, promoting and leveraging relationships, connecting to a newly defined role, and mitigating the impact of stressors within a context of crisis. Participant data in connection to current literature in the area of cognitive neuroscience, cultural psychology, and language function connect to the role of the socio-cognitive level of function and the impact of stress on the brain processes.

As noted by the prominent themes identified, participants in this study predominantly shared reflections based on their lived experiences and perspectives. The participants connected to the role of relationships and community, the impact of stressors, and their learning experience and processes mediated by language. The interdependence between language and culture in the perspective transformation process was notable. The main categories and themes relating to the role of relationships reflected the participants' cultural frame in the workplace and how it

shapes the collective perception of self among the SLP team (Chiao, 2018). Participant data suggest that language mediated the construction of meaning and promoted socio-cognitive functions of the brain that gave rise to thinking (mind) in order for participants to support their transformative process but also support others during a context of crisis. Therefore, one can associate the synergy of transformative learning as a socio-cognitive and neurobiological process influenced by language-mediated experiences within cultural contexts. The role of community and relationships was particularly evident in the participants' reflection of collaboration with colleagues to support their learning process and transformation. Once participants processed their initial feelings induced by the appraisal of stressors created by the context of crisis, the data suggest a strong connection to their community of practice to access social-emotional support.

The SLP community of practice provided a safe learning environment with access to relevant information within an embedded support system. Participants accessed information in a constructive learning environment that was relevant, meaningful, and practical based on the needs of their learning communities to construct new knowledge and self-organize in a chaotic context. The social interactions within the community of practice promoted a nurturing virtual meeting space to process new information, reflect on the learning needs of community members, and collectively process the complexities created by the context of crisis. The prosocial community of practice environment promoted a supportive, nurturing, and protective learning environment where all learners' experiences, perspectives, and learning processes were valued. The participants demonstrated an increased agency-

level while navigating and engaging in the use of language to assign meaning to new learning constructively and ultimately shift their perspectives, resulting in transformation.

Given the abundance of research available in research fields that examines human beings' cultural, cognition, psychological, language, and cognitive neuroscience, this study focused on triangulating the research to understand the transformative adult learning process. The findings of this study aimed to provide insight regarding the development of a comprehensive approach that considers the integrated function of language within cultural contexts that promote the neurobiological construction of meaning that facilitates learning. The outcome of this study also highlights the value of connecting the overlapping fields of research to understand how adult learners acquire knowledge and support their transformation via the dynamic process of learning within social contexts.

Limitations of the Study

Several limitations were identified during the design of this study. The limitations included: time constraint of the Ed.D. program, the varying degrees of reflections shared by participants during a semi-structured interview process, the professional knowledge of participants in the area of language, the intentional community of practice SLP program design, the context of crisis induced by the pandemic, and bias due to my leadership role and position about neuroeducation. It is also important to note the identified limitations and assumptions within the existing transformative learning theory literature relating to under-represented populations from diverse cultural backgrounds and experiences.

The limited time to complete the study was a consideration when identifying the study's feasibility. The timeline for scheduling and completing the semi-structured interviews was restricted. Although participants were encouraged to submit additional reflections in writing, only one of the six participants submitted an additional written reflection. To protect the confidentiality of the participant, the single written reflection was not included in the study. The demands within the context of crisis as participants were navigating the complexities in communities may have influenced the participants' level of engagement and responses during the semi-structured reflective interviews.

The participants' specialized knowledge in language may have contributed to their strong connection to the role and function language reflected in their internal dialogues. The increased awareness of the role of language may have also influenced the participants' priorities and outreach within their learning communities in social-emotional language.

As members of a community of practice, my professional relationship and connection with the participants may have influenced their experience and perception of their role during the reflective interview process. Participants were noted to consistently reflect on their roles in the community and interactions with students, families, and co-workers, which resonated with the equity-centered core values of the SLP Program.

Lastly, it is essential to address the potential researcher's bias given my influential leadership role with the SLP Program. Although all participants engaged in the study voluntarily outside of work hours, my positive connection and relationship

with SLP Program staff must be disclosed. I constructed the semi-structured interview questions to obtain target data to answer the focal research question, but also with an understanding of the participant's journey.

