THE TRANSFORMATIONAL LEARNING BY WEB-CONFERENCING CIRCUIT BOARD: A CONCEPTUAL MODEL OUTLINING THE CONDITIONS THAT FACILITATE TRANSFORMATION IN SYNCHRONOUS SPACES

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Dedication

To Thistle, Angela, & Nicholas

Your encouragement and support throughout this process were everything. Here is to the luxurious summers, house projects, and laptop-less vacations to come.

Abstract

As synchronous technologies and high-speed internet have become more accessible, opportunities for learning in web-conferencing settings have also increased. Despite the ubiquity of learning experiences taking place over web-conferencing, there is a lack of research on what makes for effective adult learning in synchronous settings from learners' perspectives. Moreover, there are few studies examining how transformational learning—learning that changes an adult's mindset, beliefs, or perceptions—occurs in web-conferencing settings. This qualitative study explores the conditions through which transformational learning occurs in web-conferencing settings. It includes the perspectives of adult learners (all at least eighteen years old) who have participated in a variety of learning experiences via web-conferencing. I completed this study in two phases: (1) qualitative surveys collected from ten anonymous participants, and (2) semi-structured interviews conducted with eleven participants. I employed grounded theory methods to develop the Transformational Learning by Web-Conferencing Circuit Board, a conceptual model that describes the conditions enabling transformational learning to occur in synchronous settings. This conceptual model illustrates that organizations, facilitators, and adult learners play distinct roles in supporting transformational learning through web-conferences. The conceptual model also describes how goal orientation, mindsets and beliefs, technological efficacy, and conducive virtual and physical environments support the sense of community among adult learners and facilitators in the web-conferencing space. When learners and facilitators feel this sense of community, transformational learning is possible. Organizations, facilitators, and adult learners interested in participating in a transformational learning experience within a web-conferencing setting can utilize this conceptual model to inform their engagement in the process. Researchers may also build upon the framework to further our collective understanding of how transformational learning occurs in synchronous learning environments.

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Chapter 1: Introduction & Literature Review

This study was conducted in the shadow of the COVID-19 pandemic in 2023. At that time, I worked with many individuals who expressed hope that they would never again have to attend or facilitate a learning experience in a web-conferencing environment. While I, too, had participated in ineffective sessions, I had also experienced some of my most impactful and transformational learning through web-conferencing. I wondered at this time whether other adult learners had participated in similar experiences, and whether patterns could be identified to inform effective learning experiences in these environments in the future. These questions inspired this study.

This qualitative study demonstrates that transformational learning (learning that changes a person's skills, beliefs, and behaviors) is possible in web-conferencing settings and uncovers the specific contexts and conditions in which said learning occurs. It was guided by the following research questions: (RQ1) What conditions do participants view as essential in a web-conferencing setting for transformational learning to occur? (RQ2) How do participants perceive the facilitator's role and moves in guiding the transformational learning experience? (RQ3) How do participants perceive their roles in ensuring that transformation occurs in synchronous, virtual learning environments? To answer these research questions, I conducted a two-part study consisting of qualitative surveys and semi-structured interviews with adults who had participated in a learning experience in a web-conferencing environment to identify the specific conditions under which transformational learning occurred in these settings.

Based on their responses, I developed a conceptual model to describe the conditions necessary for transformational learning to occur, the Transformational Learning by Web-Conferencing Circuit Board. This conceptual model demonstrates that organizations, facilitators, and participants all play essential roles in ensuring that learning experiences are transformational in web-conferencing settings; they are the switches that complete the circuit. The batteries that power the circuit board are (1) mindsets and beliefs that are open to learning in web-conferencing settings, and (2) goal-oriented learning experiences. The wires that conduct this power are (1) the facilitator's and learners' technological efficacy, and (2) conducive virtual and physical learning environments. Finally, the lightbulb that is illuminated when this circuit is running represents the sense of community, which exists through (1) communication, (2) relationships, and (3) engagement. When this lightbulb is illuminated, transformational learning is possible. This study contributes to the literature related to transformational learning in web-conferencing settings by providing a model that can be built upon through further research. It also provides concrete recommendations for organizations, facilitators, and adult learners seeking to participate in transformational learning experiences within web-conferencing environments.

This thesis is broken into four chapters. The first chapter explores current literature related to online learning, transformational learning, and transformational learning in online environments. The second chapter reviews the study's methodology, including how participants were recruited, the data collection tools used, and how grounded theory methods informed the analysis of the collected data. Chapter three explores themes revealed through the data analysis process. The final chapter describes the Transformational Learning by Web-Conferencing Circuit Board, lists the study's limitations and potential avenues for future research, and provides general recommendations for organizations, facilitators, and learners interested in engaging in transformational learning via web-conferencing.

1.1 Literature Review

This section reviews relevant literature related to (1) andragogy, (2) meaning schemes, (3) transformational learning, (4) learning in online settings, and (5) the factors that have been identified that positively impact learning in these settings. The chapter concludes with an introduction to the research questions explored in this study.

1.1.1 Defining Andragogy

Andragogy is the art and science of how facilitators can support adult learning (Bloomberg & Grantham, 2018), as opposed to pedagogy, which refers to the efforts facilitators use to support children's learning needs (Machynska & Boiko, 2020). Andragogy is based on five assumptions that inform four guiding principles. These are explored in the following section.

Five Assumptions of Andragogy. This section describes the five assumptions that inform andragogy. The first assumption of andragogy is that learners are more self-directed in their learning than children because their self-concept is more developed (Bloomberg & Grantham, 2018; Hoon et al., 2018; Kerr et al., 2006; Machynska & Boiko, 2020). While there are periods during which an adult who is learning new information must rely on a facilitator more for direct instruction (Hoon et al., 2018; Machynska & Boiko, 2020), adult learners want to perceive that facilitators honor their desire to be self-directed (Bloomberg & Grantham, 2018; Hoon et al., 2018; Kerr et al., 2006; Machynska & Boiko, 2020). Closely related to this, the second assumption of andragogy is that adult learners are aware of their own learning needs in relation to their personal and professional goals. It is therefore essential that adult learners be allowed to choose which learning experiences to engage in (Hoon et al., 2018; Kerr et al., 2006; Machynska & Boiko, 2020). Third, adult learners have "a growing reservoir of experience" that informs their learning, helping them access the most pertinent information in a lesson more easily than a child might (Machynska & Boiko, 2020, p. 26). The fourth assumption of andragogy is that adults prefer to engage in learning opportunities that directly address an urgent problem or pressing interest in their personal or professional lives (Bloomberg & Grantham, 2018; Hoon et al., 2018; Kerr et al., 2006; Machynska & Boiko, 2020). Finally, the fifth assumption of andragogy is that as people develop and mature, their motivation becomes internalized, meaning they engage in more learning opportunities that satisfy their internal desires rather than relying on external validation (Hoon et al., 2018; Machynska & Boiko, 2020). Facilitators who employ these five assumptions of andragogy can design learning experiences that incorporate the four principles of andragogy.

Four Principles of Andragogy. In addition to its five assumptions, andragogy also consists of four guiding principles that facilitators use to design effective learning experiences for adults. The first of these principles is the understanding that adults need to know *why* they are engaging in the learning process (Hoon et al., 2018; Kerr et al., 2006; Machynska & Boiko, 2020). The second is that adult learning is built upon the learner's prior life experiences (Hoon et al., 2018; Kerr et al., 2006; Machynska & Boiko, 2020). Facilitators who incorporate opportunities for adult learners to connect the learning experience to their prior knowledge may be perceived as credible, while those who do not may be disregarded by some learners (Machynska & Boiko, 2020). Andragogy's third principle is that adults prefer learning that is directly related to their jobs or personal lives and that they can immediately apply (Bloomberg & Grantham, 2018; Kerr et al., 2006; Machynska & Boiko, 2020). Related to this, the final principle is that the learning experience should be problem-centered (focused on a need that must be addressed) rather than content-centered (information that may or may not apply to the learner's needs) (Bloomberg & Grantham, 2018; Kerr et al., 2006; Machynska & Boiko, 2020). When facilitators design learning experiences grounded in the five assumptions and four principles of andragogy, adult learners are more motivated to engage with the content and report greater satisfaction with the learning experience (Bloomberg & Grantham, 2018).

Andragogy Conclusion. This section explored andragogy, the practice of supporting adult learning. It first outlined the five assumptions of andragogy: adult learners (1) are self-directed; (2) are aware of their learning needs in relation to their personal and professional goals; (3) have a deep reservoir of prior experience from which to relate to new learning; (4) prefer learning experiences that are related to a pressing need or interest; and (5) are more internally motivated to learn than children. The section then went on to describe the four principles of andragogy, which are that the learning experience should (1) clearly state why the adults are engaging in it; (2) tie directly to their previous experiences; (3) be applicable to the learner's goals; and (4) be problem centered. When these assumptions and principles are embedded into the learning experience, facilitators can design with the goal of helping to establish, shape, and grow adult learners' meaning schemas.

1.1.2 Defining Meaning Schemas

When the guiding assumptions and principles of andragogy are implemented, the learning experience has the potential to grow, shift, or otherwise change the learner's meaning schemas (McVee et al., 2005; Mezirow, 2000; Nevid, 2007; Pankin, 2013). Meaning schemas are the mental frameworks that support the learners' processing of new information (McVee et al., 2005; Nevid, 2007). Schemas influence the ways in which a person perceives their reality (McVee et al., 2005; Nevid, 2007), including their "expectations, beliefs, feelings, attitudes, and judgments" (Mezirow, 2000, p. 18). They support how information is organized in the brain, allowing learners to make connections between new and existing information to determine what new information to reject or retain and apply in the long term (McVee et al., 2005; Pankin, 2013).

Groups of people who share a common language and collective understanding utilize schemas to communicate efficiently with one another in both personal and professional settings (e.g., educators, healthcare workers, members of a religious practice, and other professional or hobbyist groups) (McVee et al., 2005; Pankin, 2013). Although new group members are explicitly taught these schemas (McVee et al., 2005; Mezirow, 2000; Nevid, 2007; Pankin, 2013), with experience and time, Mezirow (2000) emphasizes that meaning schemes will come to “operate outside of awareness. They arbitrarily determine what we see and how we see it” (p. 18). While schemas can be helpful in situations requiring quick action, Mezirow (2000) notes that unexamined schemas can cause significant harm to the individual, to those they interact with, and to society as a whole.

Meaning Schema Conclusion. When facilitators use andragogy to design and coordinate learning experiences, they create opportunities for learners to develop, grow, and shape their schema. Transformation of the existing schema may occur as learners encounter new information that fundamentally shifts their perceptions of an experience, content, and their existing belief systems.

1.1.3 Defining Transformational Learning

Transformational learning occurs when andragogy is employed with the goal of shaping schema to allow for new understanding, beliefs, and perspectives. This section explores transformational learning, including (1) what it is; (2) the transformational learning journey; (3) pivotal studies that shaped transformational learning theory; and (4) the facilitator’s role in supporting transformational learning.

What Is Transformational Learning? Transformational learning is a prevalent theory of adult learning (Boyer & Maher, 2005; Kumar & Arnold, 2014; Ahmed & Tab, 2021). Articulated by Jack Mezirow, transformational learning theory describes adult learning experiences through which adults’ perspectives are altered, leading to behavioral and cognitive changes (Mezirow, 1990; Mezirow, 1991; Mezirow, 2000). Mezirow (1991, 2000) shares that through transformational learning, adults are invited to engage in a reflective process with their peers to help them better understand their “prerational, unarticulated presuppositions” (p. 62) that may be holding them back in order to develop new perspectives and beliefs that may better serve them in meeting their collective goals.

Transformational learning occurs in ten phases (Kitchenham, 2008; Mezirow, 1991). The learner (1) faces a disorienting dilemma that (2) causes them to examine themselves, their actions, and their emotions, and to (3) consider the underlying assumptions that led them to this place (Mezirow, 1991). In group contexts, learners will (4) publicly recognize shared themes in the discontent experienced and explore the different ways members have navigated similar situations (Yorks & Kasl, 2022), which will help the learner (5) engage in exploration of options for new roles, relationships, and actions, (6) plan a new course of action, and (7) acquire the knowledge and skills needed for implementing their new plans (Mezirow, 1991). From here, learners will (8) try out their new roles/skills with support & feedback to (9) build competence and self-confidence in new roles and relationships. The final step in this process involves (10) the reintegration of these skills into the learner's life (Kitchenham, 2008; Mezirow, 1991; Preston et al., 2014; van Bruggen et al., 2019). While the journey described above may seem arduous, transformation can occur gradually over a long period or suddenly (Baumgartner, 2001; Hoggan et al., 2017).

Although these steps are laid out in a linear fashion, transformational learning is not often a linear process (Baumgartner, 2001; Courtenay et al., 1998; Zhu et al., 2020). For instance, the neat articulation of the theory suggests that a person experiences one trigger that ignites their transformational learning journey. However, an individual may experience many instigating events that converge in such a way that the person feels compelled to make a change (Baumgartner, 2001; Courtenay et al., 1998). They may also discover that, as they embark on their transformational learning journey, new triggers of understanding emerge while engaging with others who are also part of the experience (Baumgartner, 2001; Courtenay et al., 1998). Additionally, Hoggan et al. (2017) point out that because the transformational journey exists to help one find equilibrium when encountering information that exists outside of one's present meaning schema, one might find that "although some parts of a meaning or perspective might undergo significant change, all of one's meaning perspectives would of course not simultaneously transform" (p. 50-51). This can lead to a new journey later, simultaneous transformations, or even just a longer journey that cannot be easily captured in a single study (Courtenay et al., 1998; Hoggan et al., 2017).

The Transformational Learning Journey. Working through each of these steps has the potential for four types of learning transformations: a person can (1) learn new information within their existing meaning schemes, (2) learn new meaning schemes to support the new information, (3) transform their thought patterns, or (4) see things from a point-of-view that they were previously unaware of (Kitchenham, 2008; Mezirow, 1991; Mezirow, 2000). When an adult learns within their existing meaning schemes, they add complementary skills or knowledge sets to a framework that already exists in their minds (Kitchenham, 2008; Mezirow, 1991). For instance, if a person has been driving a car their entire adult life and decides they would like to earn their commercial driver's license, they will compare what they are learning about driving a bus to their experiences driving a car. The two actions are similar, but they differ in some important ways that the driver will be mindful of when operating either vehicle. When an adult learns new meaning schemes, they adopt a new set of knowledge through familiar means (Kitchenham, 2008; Mezirow, 1991). For instance, if an adult has worked as a geologist their entire life and decides to go back to school to become a botanist, they will use some of the same reading strategies and study techniques they used in their original degree program to help them gain understanding of and proficiency with the new content.

The third and fourth kinds of transformation are perhaps the most powerful as they require the person to see the problem and their role in it in a different light than they could access before: "In short, the learner encounters a problem or anomaly that cannot be resolved through present meaning schemes or through learning new meaning schemes; the resolution comes through a redefinition of the problem" (Kitchenham, 2008, p. 112). For example, consider the transformation required for police reform. One of the major crises that exists in the United States' criminal justice system is the way in which officers respond to people having mental health crises (Henderson & Yisrael, 2021). Many within the justice system may argue that if more money were allocated directly to police, the system would be able to provide more training and resources to ensure that officers are equipped to resolve conflicts that negatively impact those they are charging with a crime. This would allow for the third type of transformation learning to occur, wherein police within the system build new habits of mind that better prepare them to save the lives of those in crisis without resorting to violence. There is also potential for the fourth kind of transformation to occur in this scenario if the stakeholders involved were to consider who is most often harmed and to create new systems for responding. Instead of asking, "How can police respond to mental health crises better?" these stakeholders would ask, "Are police the best first responders in mental health crises, or are there members of the health community who would be better suited to this role?" This type of transformational learning is perhaps the most impactful, because once a person sees what they did not know existed before, they cannot unsee it, cannot unknow it, and must now act in new ways that are inclusive of this new perspective (Mezirow, 1991; Mezirow, 2000; Taylor, 2007; Zhu et al., 2020). While the other types of learning accrue gradually and without suffering, the third and fourth kinds can often be painful, because the person experiencing it can now see the ways in which their previous ways of being were harmful to themselves and/or to the people around them (Kitchenham, 2008; Merriam, 2004; Mezirow, 2000).

Transformational learning is one of our most powerful models of adult learning because it values and hinges on the autonomy of adulthood (Mezirow, 2000), and it is "grounded in the nature of human communication" (Taylor, 2007, p. 173). It helps adults see the world through a new lens or lenses, take new actions, think in new ways, or completely remake their beliefs about truth (Merriam, 2004; Mezirow, 1991, 2000). It encompasses all the assets within a person, allowing them agency to determine how else they would like to fill their cup by giving them control over the what, the how, the when, and the why of their learning (Kitchenham, 2008; Mezirow, 2000).

Pivotal Studies Exploring Transformational Learning Journeys. This section explores some of the pivotal studies that influenced transformational learning theory's evolution, including (1) Hart's 1990 examination of the role that reflection played in women's transformational learning journeys during feminism's second wave; (2) Courtenay et al.'s 1998 study exploring the transformational journeys undertaken by individuals diagnosed with HIV/AIDs which established the importance of context in the transformational learning journey; and (3) McDonald et al.'s 1999 study exploring the ways in which power influences transformational learning through a series of qualitative interviews about individuals' journeys to ethical veganism. Although these citations are older, they are frequently cited in contemporary literature exploring transformational learning theory.

The Role of Communal Reflection in Transformational Learning. Hart (1990) describes how transformational learning existed in the consciousness-raising groups of women in the United States during the second-wave feminist movement. During this time, women were invited to share memories from their childhood that demonstrated their understanding of their girlhood or womanhood. An essential step in this process was collecting all these memories and making connections between them to illustrate how the women present experienced oppression. This contextualizing and naming of the oppression allowed the women who participated to envision what their lives would be like if they were freed from it and then to identify steps they could take individually and collectively to transform these visions into reality. This study demonstrates the need for transformational learning to occur in community; engagement with others is what allows the learner to reframe their experiences and to build new schema in light of what they are learning from and with others (Hart, 1990; Kitchenham, 2008; Merriam, 2004; Preston et al., 2014; Taylor, 2007; Yorks & Kasl, 2022; Zhu et al., 2020).

The Role of Context in the Transformational Learning Journey. In 1998, Courtenay et al. conducted a pivotal study that examined the role of context in the transformational learning journey. They engaged in semi-structured interviews with eighteen participants with HIV to explore how participants made sense of their lives upon receiving their diagnoses. The diagnosis was marked as the instigating event, and the researchers examined participants' journeys towards equilibrium. The researchers identified that a person's context, the support systems and resources that the person could access during the period of diagnosis, impacted how they immediately reacted to the news, citing that some participants fell into substance abuse and depression that lasted for many years while others started to act for their well-being almost immediately. The participants in this study found themselves reflecting on the purpose of their lives and reassessing their identity, priorities, and values during this period when their mortality became salient to them. In engaging in these reflections, participants discovered that their previous assumptions were no longer sufficient in their new realities; they required new information and ways of being to move forward in a healthy manner (Courtenay et al., 1998).

The Role of Power in the Transformational Learning Journey. McDonald et al. (1999) explored the role of power in transformational learning, a concept that had not been previously articulated in the theory. They developed a study that examined how power at the socio-cultural, interpersonal, and individual psychological levels impacted the transformations of ethical vegans seeking to overcome the belief that humans are more valuable than other non-human animals. The scholars found that power existed in cultural narratives about how animals are farmed (i.e., pictures of smiling cows in cafeterias, etc.), in relational pressures from family members to convert back to more familiar diets, and in participants' internal psychological dialogue as they sought equilibrium in the face of information that conflicted with their existing schema. These scholars emphasized the toll that the decision to become ethical vegans took on those interviewed who found themselves existing outside of the dominant narratives around food.

Although this study may seem niche, it is often cited in the literature that follows research related to Transformational Learning theory (see Baumgartner, 2001; Merriam, 2004; Taylor, 2007).

Facilitators' Roles in the Transformational Learning Journey. Essential to the transformational learning process is a skilled facilitator, someone who cannot only design learning opportunities that are meaningful to the learner but who can also point out the mental frameworks and assumptions influencing the learner's actions and beliefs (Marsick, 1990; Merriam, 2004; Mezirow, 2000; Taylor, 2007). Again, it is not enough to experience a new thing (or an old thing in a new way); transformation occurs when an adult learner is asked to reflect on the experience afterwards and to make meaning of what occurred (Merriam, 2004; Mezirow, 1990). This requires a high degree of cognitive function that many adults may not be able to reach on their own (Merriam, 2004; Mezirow, 2000; Taylor, 2007). Moreover, learners often cannot see their current situation from a point of view or frame of reference that they do not currently possess (Marsick, 1990; Merriam, 2004; Mezirow, 1990, 1991, 2000). The facilitator, therefore, not only needs to create a learning experience that is meaningful for the learner, but they also need to create the conditions in which transformational learning can occur (Marsick, 1990; Merriam, 2004; Mezirow, 2000; Taylor, 2007). Key to these conditions are feelings of trust, the inclusion of non-evaluative feedback, nonhierarchical status between facilitator and learner(s), voluntary participation in the learning event, shared goals, and authenticity (Mezirow, 2000; Taylor, 2007), all of which can be established by a facilitator and maintained by all members of the group (Marsick, 1990).

There is, however, an opportunity for manipulation and dominance when facilitators' motives or actions do not support participants' agency when designing these learning experiences (Baumgartner, 2001; Hoggan et al., 2017; Hoggan & Hoggan-Kloubert, 2023; Mezirow, 2000). There is a fine balance that facilitators walk when designing learning experiences for a specific outcome: "Holding an aspirational vision is fine, likely inevitable, but unilaterally deciding how your adult students need to change is ethically problematic" (Hoggan & Hoggan-Kloubert, 2023, p. 363). Baumgartner (2001) points out that any situation in which there is a power differential at play, including between professor and student, makes transformational learning difficult because the learner "may be unable or unwilling to question their teacher's values" (p. 21) making them more passive in the learning experience (Hoggan & Hoggan-Kloubert, 2023). Hoggan et al. (2017) say that facilitators can mitigate this risk by being "clear about the actual values orienting their thinking, feeling, and acting as pedagogues" (p. 53). Instructors should also explicitly share the plan for learning, gain consent from participants, and create "legitimate possibilities [for participants] not to participate" (Hoggan & Hoggan-Kloubert, 2023, p. 374). Mezirow (2000) shares that facilitators who do this "create opportunities and foster and support freer, fuller participation in discourse in democratic, social, and political life" (p. 30).

Transformational Learning Conclusion. This section explored transformational learning. It began by describing what it is and then went on to describe the transformational learning journey. From there, it explored three pivotal studies that have shaped contemporary scholars' understanding of the theory. Finally, it described the essential roles facilitators play in supporting the transformational learning journey. The next sections describe learning in online settings and the existing literature related to transformational learning in mediated spaces.

1.1.4 Learning in Online Settings

Because much of the existing literature on transformational learning is tied to physical settings and experiences, this research aims to explore the conditions under which such learning can occur in synchronous settings. To understand the conditions under which transformational learning occurs in online settings, a foundational understanding of online learning is essential. The following section explores (1) the benefits and restrictions of asynchronous and synchronous learning in online settings; (2) known learner, facilitator & organizational factors that contribute to effective online learning experiences; and (3) how these factors contribute to participants' feeling of presence in the online learning environment.

Structures of Online Learning. Online learning models were initially developed for adult learners who have family or work commitments that may interfere with the demands of schooling in brick-and-mortar settings (Roddy et al., 2017). There is a spectrum through which all online learning takes place, marked on one end by asynchronous learning (learning that does not take place during a shared time (Bloomberg, 2020)) and synchronous learning (learning that allows for real-time interactions (Bloomberg, 2020; Khalil et al., 2020)) on the other side. This section provides a detailed description of each of these structures, along with their benefits and limitations.

Asynchronous Learning in Online Settings. Asynchronous learning relies on communications and learning activities that do not occur during a shared time (Bloomberg, 2020; Khalil et al., 2020; Roddy et al., 2017). Facilitators of asynchronous learning opportunities post texts, videos, and audio recordings, to allow learners to explore content (Bloomberg, 2020; Coonin et al., 2011). Asynchronous learning experiences exist on a spectrum in terms of the level of interaction required. There are some asynchronous learning experiences that require no interaction between learners and facilitators, such as pre-recorded lessons available on an app, website, or learning management system (LMS), and other asynchronous experiences that incorporate peer-to-peer engagement into the course's expectations and routines (Kutnick & Joyner, 2019). Asynchronous courses on this end of the spectrum incorporate tools such as discussion boards to facilitate dialogue between learners and/or the learner and the instructor (Bloomberg, 2020; Khalil et al., 2020).

Asynchronous courses allow learners to engage with one another on a global scale as they are not limited by time zones (Bloomberg, 2020). Asynchronous learning environments also allow learners to access materials, including those from previous lessons or modules, whenever needed (Bloomberg, 2020; Coonin et al., 2011) and to take their time crafting thoughtful responses to the questions posed by instructors and peers (Ziegahn, 2001). While asynchronous courses may be desirable for adult learners due to the flexibility they offer (Bloomberg & Grantham, 2018; Evans et al., 2019; Lee, 2010), they also present challenges. Bloomberg (2020) points out that "course material may be misunderstood or potentially be misconstrued without the real-time interaction and without the opportunity to ask questions and receive necessary explanation or clarification" (p. 4). There are also more opportunities for miscommunication between learners and/or facilitators in the asynchronous space due to the lack of physical cues compared to those available in synchronous environments (Racheva, 2018). Furthermore, learners in need of urgent support may not be able to get it depending on the structure of the learning experience and the institution hosting it (Khalil et al., 2020). Additionally, asynchronous courses tend to have higher dropout rates due to learners' perception that they are less social and offer less support than synchronous and/or in-person courses (Grammens et al., 2022; Lee & Choi, 2010).

Synchronous Learning in Online Settings. Synchronous learning occurs in spaces where learners and facilitators can engage with one another in real-time (Bloomberg, 2020; Evans et al., 2019; Khalil et al., 2020; Racheva, 2018). Examples include web-conferencing, group chats, and phone communication (Bloomberg, 2020; Khalil et al., 2020). Some synchronous learning experiences incorporate asynchronous elements such as discussion boards, collaborative documents, or learning management systems where learners and facilitators can communicate outside of the synchronous experience to further their learning (Grammens et al., 2022; Roddy et al., 2017).

Some learners find synchronous learning to be more rewarding because they feel more personally connected to their instructors and peers (Bloomberg, 2020; Hacker et al., 2020; Racheva, 2018) and because the methods of engagement feel similar to those used during in–person interactions (Khalil et al., 2020). Learners also benefit from receiving in-the-moment feedback from peers and instructors to validate understanding of course content, correct misconceptions, and challenge initial understandings of the material shared (Bloomberg, 2020; Khalil et al., 2020; Racheva, 2018). This may also help learners develop a deeper understanding of more complex material (Racheva, 2018). Although synchronous learning offers numerous benefits, it also presents unique challenges. For instance, synchronous learning is considerably less flexible than asynchronous structures, and it can be challenging to develop schedules that work for all learners who may be joining from vastly different time zones (Evans et al., 2019). Even more challenging are problems related to "the digital divide," the inequities that exist in people's abilities to access and use adequate technology and consistent internet (Eruchalu et al., 2021; Van Dijk, 2017). For some, the cost of the required hardware (computers, phones, tablets, etc.) and high-speed internet are too great, making synchronous learning inaccessible to those who may benefit from it (Cutri et al., 2020; Eruchalu et al., 2021; Gagnon, 2021; Rich & Stennis, 2021; Vergara, 2022).

Conclusion of Structures of Online Learning. This section explored asynchronous and synchronous online learning structures, including some of their perceived strengths and drawbacks. This foundational understanding is crucial when considering the factors that learners, facilitators, and organizations contribute to the effectiveness of online learning experiences.

Factors Contributing to Effective Online Learning Experiences. Learning in asynchronous and synchronous settings has affordances and costs that are different than those in in-person settings (Bloomberg, 2020; Bloomberg & Grantham, 2018; Evans et al., 2019; Grammens, 2022; Hacker et al., 2020; Khalil et al., 2020; Lee, 2010; Racheva, 2018; Ziegahn, 2001). The following section explores the factors that contribute to effective learning experiences in online settings, including factors related to individual learners, facilitators, and organizations. This section also illustrates how these factors work together to create a sense of presence in the online space.

Self-Efficacy. Before exploring how learner, facilitator, and organizational factors contribute to successful learning experiences, it is important to understand self-efficacy. Self-efficacy is the belief that an individual has the tools, resources, and skills needed to execute a behavior and achieve their intended outcomes (Abdolrezapour et al., 2023; Bandura, 1977; Blonder et al., 2022; Hung et al., 2010; Kim & Park, 2023). Self-efficacy determines "how much effort people will expend and how long they will persist in the face of obstacles and adverse experiences" (Bandura, 1977, p. 194). Self-efficacy is a concept that grows within a person through their experiences (Bandura, 1977; Blonder et al., 2022). As a person uses new skill sets in various contexts, their sense of efficacy is reinforced, and they become more confident in their ability to execute the behavior in new settings (Bandura, 1977; Blonder et al., 2022). Additionally, when a person with a strong sense of self-efficacy experiences failure, its negative impact is reduced, making them more resilient in the face of setbacks (Bandura, 1977). One's sense of self-efficacy is built through (1) performance accomplishments where the learner achieves their desired outcomes in a variety of settings and complexities, (2) vicarious experiences wherein the learner observes other complete the activities without adverse consequences, (3) verbal persuasions where the learner is reminded that they have everything they need to successfully complete the task, and (4) secure physiological states where the learner believes that their environment is secure and non-threatening (Bandura, 1977; Blonder et al., 2022). Self-efficacy is essential to the success of both learners and facilitators in online learning spaces (Blonder et al., 2022; Hung et al., 2010; Kim & Park, 2023), and its impact is highlighted throughout the following sections.

Learner Factors Contributing to Online Learning Experiences. Researchers have identified several factors related to learners themselves that contribute to their successful completion of online programs (Fischer et al., 2021; Kim & Park, 2023; Lee & Choi, 2010; Roddy et al., 2017). These factors relate to learners' previous academic experiences (Lee & Choi, 2010), their existing skill sets (Kim & Park, 2023; Lee & Choi, 2010; Roddy et al., 2017), and their psychological attributes including their self-efficacy (Fischer et al., 2021; Lee & Choi, 2010;

Roddy et al., 2017). One factor that influences a learner's success in an online course is their academic background (Kim & Park, 2023), including their performance in previous classes and on assessments such as the SATs (Lee & Choi, 2010). Additionally, learner success is influenced by their experiences in courses related to their field, as well as the total number of courses they have completed (Lee & Choi, 2010). Finally, the number of online classes a learner has completed contributes to their success in subsequent online courses (Lee & Choi, 2010). All these experiences build the learner's sense of academic self-efficacy, their belief that they possess the necessary skills and resources to complete a course, even in the face of hardship (Kim & Park, 2023). Adult learners with less experience in academia may require more support or additional training in adapting to a particular academic setting than those who have completed many courses (Kim & Park, 2023; Lee & Choi, 2010).

Additionally, a learner's success in an online course can be influenced by their existing skill sets related to technology use (Alfadda & Mahdi, 2021; Joo et al., 2011; Kim & Park, 2023; Lee & Choi, 2010; Peñarroja et al., 2019), communication through multiple means (emails, message boards, text, phone, etc.) (Ishii et al., 2019; Kim & Park, 2023; Martin & Bolliger, 2018; Racheva, 2018; Roddy et al., 2017; van Dijk, 2017), and time management (Kahn et al., 2017; Kerr et al., 2006; Lee & Choi, 2010; Roddy et al., 2017). A strong sense of technological self-efficacy contributes to success in online environments (Lee & Choi, 2010, Kim & Park, 2023), because learners have experiences and training that have given them the necessary skill sets to achieve their goals in their online classes (Alfadda & Mahdi, 2021; Lee & Choi, 2010; Kim & Park, 2023). Learners in online settings need both a sense of computer self-efficacy (the understanding that they can use their computers and associated tools to achieve their learning goals) and internet self-efficacy (the understanding of how to use the resources that exist online to achieve their learning goals) to effectively navigate online environments (Kim & Park, 2023).

Another important skill set for adult online learners to possess is effective time management, as it pertains to their ability to balance all their obligations and roles (Kahn et al., 2017; Lee & Choi, 2010; Roddy et al., 2017). Adults engaging in online learning need to be able to break their desired learning outcomes down into manageable steps, to create a plan for completing those steps, to execute the steps with varying degrees of support from the facilitator, and to evaluate their performance against their desired learning outcomes to make adjustments as needed (Kerr et al., 2006; Roddy et al., 2017). The ability to balance one's obligations and successfully meet one's goals increases the learner's sense of self-efficacy as well as the likelihood that they will complete their learning programs (Bandura, 1977; Blonder et al., 2022).

The final predictor of learner success in an online course relevant to the current research is the learner's psychological attributes including (1) their mindset about learning and about technology (Bloomberg & Grantham, 2018; Lee & Choi, 2010; Roddy et al., 2017); (2) the degree to which they are self-motivated and proactive (Bloomberg & Grantham, 2018; Kerr et al., 2006; Kim & Park, 2023; Lee & Choi, 2010; Roddy et al., 2017); and (3) their levels of resilience in the face of set-backs (Khan et al., 2017; Lee & Choi, 2010). In general, participants who identify as learners and have a positive mindset about learning and technology tend to report more positive experiences in online learning settings (Bloomberg & Grantham, 2018; Lee & Choi, 2010; Roddy et al., 2017). Moreover, learners who identify with their learning institution and see themselves as an essential part of the online community are more committed to their learning goals than those who do not feel this same sense of belonging (Bloomberg & Grantham, 2018).

Additionally, learners who are self-motivated and proactive report higher levels of satisfaction with their online learning experiences (Bloomberg & Grantham, 2018; Kerr et al., 2006; Kim & Park, 2023; Lee & Choi, 2010; Roddy et al., 2017). This psychological attribute is associated with the learner's degree of self-esteem and technological self-efficacy; they are comfortable seeking support when needed, and they are able to select and use appropriate communication channels to obtain that support (Kerr et al., 2006). The learner's degree of motivation and ability to be proactive are influenced by environmental factors, including their commitments as well as the support they receive from home, work, and the learning organization (Lee & Choi, 2010). Learners whose environmental factors align with their goals express higher levels of motivation and tend to complete more courses (Lee & Choi, 2010). In contrast, those with more obstacles in their environments are more likely to drop out (Lee & Choi, 2010).

Finally, learners who report higher degrees of satisfaction in online settings are resilient and equipped to cope with unexpected setbacks (Fischer et al., 2021; Lee & Choi, 2010). Part of what helps learners in online settings cope with setbacks is their perception of their ability to navigate stressors (Fischer et al., 2021). Learners who believe they perform well under pressure will be less impacted by the stress associated with a setback than learners who do not hold this belief (Fischer et al., 2021; Khan et al., 2017). Another factor in learners' resilience is their degree of self-efficacy (Lee & Choi, 2010). If a learner is confident in their ability to tackle technological and/or academic challenges, they are more comfortable selecting the appropriate tool or resource to address their needs than a learner who does not feel as efficacious in an online space (Lee & Choi, 2010). These learners will ultimately report more positive perceptions of the learning experience (Fischer et al., 2021).

This section shared that learners tend to feel higher degrees of satisfaction with online learning when they have (1) more experience learning in online settings; (2) higher degrees of proficiency with technology, communication, and time management; and (3) confidence in their ability and identity as a learner. Learners who are strong in these areas are more efficacious and therefore more likely to complete online courses and to find satisfaction in them. The following sections demonstrate how facilitators and organizations can support learners who are novices in the online space in achieving success and satisfaction.

Facilitator Factors Contributing to Effective Online Learning Experiences. While learners' experiences, self-efficacy, and confidence influence their perceptions of their online learning experiences, the facilitator also greatly influences learners' perceptions of their experiences. This section explores some of the factors identified related to the facilitator's role in learners' perceptions of courses, including (1) the facilitator's technological self-efficacy (Bigatel et al., 2012; Blonder et al., 2022; Bloomberg, 2020; Kim & Park, 2023; King, 1999; Lee & Choi, 2010); (2) how the facilitator establishes and maintains regular communication (Bigatel et al., 2012; Bloomberg & Grantham, 2018; Grammens et al., 2022); and (3) how the facilitator designs the learning experience (Bigatel et al., 2012; Bloomberg & Grantham, 2018; Khan et al., 2017; Lee & Choi, 2010).

The facilitator's technological self-efficacy has a positive impact on adult learners' perceptions of the learning experience (Kim & Park, 2023). Facilitators need to believe (1) the available technology will enhance learners' experiences in the online space (Bigatel et al., 2012; Blonder et al., 2023; King, 1999); and (2) that they can use the resources they have to support learners in these spaces effectively (Kim & Park, 2023). These beliefs help facilitators tackle technological obstacles they face, such as malfunctioning software or unexpected updates at inopportune times (Blonder et al., 2022). Facilitators develop these beliefs when they are given intuitive tools that they perceive will enhance the learning experiences, as well as ongoing training on how to effectively use the tools (King, 1999; Peñarroja et al., 2019). When facilitators possess high degrees of technological self-efficacy, they can effectively integrate technologies into the classroom in ways that are both useful and relevant to learners (Bigatel et al., 2012). These facilitators can also help learners with lower technological self-efficacy build confidence in these tools by teaching them how to use the tools and demonstrating how the tools can help learners reach their goals (Lee & Choi, 2010).

An essential facet of the facilitators' technological efficacy is their ability to effectively choose and utilize multiple channels for communicating with learners (Bloomberg & Grantham, 2018; Grammens et al., 2022). For instance, if an assignment deadline has changed, it is best to communicate the change via email and/or update the course page. However, if the facilitator needs to discuss a sensitive or more complex topic, a synchronous means of communication, such as phone or video, may be a better choice (Bloomberg & Grantham, 2018). Finally, research shows that it is essential for facilitators to provide continuous and supportive feedback on the learner's progress and suggest next steps by commenting on collaborative documents, posting grades regularly (if applicable), and in-the-moment during synchronous experiences (Bigatel et al., 2012; Bloomberg & Grantham, 2018). In maintaining their communication system, the facilitator increases the learners' perception of the experience's efficacy, thereby increasing their satisfaction with the course (Bloomberg & Grantham, 2018; Grammens et al., 2022).

Facilitators with high degrees of technological self-efficacy are also able to leverage their tools to create online learning experiences that learners perceive as effective in meeting their learning goals (Bigatel et al., 2012; Bloomberg & Grantham, 2018; Khan et al., 2017). These learning experiences begin with articulated course goals and clear expectations for learners (Bigatel et al., 2012; Bloomberg & Grantham, 2018), including the availability of additional support when needed (Lee & Choi, 2010). When facilitators share this information upfront and clearly communicate changes that occur throughout the course, learners express more confidence in their facilitator's effectiveness as an educator (Bigatel et al., 2012; Grammens et al., 2022). Additionally, when building these experiences, effective facilitators design courses that include many opportunities for adult learners to engage with one another (Grammens et al., 2022; Lee & Choi, 2010). By encouraging learners to regularly engage with one another during online learning experiences, facilitators increase learners' motivation to complete the learning experience (Hung et al., 2010). Designing for peer engagement also creates more potential for transformational learning to occur as learners share their perspectives and give feedback to one another (Hart, 1990; Kitchenham, 2008; Merriam, 2004; Preston et al., 2014; Taylor, 2007; Yorks & Kasl, 2022; Zhu et al., 2020).

This section showcased the importance of the online facilitators' technological self-efficacy, their communication systems, and their course design. Although some facilitators enter online spaces with these attributes and skills, these factors can be developed and supported through their organization. The next section examines how organizations can support online learners and facilitators to ensure that learning outcomes are achieved.

Organizational Factors Contributing to Online Learning Experiences. Although both facilitators and learners play important roles in positively influencing learners' perceptions of their learning experiences, it is also necessary to explore the organizational contexts in which successful learning experiences take place. This section examines some of the factors explored in existing literature, including (1) the organization's technological capacity (Bloomberg & Grantham, 2018; Kim & Park, 2023; Peñarroja et al., 2019); (2) the perception that online learning is an essential part of the organization's identity (Epstein, 2024; Peñarroja et al., 2019); and (3) the organization's ability to create a sense of community through all of its available resources (Coonin et al., 2011; Lee & Choi, 2010).

Online learning organizations are perceived to be effective when they (1) possess sufficient hardware to maintain access to their online programs, (2) host a variety of communication platforms that allow facilitators, leaders, staff and learners to communicate seamlessly through multiple channels, and (3) provide access to technological resources that enhance the teaching and learning experience (Kim & Park, 2023; Peñarroja et al., 2019). These resources need to be easy to use, because if they are too difficult, users will perceive them as impediments to their goals and will abandon them (Peñarroja et al., 2019). No matter how easy, however, organizations must also provide sufficient and ongoing training to ensure that learners, staff, and facilitators can use all these resources proficiently (Bloomberg & Grantham, 2018). Robust systems like these provide facilitators with the sense that they have the resources they need to effectively educate in these settings (Bandura, 1977; Blonder et al., 2022; Peñarroja et al., 2019; Roddy et al., 2017), which then assures the learner that the learning environment is conducive to meeting their learning goals (Abdolrezapour et al., 2023; Kim & Park, 2023).

Organizations that support online learning not only need to have adequate technological resources in place, but they also need to communicate that these resources are an important part of their identity (Peñarroja et al., 2019). If organizational leaders clearly communicate how these technological resources will be utilized to achieve both organizational and individual goals, faculty and staff will perceive them as essential to their jobs, which in turn increases motivation to master the new tools (Epstein, 2024). As facilitators have more mastery experiences with these tools (Bandura, 1977; Blonder et al., 2022), they feel more efficacious in their ability to teach their learners how and when to use the resources to achieve their personal and professional goals (Peñarroja et al., 2019).

Finally, online learning organizations must consider how they can provide institutional supports that meet the unique needs of online learners in the same ways that they provide supports to learners convening in physical settings, including administrative support, orientation for new learners, and services for those needing additional academic support (Lee & Choi, 2010). For instance, Coonin et al. (2011) explore the importance of having accessible library services to online learners. They point out that while many programs were shifting to include more robust online library resources (a novel idea in 2011), libraries need to have asynchronous resources available to teach new learners how to access and best utilize the systems available to them through the library (Coonin et al., 2011). Whether it is a library, a financial aid office, or a technical support representative, all these services must be readily available at the learner's point of need (Coonin et al., 2011), and learners must know how to access them (Lee & Choi, 2011). Having robust systems in place contributes to the degree to which an online learner identifies with the organization, which increases their motivation to remain in the program (Bloomberg & Grantham, 2018).

An organization's technological capacity, its communications about the usefulness of its technological resources, and its robust offerings of services increase learners' satisfaction with their online learning experiences (Coonin et al., 2011; Epstein, 2024; Kim & Park, 2023; Lee & Choi, 2011; Peñarroja et al., 2019). In these robust environments, facilitators and learners can establish and maintain communities of learning that motivate learners to achieve their learning goals (Bennett et al., 2021; Bigatel et al., 2012; Bloomberg, 2020; Grammens et al., 2022; Hung et al., 2010; Lee & Choi, 2010). When this happens, both learners and facilitators feel more invested in the environment because they identify with the organization (Bloomberg &

Grantham, 2018). This increases the learner's sense of presence within their online classes and within the organization.

Presence. When learner, facilitator, and organizational factors align and when their roles are fulfilled, learners and facilitators develop a sense of presence in the online space. Presence exists in an online community when members feel they are in the virtual space together (Biocca et al., 2003), even though they may never meet in the same physical space (Bloomberg & Grantham, 2018; Joo et al., 2011). An important aspect of this is that members of these groups perceive themselves as interacting with other real people (Bloomberg & Grantham, 2018) and feel a sense of belonging within that group (Joo et al., 2011). Presence is felt in three domains: social presence, teaching presence, and cognitive presence (Joo et al., 2011).

Participants in online learning experiences experience social presence when their peers share personal characteristics that reveal who they are socially and emotionally within the virtual learning space, making participants feel part of a learning community comprising real people (Garrison et al., 2003; Joo et al., 2011). Three indicators that social presence exists in an online learning environment are that learners (1) share personal beliefs and values with one another, (2) communicate openly, and (3) express a sense of commitment to the group (de Beer et al., 2022; Joo et al., 2011). Biocca et al (2003) postulate that while some social presence is felt due to things that are actually said, some of the feeling "may be the byproduct of reading or simulating the minds of virtual others" (p. 472). However, when social presence is built, learners in these communities exhibit higher engagement in learning tasks and greater satisfaction with their learning experiences (Kim & Park, 2023).

Teaching presence refers to the sense learners have that a facilitator is genuinely present in the online learning space and is a real person (Garrison et al., 2003; Joo et al., 2011). Teaching presence is felt in the design, execution, and facilitation of all learning activities (Joo et al., 2011). Learners in environments with teaching presence not only perceive that their experience is well-organized but also that it is driving them towards relevant, worthwhile learning outcomes (Garrison et al., 2003; Joo et al., 2011). Like social presence, learners in environments with high teaching presence report higher levels of satisfaction with the experience (Kim & Park, 2023).

When online learning environments have high levels of social and teaching presence, it is more likely that cognitive presence will also be high (Joo et al., 2011). Cognitive presence exists when learners are able to construct and refine meaning through critical discourse and reflection (de Beer et al., 2022; Garrison et al., 2003; Joo et al., 2011). According to Joo et al. (2011), cognitive presence cannot exist without social presence, because members of the learning community need to feel secure enough to challenge one another and provide support as they engage in critical reflection and the resolution of thinking.

Some scholars report that presence has the highest impact on learners' perceptions of online class quality (Joo et al., 2011; Kim & Park, 2023; Popa et al., 2020). When learners in online settings feel they are a part of a supportive and challenging learning environment, they feel more motivated to navigate the difficulties they face to achieve their desired learning outcomes (Bandura, 1977; de Beer et al., 2022; Garrison et al., 2003; Joo et al., 2011; Kim & Park, 2023).

Learning in Online Settings: Conclusion. This section explored self-efficacy and its impact on learners' perceptions of their experiences in online learning environments. It then shared the factors that each shareholder possesses or influences, which impact learners' perceptions of online learning experiences. Learners' factors include (1) their previous experiences in online learning environments and (2) their psychological attributes, including their beliefs and mindsets about learning in online environments, as well as their levels of self-esteem and resilience in the face of hardship. Facilitators' factors include (1) their beliefs and mindsets related to learning in online environments; (2) how they design the learning experience; and (3) how they develop and maintain systems for maintaining communication throughout the learning experience. Organizational factors include (1) the capacity to support the robust technology needed for online learning experiences, (2) effective communication regarding the usefulness of the technology in supporting users' goals, and (3) the ability to provide technical support and services to online learners and facilitators. Ultimately, it examined how each of these factors contributes to learners' sense of presence in the online learning environment. With this foundational understanding of learning in online spaces in place, the next section shares what is currently known about how transformational learning occurs in online settings.

1.1.5 Transformational Learning in Online Settings

The literature exploring transformational learning — learning that changes a person's perspectives, resulting in new actions, speech, and beliefs — is sparse. The following section examines five studies conducted between 2005 and 2022, which focused on learning experiences primarily delivered online in both asynchronous and synchronous learning environments. Boyer

& Maher (2005) and Boyer et al (2006) showcase what transformational learning could look like in asynchronous environments. Kumar & Arnold (2014) explore methods for assessing whether transformational learning occurred in online courses, highlighting some of the advantages of collecting data from online settings. Ahmed & Tab (2021) explore the role that online communities of practice (CoP) played in their own transformation journeys. Finally, Vergara (2022) describes the impact of experiential learning and storytelling on learners' transformational journeys.

Boyer & Maher (2005). In 2005, Boyer & Maher conducted a study examining the transformational learning experienced by cohorts of facilitators enrolled in an asynchronous educational technology course. Although this course was not initially designed with transformation in mind, the scholars found that many learners described feelings of transformation at the end of the course, and they wanted to study that phenomenon more closely. There were twenty-three participants in the class that they studied. To collect the necessary data, the scholars sent learners a series of reflective questions throughout the semester to document their learning progress. They then coded the responses looking for evidence that learners had faced a disorienting dilemma at some point during the course, that they chose to confront that dilemma, and that they engaged in critical reflection of their prior assumptions. The scholars share three ideas that were reiterated by learners throughout the data collection process: (1) learners described the environment as being filled with trust and reassurance; (2) learners valued the facilitators' timely, specific feedback; and (3) learners' feeling that the facilitators were their collaborator and model, which increased their sense of the facilitator's presence in their space. Boyer & Maher (2005) found that the asynchronous online learning environment "increase[s] the potential for transformational learning as the students had to move into higher levels of self-responsibility, autonomy, and self-regulation" (p. 78).

Boyer et al (2006). In 2006, Boyer and Maher joined Kirkman to further elaborate on the data analysis process they had engaged in during their 2005 study. The authors highlight Mezirow's claim that not all adult learning is transformative, and perspective transformation is especially rare. The scholars established three types of learning events learners experienced: (1) transfer of knowledge where learners learned new information that did not include transformation; (2) incremental transformations wherein learners described shifts in their practice as a result of their learning but not a larger transformation; and (3) perspective transformations wherein learners found themselves with new beliefs that required new action and ways of thinking. The scholars determined that perspective transformation was coupled by disorienting dilemmas; therefore, when coding participants' responses, they marked perspective transformations when participants described disorienting dilemmas and marked all other responses as transfers of knowledge. The authors emphasized that this was a difficult task when they could only access the participants through the course: they wrote, "it is only through knowledge of each individual's future cognitive, connotative, and affective equilibrium that true perspective transformation can be verified" (Boyer et al., 2006, p. 351). The authors emphasized that what makes the online learning environment ripe for transformational learning is its capacity for learners to engage in continuous dialogue through multiple communication means, such as discussion boards, email, and chat rooms: "Use of only one of the communication tools described would not have been sufficient to create the conditions for this extensive critical reflection" (Boyer et al., 2006, p. 354). They conclude with a call for scholars to continue examining transformational learning in online settings as technology evolves, with special emphasis on the actions facilitators take that either help or hinder in the online environment (Boyer et al., 2006).

Kumar & Arnold (2014). In 2014, Kumar & Arnold set out to document and assess methods for collecting and analyzing evidence of learners' transformational learning journeys in online settings. A constraint of analyzing transformational change online, they argue, is that the researcher is unable to observe learners' affect and body language during the learning process, which can indicate learners' developing understanding, moments of discomfort, disorientation, and/or realization leading to transformation. However, one of the benefits of conducting research on transformational learning in online environments is that researchers can access learners' digital records and interactions throughout the learning experience. They conducted an analysis of social work learners' digital portfolios, which included data from throughout their two-year program. The scholars coded these portfolios looking for times when the learner (1) expressed that they personally related to the content; (2) shared that the content was related to their professional experiences; (3) identified relationships between theories and their practice; (4) found significance of the information learned to their profession; (5) changed their way of thinking; or (6) changed their way of acting. Through the coding process, the scholars added a seventh indicator of transformation: descriptions of dilemmas the learners experienced (Kumar & Arnold, 2014).

Ahmed & Tab (2021). Ahmed & Tab (2021) examine how the Community of Practice (CoP) model of online learning supported their own transformational learning journeys. Within the CoP model, knowledge is built between a group of collaborators who (1) have a concern or passion in common, (2) engage in group activities online, and (3) develop a shared practice over the course of their engagement with one another. The authors describe how the online CoP for adult facilitators that they were a part of became a lifeline during the initial global shutdown. Their CoP enabled them to connect with numerous facilitators to share strategies, ideas, and emotional support as education transitioned online. The CoP functioned across many platforms, including Twitter, Facebook, and LinkedIn. The work done here helped facilitators begin to transform their practice to better meet their learners' needs. Additionally, these scholars found that their participation in their CoP fostered changes in their attitudes towards online learning as their roles shifted throughout the early part of the pandemic.

Vergara (2022). In 2022, Vergara engaged in action research (research related to a problem or need that occurs while the researcher is simultaneously acting on their findings) to document his learners' transformational learning journeys in an online marketing course, which he had previously taught in person. During the class, learners were asked to set up three different virtual events and market them to their classmates, simulating the kinds of events these learners might promote professionally. When Vergara lectured, he employed storytelling methods, sharing his experiences as both an attendee and an event curator throughout his lifetime, which influenced learners' sense of teacher presence. During the course, Vergara (2022) collected two types of data: (1) pre- and post-survey questionnaires distributed to learners at the beginning and end of the course, and (2) diary entries kept by the instructor throughout the course to document notable incidents. Through this study, Vergara found that teacher presence had a strong influence on his learners' connection to the course and its content. He also emphasized the importance of using many communication methods to support continuous and authentic dialogue throughout the course. He hosted synchronous classes and individual meetings on Zoom, posted materials and updates on the school's learning management system (LMS), and used email as needed for specific communications. Additionally, he encouraged learners to use a private Facebook group to post promotional materials and chat to communicate with group members as they set up their projects. Despite the usefulness of these various resources, Vergara (2022) identified technology as a hindrance to the learning experience because learners lack equitable access to adequate resources.

Concluding Transformational Learning in Online Settings. Although these studies spanned two decades, several recurring themes are worth considering. These authors suggest that trusting environments are essential for transformation to occur in online settings (Ahmed & Tab, 2021; Boyer & Maher, 2005; Boyer et al., 2006; Vergara, 2022). Some highlight the crucial role the facilitator plays in maintaining learners' motivation throughout the course (Boyer & Maher, 2005; Boyer et al., 2006; Vergara, 2022). Finally, several studies discuss the benefits for learners and researchers of skillfully using multiple communication channels (Ahmed & Tab, 2021; Boyer et al., 2006; Kumar & Arnold, 2014; Vergara, 2022). Despite each of these studies documenting successful transformation in online settings, there is some disagreement about whether learning in online environments helps (Ahmed & Tab, 2021; Boyer & Maher, 2005; Boyer et al., 2006) or hinders (Kumar & Arnold, 2014; Vergara, 2022) the transformational learning journey.

1.1.6 This Study's Contribution to the Literature

As more adult learning programs shift online (Bloomberg, 2022; Evans et al., 2019; Hacker et al., 2020; Karakose, 2021; Kim & Park, 2023; Lee & Choi, 2010; Marinoni et al., 2020; Tuan Anh et al., 2023), it is important to document how transformational learning occurs in these environments (Boyer et al., 2006). Some of this documentation has already begun; however, many of the existing studies focus on how transformation occurs in asynchronous learning environments (Ahmed & Tab, 2021; Boyer & Maher, 2005; Boyer et al., 2006; Kumar & Arnold, 2014). This suggests a need for more studies examining how transformational learning occurs in synchronous learning environments. Additionally, most of these studies were conducted within the context of university courses, with the course facilitators also serving as researchers (Boyer & Maher, 2005; Boyer et al., 2006; Kumar & Arnold, 2014; Vergara, 2021). In this study, I seek to engage with participants rather than facilitators, as they are the ones who can describe how they were (or were not) transformed by their learning experiences and their perceptions of what impacted that transformation. Furthermore, the existing literature does not capture the full scope of adult learning experiences, which occur across various contexts (e.g., workplace learning, communities of practice). For this reason, this study is not limited to university settings, as it aims to capture the variety of contexts in which transformation can occur in synchronous learning spaces. What results is a conceptual model that can be used by organizations, facilitators, and participants seeking to support and engage in transformational learning through web-conferencing.

This qualitative study seeks to build a conceptual model for how transformational learning occurs in online synchronous learning experiences through the exploration of the following research questions:

(RQ1) What conditions do participants view as essential in a web-conferencing setting for transformational learning to occur?

(RQ2) How do participants perceive the facilitator's role and moves in their transformational learning experience?

(RQ3) How do participants perceive their role in ensuring that transformation occurs in a synchronous, virtual learning environment?

Chapter 2: Methods

To examine the factors that contribute to transformational learning in synchronous online learning spaces, I used qualitative methods to allow for "a complex, detailed understanding of the issue" (Creswell & Poth, 2018, Chapter 3, When to Use Qualitative Research, para. 1). More specifically, I used grounded theory methods to design, collect, and analyze the data I gathered. Grounded theory methods enable researchers to develop models or theories that explain everyday experiences or phenomena (Creswell & Poth, 2018), using data collected in an iterative manner (Charmaz, 2014). Data collection occurred in two phases using (1) a qualitative survey to generate recurring themes, and then (2) a set of semi-structured interviews with adult learners who have had learning experiences in virtual online settings. I approached the research process with a constructivist lens, meaning that I believe the findings of any research are inherently conditional and contextual (Charmaz, 2014). Therefore, I designed this study to culminate in a conceptual model that accommodates various environments and conditions. This chapter provides a detailed description of the methodology introduced here.

To ensure the process was ethically sound and that participants could participate safely, the project was reviewed and approved by the University of Alaska Fairbanks's Institutional Review Board (IRB). This review occurred twice, once before survey distribution began and then again when the interview guide was finalized. Both of these reviews determined that this study qualified for exemption from the requirements of 45 CFR 46. These letters can be found in Appendix C.

This chapter begins with a description of the criteria used to recruit participants. It then explores each phase of the study, including how participants were recruited for each phase, how I designed and utilized each data collection tool, and how the collected data was analyzed and used to inform the next phase of the study. The chapter concludes with an exploration of my positionality as a researcher and its impact on my approach to this process.

2.1 Participant Criteria

The first requirement for participation in this study was that participants be at least 18 years old, as this study focuses on adult learning. Additionally, when recruiting participants for this study, I sought to cast a wide net so that the findings could be generalized across adult learning settings, not just those in institutions of higher education (Hanel & Vione, 2016). Although I did solicit participation from learners in university settings, I specifically invited “anyone who has ever done any learning through web-conferencing” to participate, allowing potential participants to determine what constituted a learning experience for them. This was done to mitigate selection bias and the problems associated with conducting research only among college learners (Hanel & Vione, 2016; Leentjens & Levenson, 2013; Tomporowski et al., 1993) and to ensure that the model applies to various learning contexts. I also specifically did not recruit facilitators for this study, as I wanted to hear from those who had experienced transformation as learners in synchronous settings. Participants with facilitation experiences were not excluded from this study; however, I requested that their responses focus on their experiences as learners in web-conferencing settings.

2.2 Phase 1: Qualitative Surveys

Phase 1 of this study focused on qualitative survey responses. By designing surveys with open-ended questions, researchers can gather diverse perspectives to understand the breadth of a topic, which can help identify themes and categories for further exploration (Braun et al., 2021; Joubert et al., 2022). The following sections explore (1) how I designed the survey, (2) how I recruited participants, and (3) how I analyzed the data collected through the surveys.

2.2.1 Survey Design

The qualitative survey included open-ended questions that targeted essential points of the research questions (Lindlof & Taylor, 2019), with an invitation for participants to provide as detailed responses as possible. The survey is available in Appendix A. The survey was hosted by Qualtrics and was designed to take approximately 20 minutes to complete. When participants first opened the survey, they were asked to review the informed consent form. It included (1) the survey’s IRB approval information, (2) information about the study including the requirements that participants be at least 18 years or older and that they had participated in a learning experience via web-conference, (3) risks and benefits of participating, (4) information about how their responses would be kept confidential, (5) a reminder that participation is voluntary, and (6) the contact information for the co-researcher, primary investigator, and UAF’s IRB. There was also a statement letting participants know that by clicking “Submit,” they were consenting to participate in the study.

Once consent was obtained, participants were given the survey directions, including a request to answer each question in as much detail as possible and a reminder that any question could be skipped for any reason. These directions also included definitions of the terms "web-conferencing" ("any live learning you've done by video through any tool or platform (Zoom, Google Meet, Microsoft Teams, etc.)") and "learning experience" ("any event you participated in that had a facilitator or teacher structuring the session, including a single workshop or webinar, a course that included many classes, a coaching experience, etc.").

The initial questions of the survey were designed to help participants become comfortable with the survey process. The first question asked how participants had used web-conferencing tools personally, professionally, or for educational purposes, and the second asked them to share their general feelings about these tools. Participants were then asked to describe the best and worst learning experiences they had through web-conferencing, sharing (1) the topic and structure of each experience; (2) their reasons for participating in the experience; (3) their expectations going into the experience and how the experience matched their expectations; and (4) the specific factors or elements that made the experience so positive or so negative. To close, participants were asked, "If you were running a training session, what strategies would you use to make it an engaging experience?" This question was designed to allow participants to summarize the ideas they shared throughout the rest of the survey and to highlight the points they considered most important. They were then asked if they had anything else they would like to share about the topic.

Once participants answered these questions, they were brought to part two of the survey. Here, they were asked if they were interested in participating in a 30–45-minute interview with the researcher. If they answered "Yes," they were asked to share their email address and the days and times that work best for them. The survey concluded with an expression of gratitude to the participants for their time and insight into the topic.

2.2.2 Survey Recruitment

I recruited participants for the survey through the University of Alaska system, as well as via social media platforms using a snowball sampling technique. My committee and I sent emails to our contacts within the University system, inviting them to participate in the survey and to pass the invitation along to others who might be interested in participating. A video ad featuring eye-catching animations was developed for social media to explain the study and invite viewers to participate, which is available in Appendix D. This ad was posted on Facebook, Instagram, LinkedIn, and Reddit. Posting on Facebook and Instagram allowed me to connect with an audience that represented the public, as well as some groups supporting researchers including Survey Circle and Ph.D. Mamas (I verified before posting my ads that they did not violate the terms and conditions of posting in these spaces). The LinkedIn post targeted working professionals. Finally, the Reddit post primarily targeted men aged 18-45.