Limitations in Literature

Although Mezirow (1991) acknowledged that ideal conditions are never realized in practice, the transformative learning theory does not consider the full account of challenges met by individuals from culturally and linguistically diverse backgrounds and experiences (Kincaid, 2010; Taylor, 2000). Transformative learning theory was founded on research grounded in Western culture values within average conditions and contexts. However, many community members come from different backgrounds shaped by variables in their history and cultural experiences. The underrepresentation of populations from culturally and linguistically diverse backgrounds within the current transformative learning research presents a significant limitation and has been identified as an area for further research (Kroth & Cranton, 2014; Merriam, 2009; Taylor, 2000).

Implications for Practice

This study aimed to examine the self-reflective transformative process of school-based SLPs navigating a context of crisis during a pandemic. I sought to enhance the predominant body of knowledge in transformative learning by investigating how the role and function of language supported the transformation of SLPs during a context of crisis. This study's contributions integrate a translational neuroeducation approach that provides an inclusive triangulation of research in the areas of cognitive psychology, cognitive neuroscience, and language function as it

relates to the transformation in adults facilitated by the socio-cognitive and neurobiological processes of learning.

As identified by the four prominent themes, the findings of this study revealed a strong connection to both the existing transformative learning theory and the ANM supported by the triangulated body of research. The themes connected to the reflections centered on the role of relationships, critical reflection of stressors, language, and learning identified the vital role of cultural and socio-linguistic communicative learning. The context of crisis produced by the pandemic revealed the need to increase consciousness and knowledge in the area of transformative adult learning.

The research related to the neurobiological impact of stressors on the learning system provided valuable insight regarding the importance of organizational climate and the impact of demands, specifically in educational settings that support broader communities and the well-being of its members. The currently adopted models for supporting adult learners offer a partial lens centered on instrumental and technical learning. This commonly mistaken learning model focuses on task-oriented problem solving based on technical knowledge governed by rules and behavioral outcomes. Organizational climates that are overly focused on task completion, products, and accountability standards, disconnected from the adult learner's experience and process, may unintentionally contribute to stressful environments that impact the stress factors that interfere with adult learning and engagement.

The study's integrated model of overlapping the current research in transformative learning with the transdisciplinary model of neuroeducation

incorporated cognitive psychology, neuroscience, and language provides a comprehensive insight into adult learning. Based on the triangulation of research and outcome of the study connecting culture, language, and cognitive learning processes, advancements within this integrated research approach offer a pathway to understanding how to promote inclusive learning environments that consider the interwoven relationship between culture, language function, and the neurobiology of learning. Increasing understanding of the multidimensional process of adult transformative learning creates an opportunity to consider how culture and the socio-cognitive processes mediated by language influence the construction of meaning perspectives contributing to social justice issues facing our society (Au, 2011; Kitayama & Park, 2010b; McWhinney et al., 2003).

Future Research

Further research contributions are needed via an interdisciplinary community of researchers and educators who understand and support an integrative body of knowledge with socio-cultural and neurobiological processes of learning mediated by language function. Future research is also needed in identifying how dominant cultural and organizational norms influence the values, beliefs, and assumptions that influence an educator's meaning perspectives and concept of self as a learner. Most importantly, further research is needed to understand the process of addressing the social construction of racism and oppressive systems to support a shift to the development of communities where all people, cultures, and perspectives offer profound, meaningful change.

Considering that we construct meaning to a great extent via socio-linguistic interactions and reflective dialogue with others to achieve consensual validation for our own proposition, the learning experience of culturally and linguistically diverse learners may be compromised if culturally diverse perspectives are not acknowledged (Mezirow, 1991a). Given that “transformative learning theory can be better understood by accounting for the cultural embeddedness and positionality of the learner” (Kincaid, 2010, p. 2), individuals navigating situational contexts outside of ideal conditions may experience increased challenges with learning and transformation. The context and community in which the learning occurs may present a disconnect for an adult learner who is unfamiliar with the established beliefs, values, and norms embedded in socio-cultural expectations (Cranton, 2016; Mezirow, 1991a). The role of the learning environment and the complexity of meeting foreign organizational goals can present challenges to a learner from a diverse cultural and linguistic background. Mezirow (1995) acknowledged the potential silencing of marginalized groups due to fear of retribution during the critical reflection and discourse process within a community.

Therefore, the need for future research to intentionally include black, indigenous, and people of color within communities is critical to diversifying the body of research to understand how language supports the reflective process of transformation within socio-cultural environments in organizations. Increasing representation of ethnically and culturally diverse populations offers the opportunity to increase the understanding of how culturally and socially transmitted information through language impacts transformation. Further examining how the role of reflective

discourse and transformative leadership can support culturally and linguistically inclusive learning spaces presents an opportunity to learn how to promote inclusive and empowering pluralistic learning environments.

The results of this study suggest that the role and function of language is central to the socio-cognitive and neurobiological processes involved with adult transformative learning in a context of crisis. The role of language function in supporting the learning process of adult learners is critically important during stressful situations within responsive socio-cultural environments. The socio-cognitive and neurobiological process of neuro-semantic language learning (Arwood, 2011) offers an inclusive brain-based learning paradigm to empower the learning potential of learners. So the next question is, can an interdisciplinary community of scholars further examine this area of research so that education has the opportunity to understand and promote equitable learning for all?

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Appendix A

Survey Consent

You are invited to participate in a research study conducted by *Ana Lia Oliva*, as part of the **UNIVERSITY OF PORTLAND** School of Education doctoral program. I hope to learn how adult learners, who have a specialized knowledge of language, navigate disorienting dilemmas and engage in learning to transform their practice and perspective to provide educational supports to students and communities in a context of crisis.

You were selected as a possible participant in this study because of your SLP role in the regional SLP Program that serves K-12 school districts, length of employment with the program, and size of district you support.

In the first phase, the researcher will send a survey to gather demographic information regarding the SLP Program staff. Upon completion of the survey, six participants will be invited to continue to an interview process based on the identified criteria.

The survey will take approximately **five** minutes to complete. Please read the informed consent below before continuing to the survey. If you do not want to participate, please do not complete this survey.

This is a confidential survey, and there are no anticipated risks to your participation in this survey, however, it is unlikely yet possible that a data breach could occur with the Qualtrics survey, and that the data may not be truly confidential. All data will be collected will be stored in a password-protected file and computer.

Your participation in this research study will provide an additional perspective on the role of language in the self-reflective process of transformative learning of adult learners navigating a context of crisis during COVID-19. The goal of this research study is to contribute to the existing body of research in the field of transformative learning by including a neuroeducation lens. The contributions of this study will potentially support ongoing research recommendations in the field of adult learning to contribute to a deeper understanding of transformative learning in adults. However, I cannot guarantee that you personally will receive any benefits from this research.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Subject identities will be kept confidential by

assigning participants a pseudonym. All transcribed interview data, written reflection, and artifacts will be labeled with pseudonyms and stored in a secure encrypted file on a password-protected computer. **No participant information will be released or shared to protect anonymity.**

Your participation is **voluntary**. Your decision whether or not to participate will not affect your relationship with the SLP Program or the University of Portland. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without penalty.

If you have any questions about the study, please feel free to contact Ana Lia Oliva at olivaa16@up.edu or my faculty advisor, Dr. Ellyn Arwood at arwood@up.edu. If you have questions regarding your rights as a research subject, please contact the IRB (IRB@up.edu). You will be offered a copy of this form to keep.

Your signature indicates that you have read and understand the information provided above, that you willingly agree to participate, that you may withdraw your consent at any time and discontinue participation without penalty, that you will receive a copy of this form, and that you are not waiving any legal claims.

I understand the implications of this research project and **agree** to participate in this study based on the information I have read in this Information-Consent letter.

Yes

No

Consent Signature:

Appendix B

Demographic Survey

Years of professional experience in the field of speech-language pathology, including this year:

- 0 - 2 years
- 3 -10 years
- 11 - 20 years
- more than 20 years

Years of employment with the NWRESL SLP program, including this year:

- 0 - 2 years
- 3 - 5 years
- 6 -10 years
- more than 10 years

Size of the school district you are serving:

- Under 1,000 students
- 1,001 to 2,000 students
- 2,001 to 5,000 students

5,001 to 10,000 students

More than 10,000 students

Before the shift to distance learning in March 2020, what was your level of prior professional knowledge or experience with telepractice or distance learning:

None

Limited

Basic

Proficient

Highly Proficient

Would you be willing to participate in a follow-up 45-minute interview (outside of work hours)?

Yes

No

If you are willing to participate in an interview, please enter your email:

Appendix C

Interview Consent Form

Based on your expressed interest in participating in an interview on the recent survey, you are invited to participate phase two of the research study conducted by *Ana Lia Oliva*, as part of the UNIVERSITY OF PORTLAND School of Education doctoral program.