The survey was open from April 2023 through August 2023, with three major pushouts across all platforms and intermittent social media stories in between. I collected a total of ten survey responses. Although that response count was low, I had sufficient data to inform the design of the qualitative interview guide.

2.2.3 Survey Data Analysis

To analyze the survey responses, I exported the data from the first part of the survey and inserted it into a spreadsheet by question. From here, I summarized each comment using key phrases and noting when they were repeated. I wrote a summary of the ideas, noting what surprised me based on the literature informing this study and listing additional questions I had based on the responses shared. For instance, I noted how often participants commented on the facilitator's use of the platform's tools and how varied participants' perceptions of different tools, such as breakout rooms, were. This led to questions about how and when employing these tools could lead to or disrupt a transformative experience.

2.2.4 Conclusion

The first phase of data collection helped me recognize the various ways web-conferencing platforms are being utilized to support adult learning. It helped me identify recurring themes raised by participants, as well as some gaps for which I needed more information to build the conceptual model. I used this initial data to inform my decisions on what to explore during phase two of the study.

2.3 Phase 2: Qualitative Interviews

The surveying process helped me come to see facets of the online learning experience from learners' perspectives, of which I was previously unaware. The open-ended survey questions allowed participants to respond in ways that were authentic to their experiences and not confined to my preconceived notions of what the data should be (Joubert et al., 2022). However, due to the anonymous nature of the survey, I was unable to follow up with participants to expand on their responses (Charmaz, 2014; Joubert et al., 2022; Lindlof & Taylor, 2019). The puzzles exposed in the initial data helped me to design phase two of the data collection process: qualitative interviewing. The following sections explore (1) how I designed the interview guide, (2) how I recruited participants for the qualitative interviews, (3) how I conducted the interviews, and (4) how I processed and analyzed the data collected.

2.3.1 Interview Design

By holding the survey data up to the research questions, I was able to identify areas that needed further exploration and clarification (Lindlof & Taylor, 2019). These became the foundation of the interview guide, which is available in Appendix B. The interview began with three rapport-building questions that invited participants to share some information about their contexts and their understanding of themselves as learners. The central portion of this interview allowed participants to share about one learning experience they had in an online setting that was either "really good" or "terrible." By focusing on one experience, the participants and I were able to gather rich data about the factors that contributed to their perceptions of that experience. Participants were asked to (1) give an overview of the event, (2) share their perceptions of the event before it began and their reasons for participating, (3) describe the physical space from which they were participating as well as the virtual space in which the learning experience was occurring, and (4) share about the facilitator and the other participants. I solicited these responses by asking what Lindlof & Taylor (2019) call tour questions, "to prompt subjects to take us on a verbal tour of something very familiar to them in their cultural scene or life experience" (p. 256) and example questions, which ask participants to give examples of the phenomena they are describing. Participants were then asked about the "a-ha" moments they had during the event, as well as how it ultimately impacted their lives, which allowed us to explore the question of transformation.

To allow participants to summarize their thinking, I asked a series of closing questions. The first was an alternate-universe question where I asked participants who had a positive experience what could have happened to make it feel negative or ineffective, including the actions that could have been taken by the facilitator and by the participants. Participants who described a negative experience were asked what could have made the experience feel more positive or effective. All participants were then asked to respond to each of the research questions, allowing them to share their final thoughts and perceptions in a succinct manner. At the end of the interviews, participants were invited to share their pronouns and the pseudonym they would like me to use when curating the data and writing the report.

Once the interview guide was finalized, this portion of the study was submitted for IRB approval. This letter is available in Appendix C. With approval in hand, it was time to recruit participants for Phase 2 of the study.

2.3.2 Interview Recruitment

I recruited participants for the interview portion of the study through the survey, as well as via email and social media posts. At the end of the survey, participants were asked if they were willing to engage in an interview about a learning experience they had in a web-conferencing setting. If they said yes, they were asked to share an email address. Once IRB approval had been obtained for phase two of the study, these participants were emailed to ask whether they were still interested in participating in an interview and to inquire about their availability. At the same time, ads were posted on Facebook, Instagram, LinkedIn, and Reddit to recruit a diverse group of participants for the study. These ads shared (1) the topic of the study, (2) the research questions, and (3) a link to a brief form where participants could share their contact info. I also partnered with my committee members to send emails to contacts, sharing information about the study and a link to the sign-up form for interested participants. These media can be found in Appendix D.

Participants who signed up were emailed three times for the interview. I also sent them the informed consent form so that they are aware of what I was asking of them and the possible consequences of their participation in the interviews. In total, I was able to recruit eleven participants for interviews, some of whom had completed the survey and some who were recruited through other methods.

2.3.3 Interview Execution

The interviews took place via Zoom, which allowed the participants and me to access each other regardless of our location or time zone. Ultimately, I conducted eleven interviews from October 2, 2023, to October 18, 2023. The interviews were designed to last 30-45 minutes; the longest interview lasted 76 minutes, and the shortest was 29 minutes. In developing this study, I aimed to interview at least nine participants, as there is some evidence that saturation is often reached at that number (Charmaz, 2014). Eleven participants allowed me to reach the point of saturation, where “new data no longer add much of significance or substance to the concepts that have been developed” (Lindlof & Taylor, 2019, p. 151; see also Charmaz, 2014).

Before each interview began, I reviewed the consent form once more and asked if the participant had any questions that needed clarification. After reviewing the consent form together, I had the participants read a statement of consent that was recorded through Zoom. This ensured that the aims and goals of the interview process, as well as their rights as a participant, were clear before the interviews began. Transparency is a meaningful way to establish rapport before an interview (Lindlof & Taylor, 2019).

The semi-structured interview guide provided sufficient flexibility to ensure that participants had the space to construct rich narratives of their experiences (Charmaz, 2014). This meant that although all participants were asked to share the same key information, the questions asked and the order in which they were asked varied by participant, allowing the conversation to unfold naturally and ensuring that we developed a shared understanding of what participants were describing. During the interviews, I took notes to capture the emotional tone expressed by participants, key phrases, and early connections or codes. This helped me organize the key themes emerging from the dataset and also proved helpful when transcribing and coding each interview (Lindlof & Taylor, 2019).

After the interviews ended, I jotted down my remaining notes, ideas, and questions while they were still fresh in my mind. I also changed any references to identifying data in my notes to protect the participants’ identities. These notes were helpful when it came time to transcribe and analyze the data collected, which usually occurred in the evening after the interviews took place.

2.3.4 Analysis of Interview Data

I used the transcription feature of Zoom to conduct the initial transcription of each interview. Then I listened to the interview while reading along to ensure accuracy and add clarifying notations as needed. I transcribed these interviews each night after the interviews were finished. I edited the language for flow, removing words such as “like,” “um,” and other utterances that were either unnecessary or impeded the message participants shared. For instance, if a participant repeated the word “like” multiple times in a row, I removed all but the first instance in the transcript. In total, there were 157 pages of transcribed data for analysis.

As each interview was completed and transcribed, I engaged in the work of model-building by analyzing the data closely through (1) initial/open coding strategies; (2) focused coding strategies, and (3) memo-ing (Creswell & Poth, 2018). During initial/open coding, I named each line of data with the goal of identifying as many categories as possible (Lindlof & Taylor, 2019). To do this, I used the comment feature of Google Docs to highlight and name specific phrases within each line. For instance, in Alice's interview, she shared about how her facilitator would open their sessions with "more of a social opportunity, kind of like how in traditional classes there's discussion before class and on breaks and that kind of stuff. But he was doing a little bit of that through the breakout rooms." This description was labeled "mimicking in-person settings," which was later related to the theme of presence in transformative spaces. This line-by-line coding enabled me to better understand the data, rather than relying on my assumptions and preconceived notions formed through my lived experience as a facilitator. I held on to Charmaz's (2014) reminder during this initial coding to "Remain open; Stay close to the data; Keep your codes simple and precise; Construct short codes; Preserve actions; Compare data with data; Move quickly through the data" (Charmaz, 2014, p. 120).

After completing initial/open coding, I engaged in focused coding to identify the major confluences of data— the ideas that are repeated so often as to imply a significant category or theme (Charmaz, 2014; Creswell & Poth, 2018; Lindlof & Taylor, 2019). To do this, I created a Google Doc where I listed all the codes from each line and then sorted them into larger categories by comparing "incident[s] of code to other incidents" (Lindlof & Taylor, 2019, p. 322) using axial coding methods. This allowed me to develop and refine the code, identifying the specific conditions, actions and interactions, and consequences that influenced when and how participants experienced transformative learning during a web-conference (Charmaz, 2014; Creswell & Poth, 2018). Using these procedures ensured that my analysis was organized and thorough (Charmaz, 2014).

Throughout the data collection and analysis processes, I also engaged in memo writing. This process enabled me to track the development of the conceptual model, identify essential categories, and create early versions of the model that were refined throughout the interview and analysis processes (Charmaz, 2014). As a visual learner, I recorded these memos using a variety of media, including sketchbooks, whiteboards, and Google Docs. Memos helped me identify areas where I needed more information to fully develop the conceptual model (Charmaz, 2014).

Once saturation was reached, I was able to develop a conceptual model that illustrates how the identified conditions and contexts influence adult learners' transformational learning experiences through web-conferencing (Creswell & Poth, 2018).

Throughout the coding process, theme identification, and memo writing, I also consciously reflected on how my previous experiences and assumptions influenced my analysis of the data. The following section explores my positionality to this research and how it informed my research practice.

2.4 Positionality

It is essential to share my identity in relation to the research conducted throughout this project (Olmos-Vega et al., 2022; Probst, 2015). I was a facilitator of adult learning for fifteen years in the K-12 education system in both one-on-one and group settings. In my work, I strove to ensure equitable engagement by all team members and co-ownership of the work accomplished during our allotted time together. It is essential to note that I conducted most of my facilitation synchronously via video, as I frequently worked with educators from remote locations throughout Alaska. My goal was to make people feel like they are in the room with each other, even when meeting by video. I believe that transformational learning through web-conferencing is possible with the right conditions and in the right contexts.

Because of my experience working in these web-conferencing spaces, I am familiar with the literature related to facilitation moves in online settings. I utilized that background knowledge and experience to inform the design of the study, particularly the survey in Phase One. However, it was important that the findings of this study not be overshadowed by my assumptions about learning in online spaces. Utilizing strategies like line-by-line coding allowed me to focus on the data itself, which led me to revise the interview guide for phase two from my initial draft to better reflect the insights shared by survey participants (Charmaz, 2014; Lindlof & Taylor, 2019). The coding strategies described above also helped me analyze the data collected from the interviews, focusing on participants' responses rather than my assumptions. My experiences as a facilitator helped me identify the themes raised by participants that were already reflected in existing literature and to recognize where new themes were emerging.

2.5 Conclusion

This chapter has explored how this study was designed using two phases of data collection (a qualitative survey and semi-structured interviews). It also shared how the data collected during both phases informed the structure of the study as well as the meaning-making processes I engaged in during analysis. Finally, it demonstrated how my positionality to the research informed the study's design and my data analysis processes. Chapter 3 shares the results of this research.

Chapter 3: Results

The following chapter explores the findings of the ten surveys and eleven semi-structured interviews collected from April 2023 to October 2023. This chapter expands on the themes that were identified to answer the research questions. This chapter first explores descriptions of the survey and research participants, as well as their learning experiences. I then share the findings related to the organizational context in which the learning occurs (RQ1), including (1) how the learning experience is tied to the organization's goals and culture; (2) how learners access the resources needed to support their learning; and (3) the time commitment of the learning experience. Next, I explore the research related to the ways facilitators support transformational learning through web-conferencing (RQ2), including (1) the participants' perceptions of the facilitator as a person; (2) the facilitator's technological efficacy; and (3) the structure of the learning experience. Finally, this chapter examines the roles participants play in transformational learning experiences in web-conferencing settings (RQ3), including (1) the role of choice; (2) the impact of the participants' beliefs on their perceptions of the experience; (3) the physical spaces in which participants learn; and (4) the effort required to maintain focus and presence in synchronous online settings.

3.1 The Participants and Their Contexts

This section introduces the participants who engaged with the surveys and the interviews. Understanding who the participants are and having a summary of their learning experiences helps contextualize the findings shared later in the chapter.

3.1.1 Survey Participants

Although the survey participants' identifiable or demographic data were not collected, they were asked to share how they use web-conferencing tools and their general impressions of learning in those settings. These are explored in this section to provide context for their responses, which are shared later in the chapter.

Usage of Web-Conferencing Tools. Survey participants reported using web-conferencing tools for schooling, as learners (four respondents) and as educators (three respondents), and for work (five respondents). Two mentioned attending learning events such as conferences and webinars. Three participants also mentioned using these tools to stay in touch with family and friends, one emphasizing that they were especially useful during the pandemic. Finally, three respondents shared that they used the tools, but didn't indicate how; one of these added that they used them "on a regular basis," which may suggest that they used them both professionally and personally. These responses indicate that the respondents are familiar with web-conferencing tools and that they have used them for a variety of purposes. These experiences help inform their impressions of the tools.

Impressions of Gathering in Web-Conferencing Settings. The survey responses collected indicate diversity of thought about whether web-conferencing tools allow for meaningful gatherings. Nine respondents indicated that the tools can be used effectively, but their preferences for using the tools varied. Some participants were enthusiastic about them, saying they are "very handy" and convenient to use. One wrote, "[Web-conferencing tools] are powerful and fill a great gap for people personably [sic], educationally, and professionally." Other participants shared that the tools are convenient compared to meeting in person, saying the tools are a way to engage with others without very much effort and that the travel time saved makes meeting online preferable to meeting in person. There were also more neutral responses like this one: "There are definitely good and bad tools. There are also awesome tools that are just used poorly." This sentiment was shared by two of the respondents. One neutral respondent shared that web-conferencing is "a good-enough connection," while another shared that web-conferencing can be effective but that it "lack[s] a human connection." Finally, some of the respondents shared very negative impressions of the tools. One wrote that many of the web-conferencing sessions they had been a part of "could have been an email," expressing that these meetings take away from the time they could be working. Another shared that they try to avoid online sessions as much as possible and prefer to work and socialize in person.

3.1.2 Interview Participants

This section explores descriptions of the interview participants and the learning experiences they described during the interview process. As stated above, these descriptions provide context for the findings presented later in this chapter. Please note that the pseudonyms used to describe the data were chosen by the participants; they do not reflect an affiliation with these organizations or brands. First, I share descriptions of the interview participants. I then provide summaries of the learning experiences they described.

Interview Participant Descriptions. I opened the interviews by asking participants to share about themselves, including any information about their personal and professional lives that they thought would be helpful for me to understand when interviewing them. These summaries reflect the participants' responses and are listed alphabetically by pseudonym. This data illustrates the diverse range of contexts represented in this series of interviews.

Alice. Alice immigrated to the United States (U.S.) approximately fifteen years ago to pursue graduate studies. She described herself as a “traditional” learner who enjoys lecture-based learning and who prefers working on paper rather than online.

Cisco. Cisco (no affiliation with the technology company) has worked as a minister, an educator, and a technologist. He describes himself as a pioneer of video conferencing in both rural and urban places. He calls himself a “hungry…. lifelong learner” who enjoys reading, conferences, and networking via LinkedIn. He also shared that he is a social learner who prefers engaging in discussions with others to make meaning. In addition to professional learning, he likes to dive into his hobbies through YouTube and discussions with professionals: “I don’t wait for stuff to come to me. I go after it.” Cisco also shared that he enjoys teaching about the things he is learning.

Gerald. Gerald is a K-12 educational leader. He has worked in the K-12 education field for the past 25 years, in both urban and rural settings, as both a teacher and administrator at various levels. He is married with adult children. He enjoys learning, especially when he can be outside. Gerald does not enjoy sitting for extended periods. He shared that he remembers what he reads but will implement what is discussed. He believes strongly that being in community changes behavior because it allows him to co-create and contextual new knowledge.

Graham. Graham has been a technical writer for “30ish years.” She has devoted a significant amount of time to learning online and is highly interested in the topic. She currently works in the gaming world but has also worked in insurance, finance, and academia. She is currently attending graduate school in a country outside of the U.S. “I am a sponge,” Graham shared. She enjoys learning databases through platforms like LinkedIn Learning and Udemy, which allow her to explore new topics before deciding whether to delve deeper into them. Outside of her formal classes, she builds relationships with her classmates via Zoom and WhatsApp. Like Cisco and Gerald, she is constantly learning.

H.P. H.P. lives with her husband and their seven children. She works in the healthcare field, performing general office duties. H.P. shared that her attention deficit, hyperactivity disorder (ADHD), and high intelligence drive her to always seek the why behind different expectations of her. She is an active learner who enjoys spending time learning about the challenges she faces at work, so that she can increase her competency in her field. H.P. does not like to learn about things that are not directly related to work, and she most enjoys sessions that hold tightly to a focused agenda. She prefers synchronous learning that can be personalized to her needs over pre-recorded sessions.

Harriet. Harriet worked in elementary education for eighteen years and now teaches at a university. She is currently pursuing a Doctor of Philosophy (PhD) online. Harriet identifies as a learner, which she says is a requirement of her field because it is constantly evolving. She shared that she has "severe ADHD" that makes sitting and focusing in a traditional classroom difficult. She enjoys learning through web-conferencing because it allows her to multitask.

Josh. Josh has been working in the consumer goods, consulting, technology, and, more recently, higher education sectors for the last thirty years. His shift into education has led him to undertake extensive learning in the past few years about topics related to his interests. He enjoys reading articles, interviewing experts in the fields he is learning about, and sharing that learning on platforms like LinkedIn. Josh shared that at this point in his life/career, "It's not only just about learning, but it's also about then shifting over to sharing as well, which is forcing me to also learn at the same time." He enjoys diving deeply into what he calls "classical research," i.e., reading research articles and then making that information more accessible and applicable for others.

Meghan. Meghan worked as a school business official and is currently leading professional learning for an organization that supports school business managers. She is relatively new to using web-conferencing platforms but is becoming more skilled through her new job. Meghan also describes herself as a lifelong learner interested in current events, crafting, and adult and child learning. She enjoys learning by reading and watching videos.

Sheena Belle. Sheena Belle is a reading specialist who works primarily with elementary students. She has taught elementary students virtually and in person. Most of Sheena Belle's learning is related to and sponsored by her workplace. She seeks out learning opportunities that align with her professional goals. Sheena Belle prefers hands-on learning during in-person sessions. She needs opportunities to practice with other people and receive in-the-moment feedback to improve her performance.

Willow. Willow is also an elementary teacher who maintains connections via social media and email. She is also an author who connects with other writers through online forums where she has maintained relationships that have lasted for many years. She utilizes platforms like YouTube to hone her writing skills. Willow also enjoys reading technical manuals to further her learning. She engages in regular professional learning to maintain her teaching certification and to enhance her teaching performance. Willow's rigid work schedule makes asynchronous learning opportunities preferable to synchronous experiences; however, Willow also enjoys in-person classes that take place in the evenings or on weekends.

Xavier. Xavier has worked in K-12 education for the last sixteen years. He earned his master's degree by distance through a mix of synchronous and asynchronous courses. Xavier considers himself to be fairly tech-savvy. He is currently a high school teacher. Xavier identifies as a learner whose primary means of learning is reading and lecture-based learning. He prefers to have some time to process new information on his own before discussing it with others. That being said, he finds it easier to pay attention in synchronous sessions because there are more stimuli to engage with. Xavier shared that his attention wanes after ten minutes of watching a recorded video.

The interview participants represent a wide array of experience levels and career fields. Understanding who the participants are, both personally and professionally, as well as their learning experiences, provides context for how they perceived their learning experiences and the responses they shared during these interviews. Because I sought to develop a conceptual model that could be applied across various learning contexts, it was essential to have a diverse array of experiences represented in my participant pool. The following section summarizes the learning experiences that participants shared, which were conducted via web-conferencing.

Summary of the Participants' Learning Experiences. Of the eleven people interviewed, nine reported having experienced what Mezirow (1990) calls a transformative learning experience through web-conferencing: they behaved differently, gained a new understanding, or described seeing things from a completely different perspective as a result of their learning experience. Hoogan et al (2017) remind scholars of transformational learning that they should not simply state whether experiences were transformative, as doing so oversimplifies the experience and suggests that said learning is linear or finite; instead, scholars should describe how the experiences were transformational. Therefore, each of these passages notes the ways in which each learning experience transformed the participant's perception and understanding without stating that the experience was definitively transformative. The following section provides a brief description of each participant's experiences and the outcomes that resulted from them.

Alice. Alice participated in a semester-long, one-credit course focused on wellness routines for graduate students. This course was not required for her program but was of interest to her. She said that the class centered on "the stuff that I geek on when I'm not geeking on my research." Alice took this course during the peak of the pandemic, so there was considerable interest in the course. There were 25-30 participants enrolled, who met once a week for approximately an hour. The professor employed a combination of lectures, guest speakers, and low-stakes homework assignments to help participants explore and adopt wellness routines that represented many cultures. She also "used Zoom to the fullest, which made it more interesting to follow than some classes that are just excruciating." Although Alice described her experience as very positive, she said it ultimately did not have a lasting impact or transform her life.

Cisco. Cisco described the first two-way synchronous videoconference that he helped orchestrate, connecting elementary students from a rural community in Alaska with a more urban community in New Jersey in the early 2000s. There were approximately 45 students in total on this conference call, including teachers from each classroom, a designated technical support person in each space, and an estimated six technicians from each telecommunication company who were monitoring the call to ensure it maintained sufficient bandwidth to support the call on each end. These calls lasted approximately an hour, and there were a total of four. It took about three years to coordinate the technology that would enable this synchronous work. For Cisco, it was these calls that cemented his belief that the technology could be essential for learning and building community across great distances. Although Cisco's experience is certainly unique in this batch of stories, as he was not one of the targeted learners, he described the extensive learning he had to undertake to build the infrastructure needed in his community to support this work and later advocate for its use in classrooms. These initial calls solidified Cisco's belief in this technology and added weight to this conviction. This experience transformed what Cisco believed was possible through such technology, and it directed his professional goals for the next decade.

Gerald. Gerald participated in a learning experience that lasted about two years during the COVID-19 pandemic. It was designed to support school leaders and was co-facilitated by an educational leader in his state and a leader of his county's health department. There were about eight people in these sessions. Each meeting lasted approximately one hour, with time allocated for learning about updated CDC guidelines and state regulations for school districts, as well as for participants to vent and problem-solve challenges they were facing in their communities. Gerald said of these sessions, "We were a learning community, but it was also an emotional support community." This was important to Gerald and his cohort because the pandemic was a lonely time for school administrators working in heated environments, fueled by conflicting beliefs about the appropriate response to COVID-19. Gerald shared that he had many transformational moments throughout this experience, including an enhanced understanding of the scientific process that was evident during the pandemic and the importance of community during this time. The experience transformed his understanding of how systems of support throughout his county and state could collaborate to meet community needs.

Graham. Graham described a sexual harassment course she took that was offered in response to a lawsuit that was levied against her company. The session lasted two days, totaling 16 hours, and Graham estimates that there were approximately 100 people in each session. It took place over the facilitator's web-conferencing system, HBX. Graham entered the session expecting "the same crappy shit.... You know, 'Let's look at how Arthur and Margaret talk. What did they do wrong?' It was not that at all. None of that happened." Instead, participants were broken into groups of about ten, assigned different roles (photographer, environmentalist, Emergency Medical Technician, etc.), given a script, and a goal to complete a rescue at the top of Mt. Everest. This experience was designed to help participants reflect on their strengths when working on a team as well as their areas for improvement. Graham shared that this experience not only transformed her workplace's culture, but it also changed the way that she related to other people in her personal life: "You know, it's been six or seven years since we did that training, and that knowledge has not left me, that learning has not left me."

H.P. H.P. recounted a session that was offered through her workplace. It was a two-hour session focused on using one of the tools she uses in her daily work at her healthcare agency. The session took place on her company's learning platform, which she described as "a Kirkland-brand Facebook." She estimated that there were likely thousands of people on this call and shared that it was facilitated by one of the CEOs of her company. H.P. shared that participants could use the comments and reactions functions to interact with the facilitator. Participants could also rewind at any point during the session to replay what was just said. She said that although it seemed like she could message her colleagues, she never received any responses, making her wonder whether that feature had been blocked. The session was available for participants to watch afterwards, and key points were bookmarked, making it easy to navigate to the information needed. This session transformed H.P.'s sense of her competence in her role as she grasped a deeper understanding of some of the tasks that had been troubling her. It also made her more open to learning in a synchronous online structure.

Harriet. Harriet described a semester-long course that was a part of her doctoral program. There were an estimated 15-20 participants in a class focused on using instructional technology. The class consisted of weekly one-hour Zoom meetings that lasted ten weeks. It was a class that was required for Harriet's program. The course was structured to include time for the instructor to model how students should complete the assigned tasks, for collaborative work in small groups, and time for questions. The other classes Harriet had taken up until that point had all been asynchronous, so one of the significant transformations she described was realizing that "[my classmates and I] are all just trying our best" after feeling a strong sense of imposter syndrome, the belief that she did not have the skills necessary to be in the program, until that point. Her relationship with the facilitator contributed to her sense of belonging in the program. It provided her with insight into the kind of professor she aspired to be in the future.

Josh. Josh described a session that took place as part of his marketing work. He was part of a group that was helping an existing Japanese brand expand into the U.S. market. His team knew that although the brand was successful in Japan, it would not translate well into the U.S. market if it used the same branding. The team brought the question of "how to make this move" into a three-day workshop on Google Meet that lasted three hours each day and included two to four groups per country (Japan, Singapore, Denmark, and the U.S.) with six to eight people in each group. Participating in this workshop virtually allowed these teams to accomplish their goals in three weeks, and Josh estimated that it would have taken at least three months had they tried to do this work in person. Josh said of this experience, "the power of [web-conferencing] is incredible in that sense that you can do so much more from an efficiency and productivity perspective." His experience transformed his understanding of what was possible through web-conferencing technologies.

Meghan. Meghan shared about a ninety-minute session that took place between school administrators and her state's education department over Zoom. During this session, participants were asked (1) to unpack a new regulation being put in place and (2) to create a plan for supporting other administrators across the state in implementing the new regulation. The session was facilitated by a service organization that mediated the conversation between state workers and school administrators. She estimated that there were about ten participants on the call. Meghan said, "It was a really, really fun exchange of ideas…And then, you know, just kind of commiserating that, 'Yeah, this is bull.'" Although the team struggled to come up with a productive plan because many viewed this new regulation as a trap for educators in a state that she described as being anti-public education, Meghan shared that this session "gave the current work that I'm going into more meaning." Through this transformative experience, she felt a deeper connection to the mission of her organization and gained new ideas for supporting the people she serves.

Sheena Belle. Sheena Belle described a session she had completed the week before our interview. It was a five-day training focused on using a new curricular tool. This training guided educators through forty weeks of lessons, allowing the facilitator to model lessons and for learners to try different tools within the resource. They would be sent into breakout rooms and would conduct lessons with their peers as if they were their students. This allowed participants to practice and receive feedback from both the participants and the facilitator. Sheena Belle shared that although she is highly competent in her field, she had been struggling to use this resource in a way that felt authentic to her. Through this training, Sheena Belle gained a transformational understanding of how to effectively utilize the resource to support her students; she now knew "how to make it organic" for both herself as the educator and for her students.

Willow. Willow's story started in a way that was very similar to Sheena Belle's. She attended a three-hour Zoom training session to learn about a new curricular resource that her district had adopted in response to new state regulations. That is where the similarities ended. Willow was sent to a different school to participate in this training. She did not know that the training would be virtual until "walking in and seeing the setup" in the school library. There was a computer at the front of the room that projected the Zoom screen onto the wall. About twenty-five people were sitting in the library, and Willow estimated that three to four groups from different locations were attending. Participants were not provided with the link to the Zoom room, nor were they given access to the tool they were being trained on. The facilitator invited participants to post their questions in the chat; however, this was not feasible because participants did not have access to the Zoom link. Instead, they had to stand up, walk to the front of the room, and unmute the computer to ask their questions. Willow said that the training moved so quickly, however, that she had trouble even formulating her questions. This experience was not transformative: "It wasted valuable time. In teaching, there's never enough time, and that was three hours of time that was wasted."

Xavier. Xavier perceived the session he shared as being much more effective. He described a semester-long course that he took as part of a master's program in Instructional Design and Technology. This class met twice a week for approximately ninety minutes via Blackboard. During the first lesson, the instructor used a mix of media to introduce himself to the students and to share the course's learning objectives. This was the first time Xavier had ever seen synchronous video run "seamlessly" by a skilled facilitator. The facilitator used all the tools available to him on Blackboard, including the chat function, hand raise, highlighting, and drawing. Xavier shared that this course "impacted my life pretty significantly, because it showed me a good example of how to be an online instructor," a field which Xavier moved into upon completing his master's degree. This experience transformed Xavier's professional goals and his understanding of what is possible for learners through web-conferencing.

This dataset encompasses the diverse range of contexts in which learning occurred through web conferencing. Having an overview of participants' learning experiences demonstrates some of the diverse settings in which adult learning occurs. It enables the identification of themes that inform how learning experiences via web-conferencing are designed to support transformation. The remainder of the chapter explores the themes related to the research questions informing this study.

3.2 RQ1 - What Conditions Do Participants View as Essential in a Web-Conferencing Setting for Transformational Learning to Occur?

The following section explores the organizational conditions participants identified as contributing to their transformational learning experiences. First, it describes how the learning experience relates to the organization's goals & culture, including (1) how the learning relates to required work; (2) how the learning relates to the individual's professional goals within that organization; and (3) how culturally relevant the learning experience is within the larger organization. Next, it explores how the organization supports learners' access to resources, including (1) how learners access necessary resources before and after the learning experience; (2) the physical environment from which the learner engages in the virtual experience; and (3) the physical and technological tools available to the learner during the learning experience. Finally, it describes how the time commitment of the experience impacts participants' perceptions of its effectiveness. This exploration demonstrates how organizations support transformational learning in web-conferencing settings.

3.2.1 Connection to Organizational Goals and Culture

Interview participants had a variety of reasons for participating in the courses they described. Two participants shared that their example was required for their degree program; three were work-mandated; two were work-supported (not required, but paid for by their workplace), and one was of personal interest. Thus, when describing their perceptions of the role their organizations played in their learning experiences, many participants described how the experience related to their organization's goals and culture. This section first explores how ties to larger goals impacted participants' perceptions of the experience's effectiveness. It then examines the relationship between the learning experience and the organizational culture in which it took place.

Organizational Goals. Because study participants held various roles within their organizations, their understanding of their organization's goals and how the learning experiences they described related to those goals varied significantly. This sample includes (1) employees working with organizations seeking system-wide change, (2) employees whose organizations encourage workers' continuous improvement, and (3) learners enrolled in graduate degree programs. This section first presents how survey respondents perceived the relationship between organizational goals and the effectiveness of their learning experiences. It then describes how interview participants related their experience's learning objectives to their organization's larger goals.