In phase two, the researcher will schedule an online semi-structured interview during non-work hours that will last approximately 45 – 60 minutes. The interview will be audio and video recorded for transcription purposes. The transcribed participant data will be stored in secure and encrypted files. The participants will then be contacted by the researcher to review and ensure the intent of the responses, as needed. Participants will also be provided an opportunity to share additional reflections in writing or artifacts after the interview is complete.

Your participation in this research study will provide an additional perspective on the role of language in the self-reflective process of transformative learning of adult learners navigating a context of crisis during COVID-19. The goal of this research study is to contribute to the existing body of research in the field of transformative learning by including a neuroeducation lens. The contributions of this study will potentially support ongoing research recommendations in the field of adult learning to contribute to a deeper understanding of transformative learning in adults. However, I cannot guarantee that you personally will receive any benefits from this research.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Subject identities will be kept confidential by assigning participants a pseudonym. All transcribed interview data, written reflection, and artifacts will be labeled with pseudonyms and stored in secure encrypted file on password protected computer. No participant information will be released or shared to protect anonymity.

Your participation is **voluntary**. Your decision whether or not to participate will not affect your relationship with the SLP Program. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without penalty.

If you have any questions about the study, please feel free to contact Ana Lia Oliva at olivaa16@up.edu or my faculty advisor, Dr. Ellyn Arwood at arwood@up.edu. If you have questions regarding your rights as a research subject, please contact the IRB (IRB@up.edu). You will be offered a copy of this form to keep.

- I consent to participate in the interview
- I do not consent to participate in the interview

Your signature indicates that you have read and understand the information provided above, that you willingly agree to participate, that you may withdraw your consent at any time and discontinue participation without penalty, that you will receive a copy of this form, and that you are not waiving any legal claims.

Appendix D

Semi-Structured Interview Protocol and Questions

Participant check-in and review of:

- Approximate length of time needed for interview
- Video and audio recording procedures for the purpose of transcription
- Voluntary participation and confidentiality, willingness to participate was confirmed
- Participant questions about the interview process

Do you have any questions before we begin?

Brief introduction to purpose of the study: The purpose of this study is to examine the role of language in the transformative process of adult learners in a context of crisis during the COVID-19 pandemic.

Definition of language provided: The function of language within the context of this study connects to language being a tool that represents thinking, problem-solving, and planning according to cultural and social norms.

Interview Questions

Within our ESD – SLP Program, we diligently work to support student engagement with academic and social-emotional learning within demanding educational contexts.

In this study, I am interested in finding out if you use this professional knowledge to help yourself navigate a crisis like this pandemic. So, the questions I will be asking are specific to you and your use of your professional knowledge in supporting yourself. There are no right or wrong answers; I just want to know your perceptions.

Q. 1: As we begin, please share how the pandemic impacted you and your educational community.

Q. 2: What activities or resources did you find most helpful during this time?

Q. 3a: What helped you to stay connected to your work while working remotely?

Follow up:

Q. 3b: How was this helpful to your learning process?

Now, I am going to ask some questions that connect to the role of language to the transition during the pandemic.

Q 4a: Thinking back to the time when service providers, like yourself, quickly pivoted to a distance-learning framework last April, what strategies or resources did you use to help you navigate professional challenges and stressors?

Follow up:

Q 4b: Based on your experience and perception, what role did language play in supporting your transitions to a distance-learning context?

Q 4c: Do you believe that a prior understanding of the function of language helped guide your perspective? If so, in what way?

Q 4d: Tell me more about this, how did you implement language strategies to manage the stress during this time?

Q 5a: As we are transitioning back into a new school year with a focus on distance learning, will you use your professional knowledge about language strategies to support your continued learning and engagement?

Follow up:

Q 5 b: If so or if not...how will you support your continued learning and growth?

Q 5c: What will you do differently or the same?

Q 6: Is there anything you would like to add or share before we end this interview?

Exiting the Interview, participants were:

- Thanked for their time and participation.

- Provided information about next steps: transcription and member check process
- Encouraged to share any additional reflections in writing or share artifacts that may be relevant to their experience via email at olivaa16@up.edu.
- Asked if they would like to be contacted with the results of the study; or if they would like a copy of the study once it is completed.