Survey Responses. The surveys included four questions each about the best and worst learning experiences participants had ever had via web-conferencing, which could have included responses related to organizational goals. When asked, "Why did you participate in this experience?" five participants explicitly tied their effective experiences to work- or school-related goals, and six participants tied their ineffective experiences to work- or school-related goals. Next, participants were asked, "What were you expecting going into this session? How did your actual experience match your expectations?" When responding to their "best" experience, only one participant described how it supported their professional learning goals. Similarly, when responding in relation to their "worst" experience, one participant explicitly tied their experience to their professional goals, writing, "I was expecting to get the pertinent information as efficiently as possible since we all had a lot of work to do. The actual experience was very far from my expectations." Finally, participants were asked, "What specific factors or elements made your experience so good/bad?" Only one person shared that their session was "so good" because it supported their goals. None of the participants mentioned the relationship between their goals and the learning experience when describing a session that was "so bad." Finally, participants were asked, "If you were running a training session, what strategies would you use to make it an engaging experience?" Only one participant explicitly mentioned that it was important for the training to be "relevant," although they did not specify what the training should be relevant to. The following sections examine the interview participants' responses, where additional opportunities exist to elaborate on the ideas shared in real-time and to develop more coherent themes.

Organizations Seeking System-Wide Change. Seven interview participants shared that their learning experiences were explicitly tied to their organization's pursuit of system-wide change. Cisco's organization was exploring how videoconferencing (the term that was commonly used at the time for synchronous sessions conducted via video) could positively impact K-12 students' learning outcomes. Gerald's organization sought to determine how to effectively leverage all available systems in response to a global pandemic. Graham's organization was seeking to develop a culture that was more inclusive of employees across the gender spectrum. Similarly, Josh's organization sought to become more culturally relevant in a new country. Meghan's organization sought to enhance its members' collective understanding of impending regulations, enabling them to better support their stakeholders. Finally, both Sheena Belle and Willow's organizations were adopting new materials for use at the K-12 level, and they wanted their staff to utilize these materials effectively to support their students' developing literacy.

Four of the participants shared that the learning experiences' explicit ties to their organizations' goals were part of what made their experiences effective, and in some cases, even transformative. For Cisco, this tie was shown in the amount of money and time that his organization committed to the endeavor to bring videoconferencing to rural Alaska:

> It took three years to get ready for [that first videoconference] ...at a cost of about five million dollars. So this is huge money! And I started to feel like some sort of ontological, imperative meaning. 'Wow! I have spent the people's money. Better start doing stuff!"

His organization's commitment to the success of this endeavor motivated Cisco to engage fully in the experience. Through that engagement, his understanding of what was possible through this burgeoning technology was transformed.

Gerald shared that part of what made his experience effective was that all the members of his group were committed to the same goal of effectively implementing the ever-changing regulations in their respective organizations. This effort required the cooperation of six school districts and two state agencies, and the commitment of each of these entities helped Gerald better understand how systems of support can work together to respond to a crisis. Meghan was in a similar position to Gerald, as she was responsible for helping new workers in her field learn how to respond to new legislation. The learning experience gave her more confidence in her understanding of the regulation, and it empowered her with knowledge that she could use to support her stakeholders while also advocating for better support from the legislation in her state.

Finally, Sheena Belle noted that part of what drew her to her organization was its explicit commitment to structured literacy, an approach to teaching reading that aligns with her own philosophy about learning. Her organization demonstrated a commitment to structured learning by investing money in training, required resources, and by dedicating two weeks of Sheena Belle's time to training on the strategies used in this type of teaching and their specific program. Although Sheena Belle discussed extensively how she would have pursued this training with or without support from her organization, it was the organization's commitment to her same goals that drew her to the organization and motivates her to stay with it.

Unlike other participants who were invested in their topic from the beginning, Graham expressed that she initially felt personally disconnected from the topic; what she thought was a sexual harassment training represented a "corporate mandate. You want to keep your job, you gotta do this thing." However, when she found that the leadership team was participating in the sessions too, she started to feel, "We are all in this together. It made it interesting to have them there." Having upper-level management participate in the same training as everyone else in the company showed Graham just how committed they were to their stated goal, which in turn made her feel more engaged with the experience.

Although most participants shared that their organization's commitment to the learning goals helped make the experience feel more effective, both Willow and Sheena Belle described experiences that were not effective despite their organization's goals. As stated above, Sheena Belle expressed great gratitude to her organization for its commitment to the goals she valued highly. Despite this, she had a learning experience about a related topic that was "pointless" due to reasons that are explored further in later sections. Willow described a similar experience where her organization offered training on how to use a new state-mandated resource to support students' literacy: "I was really hopeful and looking forward to learning about this program so that I knew how to use it." Unfortunately, due to the structure of the experience, Willow felt she was unable to engage fully. She shared, “That’s on our district/schools not getting things done on time.” In the end, Willow felt like her organization was paying lip service to a goal, but the quality of the learning experience they solicited suggested that they were not truly committed to this goal.

The interview participants’ responses suggest that organizations show their commitment to learning goals by (1) communicating those goals to participants, and (2) investing adequate time and resources into the training that they provide. Additionally, organizations demonstrate their commitment to the goal when their leadership also participates in the training, as seen in the responses of Graham, Meghan, and Gerald. However, an organizational verbal commitment to a goal is not enough on its own to ensure that a learning experience is effective or transformative.

Organizations Supporting Continuous Improvement. H.P. was the only participant who described a learning experience provided by her workplace that was tied to her individual, professional goals, rather than explicitly to larger workplace goals. She expressed that her workplace promoted professional learning opportunities during their weekly staff meetings. Each week, employees could self-select learning experiences related to various features of the tools they regularly used; it was not mandatory for employees to engage in any of these experiences. H.P. chose two sessions related to topics with which she was struggling. The first session was explicitly tied to her own professional goals, and it was facilitated by one of the company’s CEOs. She left the session feeling empowered by her ability to execute a task that she had previously been unable to do. This also assured her that meaningful learning was possible in a web-conferencing setting. Unfortunately, her second session was not effective, despite being tied to her professional goals. Again, this suggests that a tie to a worker’s professional goals can provide motivation for engaging in a session, but it may not be enough on its own to ensure the session is effective or transformative.

Institutes of Higher Education. This final section examines the impact of organizational goals on learners in higher education programs. Within these programs, two sets of goals are at play: (1) the learners’ goals for the program, and (2) the institution’s goal to prepare adult learners for their next steps. In this study, three participants described experiences that occurred during their time in higher education. Xavier and Harriet described courses that were required for their postgraduate degrees, while Alice described taking a course related to her interests but not needed for her postgraduate program.

Xavier and Harriet are both educators who were seeking degrees they felt would make them more marketable in the future. Xavier shared, "I could tell education was going in more of a direction where technology was going to be used more and more…. [This program] would keep me relevant and make more job opportunities available to me." Xavier's learning experience in his program's first class not only showed him how to use educational technology to support K-12 students, but it also transformed his understanding of what was possible in his new field. Harriet described a course that she found to be especially effective in meeting two of her goals: (1) she felt more confident in her ability as a graduate student based on feedback she received from her professor; and (2) she had a better understanding of the professor she wants to be based on what the facilitator of this learning experience modeled.

Alice's experience was different in that it was not directly related to her professional goals for her degree program. The class she described was a one-credit course available to graduate students, promoted as an opportunity to learn strategies for coping with some of the common stressors that graduate students face. Although the course was aligned with Alice's interests, she stated that it did not lead to any lasting change or transformation in her habits or mindsets. It raises questions about whether interest alone is sufficient to initiate transformation when that learning is not tied to one's goals.

Conclusion. This section explored the connections participants saw between their learning experiences and their organizations' stated goals. The section also explored how those perceptions influenced participants' beliefs about the efficacy of their sessions. To participants, organizations expressed their commitment to these goals through investment of time, money, and resources to ensure the learning experiences provided were of high quality. However, tying the experience to goals was not enough on its own to ensure the experiences were transformational. When participants perceived that their sessions were ineffective, they also expressed doubt in their organization's commitment to their stated goals. The next section examines the influence of organizational culture on the potential for transformational learning in web-conferencing settings.

Organizational Culture. Both Sheena Belle and Graham brought culture into their responses when describing learning experiences that were not effective in helping them meet their learning goals. This section examines their responses regarding the alignment of learning experiences with organizational culture.

Sheena Belle spoke very highly of her organization's culture of continuous learning. When she was brought on board with her organization, she had a meeting with her supervisor to set up a professional learning plan before she had even officially started. To her, this demonstrated that her organization was invested in her professionally and that they were committed to providing high-quality learning experiences for both their educators and students. Therefore, when Sheena Belle participated in a session where the facilitator "didn't stay on target" and failed to deliver an effective experience, she became very frustrated and eventually decided to focus on other tasks until the session ended. Later sections explore the role of a facilitator in supporting learners; however, I include this example here because it demonstrates the impact of violating cultural norms (Sheena Belle's cultural understanding of what a high-quality learning experience is) on learning outcomes (Sheena Belle disengaging from the training in favor of more urgent tasks).

Graham spoke to this when describing an experience that was not effective. Her company brought in a group consisting of "ex-Marines." Graham shared, "They did not get our culture at all. Everybody sat there like, 'What the hell is happening right now?' I'm not getting this because they don't get us." Graham described two days of disengagement on the part of her team; they vented their frustrations in a separate Slack line, distinct from the web-conferencing space. Her example illustrates how a cultural mismatch can lead to whole-group disengagement and a sense that time is being wasted on a larger scale.

Sheena Belle and Graham's responses suggest it may be important for facilitators to understand and be responsive to an organization's culture when designing a transformative learning experience in a web-conferencing setting. This is a topic worthy of more exploration in future research.

Conclusion of Organizational Goals and Culture. This section explored how organizational goals and culture impact learners' experiences in web-conferencing settings. The next section describes how organizations allow access to essential resources related to the learning experience and its impact on participants' perceptions of the experience.

3.2.2 Access to Resources

Although it is imperative that organizations explicitly link learning experiences to organizational and stakeholder goals, it is also crucial that organizations demonstrate their commitment to effective learning experiences by ensuring that participants and facilitators have access to the necessary resources for transformational learning. This section explores themes related to accessing materials, including (1) participants' ability to access pertinent resources before and after the session; (2) participants' physical learning environment (when controlled by the organization); and (3) the technology and resources made available to participants during the learning experience. This theme is further explored in RQ3, as while organizations often greatly influence learners' access to resources, participants shared instances in which they were solely responsible for their own resources, particularly the physical spaces from which they learned.

Availability of Resources Before and After the Session. Many of the adult learners who participated in this study expressed high levels of motivation for achieving their professional goals, and they were intentional about choosing which learning experiences to join that would help them meet those goals. Some indicators they considered when deciding which experiences to participate in were (1) the course goals and agendas that were made available prior to the course, and (2) the resources, including materials and personnel, that would be available to them upon completion of the learning experience. This section explores those themes in greater depth. Although these themes came up in multiple interviews, they were not reflected in the surveys that were collected.

Availability of Resources Before the Session. The ability to access materials related to the learning experience prior to the session helped the participants interviewed prime their minds for the learning that would occur. This section examines how course descriptions, agendas, and other materials facilitated participants' selection and preparation for their learning experiences.

H.P. and Alice used their sessions' descriptions to determine that they wanted to participate in the experience. H.P. shared that she is enticed into professional learning when her workplace offers a session about "something that I was having a hard time with, or… something that I had never done before with the scheduling, and they kinda promised that you would learn how to map things better." The promise in the course description to help solve pressing professional problems influenced H.P. to overcome her reluctance to engage in learning via web-conferencing. Although Alice’s course was not required for her degree program, the course advertisement suggested that it was a proven approach to helping graduate students “change [their] internal landscape” and be more resilient in the face of challenges common to the graduate school experience. This statement appealed to Alice’s interests and to her goals, leading her to sign up for the course.

Gerald was in a different situation than Alice and H.P. prior to his learning experience. Although his experience was mandatory, Gerald shared that having an agenda prior to the event helped them mentally prepare for the experience. He said, “We would have an agenda, and anyone could contribute to the agenda. You just had to do it the day before, or, at the time, things were changing so rapidly, it would happen right then.” What made this especially helpful was that participants could bring their pressing questions and quandaries to the group and use the feedback collected to adjust their work as needed. Gerald described the co-ownership of the agenda as validating his experience, and this helped him come to look forward to the meetings.

In addition to session descriptions and agendas, some participants emphasized the importance of having access to reading materials before the session’s start to be adequately prepared for the experience. For Alice, Harriet, and Xavier, this came in the form of regular homework for their classes. For Gerald and Meghan, it meant reviewing and annotating new regulations before their sessions to develop an initial understanding of what was being asked of them before meeting with the larger group. In all of these instances, engaging with the materials prior to the web-conference helped the learners develop a preliminary understanding of the content and develop questions that could be explored to clarify places of confusion. Gerald, Harriet, and Meghan shared that it was important for them to have these materials prior to the synchronous meetings because the content was often complex and would have been too much to fully comprehend in one sitting.

H.P. and Sheena Belle were also given access to the material prior to their learning experiences, but they were not expected to review it before the session. Instead, they were asked to bring the materials with them when they signed on. H.P. reported feeling empowered by the email she received telling her what to bring to the session: “[the facilitator] was like, ‘Hey, have these things with you,’ or ‘You might need these things, or you can just go back and do it on your own time.’” These options showed H.P. what she needed to complete the task she was being trained on, but they also allowed her to choose whether she would rather watch during the training or try to complete each step along with the presenter. This option empowered her as an adult learner. Sheena Belle's curricular materials were sent to her home to ensure she received them in time for the training. This created a sense of anticipation. She shared, "It came in this big, huge box, and we got to open it like Christmas!" Although not required, Sheena Belle did explore some of the resources before the session began, so that she could see how the program compared to others she had used previously.

Two participants, Willow and Graham, reported not having access to session objectives, agendas, or materials prior to their learning experiences. It is interesting to note that they had different outcomes despite sharing this commonality. Willow shared that she did not know anything about the training she was attending, except that it was at the designated location and would cover new curriculum materials. She said:

> I didn't even know whether it would be over Zoom or whether there would be somebody in person. I learned it was going to be over Zoom, kind of walking in and seeing the setup. I was still hopeful that maybe it would turn out better [than a previous hybrid experience].... But that really took away from that experience.

In this instance, Willow's autonomy as an adult learner was violated. Not having a clear agenda or outcomes prior to the experience meant she was unsure of the kind of learning she would be engaged in. She did not have enough information to determine what to bring to support her learning, and she wondered whether having a physical resource with her might have helped her develop a better understanding of what was being presented. Willow also shared that had she known the structure of the experience, she may have decided to work from home that day instead, using her limited time to explore the resources in a way that was more meaningful to her. This option was not afforded to her, but she said it may have been worth the risk of being reprimanded.

Graham also entered her training with limited information, but her outcomes were significantly different. Like Willow, Graham was aware of the topic of her mandatory training, and she also did not have an agenda or clear learning objectives prior to her learning experience. She shared some annoyance with having to attend the event: "I didn't go in with the expectation of learning something I didn't know about sexual harassment team. Like I didn't go into thinking I was gonna learn something really interesting, something really cool." Her only cue that the experience might be different than a standard sexual harassment training was that the corporate leaders would be in attendance with everyone else. In this instance, sharing limited information about the event's structure was crucial to its integrity, as it allowed participants to fully immerse themselves in the scenarios without giving them time to strategize beforehand. This suggests that when learning experiences are designed intentionally and executed effectively, not every theme identified here as positively influencing the adulting learning experience needs to be present.

In most instances, when organizations share information prior to the start of the learning experience, it (1) empowers adult learners to choose experiences that align with their interests and goals, and (2) prepares adult learners for what will be asked of them during the experience, which ensures that they come ready to learn. This sets the stage for learning to become transformational, as the adult learner has begun to take ownership of that learning.

Availability of Resources After the Session. As important as it is for organizations to share information prior to the learning event, it is also important that participants have access to resources and personnel after the session ends. One benefit of web-conferencing that Meghan and H.P. shared was that their sessions were recorded and posted after the session ended. Meghan returned to her session when she wanted to remember what specific parts of the regulation they had explored meant and to make sure she hadn't missed any action steps identified. H.P.'s recordings were unique in that the moderators created bookmarks, allowing participants to identify when specific topics were discussed in the recording easily. For H.P., the ability to quickly go back and rewatch demonstrations of skills she was still working to master as many times as necessary was what ultimately made the experience transformational.

Additionally, Sheena Belle and Harriet shared that having access to support personnel after their learning experience or between sessions made their learning experiences more effective. As a new doctoral student, Harriet felt bolstered by her ability to seek clarification and reassurance from her professor by email or phone. Sheena Belle looked to her facilitator as a thought partner, someone with whom she could "chat personally if I had questions specific to what I'm thinking about. I could send her a chat or an email, and she would immediately respond." Because Sheena Belle was able to contextualize her new learning within her specific environment with the support of the facilitator, she felt a greater sense of ownership over her learning.

Although these moves may seem specific to facilitators, it is often organizations that make access to resources before and after sessions possible. Within corporate environments, organizations negotiate contracts with the facilitators that may or may not include support and access beyond the web-conference. In the higher education context, organizations determine what is made available to learners prior to course enrollment and what is available to them after. Because having access to objectives, agendas, and materials before and recordings and/or personnel after the learning experience empowers adult learners, it is essential that organizations prioritize access when developing learning experiences for their stakeholders.

Physical Learning Environment. In this study, some physical environments were heavily influenced by the organization that solicited the learning experience, while others were largely in the participants' purview. Therefore, this topic is explored somewhat here and more in depth later when participants' factors are described. This section demonstrates that it is essential for organizations to consider what participants will be asked to do in the virtual space and how their physical environment can either support or hinder that learning.

In the interviews, Sheena Belle, H.P., Gerald, Willow, and Graham all tuned into their learning experiences from their corporate offices. Gerald and Graham were both allowed to choose whether to attend their sessions from home or from the office. Because Gerald's experience spanned over two years, he would choose based on which was most convenient at the time. For Graham, attending from the office was most convenient, because it was near her child's school. H.P., Gerald, and Sheena Belle called from private offices, while Willow and Graham called from larger spaces intended to accommodate larger groups of people. Gerald and H.P. felt that their private offices enhanced the efficacy of their experiences because they could close their doors, turn off their notifications, and focus entirely on what was being shared. Sheena Belle, Graham, and Willow's experiences were more nuanced.

Graham described her work environment as very flexible in terms of the times and locations where people could work. Her office has an open floor plan with some pods that can be used for focused work. Since this training required no physical resources, her colleagues were given the freedom to choose where to call in from. She chose to attend from her office and found that she had the space to herself. She described the online environment as being so immersive that she forgot about her physical surroundings - her physical environment did not provide distractions that pulled her away from the virtual experience.

Because Sheena Belle works as an interventionist in an elementary school, she does not have a regular office or classroom to which she is assigned. Instead, she has a cart with all her materials that she takes to different spaces throughout her school to provide services to her students. This meant that for her training, her school district provided her and her four colleagues with private spaces from which to call in. The school administration assigned her to a classroom in the administrative center and assigned her colleagues to other spaces throughout the building: "They want you one person, one device, one location. They don't want you in a room with people, and they name that in advance." Because the training used a lot of physical materials, Sheena Belle was frustrated that she could not share a physical space with her colleagues. She felt the virtual space didn't allow for authentic practice. She emailed the facilitator later in the week and was able to join her colleagues in the same room, which she felt was ultimately more effective: "We were able to test each other. We were able to talk through, like, 'What is this word? How many sounds?' or that kind of thing." The ability to use their physical resources in a new hybrid environment helped Sheena Belle develop a deeper understanding of the materials and increased her fluency with them.

Willow also found herself in a hybrid environment when she walked into the school library and discovered that their facilitator would be attending by video. She shared that there were about 20-25 other fourth and fifth-grade teachers from two or three other schools in attendance, seated at tables throughout the library. The Zoom session was projected onto a screen at the front of the room, and the sound was hooked up to a small speaker: "The sound quality on that one was okay. I had one right before that, the sound was bad, and you couldn't really hear. But we could hear the person on this one." There was a principal sitting at the computer with the session running, who was able to unmute when individuals had questions for the presenter. Willow said that a significant reason why the presentation was ineffective was that "we didn't have individual access to our own Zooms." Not being able to chat with the facilitator, clearly see what she was demonstrating, or even ask clarifying questions of colleagues due to the fear of not being able to hear the facilitator increased Willow's frustration with the experience and left her feeling like it had been a waste of her time. The constraints of the physical space made learning through the web-conferencing structure very difficult.

These examples suggest there are a few firm rules that organizations need to follow for *every* web-conferencing experience. The physical environment should support, rather than distract from, the virtual experience. Beyond that, the learning goals and structure of the learning experience should determine how the physical environment is set up, and, as the next section demonstrates, the tools that are available to learners within that environment.

Available Tools. As important as the physical environment is for supporting learning in the virtual space, it is also crucial that organizations consider the tools and resources facilitators and participants will need to access for effective transformational learning experiences in web-conferencing environments. This section examines the resources identified by participants in this study, beginning with technology and then exploring other necessary resources.

Technology. While facilitators ultimately choose which technology tools to employ during their sessions, organizations determine which resources to adopt and support. Organizations also develop and maintain the overarching technological infrastructure that enables web conferencing. Some survey respondents reported that technological infrastructure, particularly consistent Wi-Fi access, significantly impacts the efficacy of their learning experiences through web-conferencing.

Interview participants named a variety of web-conferencing platforms used to facilitate learning events, including Google Meet (Josh), WellSky (H.P.), HBx (Graham), Polycom (Cisco), and Blackboard (Xavier), with the most used platform being Zoom (Alice, Gerald, Meghan, Sheena Belle, Willow, Harriet). Within each of these platforms, participants in both surveys and interviews discussed features that facilitated engagement between facilitators and learners, including breakout rooms, chat boards, whiteboards, transcription features, hand-raising, screen sharing, annotation and drawing tools, and collaborative documents. Additionally, some facilitators had access to other tools that suited their specific goals. For instance, Sheena Belle's facilitator used a document camera to demonstrate how to use the hand-held resources that came with the program. Graham's facilitator was in a special web-conferencing room surrounded by many screens so that she could see each participant as well as her slides and resources at the same time to easily monitor for engagement. H.P. shared that her platform included many familiar features to those who regularly use social media, such as the ability to rewind in real-time and access the presentation on the presenter's feed at any time in the future. Features like these helped H.P. internalize the information that was shared. Josh offered this advice to organizations: "Think about adopting resources that allow people to communicate and engage in as many ways as possible." This will keep participants fully engaged in the learning process and will increase the efficacy of their experience when done well.

By developing sufficient technological infrastructure and adopting platforms with tools that maximize engagement, organizations can ensure that the learning experiences they sponsor via web-conferencing are effective. The following section suggests that organizations also need to consider what other resources participants and facilitators may require to have transformational experiences in these settings.

Other Resources. Depending on the structure of the learning event and its goals, it may be essential for organizations to consider whether and how to provide participants with access to additional resources during the learning session. For instance, Gerald and Meghan both shared that they had access to their own copies of new regulatory language, which they could annotate before and during meetings to further their understanding of the content. Additionally, Graham shared that her experience included a guidebook that helped her colleagues work through the scenario they were assigned. These resources were necessary for helping the participants successfully engage during the sessions they were enrolled in.

Sheena Belle and Willow's experiences were different in that they both involved training on new curriculum resources to be used with K-12 students following the training. As was already mentioned, Sheena Belle was sent all of her resources before the training began, and the facilitator spent much of the training showing participants how to navigate the many resources that were a part of the program:

> They were showing us where to tab in the book and what to write on the tabs, because they understand students. "Okay, I want you to turn to this page, and we're never going to look at that page again." Yep, so they're like, "You might wanna tab this or put a sticky note here…" And so I felt like they had an understanding of the student body that they were working with, because we're teachers, and we're not gonna remember everything. So they told us what to tab and what to highlight… And I appreciate that only because when I go back I'm gonna look at it and say, "I know she told me that was somewhere in my book, but I don't remember where." So for myself, that was beneficial, because I know in my case, I'm literally everywhere.

Sheena Belle felt empowered by this experience because her facilitator took a resource that could have been very overwhelming and physically showed her how to make it manageable. It is also important to note that the facilitator had all the physical resources she needed at the ready, so she could demonstrate their use whenever necessary.

Willow's experience was very different, despite also being focused on a new curricular resource. The physical books had not yet been distributed to Willow's school, and digital access had not yet been assigned to her. Unfortunately, the training was designed for participants who had access to the resources already:

> It was kind of meant to be a step-by-step guided tour of the program, and so [the facilitator] was showing us, "Go to this screen and do this," and things like that. But again, because [we didn't have access yet], we couldn't do those things. So we were just watching her do this with a mock class.

Where Sheena Belle felt empowered after her experience, Willow felt frustrated after hers: "It was very hypothetical… [and there was] no opportunity really to ask questions or for clarification. And, honestly, because I couldn't follow along, I wouldn't have known what to ask." Although some of the responsibility for the inefficacy of this experience lay with the facilitator's decisions, Willow placed much of the blame on her organization:

> I don't blame the facilitator for this going awry. I blame the fact that we didn't have individual access to our own Zooms. And on not being able to actually follow along when that was the structure of the training style. And that's kind of on our district/schools not getting things done in time.

Sheena Belle and Willow's experiences demonstrate the importance of organizations considering the physical resources participants need to have successful learning experiences via web-conferencing and ensuring those resources are made available to them by the time the training begins. When learners explore resources with a facilitator and their peers, they develop a sense of ownership over the materials. They can effectively visualize themselves using the resources in their work. However, when they are only hearing about the resource or seeing a demonstration, they may not feel prepared to use it independently later without additional exploration and support.

Resources Conclusion. This section explored how organizations can support transformational learning in web-conferencing settings by (1) ensuring that participants can access pertinent resources before and after their sessions; (2) designing physical environments that enhance the online learning experience; and (3) making the necessary technology and resources available to participants and facilitators. The following section examines the role that time plays in transformational learning through web-conferencing.

3.2.3 Time Commitment

To ensure this model could be applied in a variety of settings, I did not set specific parameters for how long qualifying learning experiences needed to be. In the interviews, I used the term "session" to describe the complete learning experience the person wanted to share, regardless of its duration. Therefore, the time commitment required for each session varied greatly between interview participants. For a breakdown of the time commitments represented in these interviews, see Table 1.

Table 3.1: Time Commitments of Each Session Described

Participant	*Duration of Each Meeting*	*Frequency*
Alice	1 hour	Weekly for a semester
Cisco*	1 hour	Weekly for four weeks
Gerald*	1 hour	Weekly for two years
Graham*	8 hours	Two days
Harriet*	1 hour	Weekly for ten weeks
H.P.*	2 hours	Once
Josh*	3 hours	Three days
Meghan*	1.5 hours	Once
Sheena Belle*	8 hours	Five days
Willow	3 hours	Once
Xavier*	1.5 hours	Two times/week for a trimester

**Described experience as being transformative in some way.*

The amount of time participants spent in their sessions did not seem to impact whether they had transformative learning experiences. What mattered more to participants was the time of day during which the session occurred. For Alice and Harriet, evening classes were almost impossible because they conflicted with their need to spend time with their families, prepare dinner, and help their kids with homework for the next day. For others, such as Josh, time zones can become a limiting factor when engaging with participants from around the globe. For participants like H.P., the ability to manipulate time through real-time rewinding allowed her to replay confusing moments, thereby gaining a better understanding of what was being shared. Therefore, when organizations determine which learning experiences to pursue, they should consider how the timing of the events will impact the attendees' (and facilitators') ability to engage, and do not need to be as concerned with the duration of the experience.

3.2.4 Concluding RQ1

Organizations have a significant influence on the efficacy of transformational learning experiences in web-conferencing settings. Organizations influence these experiences by explicitly linking the learning outcomes to organizational goals and cultures, and by sharing how the learning (1) relates to required work, (2) relates to the participants' professional goals, and (3) is relevant within the organization's existing culture. Organizations also influence these experiences by ensuring participants and facilitators have access to the resources they need to support the learning process including (1) the information and resources needed before and after the session, (2) a physical learning environment that enhances and does not detract from the virtual experiences, and (3) the tools needed to meet the learning objectives of the session. Finally, it appears that the amount of time participants spend engaging in the learning does not significantly impact whether an experience will be transformational as much as *when* that experience occurs. When organizations plan for these factors intentionally, they increase the likelihood that a learning experience conducted via web-conferencing will be transformational. The following sections explore the roles that facilitators and participants play in these learning experiences.

3.3 RQ2 - How Do Participants Perceive the Facilitator's Role and Moves in Hosting Transformational Learning Experiences in Web-Conferencing Settings?

Research question two explores how participants perceive the facilitator's role in their transformational learning experiences via web-conferencing. I first explore how participants perceive facilitators as people, including their (1) presence; (2) communication style & delivery; and (3) credibility in the eyes of the participants. I go on to describe participants' perceptions of the facilitator's technological efficacy and its effect on their experiences, including (1) the facilitator's seamless use of tools; (2) the facilitator's mindset about technology; and (3) the facilitator's ability to support the participants' use of technology during the session. Finally, I explore how the facilitator structures the learning experience, including (1) how they design for discourse; (2) how they employ multiple means to convey information; (3) how they set and pursue explicit learning objectives; and (4) how they set expectations for each session. This section ultimately reveals the significant role that facilitators play in the efficacy of transformational learning experiences conducted via web-conferencing for adult learners.

3.3.1 Facilitator as a Person

One of the themes that participants explored in depth through this project was how they perceived their facilitator as a person, including (1) the feeling of presence exuded by the instructor; (2) the factors that contributed to participants' sense of the facilitator's credibility; and (3) the facilitator's communication style and delivery. This section shares data from the surveys and interviews related to these themes.

Presence. Many participants in both surveys and interviews shared their perceptions of their facilitator's presence in the virtual space. Presence refers to the participants' sense of their facilitator as both an educator and a person beyond the scope of that learning experience (Biocca et al., 2003; Bloomberg & Grantham, 2018; Joo et al., 2011). Some of the participants tied their understanding of their facilitator as a person to the efficacy of their learning experience. This section first explores how the facilitators allowed themselves to be known by the participants, and then shares themes related to participants' perceptions of whether their facilitator was an empathetic figure. These perceptions all relate to participants' perceptions of the efficacy of their learning experiences.

Allowing Se,f to be Known by the Learners. Interview participants were asked to describe their relationships with their facilitators before the start of their sessions. Seven of the interview participants shared that they did not have prior relationships with the facilitators of their sessions. Gerald's session was facilitated by his contact at the state department of education in partnership with his county's health department head. Meghan's session was facilitated by her supervisor. The other interview participants all met their facilitators through their learning experiences.

One of the powerful practices Xavier noted was his professor's introduction during their first class:

> His introduction of himself was a mix of him talking about himself, showing pictures and talking about himself, and then showing videos from things he had done recently.... It was twenty minutes of an introduction using all these various different things, and the video he showed us was of his private library. He and his partner were into collecting antique books. And so he had done this video where he was just talking about how much he loved antique books.

For Xavier, this introduction enabled him to better understand where his facilitator was coming from and the beliefs that drove his approach to teaching. This made Xavier feel more connected to him on a human level. Alice shared a similar experience, saying that the facilitator of her learning experience was "a researcher in a different field completely. I think his main thing is isotopes…. But he's also active in the Buddhist community and has a great interest toward these things." In recruiting course participants, Alice's facilitator shared how his Buddhist practice and some of the tenets of positive psychology he employed supported his work as a researcher, which was intriguing to Alice. These examples suggest that allowing participants to see the links between the facilitator's personal and professional roles motivated some participants to enroll in the experience and increased their engagement levels.

Two of the survey respondents mentioned connections with the facilitator as being important to the efficacy of their learning experience, but added nuance to the discussion. One respondent shared that one of the contributing factors to an ineffective learning experience they had was that "there was no connection between the speaker and the audience." Another shared their belief that facilitators should "make it personal but not too much," going on to say that learning can lose its potency when personal stories start to feel irrelevant.

When facilitators share information about their personal interests/lives, it helps adult learners feel more connected to them and to the content they are sharing. Based on the survey responses, however, it is essential that facilitators ensure personal information remains relevant and balanced so that participants still feel their learning goals are being met. Allowing themselves to be known to participants is one way facilitators can come to be perceived as empathetic figures by their participants. The following section examines other factors that influence participants' perceptions of the facilitator as an empathetic figure and how this belief affects the learning experience.

Perceived as Empathetic. When describing facilitators' presence in their learning environments, interview participants described the degrees to which they perceived different facilitators as being empathetic in two ways: (1) the degree to which the facilitators were empathetic of the adult learners and the competing needs and priorities at play in their lives, and (2) the degree to which the participants were empathetic of their facilitators as humans with their own competing needs and priorities. This section explores the themes shared by participants and the ways these factors influenced the efficacy of their learning experiences in web-conferencing settings.

Just as participants enjoyed getting to know their facilitators as people, they expressed appreciation for those facilitators who took the time to get to know them. Alice shared that she felt a strong sense of acceptance when her facilitator invited participants to share about their pronouns and identities: "He was also just mindful of like, 'If you want to share your pronouns, let's do that.' And he was just being really inclusive of all kinds of people and lives."

Harriet shared that after having taken a few asynchronous courses, she felt a strong sense of relief to share synchronous space with a course facilitator: "I felt a connection to him, and I didn't feel as anxious when I had to email him and ask him questions. He knew my name. He knew where I lived." She shared an example of a time when she accidentally submitted the same paper for two classes and didn't realize it until she checked her grade later. Harriet called her professor in a panic, worried that he would not believe she had made a mistake, given how the error would have been handled in other classes. His response came as a shock:

> "Harriet, did you do it?" I was like, "Yes, I did it." He was like, "Great, great! Just turn it in." And I said, "I'm so sorry!" He's like, "No, I trust you. Turn it in." So he was really laid back, and kind of, I think, understood that we all have lives outside of school, and that sometimes crap happens. I appreciate that he trusted that I had done it.

This facilitator's empathetic response allowed Harriet to relax into the learning experience and to begin the process of transforming her understanding of herself as a PhD student and as a new professor.

Meghan shared that her facilitator also took an empathetic stance to the learners in her space, using words of affirmation to help everyone feel they belonged and were contributing worthwhile information to the conversation:

> She affirmed everybody. Whatever they said she would affirm them. She never was like, "No, you're wrong." [Instead she would say] "Yeah, I could see where that could be a thing,"... So I felt like everybody went away from that meeting feeling affirmed.

This allowed ideas to flow freely throughout the learning experience, enabling learners to engage in meaningful problem-solving and planning throughout the session.

While it was important for learners to perceive that facilitators empathized with them, it was also crucial that learners felt they could empathize with their facilitators to have transformational learning experiences with them. Xavier shared that his facilitator would often use humor when setting expectations: “he always put it in a light-hearted way, saying, ‘[I need your cameras on so] I can see if you're laughing at my jokes or not.’” To Xavier, this use of humor made his facilitator a more empathetic figure. Additionally, his facilitator would open the session a few minutes early and share stories from his day, inviting learners to do the same and offering encouraging words to those who’d had a rough day: “I don't know if it made him feel more connected to show that human side of himself. But it definitely made us as a class feel more connected.” Gerald shared similar sentiments when describing his sessions, which were designed to support superintendents’ ability to implement ever-changing regulations in their school systems during the height of the COVID-19 pandemic. Each session included

> time set aside for emotional support. Supporting each other, you know, by sharing about a difficult School Board member, sharing a community member, sharing that bat shit crazy, constitutional sheriff. And then our personal stories, you know… And Stacy’s [one of the facilitators] stories, which were about the hostility that she had coming at her as a health director. And so we could sit there and commiserate and then be a supportive background.

These stories not only helped Gerald feel less alone as a leader during this contentious period, but they also increased his understanding of why different regulations were employed in the way they were and how the various systems supported each other through the crisis.

Participants reported that when they did not empathize with their facilitators, it affected their perceptions of the learning experience's efficacy. When describing a less effective experience, H.P. shared that her facilitator’s background made her a less empathetic figure: “You could see her yacht in the back. And she was just out of touch with everything. She had no idea how to use the stuff.” Although both sessions H.P. described were facilitated by different CEOs at her company, one was held from a modest home office, and the other was held with the view of her boat behind her. These were not the only factors that influenced H.P.'s perceptions of the experiences, but the facilitator’s environments did influence her perceptions of the facilitators as empathetic and credible figures. Sheena Belle described a similar perception of a less effective facilitator. Sheena Belle shared that after this facilitator spent a long time dealing with technical difficulties, she sped up her instruction to a point where it was difficult to follow. She attributed this perceived gaffe to cultural differences: “She’s from Jersey, so life goes super fast.” In both instances, the participants felt they could not empathize with the facilitators and ultimately came to perceive that the learning experiences were not effective.

This section explored the theme of facilitator presence and its impact on the transformational experiences of adult learners in web-conferencing settings. It is essential that participants feel they know the facilitator as a person and perceive the facilitator as an empathetic figure. The following sections present participants' perceptions of their facilitators' credibility and communication styles, as well as how these perceptions influenced participants' impressions of the efficacy of their learning experiences.

Credibility. In addition to having a sense of their facilitator's presence, adults who are learning in web-conferencing settings express a preference for facilitators whom they deem credible. This section examines how participants described the credibility of the facilitator, including their experience with the topic and skill level/competence in the field, and its impact on their learning experiences.

Demonstrating Experience. One way facilitators established their credibility in this dataset was by demonstrating their levels of expertise within the fields in which they were educating. Graham, Meghan, and H.P.'s anecdotes offer us a nuanced depiction of how experience relates to credibility in this study.

Although Graham did not know her facilitator personally, she and her colleagues were made aware of her reputation before the start of their session:

> She's renowned worldwide for what she does…. She was a pro - like, this was not her first rodeo. I mean, she's the one who fixed Uber when Uber went through it…. She's the one the tech companies call when they screw up.

This description indicates that the facilitator was a credible source to Graham's organization because she not only had a reputation for being an effective trainer in the sexual harassment space, but she was also specifically known for her work within other tech companies. Her prestige made her an intriguing source, and her resume gave her clout within the "boys' club" that was Graham's workplace.

Meghan's facilitator, who was also the head of her organization, established her credibility using a different strategy. Although Meghan implied that many people in the learning space may have had some level of working relationship with the facilitator before the session, her reputation did not precede her in the way that Graham's facilitator's did. Instead, at the beginning of the session, Meghan's facilitator shared a story about her time working in private industry and how that experience differed from her time working in school business offices and non-profit companies. This story allowed the facilitator to demonstrate how legislators familiar with private business might design laws for school business that do not accurately reflect how fund balances work in those settings. Meghan reflected, "That would have been bad if the facilitator had not known, had not had experience… [in] government accounting [and] in the for-profit world," because her facilitator could not have helped the learners understand the intent of the new regulations and the implications for their practice. Her experience in both spheres reassured participants that they were working with a credible source.

Finally, H.P.'s example shows how facilitators can demonstrate their experience levels by incorporating thoughtful examples or scenarios. Like Meghan, H.P.'s facilitator was one of the CEOs for the company, but her title alone was not enough to make her a credible source to H.P.. Instead, H.P. was impressed that her facilitator was sharing examples that really resonated with H.P.'s daily challenges, such as

> "Have you ever had a problem where someone is booked three times with the same person?" It felt relevant. It felt like these are real examples she's working through for sure…. She was actually in the thick of it, you know. She was doing it. It was working for it, even though she was the CEO, she was actively still doing these tasks that we do daily.

These real-world examples made H.P. trust that what her facilitator shared was true, and that by listening to her, H.P. felt she would gain valuable information that would help her work more efficiently. Using these relevant examples made the facilitator a more credible source to H.P.

These examples demonstrate that facilitators can establish their credibility by sharing their relevant work experience and by using real-world examples when designing their learning experiences. Doing so increases adult learners' trust in them and their willingness to engage in the learning experience. Next, I explore how facilitators can establish their credibility by demonstrating high skill levels or competency within the field in which they are educating.

Demonstrating Competence. In addition to sharing their experience within specific fields, facilitators can also establish credibility by demonstrating high skill levels or competence within the field in which they are educating. Xavier and Sheena Belle shared examples of how their facilitators demonstrated competence in their respective fields and the ways this positively impacted their learning outcomes.

Xavier felt sure that he was in the hands of a credible instructor when his facilitator skillfully employed multiple sources of media and web-conferencing tools during the first meeting: "I wasn't prepared for the skill level that he displayed in using these different things because I hadn't seen anyone do it who was really really good at it like that." Xavier shared that he was aware of his transformation occurring as early as that first class because his professor's demonstration opened Xavier's eyes to what was possible in his new field. It made Xavier eager to dive into the learning experience, and it also increased his belief that he was working with a credible source who was capable of helping Xavier meet his learning goals.

Sheena Belle's perception of her facilitator as a credible source emerged later in their session, when the facilitator was able to offer specific feedback and advice tailored to meet Sheena Belle's needs. Sheena Belle felt overwhelmed by the breadth of the program she was being trained to use; it was designed for a 90 to 120-minute reading block, and she only had twenty minutes with her students.

> So she said, 'Well, you can look at the condensed version in your book,' and I'm like, 'That's still too much'… And so she said, 'Just get the important things in. Do your assessments, drill down to what your students need, and teach that thing.

From there, the facilitator helped Sheena Belle work through various scenarios with different students until Sheena Belle felt more confident in her ability to modify the program. The facilitator's ability to give specific responses to Sheena Belle's technical questions and to help Sheena Belle plan for her scenarios increased Sheena Belle's perception of the facilitator's competence. It also ultimately increased Sheena Belle's perception that the learning experience effectively met her needs.

By demonstrating their skillfulness in the field in which they are educating, facilitators can increase participants' perceptions of them as credible sources. This also increases learners' beliefs that the facilitator is trustworthy and capable of designing a learning experience that will help them meet their personal and professional goals. The following section explores what happens when credibility is not established in these ways.

When Credibility Is Not Established. When facilitators establish their credibility with their learners, it increases learners' engagement with the experience. However, when facilitators fail to establish credibility, adult learners often express frustration and disengagement from the experience. This section describes how Sheena Belle and H.P.'s negative perceptions of their facilitators' credibility impacted their learning experiences.

As previously shared, Sheena Belle prefers working with facilitators who can answer questions specifically and help participants work through their needs. Therefore, she felt a lot of frustration in a session when a facilitator responded to a participant in a way that seemed flippant to Sheena Belle: "She was like, 'Oh, you're just gonna piece it together.' It's like she danced around it. She couldn't show us an example." This response made Sheena Belle question whether the facilitator had a deep understanding of the material she was presenting and whether she would ultimately be able to help Sheena Belle meet her learning goals.

H.P. expressed doubt in a facilitator for similar reasons, when she appeared to struggle to use the platform that she was supposed to be training the participants to use: "She was just out of touch with everything. She had no idea how to use the stuff. It was terrible." Where H.P.'s first facilitator provided real-world examples and fluently used the tools to address the needs that arose, H.P. shared that this less effective facilitator did not seem to be familiar with the daily realities of the people she was educating. She also did not know how to perform simple tasks in the platform they used regularly. This negatively impacted H.P.'s perception of the facilitator as a credible source.

The data explored here suggest that when facilitators share their experiences with the topics they are exploring with learners and demonstrate their competency, learners perceive the facilitators as credible sources. This increases the learners' trust in the facilitator's ability to help them meet their learning goals, which also increases their engagement in the learning experience. When facilitators are unable to provide relevant examples and answer learners' questions, learners will question the facilitators' credibility and whether the session will help them meet their learning goals. The following section examines how the facilitator's communication style and delivery influence learners' perceptions of the learning experience.

Communication Style & Delivery. In addition to describing the impact that facilitators' presence and credibility had on their learning experiences, participants also shared how their facilitator's communication style and delivery impacted the efficacy of the experiences. This section examines how the facilitator's tone of voice, energy, and focus influenced the participants in this study. For H.P., it was important that her facilitator have an upbeat and fun tone to keep the session "interactive." Graham and Alice both described their facilitators as having a calming presence. Additionally, Graham said, “She was welcoming, but she wasn’t like a mom… She was a prestigious professor, and she carried herself as an expert, but she wasn’t nasty about it.” By establishing herself as both approachable and an expert, Graham’s facilitator was able to create a safe and productive learning space in which transformation could occur. Xavier similarly described his facilitator’s tone, saying that he was “colloquial but direct,” using humor to increase his approachability while still maintaining clear expectations. Meghan and Harriet also expressed the importance of a direct approach in an adult learning setting. Harriet shared of her facilitator: “His presentations were concise, and I appreciate that it wasn't a lot of background noise that I feel like some people put into a lecture because they're trying to make it go the full time.” The direct, “to the point” (Harriet) sessions, which many participants expressed a preference for, made them feel as though their time was valued and that what they were learning was relevant to helping them meet their learning goals.

Conclusion. This section described how participants described their facilitators as people, including (1) the sense of presence they exuded in the online space; (2) their credibility in the eyes of the participants; and (3) their communication style and delivery. Within these themes, factors exist that both positively and negatively impact participants’ perceptions of the learning experience. The following section examines how the facilitator’s technological efficacy affects learners’ perceptions of the learning experience.

3.3.2 Technological Proficiency and Efficacy

In addition to connecting with their facilitators on a human level, many participants shared about the impact of their facilitator’s technological efficacy. Xavier went so far as to share, “I think someone that's well prepared and knows how to use their tools and has experience in doing it can hook just about anyone into learning online.” Like Xavier, many participants placed the onus of a successful learning experience on the facilitator, with an emphasis on the facilitator’s ability to use the technology effectively. This section delves into how participants described their facilitators’ technological proficiency and efficacy, including (1) their seamless use of the tools built into their web-conferencing platforms; (2) their mindsets about technology; and (3) their ability to support learners’ use of the tools within the virtual space. This section also explores how the facilitators’ technological efficacy impacted the participants’ perceptions of their learning experiences.

Seamless Use of Tools. In both the surveys and the interviews conducted during this study, participants used the word "seamless" when describing facilitators' use of technology during transformative sessions. Here, seamless means that the facilitators were able to transition smoothly from one tool to another without difficulty. The technologies explored here include the features that are built into the web-conferencing platform (chat, screenshare, annotation features, hand raising, etc.), the tools that are built into the LMS (discussion boards, assignment sections, timelines, etc.) when applicable, and any other resources the facilitator may use to share information (slideshows, word processing documents, websites, etc.). This section explores participants' descriptions of what it means to use technology seamlessly during a web-conference and the impact of its seamless or less proficient use.

Both survey and interview participants expressed that the facilitator's proficiency with the technology used during the learning session was very important to the effectiveness of the experience. Because Xavier was in a class focused on creating effective online learning experiences, he appreciated his facilitator's ability to not only use a wide array of tools but also to determine which tool(s) would most enhance the learning experience: "Some [tools] are better for some things, and some are better for other things." Moreover, this facilitator stood out to Xavier because "his transitions between using all the different tools and mediums… were seamless." Alice described her facilitator's use of technology in a similar way, saying that he "used Zoom to the fullest" by regularly incorporating other media into the course and using features such as chat and breakout rooms to increase engagement. Sheena Belle's facilitator's seamless use of technology helped increase Sheena Belle's engagement in the learning: "[The facilitator] used annotation. She used markup. She used [the] chat function. She used hand raising. She used… a document camera! She did share her screen quite a bit, and then she would switch over to a document camera" to demonstrate how participants would use the physical resources available with students. In these conversations, participants noted that it was not the number of tools used by the facilitator that made their sessions engaging; instead, it was that the facilitator knew which tool to use at the right time to help learners meet their goals. And, of course, that the facilitator was able to use the tool seamlessly.

When asked why her session was not effective in supporting her learning goals, Willow pointed to issues related to the facilitator's ability to use technology in a way that matched the reality of the learners participating in the experience:

> I guess the presenter was very proficient in doing what they were doing and showing what they were showing. But the presenter also had no ability to pivot and realize "I'm teaching to this group that doesn't even have access [to the tools I'm using]. Is there a better way to do this?"

Willow's example is of a facilitator who could utilize the available technology but failed to select tools that effectively engaged the audience. For instance, instead of giving learners the ability to ask questions via a channel available to them, the facilitator only allowed questions to be posted in the chat, which was only accessible to one learner. Additionally, the facilitator would direct them to explore different parts of the tool during the training, even though learners did not have access to the product. This increased Willow's frustration with the training and her doubts about both the efficacy of the tool itself and her ability to use it.

Sheena Belle and Harriet both shared examples of facilitators who were unable to utilize the tools within the web-conferencing platform proficiently. Sheena Belle shared that at the beginning of a session with a new facilitator, the facilitator was trying to troubleshoot an issue with a participant but was unable to use the chat function or breakout room features to provide support. This made Sheena Belle question the facilitator's efficacy and credibility from the start of the session. Harriet expressed a more general frustration about entering sessions with facilitators who cannot troubleshoot common problems, such as making sure permissions are correct to share screens: "I like not having to tell the person how to use the Internet." Like Sheena Belle, Harriet expressed that to her when facilitators do not appear proficient with these technologies, it makes her question their credibility. Cisco called this phenomenon "The Golden Click":

> The first time you debut something, it had better work. I call that the opportunity of The Golden Click. The first time I click on an app, the first time I click on an icon, the first time I click it with my mouse, it had better work. If it doesn't, forever and ever, people will doubt the veracity of it.

While here Cisco is expressing users' perceptions of new technology, Sheena Belle and Harriet's examples show that faltering with technology, especially at the beginning of a session when credibility has not yet been established, increases the likelihood that the learners will perceive the facilitator as inefficacious and unable to help them meet their learning goals.

When facilitators select and utilize technological tools that enhance the learning experience, adult learners are more engaged and feel better equipped to meet their learning goals. The following section examines how the facilitator’s mindset regarding technology influences learners' experiences in web-conferencing sessions.

Mindset About Technology. While it is essential that facilitators know how to select and use technology to support the learning experience, participants in this study also shared that it is crucial for facilitators to have a positive mindset about learning through web-conferencing. Mindset here refers to the beliefs and attitudes the facilitator possesses and expresses about this technology.

Xavier, Harriet, and Alice shared that facilitators who have positive mindsets communicate excitement about the platforms and tools they are employing. Xavier shared, “The attitude about it definitely matters,” because when facilitators express doubt or disappointment about learning via web-conferencing, it validates learners’ beliefs that the structure will be less effective than an in-person experience. Moreover, facilitators who expressed doubt in the technology, such as the person who facilitated Sheena Belle’s less effective session, were less equipped or willing to troubleshoot when faced with unexpected obstacles, pulling learners further out of the experience. H.P. went so far as to say:

> If you [facilitator] aren't comfortable doing it, find someone else who might be, because the goal is to have as many people learn as much as possible through whatever you're doing, right? So if it's not the right fit, it's not the right fit, and it probably won't work out.

H.P.’s statement demonstrates her perception of the importance of the facilitator’s mindset in supporting adult learners’ experiences in web-conferencing environments. When facilitators doubt the efficacy of learning in these environments, adult learners notice and share that they, too, feel less likely to meet their learning goals during those experiences. Those with more experience learning through web-conferencing will attribute it to the facilitator’s performance, while those with less experience, like Willow, will doubt the veracity of learning via web-conferencing altogether.

This section explored how a facilitator’s mindset about learning via web-conferencing impacts the learners’ perceptions of the experience. The following section examines how facilitators of effective sessions leverage their technological expertise and positive mindsets to support participants’ use of web-conferencing technology.

Ability to Support Participants' Use of Technology. When their facilitators selected and used their tools skillfully and demonstrated a positive mindset towards learning in web-conferencing settings, study participants found their sessions more effective and engaging. Facilitators who possessed both attributes were also able to support participants' use of the web-conferencing tools, allowing learning to proceed smoothly with minimal interruptions. This section first explores the impact of facilitators who were able to support learners' use of the technology and then describes an example of a facilitator who could not effectively support the learners' technology use.

One of the skills Xavier noted in his facilitator was the ability to discern when to teach learners how to use the technology and when to quickly take care of an issue "that could derail a session easily." For instance, when learners struggled to use a new tool that they would likely use again, the facilitator would take the time to provide one-on-one or whole-group support to ensure the learner could address the issue on their own later. However, if someone accidentally left their microphone on, "he monitored and would mute people without calling it out. Didn't even think about it." In taking this action, the facilitator protected the flow of the class by discreetly minimizing distractions.

Graham emphasized the importance of dedicating time at the beginning of each session to instruct participants on how to utilize the web-conferencing platform and its features. This is important because "If someone does struggle with the technology, you can address it rather than [allow them to be] frustrated by it." She noted that since the pandemic, more facilitators are assuming that learners have experience with the web-conferencing platforms being used, which she believes is a mistake:

> Don't assume everyone knows what it is, especially now. Like I used Teams for the first time the other day. I never used Microsoft Teams… and it took me about three minutes to figure out where everything was… I'm good, but not everybody does it that fast.

Graham emphasized her experience level with technology; as someone who works in tech, she has a deep understanding of the features typically available in web-conferencing platforms. Although she may not know exactly where they are, she knows what to look for. However, she pointed out that many people with less experience in web-conferencing platforms can quickly become overwhelmed when asked to use tools within the platform for the first time, especially if they have not received adequate training on how to do so. To Graham, the most effective facilitators are those who take a few minutes initially to give participants a tour of the tool before beginning any instruction.

While both Graham and Xavier demonstrate how effective facilitators support learners' technology use during their sessions, Sheena Belle described a session that she perceived as less effective, in part because the facilitator was unable to provide technical support at the beginning of the session. Sheena Belle shared that a learner in her session was having trouble accessing a provided resource. The facilitator spent "maybe thirty minutes talking with this one member, [saying] 'Well, you need to contact support… I just really don't know.'" This interaction left the facilitator and the learners flustered. Sheena Belle shared that the facilitator spent the rest of that day's lesson rushing through the content to make up for lost time. The facilitator's inability to adequately support the other participant tainted Sheena Belle's perception of the facilitator's competence as an instructor. It made her question the efficacy of the training before it began.

The facilitator's ability to support learners' use of technology positively influences participants' perceptions of the facilitator's competence as an instructor. It creates a sense of uninterrupted learning and an engaging environment in which learners feel more apt to meet their learning goals.

Conclusion. This section explored the impact of facilitators' technological efficacy on participants' perceptions of learning experiences in web-conferencing settings. Here, technological efficacy includes (1) the facilitator's seamless use of the tools built into their web-conferencing platforms; (2) their mindsets about technology; and (3) their ability to support learners' use of the tools within the virtual space. When describing facilitators who were perceived to have high technological efficacy, participants reported that the learning experiences were more effective overall. In contrast, those facilitators with lower technological efficacy were associated with less effective learning experiences. The following section explores how facilitators structured the learning experience and its impact on the participants of this study.

3.3.3 Structure of the Learning Experience

While the previous section explored effective facilitators' skills and attitudes related specifically to teaching and learning in a web-conferencing space, the final section of RQ2 examines the skills facilitators need across various learning environments. These include the ability to (1) use learning objectives to guide the session; (2) set expectations and norms for engaging throughout each session; (3) use multiple means to convey information; and (4) design for discourse. This section describes data shared by survey and interview participants related to each of these themes and how these skills impacted their perceptions of their learning experiences.

Learning Objectives. Many of the survey and interview participants described the importance of facilitators sharing learning objectives (goals that would be accomplished during the session) either at the beginning of the session or before its start, depending on the structure of the learning experience. The following section focuses on the importance of (1) identifying shared goals that reflect learners' needs, and (2) maintaining a focus on those goals.

Setting Shared Goals That Reflect Learners' Needs. Because Gerald and Meghan's sessions were directly tied to their work, the stated objectives for the sessions were also explicitly tied to the goals that their organizations were trying to achieve. Meghan shared that while her session was designed to help them learn more about the new regulations being introduced, the stated goals included "How are we going to teach other people… at all levels [of experience]? How are we going to reach all those people?" This meant that while participants sought to clarify their understanding of the new regulations, they also spent time brainstorming how to support other business managers who had less experience in the field. Gerald's learning experience was different in that it lasted over a two-year period. The overarching goal of the session was to ensure that school superintendents could implement new legislation and guidance related to COVID-19, which was changing on a regular basis during that period. However, each meeting had objectives associated with the unfolding experience, which the facilitator and the participants set together. This allowed participants to address their urgent needs, making them feel more competent in their actions within their school communities. Both Meghan and Gerald shared that collective ownership of the learning objectives made the meetings feel more worthwhile and productive than other experiences.

Xavier and Harriet were both taking university courses, which meant that the learning objectives were tied to the overall course goals. In the examples of effective experiences they shared, the facilitators explicitly tied these learning objectives to participants' professional goals. Harriet shared, "[The facilitator] got right to the point [at the beginning of each class] and explained to us exactly what expectations were, what that week's assignment was about, and why it was important." Connecting the learning experience to the larger purpose added a further motivating factor to help the learners determine when to put additional effort into a task that aligned to their personal goals or interests. Xavier's facilitator took the learning objectives one step further by not only naming them at the beginning of the experience but by modeling exactly what learners would be able to do by the end of the course: "What surprised me was how well the instructor modeled exactly what we were going to be learning to do with that class." Seeing not only the articulated goals but also a model of what achieving those goals would mean marked the beginning of Xavier's transformational journey into becoming an online instructional designer. It showed him what was possible if he continued with the learning experience laid out by the facilitator.

Maintaining a Focus on the Learning Objectives Throughout the Session. As important as it is for facilitators to share articulated learning objectives at the beginning of the session, it is equally important that they deliver on those objectives by ensuring the session remains focused on them. H.P. shared that the facilitator of her effective session appeared to use a script to keep the session focused on the set learning objectives: "She definitely had a set schedule of what to talk about and what to go over, and she made it feel interactive." Here, H.P. described how her facilitator used a script while still making the session feel conversational and engaging. H.P. thought this structure was effective because the experience was entertaining, and she still walked away knowing the information she had sought from that session.

Xavier described his facilitator as being intentional with their time in the trimester-long course.

> He [the facilitator] always said that if he was going to talk about something, it was important enough for you to pay attention… He didn't want to fill the class with minutiae. He understood that that can be a thing that happens sometimes in education classes where we tend to go off into areas that might not be actually applicable to what we're doing. And so he had a very specific set of things that he wanted to accomplish with the class, and he had made it clear that everything that we would do in there would have stepped toward accomplishing those goals.

Articulating this intention increased Xavier's trust in his facilitator; he felt that the facilitator valued his time as a professional and was also committed to helping the learners achieve their professional goals.

Meghan shared that her facilitator used a strategy of validating what participants shared and then posing questions that would guide them closer towards meeting the set objectives:

> It was kind of like a teacher in a classroom, saying, “You know, there's not an opinion on whether 2 plus 2 equals 4. So, how would you get to that?” So if there was an outcome that needed to come forward, she was driving the boat [towards it].

This strategy helped keep learners engaged in relevant topics and ensured they left the session with the shared understanding needed to move forward productively. In all of these examples, participants expressed an increased sense of trust in the facilitator, as well as the belief that their experience was more effective because it remained aligned with the learning objectives stated at the beginning.

The participants of this study who engaged in learning sessions that did not include learning objectives or did not adhere to the stated learning objectives expressed frustration in their responses to survey and interview questions. One survey respondent shared:

> The one thing I really didn’t like was that there was usually not an agenda for the meeting, so we would spend the first ten minutes creating the agenda…for the meeting we were presently attending. For every web conferencing event there needs to be someone who knows the purpose and is willing to steer the ship that direction, otherwise you end up with a lot of wasted time.

It is interesting to note that Gerald had a positive response to his facilitator’s decision to use a collaborative agenda, while this respondent was frustrated by it. One difference may have been that Gerald’s session had an overarching goal, and all agenda items were tied to that goal, whereas this respondent’s session may not have had a larger goal, making the meetings feel purposeless and wasteful. Sheena Belle shared that the facilitator of her ineffective session “didn’t stay on task. She didn’t stay on target.” This made Sheena Belle feel that the facilitator did not value her time and her purpose for attending. Finally, one of the survey respondents shared that their learning experience was ineffective because:

> I was expecting to get the pertinent information as efficiently as possible, since we all had a lot of work to do. The actual experience was very far from my expectations. Too much nonpertinent discussion (off topic), inability to stay on topic, people not focused because of the delivery method.

In these examples, participants expressed how valuable their time is to them and how frustrated they felt when engaging in a learning experience that either did not include clear learning objectives or did not deliver on them because the facilitator did not keep participants focused on the objectives. Sessions like these are often perceived as ineffective by adult learners, and the study participants reported being more likely to engage in other, more relevant activities during these times, such as catching up on email or completing administrative tasks. The following section explores how facilitators can help more learners meet the learning objectives by setting and maintaining clear expectations for engagement.

Setting Expectations for Engagement. One of the strategies that facilitators can use to ensure learners meet each session's learning objectives is to set expectations and norms for how learners engage with one another. This is especially important in the web-conferencing space, where learners cannot use physical cues to determine when and how to communicate. Additionally, these norms can "make everyone feel safe to participate" (survey response) in the web-conferencing space, which may be new to them. This section explores the examples participants shared of the expectations and norms for engagement that their facilitators established, as well as their impact on the learning experience.

Xavier shared two of his facilitator's norms during the interview. The first norm was that if learners had questions during the lecture, they could use the hand raise function to get the facilitator's attention. This allowed the facilitator to answer questions at a time that made sense and assured the learners that they would receive the support they needed. The second was that cameras were to be on as much as possible:

> he believes - and I kind of believe this, too - that when you can see the looks on people's faces, when you're instructing things to them, you can kind of get the feel for how they're absorbing the information or how it's going, because that's true in in person learning as well.

Xavier's facilitator conceded that if learners were in a space where they did not feel comfortable turning their camera on (i.e., a public space) or a space where wi-fi was limited, they could leave their camera off, but he asked that as much as possible, learners call in from spaces that were conducive to camera use.

Graham's facilitator set expectations from a slightly different lens. Since her session was mandatory for everyone in the company, the facilitator focused on ensuring that participants would be fully present during the learning experience, rather than completing other work throughout the session. Partially, this was accomplished through the motivating structure of the experience itself: "Once you go into that breakout room with everybody, you're gonna hit the ground running. You've got twenty minutes to get to the top of Mount Everest!" Another important factor in this example, however, is that the organization as a whole agreed that employees would have this uninterrupted time to engage in the learning experience. By not sending emails to one another during this two-day period, participants demonstrated that they were upholding the established norms and valuing the learning experience. This suggests that although facilitators set the expectations for engagement, it is vital that adult learners uphold them to ensure that the learning experience is as effective as possible.

Harriet offered a different perspective on norms and agreements in the virtual setting. She shared that her facilitator did not set them up at the beginning of their session. Harriet thought this was appropriate because "We're all in a doctoral program, and at this point, we all know the expectations. We're not butting in… I would never just blurt out." Here, Harriet describes shared assumptions about what is appropriate in an academic setting and suggests that for doctoral students with extensive experience in school settings, these need not be reiterated. The fact that these expectations were not explicitly stated did not negatively impact Harriet's experience in the learning session.

These examples suggest that it is essential for facilitators to consider the learning outcomes they want learners to achieve through the experience and to establish expectations and norms that support that learning. Xavier's course had learners trying many things for the first time, and camera use allowed the facilitator to monitor learners' facial expressions to gauge their understanding. Graham's facilitator needed participants to be fully engaged in the activity so that they would understand the instructions and be able to execute tasks efficiently within a short amount of time. Harriet's sessions were designed as informal support sessions to help learners better understand the assignments they were completing on their own time, which allowed for looser norms. Facilitators can also consider the characteristics of their learners and their experience levels in the web-conferencing space when determining which norms need to be explicitly stated and which can be implied. When approaching norm-setting this way, facilitators honor adult learners' autonomy while still designing for efficiency. The following section examines how effective facilitators utilize multiple means of conveying information to foster a deeper understanding and engagement.

Multiple Means of Conveying Information. By setting clear expectations for when and how to engage, facilitators ensure that learners can work together in a safe and productive environment.

This, paired with the use of explicit learning objectives to guide the learning experience, helps adult learners meet their goals in web-conferencing settings. Another way facilitators support adult learners' pursuit of their learning goals is by incorporating multiple means of conveying information, such as videos, articles, graphics, and guest speakers. This section examines the impact of incorporating various media into each session on participants' experiences in web-conferencing sessions.

The topic of mixed media use was raised in both surveys and interviews. Xavier and one of the survey respondents highlighted this as a powerful practice because it helped hold their interest during longer lectures. Xavier said, "It wasn't just him sitting there talking for twenty minutes. It was twenty minutes of an introduction using all these various different things [videos, photos, etc.]." For Harriet, the facilitator's use of multiple means to convey information had a simple aim: "To show us examples of what he was looking for… It made everything very clear, and it made the class a lot more fun." Alice shared that her facilitator would invite guest speakers who could provide different perspectives on wellness. For instance, "He'd have Native Elder friends, and they had promised to talk about Native perspectives on how to have a happy life." These various perspectives helped Alice develop a deeper understanding of the content and how she could contextualize it within her life and goals. Graham pointed to the script that guided their learning activity as an example of additional media to inform their learning. The scenario acted as a metaphor for the skills they were meant to learn, and executing it was what made the learning transformative: "Did you figure out that it wasn't that the goal was truly not to get everyone to the top? The goal was to get everybody where they needed to be." These examples show what can be achieved when facilitators employ multiple media to convey information.

Alice shared one additional anecdote that is outside of the scope of this study. Still, it does provide an example of what can be achieved through thoughtful facilitation and the intentional incorporation of mixed media. She described how her friends were "able to create this full-ass wedding entirely on Zoom" during the pandemic. Alice shared that before the party, her friends sent out invitations that included a special drink recipe, suggestions for small gatherings, information about the bride and groom, and expectations for the wedding event. During the party itself, the facilitator used a mix of live videography of the ceremony and of the various people in attendance to showcase the celebration. They also mixed in pre-recorded videos of family members and friends singing meaningful songs or sharing stories about the bride and groom.

Despite the distant structure of the event, the incorporation of a shared physical experience (special drinks and party favors) with mixed digital media made the wedding a treasured memory. It also changed Alice's understanding of what could be possible in the web-conferencing space: "I've thought about it a lot. If I had to produce three-hour lectures on Zoom for some unfathomable reason, I would think about those kinds of ways of breaking it up."

The last example, especially, demonstrates how incorporating multiple media to convey information also fosters a sense of a shared environment. This makes learners feel more connected to one another and to the experience itself, providing further motivation for engagement. The final section of RQ2 explores how facilitators design learning experiences for discourse in the web-conferencing space and their impact on adult learning and achievement.

Designing for Discourse. When describing the actions that effective facilitators took to support learners in their sessions, study participants shared that the facilitators designed each session to facilitate discourse. This means facilitators set up the learning experiences so that the learners could engage with the facilitator and with their peers to discuss complex problems, share experiences, and practice new skills in a supportive environment. This section explores how facilitators (1) monitored engagement in the web-conferencing space and (2) created opportunities for learners to collaborate with their peers. It then shares participants' examples of ineffective experiences when facilitators did not create meaningful opportunities for participants to engage in meaningful discourse.

Monitoring Engagement. Survey participants mentioned a variety of tools that facilitators used in their sessions to monitor engagement, including breakout rooms, chat features, reactions, and polls. One mentioned their facilitator had the goal of having "constant engagement with the audience." These different features helped hold participants' attention while also giving the facilitator information about learners' understanding of the content. Cisco shared that facilitators can also use cameras to monitor engagement through participants' body language; his facilitator "had a dedicated classroom that had no one else in it, and she was a master at saying, 'I haven't heard anything from Site Z. I see, Joe, you're online from site Z.'" This example shows a facilitator who tracked not only individual engagement, but also engagement across different locations to ensure she was hearing from a wide swath of participants. H.P.'s facilitator invited participants to answer questions in the chat, focusing on their experiences related to different scenarios. Xavier's facilitator expected participants to share in every class, either by asking questions or by reflecting on the learning done thus far. These strategies helped the participants feel more connected to the content while allowing the facilitators to monitor the learners' understanding.

Because this study focuses on adult learners, it is essential to emphasize that facilitators need to not only monitor the learning that is happening in the space but also encourage participants to monitor their learning and ask questions when they need clarification. Both interview and survey participants noted that being able to ask questions and get them answered during and after the session made the session feel more effective. One survey participant noted, "The fact that we could engage with the speaker and ask questions was a highlight of the webinar." Meghan shared that she appreciates it when facilitators invite learners to put their questions in the chat and then are quickly responsive to those questions. Xavier shared that his facilitator would assign tasks for learners and would say, "'Try and complete this task. If you have any questions, use the chat feature.' And so you would be able to ask your questions right there live as you are doing the thing and get live feedback from the instructor." Xavier pointed out that while he had often seen this practice in in-person settings, he had not seen it done in web-conferencing settings before. Finally, Sheena Belle shared that she appreciates being able to contact a facilitator after a session to ask questions specific to her situation so that she can further contextualize the information. This also gives her more time to reflect on her learning after the session's end and work through the more nuanced pieces of information with support. When facilitators create systems to monitor understanding and for learners to advocate for the support they need, they further the likelihood that learners will experience transformation through their sessions.

Engaging with Peers. In addition to being able to seek support from facilitators, participants emphasized the importance of engaging with their peers throughout the learning experience. Alice found time in breakout rooms to simply be more engaging than long lectures spent entirely in whole-group settings: "You kind of have to be a little bit on your toes." Knowing that she would be engaging with her peers kept her from turning to other tasks on her to-do list when the session would start to drag. Xavier's facilitator would assign a task to be completed in a small group and give fifteen minutes to work on it in breakout rooms. The peers could help one another and provide feedback on the ideas being shared in real-time. Harriet also appreciated the additional time to collaborate with her peers: "There are times that you know when you'll be in a class, and everyone has a question… So it gives you… opportunities to work with other peers in small groups to try and kind of figure it out." To Harriet, this time was valuable because it allowed her peers to develop a more complex understanding of the content and to share many perspectives on what was being asked of them. These examples suggest that sessions designed to include peer engagement are perceived as more interesting to adult learners and ultimately more effective in helping them meet their professional learning goals.

Ineffective Experiences. The consensus among participants was that the least compelling learning experiences they had in web-conferencing settings were those structured as long lectures with little to no time for engagement. When asked what would have made her session ineffective, Graham shared: "A terrible experience would have been a straight lecture. No interaction." Alice shared that while she enjoys a lecture-based, in-person class, one of the most ineffective classes she took via web-conferencing consisted of three-hour lectures where the professor would occasionally toss out questions with rote answers to the audience. She shared that these nods to participation were "almost even more painful because of all of the audio issues and internet issues. You've probably seen that meme about the modern seance as Zoom, like, 'Hey, are you there? You're there. You're mute.'" Alice's example shows that maintaining traditional in-person structures that do not account for some of the limitations of web-conferencing can lead to frustration for both participants and facilitators.

Willow also experienced a session where the facilitator lectured for three hours and did not provide a workable way for participants to ask questions of them throughout the session. Moreover, participants were not able to collaborate with one another because it was too disruptive in the space they were in: "It had to be pretty quiet so that you could hear and try to watch and follow along. There was some [whispered] conversation here and there related like, 'Can you help me find this?' or things like that." Willow shared that collaboration between her and her peers occurred after the session ended, and they returned to their classes to try to figure out the resource on their own. Although this collaborative time after the session was valuable, Willow wished there had been more time for peer collaboration during the training.

All of these examples demonstrate the importance of participants being able to engage with both facilitators and their peers. The ability to do so helps them create a more complex understanding of the topic at hand, and it ensures that they leave feeling more satisfied with the learning they have experienced. When adult learners are unable to engage with each other in this way, they are more likely to feel frustrated by the experience and tune out.

Conclusion. This section showed that facilitators who design learning experiences with the needs of adult learners in mind are perceived as being more effective than those who do not. These needs include (1) using learning objectives to guide the session, (2) setting expectations and norms for engagement throughout each session, (3) using multiple means to convey information, and (4) designing for discourse between the facilitator and learners. In creating learning objectives that align with learners' needs and ensuring the learning remains focused on them, facilitators allow participants to choose experiences that align with their professional goals and to feel that the learning experience is effective in meeting their needs. Facilitators keep sessions on track by setting explicit norms and expectations for engagement. When facilitators incorporate multiple media into each session, they create more engaging content, facilitating a more complex understanding of the topics. They also help participants develop greater depth of knowledge when they design sessions that allow participants to engage with one another and to ask questions of the facilitator in real time. These factors combine to create sessions that adult learners perceive as more effective than those sessions that do not include these features.

3.3.4 RQ2 Conclusion

Participants in this study placed a significant amount of responsibility for the efficacy of a learning experience in a web-conferencing setting on the facilitator. Part of this has to do with how they perceive the facilitator as a person, including their (1) presence; (2) communication style & delivery; and (3) credibility. Participants' perceptions of the facilitator's effectiveness are also related to their technological efficacy, including (1) the facilitator's seamless use of tools; (2) the facilitator's mindset about technology; and (3) the facilitator's ability to support the learners' use of technology during the session. Finally, participants attributed much of their perceived success of the learning experience to how the facilitator structured it, including (1) how they set and pursued explicit learning objectives; (2) how they set expectations and norms for engagement; (3) how they employed multiple means to convey information; and (4) how they designed for discourse. While many of these factors have to be executed in ways specific to the web-conferencing setting, these are all features typically included in effective learning experiences in any setting.

3.4 RQ3 - How Do Participants Perceive Their Roles in Ensuring that Transformation Occurs in Web-Conferencing Settings?

The previous sections examined the roles that organizations and facilitators play in supporting transformative learning experiences conducted via web-conferencing. This final section explores the roles that adult learners play in making these learning experiences transformative, as identified by the participants of this study. These roles include: (1) the role of choice as it relates to learners' work and their schooling; (2) the role of participants' beliefs about learning via web-conferencing in general as well as the beliefs they had about the event before its start; (3) the role of participants' physical spaces in supporting transformative learning, including their access to a private space and to the necessary technology and resources to support the specific experience; and (4) the role of participants' commitment to maintaining focus and presence in the learning space. This section ultimately suggests participants' commitment to and engagement with the learning experience is just as important as the facilitator's and the organization's when predicting whether the experience will be transformational, not just for themselves, but also for the other participants in attendance.

3.4.1 The Role of Choice in Professional and Education-Based Settings

Both the surveys and the interviews invited participants to share what drew them to the learning experiences they described, and most often, participants indicated that the experiences were either related to work or schooling. There were some survey responses that did not explicitly tie their experiences to one or the other, or they stated they were part of something else, such as a hobby. This section examines how participants were encouraged to exercise choice and autonomy within their learning experiences, ensuring that their personal goals were met during each session. It also highlights the differences between experiences tied to participants' work and those tied to schooling.

Work-Related Learning. Eight of the eleven people interviewed and five of the ten people surveyed indicated that the learning experiences they described were tied to their work. H.P. was the only person interviewed who suggested that she could choose which session she would like to attend and whether she would like to engage in professional learning at all. This allowance was motivating to H.P. because it allowed her to enroll in an experience about "something that I was having a hard time with, or that this was something that I had never done before with the scheduling." The session's promise to address a pressing need encouraged H.P. to sign up for her first session, even though she was unsure about its structure. Furthermore, when she found that session to be effective in meeting her learning needs, she was more willing to sign up for additional sessions when they became available.

The other seven interviewees who shared that their learning experiences were part of their work also stated that the experiences were made mandatory by their workplaces. Although one of the survey respondents shared that they tended to prefer learning experiences that they chose over those that were assigned, the fact that these experiences were assigned did not seem to impact the participants' perceptions of the learning quality. Participants, including Cisco, Gerald, Josh, and Meghan, all described learning experiences that were closely tied to their daily work, and they noted having both autonomy and leadership opportunities within these learning experiences due to their roles. For instance, Gerald and his peers were invited to help form the weekly agenda and to bring documents to the group for analysis and feedback. Meghan was encouraged to seek out the information she needed so that she could support other business managers after the session ended. Both Cisco and Josh were focused on building new user experiences by gathering feedback and input from various stakeholders within their organizations. In these learning structures, learners are motivated by the need to address authentic needs in their workplaces and become fully engaged in learning experiences designed to provide them with the necessary information.

Sheena Belle, Graham, and Willow's experiences differed in that they were sessions that were important for their work but also distinct from it. Sheena Belle and Graham's examples show some of the same autonomy present in the previous examples. In Sheena Belle's training, participants were expected to practice with their new materials and to make the routines being shared their own. For Sheena Belle, visualizing the use of new materials with her real students helps her determine what questions to ask to make sense of new resources. This enables her to ensure that each learning experience she engages in aligns with her professional learning goals. Meanwhile, the scenario Graham's team was presented with was something they would never face as a team in real life; however, they were still allowed to choose which roles they would take on and to make the decisions they felt were best based on the information they had. This was highly motivating to Graham and her colleagues, and helped her to feel fully immersed in the experience. The goal of both sessions was to allow participants to practice new skills, gain new perspectives and understandings, and start to imagine what it would be like to implement these skills in the context of their actual work.

Although Willow's training was similar to Sheena Belle and Graham's in that it was required by her workplace with the stated purpose of helping her develop a new understanding (how to use a new curricular resource) that would allow her to do her job more effectively. However, in describing the training, Willow shared that she did not have the opportunity to engage with the materials or to begin to contextualize them in her space by planning for their use. Because she could only observe as the facilitator demonstrated how to use the materials, Willow was unable to exercise any autonomy or choice in her learning. She also wasn't able to contextualize the information being presented into her reality, which made it feel abstract and ineffective.

The data showcased here suggest that even learning experiences led through web-conferencing, which are assigned to adults, can be transformative. When these sessions include opportunities for the adult learner to exercise autonomy and address their pressing needs through the experience, adult learners will report greater satisfaction with the event and perceive it as more effective than those that do not include these opportunities. Next, I consider learning experiences tied to formal schooling.

Learning Connected to Schooling. Three of the eleven people interviewed and one of the ten people surveyed shared that their learning experience was tied to formal schooling. Harriet and Xavier shared that their sessions were among the first required for their post-graduate programs. These programs were aligned with their larger professional goals and represented opportunities to advance in their careers or to become more marketable in their fields. Alice's session was designed to support the well-being of graduate students, but it was not tied to her academic or professional goals. While Harriet and Xavier didn't speak about choice in their interviews, Alice shared that learners in her session were invited to try those strategies that resonated with them and to leave behind those that didn't: her facilitator said, "if there's something that speaks to you here, run with it. Great! Try it out. You have an entire semester to try out all these things and consider these ideas to see if they fit your life." Alice mentioned that the content was especially timely because it was "very much still pandemic times. So I'm sure it spoke to a lot of us, you know, trying to have some sanity and happiness." The pertinent information, combined with the low-key expectations for implementation, made the experience enjoyable.

The sessions tied to formal schooling tended to differ from those that took place in work environments in that they included less autonomy and fewer opportunities to address pressing needs immediately. However, participants still found them meaningful and, in some cases, transformative because the courses related to their long-term goals and interests.

Conclusion. With the right conditions, participants were able to experience transformative learning in sessions that were connected to their work and in those that were tied to formal schooling. The opportunity to choose a session from a list of topics related to their work allowed learners to reflect on their goals and select sessions they felt would best help them achieve their objectives. When the learning experience was designed to help participants solve a pressing work-related issue and allowed them to take on leadership roles, participants perceived that the experience was effective and engaging. When workplaces were separated from daily duties and provided learning experiences, participants preferred those that allowed them to explore in hands-on and collaborative ways over those that did not. Finally, participants who attended sessions as part of their formal schooling felt more satisfied with those experiences that were tied to their personal goals or interests. When learning experiences met these criteria, participants felt the sessions were more efficacious and were more likely to share that the session had lasting impacts on their lives. The following section explores how participants' beliefs and assumptions impacted their perceptions of their learning experiences.

3.4.2 How Participants' Beliefs Impact Their Experiences

This section examines two categories of beliefs that were explored in the interviews and surveys conducted during this study. First, it describes participants' beliefs about web-conferencing and learning in these settings in general. Then it shares participants' beliefs about the sessions they attended before the sessions began. Ultimately, the data reveal that participants' beliefs did not significantly impact their perceptions of their experiences; some participants with negative beliefs about web-conferencing or the session they were attending had effective transformative experiences, while others with positive beliefs about web-conferencing and/or their session had ineffective experiences.

Participants' Beliefs about Web-Conferencing. Interview and survey participants were invited to share their general feelings and beliefs about web-conferencing. The following details the themes identified among the shared information, including: 1) the belief that web-conferencing can support a better quality of life for workers; 2) the belief that increased access to people from a larger geographical range is valuable; and 3) mixed beliefs about whether web-conferencing can support effective learning experiences. There is also discussion of whether the beliefs participants shared were reflected in the outcomes of the learning experiences they described.

Improved Quality of Life. Some participants shared positive perceptions of web-conferencing, highlighting points that suggested it had enhanced certain aspects of their lives. Cisco shared, "I love [web-conferencing]. I have a lot of hope for it. I hate to see everybody go back to their offices when I think life is so much richer if you can work from home." Cisco shared that he felt better able to maintain a work-life balance when he was not required to commute to and work in an office. The reduction in travel or commute time was mentioned by Gerald, Willow, Josh, and one of the survey respondents as one of the significant benefits of web-conferencing. Gerald, who has worked primarily in rural places, shared this anecdote:

> We [a group of rural superintendents] meet remotely, so I can do a one-hour meeting, and it will take me one hour. If I do a one-hour meeting in the city, it takes me all day. And in that state, a one-hour meeting in the city was two days, right? And so the massive efficiency [of web-conferencing] outweighs what can be the emotional connection with other people.

Although the time saved for Willow was less extreme, she expressed that the idea of being able to transition directly from one task to a meeting or a learning session without having to factor in travel time was desirable.

Both Alice and Harriet raised the idea that the web-conferencing space may be more inclusive than physical spaces, as it can feel more welcoming to those who are less comfortable in physical spaces, face discrimination in those spaces, or find physical spaces inaccessible for various reasons. For instance, Harriet shared that because she has ADHD, she sometimes feels self-conscious in physical learning environments where she fidgets and "multi-tasks" as a way to keep focused on what the facilitator is sharing. In the web-conferencing space, she does not have to worry about whether these behaviors are distracting those around her or if she will be called out for her coping mechanisms.

Increases Access to Others. One theme that many participants raised was that web-conferencing has expanded their access to others on a global scale, which many perceived as being positive. Graham, Meghan, Josh, Alice, and Xavier shared this belief. Alice mentioned that, because many conferences went online during the pandemic, she was able to attend global conferences that were previously inaccessible to her when they were only available in person. Josh shared that he and his team were able to conduct research in markets in Japan, Australia, Denmark, and across the United States in a few weeks rather than months, thanks to the availability of web-conferencing. Although these examples certainly point to time and resources saved by not having to travel, they also specifically speak to the opportunity web-conferencing affords to access many different perspectives efficiently and to learn through that sharing.

While the consensus amongst participants was that accessing global perspectives was a net benefit of web-conferencing, participants, including Alice, Willow, and three of the survey respondents, questioned whether the quality of these interactions was as high as those experienced in person. Even Gerald, an avid proponent of web-conferencing, shared that the opportunity to socialize in person is important. These voices suggest that it is essential to consider the desired outcome of a gathering and the available resources when determining whether to gather in-person or through web-conferencing, as both offer opportunities and constraints.

Beliefs About Learning in Web-Conferencing Spaces. The idea of opportunities and constraints carried over into the beliefs participants shared about learning via web-conferencing. Harriet shared that she likes "learning virtually because, as they're explaining something, or if I talk on a point, and I'm like, 'Oh, my God, wait! What the hell does that mean?' I can quickly Google it on my computer." She feels better equipped with the tools she needs to resolve any confusion quickly, which makes for a more seamless learning experience. H.P. shared that she prefers the live experience of web-conferencing to asynchronous learning because it has the "potential to be more engaging and effective."

Meanwhile, Alice, Sheena Belle, and Willow all expressed the belief that learning in web-conferencing sessions is less effective than learning in person. Sheena Belle described changing from a web-conferencing class to an in-person option, because "I felt the human contact was better… having people in the room going over the same information, having those conversations. Less distraction." Alice shared a similar sentiment, "I've always had better experiences in a real classroom that's like this whole tangible [environment] surrounding me that keeps me focused." In both examples, participants express the sentiment that not sharing a physical environment with their peers negatively impacts their learning outcomes.

Graham and a survey respondent took a more nuanced approach when describing their beliefs about learning through web-conferencing. Graham shared that when she becomes curious about a new topic, she considers what learning options are available to her and what structure would best support her personal goals related to that topic. To her, there are times when a physical learning experience is preferable and others when web-conferencing will be more beneficial. The survey respondent did not express a preference for learning through web-conferencing or in-person; instead, they shared that web-conferencing tools are "powerful and fill a great gap for people personally, educationally, and professionally. There are definitely good and bad tools. There are also awesome tools that are just used poorly." This statement suggests that the respondent believes that under the right conditions, learning via web-conferencing can be effective, but that it may not always be the case.

Some participants in this study suggested that a person's beliefs about web-conferencing may influence their perceptions of their learning experiences, either positively or negatively. For instance, Xavier shared, "If your attitude is that 'I'm not gonna learn anything from this thing…,' you're probably not going to take a lot away from [the experience], because you're already painting it in a negative way." However, the experiences of these study participants do not entirely reflect this belief. All participants in this study, except for Willow, were able to recall both effective and ineffective learning experiences they had in web-conferencing settings, regardless of their perceptions about learning in these settings. It is interesting to note, though, that two of the three people who expressed the belief that learning via web-conferencing is not as effective as learning in person shared that they did not have learning experiences that transformed their lives or perceptions. The following section examines whether participants' pre-event feelings about the learning experience influenced their perceptions of its effectiveness.

Feelings about the Specific Event Before Its Start. In addition to sharing their general beliefs about web-conferencing, interview and survey participants were invited to share their feelings about the specific sessions they attended before the sessions began. This section first explores the themes raised in the surveys and then those raised in the interviews, as these responses differed in tone and content.

Survey Responses. Survey questions were split into two mirrored sections, with one set of questions asking participants to describe an effective and an ineffective experience they'd had in a web-conferencing setting. Five of the six people who responded to the question asking whether the effective session matched their expectations shared that it did. The one person who said it did not match their expectations shared, "I expected to be overwhelmed and to not get much one-on-one time, but the group was much smaller than I expected, so it was a lot more helpful and comfortable." The answers to this question, as it related to ineffective experience, invoked the opposite response; five of the six respondents shared that they had expected a positive outcome and expressed disappointment in the reality. This suggests that the people surveyed enrolled in the learning experiences because they believed the sessions would effectively help them meet their learning goals.

Interview Responses. Because survey respondents were clear about whether a session's outcomes matched their expectations, the interview guide was designed to solicit more nuanced responses by asking participants to describe their feelings about the session before it started. Some, like Cisco and H.P., felt trepidation about the experience due to the technology, specifically. Cisco was nervous because he was responsible for the technical success of the event, and H.P. felt hesitant because she believed things like, "This is a waste of my time. I have other things I could be doing. These [web-conferences] never work out." Meghan felt excited about the event on the one hand because "I knew there would be a lot of smart people in the room," and the work would be very productive, but she also felt worried because "I didn't see any way to fix" the problem they were trying to address. She was concerned that she would look incompetent in front of her peers. Graham felt more neutral about the event, sharing that she thought, "All right, corporate mandate. You want to keep your job, you gotta do this thing. So I didn't go in with the expectation of learning something I didn't know about sexual harassment." The training didn't call to her personally or professionally from the outset, but she also wasn't concerned about the technology itself. Likewise Xavier shared that he thought his first class would be like any other introduction to a course; they'd go over the syllabus and course expectations and maybe have the chance to introduce themselves, but nothing beyond that. Interestingly, none of these responses reflected the belief that the session they were entering would be transformational or even exceptional; yet, all of these respondents did describe being profoundly impacted by these experiences after the fact. Of this, H.P. shared, “I got tricked in the best way.”

The reverse of this trend is seen in Willow’s response. She entered her training with the expectation of leaving knowing how to utilize her district’s new language arts curriculum. Part of the issue was that Willow was not prepared to attend the training via Zoom as this had not been communicated to her before the event. Even so, she shared that when she saw the Zoom set-up in the physical space, “I was still hopeful that maybe it would turn out better” than the last training she had attended with the same setup. As has been reiterated, this learning experience ultimately proved ineffective for several reasons.

Interview participants carried a variety of preconceived notions and beliefs about their sessions into their various learning experiences. In many cases, they were open to achieving their learning outcomes but did not expect the experiences to be transformational. Many expressed delight when the experiences surpassed their expectations, and, in the case of Willow and the survey respondents, frustration and anger when their experiences did not meet their learning needs. Based on this data, it appears that expectations before an event have little impact on whether that experience meets the learners’ goals and is transformative. However, they may influence learners’ emotional reactions to the event.

Conclusion. This section examined how the beliefs that adult learners bring into learning experiences conducted via web-conferencing influence their perception of the event's effectiveness. It first explored themes related to participants’ general beliefs about web-conferencing, including (1) its potential to improve one’s quality of life by creating greater efficiency and inclusivity; (2) its ability to expand one’s global reach, although some called to question the quality of these interactions; and (3) the variety of beliefs participants held about the efficacy of learning in the web-conferencing setting. It then examined the beliefs that both survey respondents and interview participants held regarding their learning experiences prior to the start of the sessions. These data reveal that the specific conditions of a session have the potential to override participants’ perceptions of both web-conferencing and the event. The following section examines how participants can design physical spaces that facilitate learning through web-conferencing.

3.4.3 Creating a Physical Space that Supports Learning Through Web-Conferencing

Physical space was explored earlier in this chapter as it pertained to how organizations can establish physical spaces that support learners' transformational learning experiences. One thing that was clear in this study, however, is that not every learning space is influenced by an organization; adults may be setting up their physical environments in which to learn. The following section explores how the participants interviewed established physical environments that supported (or hindered) their learning, including (1) the value of a private space for learning, and (2) the ability to access necessary technology and resources. It considers how learning unfolded in well-equipped environments as well as some of the barriers participants faced when trying to establish these physical spaces.

Learning in a Private Space. The consensus among the participants in this study was that the ideal physical space for engaging in web conferences was private and free from distractions. For this reason, some of the participants interviewed opted to tune in from their offices even if their sessions were not directly tied to their work. Xavier shared that this was the best option for him because "It was just in a quiet spot. I mean my office was quiet, because no one was there in the evenings, and if there were, I would just close my door." Meghan, whose work was done exclusively by distance, set up a home office that offers privacy and comfort: "I've got to be comfortable." Alice and Harriet shared that they, too, would tune into their classes from their offices at the university whenever possible so as not to have to share the spaces with their young children.

Unfortunately, this was not always feasible. One of the survey respondents shared that a contributing factor to their ineffective learning experiences was "listening to a lot of talking with bad audio while being at home with the family." Alice shared that during the pandemic, she was forced to attend an evening lecture from home while cooking dinner for her young child, making it impossible to maintain focus. Harriet shared that she sometimes ends up attending sessions in her car between her children's activities or from bed while her kids watch television. H.P. laughed when asked about privacy when working from home during the pandemic: "I've had my kids fighting each other to the death during a conference call. I mean, that would be great, but that [privacy] is not my reality." When asked to give advice for facilitators, Harriet shared, "I think it's important to understand that not everyone has that quiet space and that some of your students are gonna be at Starbucks listening in." These responses do not refute the idea that privacy is essential for effective learning experiences in online settings; instead, they remind us that a private space for web-conferencing is a privilege not afforded to every adult learner.

Whenever possible, adult learners should consider how to establish and maintain a space that is free from distractions when engaging in learning via web-conferencing. As was seen here, however, this is not always possible depending on the other variables in participants' lives and homes. The following section considers how to equip those spaces with the necessary technology and resources to support the learning experience.

Access to Necessary Technology. When considering available technologies, participants described both (1) hardware (physical tools) that supported their learning experiences and (2) access to high-speed Internet that would ensure consistent connectivity throughout their learning experiences. Due to the breadth of the learning experiences described in this study, hardware and internet access were sometimes the purview of the employer and sometimes that of the learner. Therefore, this topic is explored in this section and RQ1. Here, I focus on those pieces that the learners invested in themselves, why they made those investments, and the questions of equity they raised during their interviews (survey participants did not explore this topic). This section first explores the themes related to the necessary hardware and then those related to the network.

Access to Hardware. Study participants expressed varying preferences for hardware. Both Alice and Graham emphasized the importance of good audio quality, and they invested in headsets and microphones that would minimize audio interference and background noise. Josh shared that he had purchased additional monitors for his computer so that he could follow the web-conferencing platform more comfortably while still seeing the content on his other screens. In addition to electronic technologies, both Josh and Meghan shared that they invested in standing desks to make their spaces more comfortable, as well as notebooks and writing utensils so that they could easily take notes. This helped them feel more focused during their sessions and helped them walk away with documented next steps when needed.

Cisco spoke about investing in the latest phone, computer, and tablet technologies to have access to the best resources to support web-conferencing experiences, while also expressing concern that not everyone can afford these resources: "The haves are getting richer, because they have their $1,000 iPad… Heck! My phone this last time was $2,000!" To him, access to cutting-edge technologies exacerbates inequities between those of different income levels. He mentioned how difficult it is to bank without a smartphone as an example and shared that basic proficiencies with these tools are required for more positions that pay livable wages. As in the discussion of privacy, Cisco's response also includes a reminder that the ability to purchase necessary hardware is not afforded to everyone who may benefit from learning via web-conferencing.

Access to High-Speed Internet at Home. When asked what she needed in her physical environment to have an effective learning experience in a web-conferencing setting, Harriet shared, "As long as I have Internet connectivity… Internet and snacks, I can do anything!" Unfortunately, according to the participants of this study, consistent access to high-speed internet is not a given. In fact, one of the most significant stresses of learning in web-conferencing spaces, as reported by participants, was access to a reliable internet connection at home. Josh shared: "It's a constant worry." Alice shared that her most ineffective experiences took place at home, where her internet was inconsistent: "Oftentimes the audio was garbled… and I got booted out of Zoom all the time." Josh shared that when his family was quarantined at home during the COVID-19 pandemic, he immediately upgraded their internet: "You have to invest in that kind of stuff. You can't even think twice about it at that point."

It is important to remember that the ability to upgrade one's network is not equally available to everyone. Xavier opted to attend his synchronous classes from his office in the evening to ensure consistent access to high-speed Internet, because it had not yet been made available in his rural home. Harriet, in her recommendations for facilitators, shared that many of her learners from rural locations must attend their classes from a community school because home internet is not available or is astronomically expensive (upwards of $600 per month). Cisco shared his belief that it is time for society to view the internet as an essential utility:

> I think right now our mission had better be to start saying everybody should have access to the Internet like electricity, like the mail… I can have it if I pay for it. I'm not saying it should be free, but I'm saying infrastructure should be there, so I can have access.

In these responses, the question of whether it is an individual's responsibility to ensure they have access to high-quality internet is problematized. For some, it is not physically accessible, and for others, it is financially unaffordable.

This section explored the hardware and network capacity needed for effective learning experiences to occur in web-conferencing settings. These included participants' preferences for specific types of electronics, such as audio equipment and additional monitors, as well as physical resources like writing supplies and standing desks, and access to high-speed internet. Participants' responses also show how some of the resources needed can be too costly or simply inaccessible to be feasible, resulting in learners seeking alternative learning environments when possible or enduring ineffective experiences because they had no other choice.

Conclusion. This section examined how participants created physical environments that supported their learning experiences in web-conferencing settings. Essential to effective experiences were (1) private spaces where participants could engage with minimal interruptions; (2) hardware and tools that supported participants' learning preferences; and (3) reliable, high-speed internet. However, this discussion also included examples where these conditions simply were not feasible. Parents who did not have childcare in the evenings had no choice but to attend classes with their young children present. Participants who could not access high-speed internet at home either had to pay to upgrade their Wi-Fi, experience frequent dropped calls, or seek out new environments with better internet but other constraints. It is crucial for learning organizations, facilitators, and learners to consider these needs when designing and enrolling in new learning experiences via web-conferencing, as they impact learners' ability to maintain focus and presence in this online environment. This topic is explored more in the next section.

3.4.4 Maintaining Focus & Presence

While some participants shared that facilitators have the most significant influence over a learning experience's efficacy, their responses revealed that the other learners in the session also influenced their perceptions of the session's efficacy. They felt an increased sense of presence in the web-conferencing space when they perceived their peers were as committed to the learning experience as they were. This section explores themes related to this idea, first exploring the sentiment that maintaining focus in web-conferencing spaces is more challenging than in physical spaces, and then diving into how participants worked to maintain a sense of presence. The discussion of presence explores (1) having a shared sense of purpose with one's peers; (2) developing and maintaining relationships between peers; (3) engaging in active learning; and (4) using cameras to support engagement.

The Challenge of Maintaining Focus. The study participants brought up the additional effort required to maintain their focus in web-conferencing spaces compared to in-person environments. This section examines how participants described their efforts and the strategies they employed to maintain focus during web-conferencing sessions.

Amongst the participants who raised the issue of maintaining focus in web-conferencing sessions, most shared that they found it more difficult than focusing in in-person settings. One survey respondent shared, "I thought it would be more of a classroom-like experience, but it was very difficult to pay attention to Zoom from home unless the lecture was absolutely riveting." Meghan reflected on this phenomenon, "It takes a different part of your brain, I think, to listen on Zoom compared to a classroom." Alice shared this sentiment saying that in the physical classroom:

> You have people around you, and you're all paying attention to the same thing. It's this whole sensory experience. I think that makes it much easier to focus on the lecture, too… It's just really different than just being in your own space and focusing on your computer and, like, missing out on all of that like sensory stuff that happens in a traditional classroom.

Because web-conferencing settings lack the physical cues present in a brick-and-mortar learning environment, it is on the learner alone to establish an environment that supports their continuous attention. Even when they establish the ideal conditions, poor sound quality or glitches in internet service can lead to missed information, "that you really needed to hear" (Alice).

Because maintaining focus was challenging for many, participants shared the strategies they used to stay present in their learning experiences. Many of the participants, such as Harriet and Graham, mentioned activities like doodling or knitting to help maintain their attention during the learning experience. Alice mentioned investing in audio technology, such as microphones and headphones, to improve audio quality. Meghan and Sheena Belle shared that they took notes and annotated documents to ensure that what they learned would not get "lost" after the learning experience ended. Meghan shared that she's still discovering her needs as a learner in web-conferencing spaces, and as she does, she's finding the experiences to be more effective over time.

Not all the participants agreed that learning in web-conferencing settings was more difficult, however. Harriet shared that learning in a web-conferencing space was easier because her

ADHD makes it difficult to sit still during lessons. Her concern that her fidgeting is distracting to others draws her attention away from the learning experience; the virtual space removes this concern. Although Xavier and H.P. did not compare in-person experiences with web-conferencing experiences, they shared that the interactive elements of a synchronous video helped them pay more attention than previously recorded videos.

This section explored a wide variety of preferences expressed by participants about the means through which they can explore content and the strategies they can employ to help them focus in web-conferencing settings. The following section explores how learners can maintain a sense of presence in the web-conferencing space to support their learning and that of their peers.

Participants' Roles in Maintaining a Sense of Presence. When describing their roles as participants in making web-conferencing sessions effective, survey and interview participants described the importance of maintaining a sense of presence in the learning space. In this context, presence refers to the participants' sense that they were engaging with real people committed to doing meaningful work together (Bloomberg & Grantham, 2018; de Beer et al., 2022; Garrison et al., 2003; Joo et al., 2011). They recognized that this required a sustained commitment from every participant, including themselves, to uphold the expectations and pursue the learning objectives set by the facilitator. This section explores the themes that participants raised, including (1) the impacts of group size on transformative learning; (2) participants' sense of shared purpose; (3) the relationships that existed between peers and that developed through the experience; (4) participants' commitment to active learning; and (5) participants' reflections on the impact of cameras on their learning experiences.

Group Size. The group size represented by the participants interviewed varied widely. Gerald and Meghan were in groups of about 10 people, while Harriet's group was about 15-20 people. Both Alice and Willow were in groups of about 20-25 people. Cisco estimated that there were sixty-five people in his group, while both H.P. and Graham estimated that their groups contained hundreds to thousands of people. From the responses gathered in these interviews, group size does not appear to positively or negatively influence whether and to what degree an adult learner will experience transformation in a web-conferencing environment.

Sense of Shared Purpose. More than the number of people in the room, study participants shared that it was important to them to feel a sense of shared purpose with everyone who attended the learning session. Alice described feeling a strong sense of purpose in her session because her graduate student well-being course was "this low-stakes but really timely content." The context of a global pandemic that increased stress levels for many made the content even more valuable to participants seeking strategies for self-regulation during times of heightened stress. Before the start of her session, Willow expressed the hope that it would be an opportunity to collaborate with her peers and to co-plan using the curricular resource they were to be trained on: "I'm hoping there's a good group that will be able to connect and reflect together." For Sheena Belle, the sense of shared purpose emerged before the training, when her personalized professional learning plan was developed: "The district trains all of their specialists and paraprofessionals and whatnot in some type of multi-sensory, explicit instruction." Knowing this increased Sheena Belle's connection to the content and motivation to engage throughout the session. In each of these examples, participants felt a greater sense of connection to their groups and the learning experience because they felt a shared sense of purpose.

In addition to personal commitments from the group, some participants shared a greater sense of communal purpose based on who was enrolled in the learning experience alongside them. Graham shared, "They made sure the C-levels were spread out in every session. So it wasn't like the C-levels got a special session. They were in with the fleet, like 'Nope, we are all in this together'." Having leadership in her session changed Graham's perception of what her organization expected from the learning experience and made her more curious about what the outcome could be. Gerald was invigorated by his multi-organizational workgroup's "teamwork, that sense of 'we're all in this together' across districts and that we're working with the Health Department… That was very cool." Meghan reported a similar feeling because her workgroup consisted of current and retired practitioners, support groups, and state representatives collaborating to determine the best course of action in light of new state regulations. She shared, "I would say that the biggest impact was seeing the State on [the call] ...Number one, I was surprised that they didn't realize what that would cost, and number two, how empathetic they were." Having this new understanding between the participants helped Meghan feel more connected to the group and more committed to their purpose.

Relationships Between Peers. Part of what strengthened participants' sense of shared purpose was the relationships that participants had and developed with their peers who were also enrolled in the learning experience. This section examines participants' descriptions of their relationships prior to the learning experience, as well as how those relationships evolved, and their impact on the sessions' efficacy.

Interview participants were asked to describe the status of their relationships with their peers before enrolling in the learning experiences they described. Meghan, Gerald, Sheena Belle, and Willow shared that they had prior relationships with several of the people in attendance, ranging from casual acquaintances to close friends and long-time colleagues. Alice and Xavier shared that there were a few familiar faces in their sessions, but that at the start of their classes, they did not know anyone well. Harriet had, up to that point, only attended asynchronous courses, so while she recognized some names in her class, she had no sense of who they were as individuals. Although Graham was in attendance with her colleagues, the size of the company and the session meant that when she was placed in her small group, she was with participants whom she did not know well. The level and number of relationships the participants had with their peers before the start of the session did not appear to impact the overall efficacy of the learning experience.

More than the existence of relationships before the session's start, participants shared that the development of relationships with their peers throughout the learning experience impacted their overall perceptions of the learning experience. Participants said that relationships do not happen accidentally in web-conferencing settings; for instance, Meghan noted that friendly rapport "is hard for me with somebody who's just a face on Zoom." Some participants mentioned strategies their facilitators used to help participants build rapport with their peers. Xavier's facilitator would open each class a few minutes early so that participants could talk with their classmates, and Alice's would send participants into breakout rooms at the beginning of each class with a prompt designed to help them get to know one another. Gerald's session for school and health leaders included time each week for participants to vent and to offer emotional support to one another, which helped participants face the complexity of leading through a global pandemic with resilience. Alice said these planned opportunities to build relationships in web-conferencing sessions made her feel more connected to her peers than she felt in other sessions without these structures: "I knew these people. I knew something about them and felt closer to them than I would if they were just heads on a screen."

Both Harriet and Josh took a more proactive approach to building relationships with their peers in their sessions. Harriet created a group on a social media platform and invited her classmates to join it. This community became a place where participants could discuss assignments together, offer tips for working with different facilitators, and provide advice on individual challenges. Harriet shared that their group even started hosting synchronous Zoom meetings for their asynchronous Statistics class. This community helped Harriet feel more confident in her identity as a graduate student as well as a greater sense of belonging within her program. Josh described a similar sense of disconnect when he joined a new company and was working from home exclusively:

> Unlike an office environment where you can walk over to someone's desk or the stereotypical water cooler, conversations don't happen when you're working from your home office. So I made it a point to connect with people just for like fifteen minutes to a half hour outside of the work conversation… I would just ping them and say "Hey, do you have a few minutes to talk?"

Creating these informal opportunities to talk helped Josh feel more connected to his colleagues and helped him build relationships that extended outside of the workplace.

While many participants described feeling an increased sense of satisfaction from their learning experiences when they felt a deeper connection to their peers, only one participant described the negative impacts of not having closer relationships. This response came from a survey respondent who described their experience on a diversity, equity, and inclusion (DEI) workgroup, whose stated purpose was to learn more about DEI to develop initiatives that would make their organization more inclusive moving forward. This participant shared that the experience was ineffective because "There wasn't enough time spent getting to know the other participants in order to feel safe speaking about such sensitive topics. It was very uncomfortable and difficult to speak when it was my turn." For this participant, the lack of connection with their peers during the session made it feel unsafe to share their honest reflections on the content they were learning and to contribute meaningfully to their organization's DEI plan.

Participants of this study perceived their experiences as being more effective when they felt a more profound sense of connection to their peers enrolled in the learning experience. They shared that sometimes their facilitators designed experiences to help them develop relationships with their peers, and that they sometimes took that work into their own hands. In both instances, they felt more connected to the course content and each other when they had more meaningful relationships with their peers. Not only that, but these responses suggest that trusting relationships may be necessary when learners are asked to explore and expound on content that may feel sensitive to them if transformation is to occur. These relationships help learners feel safe in expressing their developing understanding, and they motivate learners to engage in active learning. This is explored more in the next section.

Active Learning. According to study participants, peers demonstrate their commitment to their shared purpose and their positive regard for one another by engaging in what Gerald and Cisco called "active learning." Xavier summarized this idea as "being present and being engaged, following the guidelines and the rules that are laid out for the instructional meeting." Graham expanded on this idea, saying, "My job is to pay attention to what's happening and to acknowledge when someone is asking for feedback. If no one's providing feedback, it's because they're not engaged. And that's the hard part [of web-conferencing] - you need the engagement." Willow and Gerald shared similar sentiments, expressing that by paying attention, you are showing respect for the facilitator's work and for your peers' time. Harriet added that it is also essential that participants "do the homework" before class, whether that be assigned reading, resource preparation or necessary communications: "I think it's important to take an active role, especially when you're doing online class, because it's so much different than in person class." For Harriet, the preparation ensures that facilitators and learners are ready to engage in productive ways during the limited synchronous time they have together. Participants who were part of learning experiences where active learning was the norm described those experiences as exciting and sometimes transformative. For instance, Meghan shared that her experience was "a really fun exchange of ideas," "a great learning experience," and "gratifying to know it wasn't just me," reflections that were sparked by the environment in which engagement was high and conversation flowed naturally.

When participants described effective learning experiences, they described peers who seemed as invested in the learning experience as they were. However, participants also shared examples of ineffective behavior in which their peers' disengagement inspired further disengagement throughout the session. Alice shared that in her three-hour evening class, "I have to be home with my child and cook dinner. That's what so many other people were doing, too." Graham shared a similar sentiment, saying, "How many times have you heard a Blender going off or somebody's chopping vegetables like ‘You're not here… Oh, then I don't need to be here either. I can go do laundry real quick.’ And then all is lost.”

Participants also described a different kind of disengagement, in which their peers would often stray off topic, primarily when they were meant to be working together in breakout rooms. One survey respondent shared that their ineffective session was mainly due to “too much non-pertinent discussion (off topic), inability to stay on topic, people not focused,” which led to an inefficient work session. Sheena Belle described finding herself in breakout rooms where “the conversation doesn't always stay relevant to what you're learning, and it might be about their dog or their car problems or their life problems. And then you're distracted from what you're supposed to actually be learning.” Participants described these sessions as being frustrating because they felt like wasted time, especially for those who had been looking forward to achieving the stated outcomes of the learning experience.

When all participants engage in active learning by readily responding to prompts, preparing appropriately for the sessions, and staying on topic when working with peers, learners report higher levels of satisfaction with their learning experiences. They recognize that being disengaged from the session hinders others’ learning, and some shared that this knowledge motivated them to stay actively engaged in the experience. One question that participants grappled with when discussing active learning was whether camera use should be required. This is explored in the next section.

The Question of Cameras. When describing what it was to be an active learner, Graham, Gerald, and Willow shared that it was important to have their cameras on. Partially, this was so that the facilitator could more easily monitor engagement and understanding, but it was also so that participants could feel more connected to one another. Xavier shared, “Seeing people’s faces and reactions gives a human connection… when you can’t see someone’s reactions, it takes away a little bit of it.” Meghan said of this, “I have a hard time learning from somebody where it's just their voice… I feel like I learn from body language and from just seeing that somebody else is actually listening.” At the same time, other participants shared that they found the cameras intimidating or distracting. Alice said that for some, “being able to turn off the camera and putting comments on chat and all of that can help people who are shy, who might not even speak otherwise.” She mentioned that this made web-conferencing a desirable learning format for many people who were uncomfortable being physically present in a learning environment for various reasons. H.P. shared that upon entering any web-conferencing session, she immediately turns off her camera and her microphone, because “I just want to feel more comfortable.” She shared that leaving her camera on is so distracting that she struggles to remain engaged in the learning experience, even when she facilitates sessions. Even Meghan, who was a proponent of using cameras, mentioned being distracted by seeing herself on screen throughout her sessions. These mixed responses suggest it may be wise to employ cameras in a nuanced manner rather than creating a single, hard-and-fast rule about camera use. For instance, facilitators may invite participants to turn their cameras on when they are speaking or when they enter breakout rooms so that their peers can get a sense of them as individuals, while allowing cameras to remain off when they are not actively communicating with peers.

This section explored how learners and their peers collaborate to create a sense of presence (the feeling that they are part of a community with real people who are committed to achieving shared learning outcomes) in web-conferencing settings. In addition to exploring whether group-size impacts the efficacy of these learning experiences (it does not), this section also explored the importance of learners having a sense of shared purpose with their peers, strategies for building relationships in web-conferencing spaces, the need for learners to commit to being active learners throughout each session, and whether or not the use of cameras impacted the transformative potential of these learning in web-conferencing spaces. Ultimately, this data reveals that participants’ behaviors throughout the learning experience have a significant impact on learners’ perceptions of the experience’s efficacy.

Conclusion. Study participants shared that the success of a learning experience has a lot to do with the commitment demonstrated by all learners in the session when it is conducted through web conferencing. This commitment is demonstrated when participants (1) express a sense of shared purpose related to the session’s learning goals; (2) develop and maintain relationships with their peers; and (3) engage in active learning throughout each meeting. Group size does not impact the efficacy of these experiences, but it is less clear whether the use of cameras enhances or detracts from the transformative potential of learning in web-conferencing settings. Participants shared that while maintaining their focus during web-conferencing sessions is often more challenging than in-person sessions, the pressure of knowing their peers need them to be present is a highly motivating factor in helping them maintain engagement. Unfortunately, participants found that when their peers were off-task, focusing became even more difficult, which often left them unsatisfied with their learning experiences.

3.4.5 Conclusion of RQ3

This study unveiled four overarching themes when considering the roles that participants play in transformational learning experiences in web-conferencing settings. The first is that transformational learning occurred in learning experiences assigned through their workplaces and in those that were part of formal schooling, when participants were given the opportunity to exercise choice and autonomy during their sessions. The second theme identified was that participants' beliefs about web-conferencing and about specific sessions before their start had little impact on the session's efficacy. The third theme explored how participants' ability to access a private space, as well as having adequate technology and network capacity, significantly affected their perceptions of the session. However, participants raised concerns about the viability of these resources for all learners. The final theme detailed the challenge of maintaining focus in web-conferencing settings and the significant role that peers play in the potential for transformative learning in their spaces when they (1) have a sense of shared purpose, (2) develop and maintain relationships with one another, and (3) engage in active learning. Together, these themes reveal that learners have a significant impact on their peers' experiences learning in web-conferencing settings.

3.5 Chapter 3 Conclusion

This chapter explored the themes identified through each research question posed. It began by sharing descriptions of the survey and research participants, as well as the learning experiences they described. It then explored themes related to the organizational contexts in which the transformational learning occurs via web-conferencing (RQ1), including (1) the connection between the learning experience and the organization's goals and culture; (2) how the organization makes necessary resources available to participants; and (3) the time commitment of the experience. It then explored the themes related to how facilitators support transformational learning in web-conferencing settings (RQ2), including (1) the participants' perceptions of the facilitator as a person; (2) the facilitator's technological efficacy; and (3) the structure of the learning experience. Finally, this chapter explored the roles participants' play in transformational learning experiences in web-conferencing settings (RQ3), including (1) the role of choice; (2)

how participants beliefs impact their experiences; (3) the physical spaces in which participants learn; and (4) the effort required to maintain focus and presence in synchronous online settings. This chapter examined the distinct roles of each organizational, facilitator, and learner factor in influencing the efficacy of a transformational learning experience within a web-conferencing setting. Chapter four explores how these roles relate to one another through a model of transformational learning in web-conferencing spaces that can be applied across many contexts.

Chapter 4: Discussion

This chapter discusses the key findings of this study and their larger implications for those interested in pursuing transformational learning in online settings. I used these findings to build a conceptual model that outlines the conditions necessary for transformational learning to occur in synchronous online spaces: the Transformational Learning by Web-Conferencing Circuit Board. This section describes the components that organizations, facilitators, and participants co-create and sustain for transformational learning to be possible in a web-conferencing setting: (1) goal orientation; (2) mindsets and beliefs that are open to learning in web-conferencing settings; (3) the stakeholders' technological efficacy; (4) conducive learning environments; and (5) community. The chapter then describes the study's limitations and discusses potential avenues for future research. It concludes by offering recommendations for organizations, facilitators, and participants interested in participating in transformational learning within web-conferencing settings.

4.1 A Conceptual Model for Transformational Learning in Web-Conferencing Spaces

This section explores the conceptual model I developed to describe the conditions through which transformational learning occurs in web-conferencing settings: the transformational learning by web-conferencing circuit board (see Figure 1). I first explore the assumptions that inform the conceptual model: (1) transformational learning is possible in a web-conferencing setting; and (2) organizations, facilitators, and participants all have essential roles to play in ensuring that the experience is transformational. The section then explores two components that power the learning experience: (1) participants', facilitators', and organizational mindsets and beliefs, and (2) alignment of the experience with articulated goals and learning objectives. Next, I describe the wires through which that power travels, which consist of (1) a supportive environment and (2) the stakeholders' technological efficacy. This section concludes by describing the sense of community that all members experience within the learning environment when the circuit is complete, as depicted by a light bulb in the conceptual model. It is when the sense of community is activated through the flowing circuit that transformational learning is possible in web-conferencing spaces.

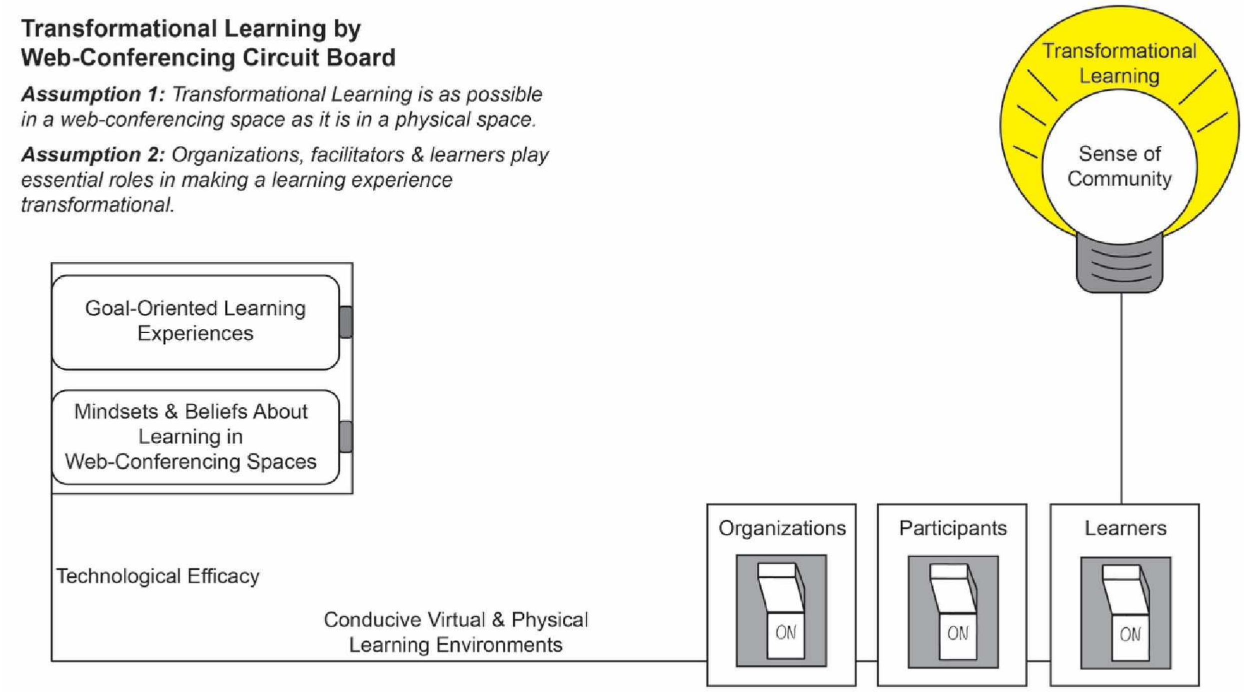

Figure 4.1 Transformational Learning by Web-Conferencing Circuit Board

4.1.1 Assumptions of the Conceptual Model

Two assumptions inform this study and the resulting conceptual model: (1) that transformational learning is possible in a synchronous learning experience; and (2) that organizations, facilitators, and participants play essential roles in ensuring learning experiences are transformational. This section examines each of these assumptions, their connections to existing literature, and how they influence the Transformational Learning by Web-Conferencing Circuit Board.

Transformational Learning is Possible in Web-Conferencing Settings. One of the assumptions I carried into the design of the transformational learning by web-conferencing circuit board was that transformation is as possible in a web-conferencing setting as it is in a physical setting under the right conditions (Dirkx & Smith, 2009). I explore the specific conditions in greater depth throughout the description of the conceptual model. My experience as both a facilitator and a learner informs this assumption. Current literature suggests that transformational learning is possible in asynchronous learning environments, including in continuing education classes (Boyer & Maher, 2005; Dirkx & Smith, 2009; Khalil et al., 2020; King, 1999; Kumar & Arnold, 2014; Ziegahn, 2001) and informal online communities of practice (Ahmed & Tabb, 2021). However, there is currently a paucity of literature exploring the conditions through which transformation occurs in synchronous learning environments. To date, only two studies have surfaced that directly study transformational learning in web-conferencing settings: (1) Vergara (2022) which examines how a learners used Zoom and Facebook in teams to design and market events to their peers during the COVID-19 pandemic; and (2) Yagi et al (2017) which examined the transformative potential of web-conferencing for English-language learners. Vergara's (2022) study shares some strategies that facilitators can use in university contexts to create learning environments conducive to transformation. Yagi et al.'s (2017) study demonstrates how web-conferencing enhances the transformative potential of adult language learning courses by providing opportunities for participants to engage in authentic conversations and cultural activities with English speakers. Study participants not only reported increased proficiency in English but also shared an increased sense of empathy for people whose cultures differed from their own (Yagi et al., 2017). Both Yagi et al (2017) and Vergara (2022) support the assumption that transformational learning is possible in web-conferencing environments; however, both provide strategies that facilitators can use in their specific contexts. This study builds upon the existing literature by demonstrating that transformational learning occurs in web-conferencing settings across contexts. Moreover, this illustrates how strategies, such as those proposed in the existing literature, impact the learning experience from the learner's perspective, rather than only from the facilitator's perspective.

Transformation is Possible When Organizations, Facilitators, and Learners Commit to the Experience. The second assumption is the belief that for transformational learning to occur in a web-conferencing setting, organizations, facilitators, and learners must actively commit to the experience. Commitment looks different for each of these groups, and it is expressed through the execution of their various roles throughout the experience. Before exploring these roles, however, it is essential to recognize that, within this conceptual model, each of these roles is equally powerful. For this reason, these stakeholders are all represented as switches on the Transformational Learning by Web-Conferencing Circuit Board. In this analogy, each stakeholder's switch must be on for the circuit to be complete. For instance, for a workplace training to become transformational, the organization, the facilitator, and the participants must all execute their distinct roles.

Switches may be removed if the role is not a part of the experience. For instance, the organization switch might be removed from the circuit board when a facilitator outside of any organization offers a session. Furthermore, a circuit board's switches may only consist of participants, as was the case in Ahmed & Tabb's (2021) study of the transformational impact of an online community of practice (CoP). In the CoP model, there is no one organization supporting the learning experience, nor is there a facilitator; instead, participants bring problems of practice to their colleagues, and learners exchange advice within the group (Ahmed & Tabb, 2021). The circuit board is customizable to match the configuration of the learning experience; regardless of the configuration, all switches must be on for transformational learning to occur.

A conceptual model exploring the roles of all three stakeholder groups is novel in the literature related to online learning, encompassing both synchronous and asynchronous settings. Currently, there are studies focused on learners' roles (e.g., Abdolrezapour et al., 2023; Ahmed & Tab, 2021; Aldholay et al., 2019; Alfadda & Mahdi, 2021; Çakıroğlu et al., 2016; Drennan et al., 2005; Farid, 2014; Hung et al., 2010; Joo et al., 2011; Khalil et al., 2020; Kerr et al., 2006; Kim & Park, 2023; Wladis et al., 2016), studies focused on facilitators' roles (e.g., Bigatel et al., 2012; Blonder et al., 2022; Bloomberg & Grantham, 2018; de Beer et al., 2022; Grammens et al., 2022; Khan et al., 2017; Laverie et al., 2022; Martin & Bolliger, 2018; Vergara, 2022), and studies on organizational roles (e.g., Epstein, 2024; Onsawarng et al., 2025; Zheng, 2024). Less common are studies that look at the roles two of these groups play in compelling online learning experiences, such as those focusing on the roles of facilitators and learners (Boyer & Maher, 2005; Garrison et al., 2003; Hoon et al., 2018; Racheva, 2018), those of facilitators *and* organizations (King, 1999; Lee, 2010), and those of organizations *and* learners (Lim, 2024; Peñarroja et al., 2019). Currently, there is a lack of literature that examines the roles and responsibilities of organizations, facilitators, and adult learners in shaping the efficacy of online learning experiences. Therefore, this study not only contributes to the literature on synchronous online learning but also provides a conceptual model for transformational learning in these settings that future research can build upon.

Assumptions Conclusion. This section explored the assumptions underlying the design of the conceptual model developed through this study: (1) that transformational learning in synchronous learning environments, and (2) that organizations, facilitators, and participants are all essential in ensuring that a synchronous learning experience is transformational. The following sections outline the specific conditions and roles for transformational learning to occur in a web-conferencing setting. The first conditions described are those that power transformational learning by web-conferencing circuit board: (1) the stakeholders' mindsets and beliefs about learning in web-conferencing spaces; and (2) the importance of goal-oriented learning experiences.

4.1.2 Powering the Transformational Learning through Web-Conferencing Circuit Board

In web-conferencing settings, two sources power transformational learning: (1) stakeholders' mindsets and beliefs about learning in this context and (2) the goals that drive the experience. This section explores each of these power sources and their impact on the transformational potential of the learning experience.

Mindsets and Beliefs About Learning in Web-Conferencing Spaces. Because organizations, facilitators, and adult learners play essential roles in upholding the efficacy of transformational learning experiences in web-conferencing, their mindsets and beliefs about learning in these contexts also impact the efficacy of these experiences. In this portion, I explore how these stakeholders' mindsets and beliefs about learning in these settings influence the experience for better (and for worse). I also consider how these mindsets and beliefs vary across stakeholder groups, reflecting their distinct roles and responsibilities.

Organizational Beliefs and Mindsets. In this study, participants made inferences about their organization's mindsets and beliefs about learning in web-conferencing settings based on the organization's investment in the experience's quality and structure. When organizations selected facilitators who learners perceived as credible and reflective of the organizational culture, learners felt that their organization's investment in their professional development was worthwhile. This perception may be due to the fact that the facilitators reflected the assumptions, behaviors, and values of the organization (Shah et al., 2023). Moreover, when the organization prioritized time spent learning by ensuring it would not be interrupted by other work duties, this further communicated that the company believed that the learning was valuable and worthy of the learners' time (Onsawarng et al., 2025; Rider et al., 2018; Taplay et al., 2014). When the organization demonstrates these beliefs, learners express greater openness to the learning experience, which increases the likelihood of transformation, even at an organizational level

(Kasl & Elias, 2000; Rider et al., 2018). When organizations do not invest in these experiences, learners express trepidation about their efficacy, making transformation unlikely.

Although considerable research explores the impact of learners' and facilitators' beliefs and mindsets on the learning experience, there is a notable lack of literature on the effect of organizational beliefs and mindsets on the learner experience in web-conferencing settings. Additional research is needed to fully understand how learners' perceptions of organizational investment impact their learning experiences.

Facilitators' Mindsets & Beliefs. The findings of this study support those from previous research on the impact of facilitators' mindsets and beliefs about learning in web-conferencing settings. First, facilitators need to have a positive attitude towards the instructional technologies they are using (Bloomberg, 2020; Compton, 2009; Grammens et al., 2022; Rehn et al., 2018). Part of this positive attitude stems from the facilitator's technological self-efficacy, which is their belief that they possess the necessary skills and resources to successfully navigate any challenges they encounter when using these technologies (Bandura, 1977; Bloomberg, 2020; Blonder et al., 2022). High technological self-efficacy increases the facilitator's willingness to experiment with new technologies (Martin et al., 2019; Tomte et al., 2015), which helps the facilitator choose resources that enhance learners' experiences in web-conferencing settings (Blonder et al., 2022). As the findings of this investigation confirm, a facilitator's positive mindset regarding these technologies has a positive influence on learners (Grammens et al., 2022), increasing learners' confidence in their ability to navigate the technology and in the transformative potential of the learning experience. The following section examines how learners' beliefs and mindsets about technology influence their learning.

Learners' Beliefs and Mindsets. Study participants reported that despite feeling trepidation about learning online in general and/or about the specific learning experience they described, many still reported experiencing transformation. This finding contradicts other literature, which establishes that learners' beliefs about technology may impact the efficacy of their learning experiences (Ishii et al., 2019; Kim & Park, 2023; Peñarroja et al., 2019). Some participants attributed this phenomenon to their facilitator's competence as an instructor in a web-conferencing setting and their ability to encourage and support learners throughout the experience. Existing literature supports this attribution, which demonstrates that a facilitator's positive mindset about online learning can positively influence learners' mindsets (Bloomberg, 2021; Blonder et al., 2022; Grammens et al., 2022). Additionally, scholars posit that adults learners who find success in online learning environments possess the following psychological attributes, which positively influence their learning experiences: (1) the will to persist to achieve their learning goals (Joo et al., 2011; Kerr et al., 2006; Kim & Park, 2023; Lee & Choi, 2010); (2) self-regulation skills to navigate frustrations that may occur (Kerr et al., 2006; Kim & Park, 2023; Lee & Choi, 2010); (3) time management skills including their ability to manage a variety of roles and responsibilities (Kerr et al., 2006; Lee & Choi, 2010). Learners who possess their beliefs and abilities can navigate the obstacles faced when learning in web-conferencing settings (i.e., network disruptions, unexpected updates to software, etc.) with little disruption to their experience (Joo et al., 2011; Kerr et al., 2006; Kim & Park, 2023; Lee & Choi, 2010), increasing the transformative potential of the learning.

Conclusion of Mindsets and Beliefs About Learning in Web-Conferencing Spaces. The beliefs and mindsets held by organizations, facilitators, and adult learners are distinct, depending on their roles and responsibilities within the learning experience. The stakeholders who possess the beliefs and mindsets described above invest the necessary resources to make the learning experience effective and even transformational. However, if any one of these stakeholders does not possess the beliefs and mindsets espoused above, the transformative potential of the experience is weakened. One way to bolster stakeholders' beliefs and mindsets is by establishing clear goals and learning objectives before the start of the experience.

Goal-Oriented Learning Experiences. Another power source that ignites the transformative potential of a learning experience in a web-conferencing setting is the alignment of that experience to articulated goals and objectives. As previously stated, each stakeholder group holds essential responsibilities related to this source. Facilitators develop the goals and objectives, design learning experiences that ensure learners meet those goals, and keep the learning focused on those targets throughout the experiences. Organizations can support learners by sharing how the learning experience's objectives relate to larger organizational goals and what the organization hopes to achieve as a result of the learning. Finally, learners can evaluate goals and objectives before the experience and determine whether they believe the learning experience will help them achieve their professional or personal goals. The following section explores each of these points in greater depth.

Facilitators: Aligning Experiences with Learning Objectives. Clear learning objectives are among the highest-impact strategies facilitators can use to support adult learning (Bigatel et al., 2012; Bloomberg, 2021). Learning objectives are the targets that facilitators and adult learners strive to meet during the learning experience (Bloomberg, 2021; Bloomberg & Grantham, 2018; Grammens et al., 2022). When writing these objectives, facilitators should consider how learners may use their knowledge gained outside of the learning experience; this will make the objectives more relevant to learners' needs (Abdolrezapour et al., 2023; Bloomberg, 2021; Grammens et al., 2022; Hoon et al., 2018). Once the objectives are written, facilitators can choose/design learning activities that will help learners achieve these articulated objectives (Bloomberg, 2021; Grammens et al., 2022).

The facilitator's role does not end with articulated objectives and plans for the experience, however. Study participants expressed frustration when disorganization or distractions derailed their learning experiences. Therefore, the facilitator must keep the learning experience focused on these objectives to ensure that the experience meets learners' needs (Grammens et al., 2022; Joo et al., 2011). Facilitators can do this by ensuring that learning activities are designed and organized in such a way that exposes learners to new content, have time to unpack its meaning with their peers, and practice any new skills related to it with support from the facilitator (Grammens et al., 2022; Peñarroja et al., 2019; Popa et al., 2020) By maintaining focus on the learning objectives throughout the lesson, facilitators do their part to ensure that learning experiences have the potential to be transformative for their adult learners.

Organizations: Aligning the Learning Experience with Organizational Goals. Study participants shared that, in addition to the articulated learning objectives provided by the facilitator, they valued it when their workplaces contextualized the learning experiences they sponsored within the organization's larger goals. This finding aligns with existing literature suggesting it is essential that organizations explicitly state how the learning experience relates to the organization's larger goals (Abdolrezapour et al., 2023; Bloomberg, 2021; Epstein, 2024; Hoon et al., 2018; Peñarroja et al., 2019; Rider et al., 2018; Shah et al., 2023). When organizations connect the learning experience to their organizational goals, they help learners see how the experience aligns with the scope of their daily work (Epstein, 2024; Hoon et al., 2018; Peñarroja et al., 2019). This connection enables learners to reflect on the assets they already possess pertaining to those goals, as well as the skills and knowledge they would like to develop to help the organization achieve them (Epstein, 2024; Hoon et al., 2018; Peñarroja et al., 2019). The learner can now exercise their autonomy and expertise throughout the learning experience, which is highly motivating to adult learners (Abdolrezapour et al., 2023; Epstein, 2024). Moreover, when organizations seek to change their culture, pairing articulated goals with (1) examples of pockets of the organization already exhibit these desired behaviors (Cottingham et al., 2008) and (2) indicators of what quality execution looks like (Taplay et al., 2014) helps learners understand how they can change their behaviors to meet organizational expectations better. By pairing articulated learning objectives with a clear vision of how the learning aligns with overarching organizational goals, facilitators and organizations establish the potential for a transformative learning experience. The following section examines how learners enhance the learning experience by identifying opportunities that align with their personal and professional goals.

Alignment with Learners' Goals. The final consideration related to goal-oriented learning experiences is how the experience relates to the learner's personal and professional goals. The study participants looked to the articulated goals provided by their facilitators, as well as to the direction provided by their affiliated organizations, to determine how an upcoming experience related to their own goals and to choose which sessions to participate in when choices were available to them. This section examines the study's findings in relation to existing literature on learners' personal and professional goals, as well as their transformative learning journeys. It also explores how facilitators and organizations can support them in achieving their own goals.

Central to transformative learning theory is the underlying motivation or intent of the adult learner undergoing the experience (Mezirow, 1991). When learners engage in learning that helps them pursue knowledge meaningful to them and their personal goals, they are more likely to be transformed by that learning (Mezirow, 1991; Parks Daloz, 2000; Taylor, 2007). Although there are instances when adults will begin a transformative journey that they were not anticipating, Hoggan et al. (2017) stress that it is essential that adult learners be allowed to *choose* whether they would like to engage in a transformative learning experience, as these can be emotionally challenging and disruptive to one's life. When adult learners choose to engage in transformative learning, however, the experience is much more impactful when it aligns with their personal goals and interests (Mezirow, 1991; Parks Daloz, 2000; Taylor, 2007).

Designing learning experiences with articulated learning objectives that still leave room for adult learners to pursue their own learning goals may seem challenging for facilitators. However, there are steps facilitators can take to design learning experiences that effectively meet this need. One way facilitators enable learners to connect with the learning objectives is by allowing them to share concerns or experiences related to the topic at hand and engage with their peers about their ideas; this increases adult learners' motivation in online settings as well as the transformative potential of the experience (Ahmed & Tabb, 2021; Taylor, 2007). Additionally, facilitators can build opportunities into the experience for learners to reflect on the learning they have completed thus far and how it relates to their goals (Dirkx & Smith, 2009). Organizations can also support learners by providing them with opportunities to choose sessions that align with their professional goals, whenever applicable (Epstein, 2024). When organizations and facilitators support adult learners' autonomy, adult learners increase their motivation to engage in the experience (Aldholay et al., 2019; Hoon et al., 2018), thereby increasing the likelihood that the experience will be transformational.

Conclusion of Goal-Oriented Learning Experiences. Aligning learning experiences with articulated goals and objectives establishes the potential for the experience to become transformative. This section explored the different roles and responsibilities of each stakeholder group: (1) facilitators develop objectives, design activities to help learners meet those objectives, and ensure the experience remains focused on its stated objectives throughout; (2) organizations communicate how the learning experience relates to overarching organizational goals, so that learners can see how the experience fits within the larger context of their workplace; and (3) learners choose learning experiences that align with their personal and professional goals, and take advantage of opportunities to connect the experience with their lived experiences. When facilitators, organizations, and learners fulfill their roles, the learning experience is not only effective, but it also has the potential to be transformative.

Conclusion of Batteries. This section explored the power sources of transformational learning in web-conferencing spaces: (1) stakeholders' mindsets and beliefs about learning in this context, and (2) the goals that drive the experience. Each of these batteries included distinct roles for organizations, facilitators, and learners. As with switches, any of these roles can be removed from the Transformational Learning by Web-Conferencing Circuit Board if they do not apply to the experience. However, when stakeholders execute the roles represented in this section, the experience's transformational potential grows. The following section describes the wires that carry the transformative power from the batteries to the light bulb on the transformational learning circuit board, highlighting the importance of technological efficacy and a conducive learning environment.

4.1.3 The Wires Carrying Power through the Transformational Learning by Web-Conferencing Circuit Board

While mindsets and goal-oriented experience power the Transformational Learning by Web-Conferencing Circuit Board, that power is carried to the lightbulb through (1) the facilitators' and learners' technological efficacy; and (2) the virtual and physical learning environments in which the learning occurs. The following sections explore these features in greater depth, including the roles each stakeholder group plays in ensuring the wires remain connected throughout the learning experience.

Technological Efficacy. The following section explores the impact of facilitator and learner technological efficacy on the transformative potential of the learning experience. It also explores how organizations can help facilitators and learners develop a greater sense of technological efficacy so that their web-conferencing experiences can feel more seamless over time.

Facilitator's Seamless Use of Technology. Study participants shared that facilitators who delivered transformative learning experiences were able to use the technology seamlessly. Facilitators use technology seamlessly when they are not only able to use the technology proficiently (Bigatel et al., 2012; Bloomberg, 2021; Grammens et al., 2022) but also when they can choose tools that enhance the learning experience (Bigatel et al., 2022; Blonder et al., 2022; Grammens et al., 2022). Facilitators who can do this are proficient with a vast array of tools, and they consider how the affordances and constraints of each will help (or hinder) learners' pursuit of their goals (Blonder et al., 2022; Grammens et al., 2022). When facilitators struggle with technology, even when those struggles are unrelated to the facilitator's technological efficacy (Bennett et al., 2021), learners experience higher rates of stress (Tuan Anh et al., 2023) which often leads to disengagement and can even negatively impact learners' well-being (Fischer et al., 2021). Therefore, facilitators must become familiar and proficient with the technological resources available to them so that the transformative potential of their facilitation through web-conferencing increases.

Participants' Technological Self-Efficacy. Some of the study participants expressed feeling confident in their ability to quickly learn new technologies, while others shared more hesitation due to having less experience in web-conferencing spaces. As underscored in the literature, learners' technological self-efficacy is one of the strongest predictors of their online learning readiness (Abdolrezapour et al., 2023; Kim & Park, 2023). When learners believe they can use technology to achieve their desired outcomes, they report greater satisfaction in online learning programs (Abdolrezapour et al., 2023). They can use the technology to enhance their learning experiences. Common examples include taking screenshots of key information, reviewing recordings, looking up information in real time, and using assistive technologies as needed to enhance their experiences (Lim, 2024). As learners spend more time in web-conferencing environments, they develop a greater sense of technological self-efficacy (Alfadda & Mahdi, 2021). Organizations can further this development by offering training and resources designed to support both facilitators' and participants' use of the technologies available to them.

Organizational Support for Facilitators and Participants. Training and experience build facilitators' and learners' technological efficacy. Organizations can support both facilitators and learners in developing their technological efficacy, ensuring they can have transformative learning experiences in web-conferencing settings when the time comes. The following section explores how organizations can support both stakeholder groups.

Organizations must provide training focused on increasing staff members' technology proficiency (their ability to use technology effectively) to enhance their technological efficacy (their confidence in their ability to utilize technology to meet their goals) (Popa et al., 2020). Facilitators who lack this training report feeling increased stress, a more negative work environment, and lower job satisfaction, which can lead to higher rates of burnout (Fischer et al., 2021). However, when organizations provide training on how to utilize available technologies and explain how doing so will positively impact their ability to support learners, facilitators report increased perceptions of the technology's usefulness and ease of use (Peñarroja et al., 2019). Peñarroja et al. (2019) also emphasize the importance of having technical support available after training, so that facilitators can efficiently obtain help at their point of need. Training and technical support increase facilitators' confidence in their ability to use technology to support learning (King, 1999), allowing them to eventually focus their energy on planning meaningful learning experiences instead of learning how to use the technology (LaRose & Eastin, 2004). When facilitators perceive that they have adequate support from their organization, they are more likely to adopt new methods to support learners better (Blonder et al., 2022), even if that means embracing new technologies (King, 1999). A willingness to adopt new, more effective technologies increases the potential for these experiences to become transformative. The facilitators are also able to join organizations in offering support for learners' development of technological self-efficacy.

Like facilitators, adult learners also benefit from having training and ongoing technical support. Although many assume that adults who have grown up with collaborative technologies do not need training in these tools, they must receive training on how to use these resources in academic and professional settings to deepen their learning experience (Aritz et al., 2017; Wang et al., 2020). In university systems, this may include orientations that demonstrate how to use educational platforms and the technology provided by the organization before courses begin (Alfadda & Mahdi, 2021; Bloomberg, 2020; Cho, 2012; Kim & Park, 2023). Cho (2012) suggests that organizations offer their orientations asynchronously and that the resources be available to learners at all times, allowing learners to access them at their point of need. It is also essential that training provided by the organization, whether in a workplace or a university, focuses on how the technology will support the learner in meeting their goals, rather than simply on how to use the tool (Cho, 2012; Peñarroja et al., 2019). Finally, as was true for facilitators, it is essential that technical support be readily available to learners, whether through the facilitator (Grammens et al., 2022) or the institution (Cho, 2012; Lee, 2010). These supports lead to higher levels of learner satisfaction with the experience (Lee, 2010), and increased competence in the web-conferencing space, which allows the learner to focus more of their energy on the transformative learning experience (King, 1999).

Conclusion of Technological Efficacy. This section explored the impact of facilitator and learner technological efficacy and how organizations can support the development of each. Technological efficacy ensures that both learners and facilitators have the necessary resources to transcend the mediated space and engage deeply in the transformative learning process. Unfortunately, when facilitators and/or learners lack technological efficacy, disruptions can remove the transformative potential of the experience, making it crucial for organizations to invest resources in supporting each stakeholder group. The following section explores the other wire through which the potential for transformational learning travels: the learning environment.

Environment. Like technological efficacy, learning environments are essential to the quality and effectiveness of transformative learning experiences in web-conferencing settings. When discussing learning in these settings, the environment encompasses both the virtual and physical environments in which learners and facilitators participate. When facilitators set up virtual and physical environments to support learning effectively in web-conferencing spaces, facilitators and participants can focus on the learning, thereby increasing the transformative potential of the experience. This section first explores the factors that influence an effective virtual environment, including network quality and the platform on which the experience occurs. It then describes conducive physical environments, including access to the physical resources needed and their potential for privacy. Finally, the section addresses issues related to equity, including the digital divide and access to conducive learning environments.

Virtual Environment. According to study participants, the virtual environment plays a significant role in adult learners' perceptions of their online learning experiences. The virtual environment consists of two supportive factors: (1) the network quality for all stakeholders; and (2) the platform through which the learning experience occurs. This section examines how the data collected through this study regarding these factors aligns with existing research and its implications for facilitators and learners engaging in transformational learning via web-conferencing.

Many study participants identified network quality, their local Internet's ability to sustain a connection strong enough to allow for synchronous interaction with minimal disruptions, as essential to an effective learning experience in a web-conferencing setting. The literature on online learning supports this finding (Popa et al., 2020; Tuan Anh et al., 2023). While high-quality networks enable uninterrupted learning experiences, study participants reported that slow networks cause audio and video to stall or freeze, making it difficult for learners (and facilitators) to track conversations and meet learning expectations. Difficulties like these can lead users to develop a sense of "technostress," or stress caused by malfunctioning information and communication technology (Riedl et al., 2012; Tuan Anh et al., 2023). Although technostress can be acute, resolving once the connection is restored, long-term exposure to it can lead to chronic stress and serious consequences (Riedl et al., 2012). Ragu-Nathan et al. (2008) note that technostress can reduce job satisfaction and even decrease the user's organizational or continuance commitment. Tarafdar et al. (2007) identified that technostress also lowers the user's productivity and increases their role stress, because troubleshooting the malfunction prevents the user from accomplishing their goals. These significant impacts can further lead users to feel a sense of "estrangement, irritation, dissatisfaction, computerphobia, lack of task involvement, poor performance, low productivity, and health problems" (Riedl et al., 2012, p. 62). Therefore, adult learners and facilitators must have access to high-quality networks when engaging in learning experiences through web conferencing. Organizations can support both stakeholder groups by sharing ways to improve network access or by providing locations where stakeholders can connect to high-quality networks.

Once organizations ensure all participants have access to a quality network, it is crucial to consider the platform through which the learning experience will occur. Depending on the structure of the experience and the context in which it occurs, the platform may simply be the web-conferencing tool (Zoom, Google Meets, Microsoft Teams, etc.), or it may be a more robust network of communication tools that allows for synchronous (web-conferencing, chat, etc.) and asynchronous (discussion boards, social media groups, email, etc.) communications (Roddy et al., 2017; Vergara, 2022). When determining how to set up the platform, organizations and/or facilitators should collaborate to consider the necessary communication resources for learners to engage adequately with one another and meet their learning goals (Boyer et al., 2006; Grammens et al., 2022; Lim, 2024). It is also vital that the tools be intuitive and easy for new users to learn to navigate (Lee, 2010). Even more importantly, learners should feel that using the tools will help them better achieve their personal and professional goals (Lee, 2010; Peñarroja et al., 2019). Finally, the selected communication tools must help learners feel more connected to the facilitator (Bigatel et al., 2012) and to their peers (Aldolay et al., 2019).

Research on effective asynchronous learning environments is relatively robust, and a growing body of literature is exploring synchronous learning environments. This research contributes to the existing body of literature by offering a conceptual model that enables scholars to explore transformative learning within these settings. The following section examines a topic less defined in the literature: how learners' physical environments impact the transformative potential of their learning experiences in web-conferencing settings.

Physical Environment. Many study participants were surprised to be asked questions about the physical environment in which they engaged in their learning experience. The scarcity of literature on this topic lends support to this observation. However, as the data in the last chapter indicated, learners' physical environments significantly impacted the efficacy of the experience. This section describes the factors identified related to the physical environment, including (1) access to necessary physical resources, and (2) the importance of privacy.

The physical resources facilitators and learners need vary depending on their preferences and the goals of the experience. Still, this study demonstrates that physical resources are crucial for effective learning experiences. Learners and facilitators must have the necessary hardware and preferred equipment to support their synchronous learning experiences (Grammens et al., 2022; Popa et al., 2020). For instance, some study participants expressed different preferences for additional monitors to enable them to work with documents and programs while still viewing the web-conferencing platform. Others discussed the importance of high-quality microphones and headsets to enhance their auditory experiences. Additionally, facilitators might consider using resources such as document cameras to demonstrate how to use physical resources correctly (Popa et al., 2020). In addition to technology, participants expressed a preference for analog note-taking tools and fidgets to help them maintain their focus. Facilitators and organizations must communicate when physical resources will be required for synchronous learning experiences, allowing learners ample time to acquire them before the start to ensure full engagement.

While study participants expressed various preferences regarding physical resources and technology, almost all of them emphasized that privacy was essential for them to engage in the experience fully. Privacy is what allows adult learners to focus on the learning taking place in web-conferencing settings, while distractions hinder their ability to fully engage in the experience (Lee & Choi, 2010; Wladis et al., 2016). Not having access to a private space for learning has been identified as one of the most significant predictors of student dropout from online learning programs (Lee & Choi, 2010; Wladis et al., 2016). Unfortunately, privacy is a privilege that many adult learners in online learning programs cannot access (Wladis et al., 2016). Equitable access to privacy is explored more in the next section.

This study suggests that the physical environment in which adult learners engage is as important as the virtual environment when they participate in transformative learning experiences in web-conferencing settings. When learners have access to the physical resources they need as well as a private space from which to focus, they are more likely to experience transformation in the web-conferencing setting. Unfortunately, there is often little organizational support for learners' physical environments, with many deeming these the adult learner's responsibility. The following section explores the consequences of this mindset on the transformative potential of these learning experiences.

Equity and the Digital Divide. The sections above describe the ideal virtual and physical conditions under which adult learners engage in transformative learning in web-conferencing settings. Unfortunately, these conditions are not accessible to all adult learners; the findings of this study, as well as the literature related to the topic, indicate that significant inequities still exist in terms of learners' ability to access necessary technology and supportive physical learning environments.

Both participants of this study and scholars of online learning have expressed concern about the inequity that exists in online learning spaces (Cutri et al., 2020; Eruchalu et al., 2021; Gagnon, 2021; Rich & Stennis, 2021; Van Dijk, 2017; Vergara, 2022; Wladis et al., 2016). Some learners cannot afford the cost of the technology (computers, phones, tablets, etc.) and high-speed internet required to engage in synchronous learning (Cutri et al., 2020; Eruchalu et al., 2021; Gagnon, 2021; Rich & Stennis, 2021; Vergara, 2022); however, this number is increasing (Van Dijk, 2017). Unfortunately, scholars are finding that even when people have access to reliable technology and high-speed internet, they may lack the necessary skills and digital literacy to effectively use the technology and navigate the internet in pursuit of their goals (Eruchalu et al., 2021; Van Dijk, 2017).

Additionally, accessing a private environment from which to engage in the learning experience is challenging for many adult learners (Rich & Stennis, 2021; Wladis et al., 2016). In this study, some participants reported that their effective learning experiences occurred during the day while their children were at school. In contrast, their ineffective experiences happened in the evenings when their children needed care and attention. Wladis et al. (2016) explored this phenomenon. They found that having a child under six in the home was one of the strongest predictors of which learners would fail to complete a college course, even though people with children of this age were also more likely to enroll in online classes due to their increased flexibility. Having children in the home, if that is the physical environment in which learning occurs, makes it difficult, if not impossible, for parents to maintain the level of focus needed for effective and/or transformative learning experiences in web-conferencing settings.

Given that the learner’s access to technology and private learning spaces is often the sole responsibility of the learner, it is challenging to overcome these barriers. While these have been identified as barriers to access, there is little literature related to how these inequities might be addressed (Cutri et al., 2020; Eruchalu et al., 2021; Gagnon, 2021; Rich & Stennis, 2021; Van Dijk, 2017; Vergara, 2022; Wladis et al., 2016). To ensure equitable access to necessary technology, organizations could establish lending programs or provide supplementary funding to help learners afford the technology they need. To address learners' needs for high-speed internet, organizations could offer free access to learners on their premises, and/or work with partner organizations, such as local schools or public service buildings, to provide access to Wi-Fi. Access to these locations may also provide learners with a private space in which to engage in synchronous learning. However, according to study participants, this would not address their need for childcare during evening learning events. Instead, organizations and facilitators could consider offering learning experiences at times when childcare is more readily available. Organizations could also potentially provide vouchers for childcare.

Conclusion of Supportive Environments for Synchronous Learning. Virtual and physical environments are crucial for ensuring that learning experiences conducted through web-conferencing are effective and potentially transformative for adult learners. Having access to high-speed internet, an intuitive platform, all the necessary physical resources, and privacy allows facilitators and learners to focus entirely on the learning at hand. Access to these resources increases the transformative potential of the learning experience. However, it is vital for organizations and facilitators to remember that these components are not equally accessible to all learners and to plan accordingly to help learners address any barriers they encounter. Addressing these barriers will create a better experience for all learners, as it will enable them to engage in meaningful and transformative discourse with their peers. Equitable access is explored further in the final section, titled 'Community.'

Conclusion of Wires. Technological efficacy and the virtual and physical learning environments are the wires through which the transformative potential of a learning experience runs. When both of these factors are in place and operating as expected, learners may not even be aware of them, as they can fully focus on engaging in the learning experience that the facilitator has designed. They can transcend their physical environment, existing in a new learning space alongside their peers and the facilitator. It is in this new space where they can foster and maintain a sense of community and do the hard work of transformation. The following section defines community, describes its formation, and examines its impact.

4.1.4 The Lightbulb: Sense of Community

When all of the switches (organizations, facilitators, and participants) are flipped, when the batteries are charged (goal oriented learning experiences, and mindsets and beliefs) and when the wires are laid appropriately (proficient levels of technological efficacy, and conducive virtual and physical learning environments), the lightbulb that is community illuminates. The following section explores how community is built and sustained in web-conferencing settings. First, it details the systems and strategies needed to support communication in these synchronous learning environments, including (1) the importance of ensuring that sustained, effective, and timely communication in web-conferencing spaces; (2) the establishment and adherence to agreements for engagement in the web-conferencing space; and (3) the nuances related to camera use. It then describes the work of relationship building in the web-conferencing setting, including how facilitators and learners collaborate to establish a sense of presence and rapport with one another, enabling them to trust each other with the work of learning and transformation. The section concludes by exploring engagement in web-conferencing environments, including (1) the importance of utilizing multiple media to engage with content, (2) the significance of discourse in facilitating reflection and transformation, and (3) the role of active learning in the web-conferencing environment.

Communication. This section examines communication, a fundamental component of the sense of community in web-conferencing spaces. The section first describes the importance of sustained, effective, and timely (SET) communication in the web-conferencing space. The section then explores the literature related to camera use, including when and why to use cameras and when to let them be off. This section explains why communication is essential for fostering a sense of community in web-conferencing spaces, as well as the roles that facilitators and learners play in facilitating sustained, effective, and timely communication.

Sustained, Effective & Timely (SET) Communication. Study participants emphasized the importance of being able to communicate effectively with their facilitators and peers throughout the learning experience. Common themes reiterated the need for these communications to be sustained, effective, and timely. This section explores each of these factors and their impact on learners' perceptions of their synchronous learning experiences.

Scholars of online learning have found that one of the facilitator's essential responsibilities is to ensure that a variety of channels of communication are sustained throughout the learning experience (Bloomberg & Grantham, 2018; Grammens et al., 2022; Lee, 20110; Martin & Bollinger, 2018). This finding aligns with study participants who favored experiences that allowed them to connect with their facilitators via video, chat, and email outside of the allotted session times. Lee (2010) shares that "compared to traditional classes, both quality and quantity of interaction with the instructor are much more crucial to the success and satisfaction of students in online classes" (p. 278). Some of these communications take the form of one-way messaging, conveying information such as announcements, reminders, and rubrics, if applicable (Martin & Bolliger, 2018). It is also essential, however, that facilitators make time for adult learners to meet with them to discuss individual questions and to receive more descriptive feedback if needed (Bloomberg & Grantham, 2018). Depending on the structure of the learning experience, learners may also connect with their peers to engage in similar types of conversations (Grammens et al., 2022). Due to the various types of communication that will occur, facilitators should utilize multiple tools to ensure that the communication feels authentic to learners' needs (Bloomberg & Grantham, 2018).

It is not enough that communication is sustained throughout the learning experience; it must also be effective (Grammens et al., 2022; Lee, 2010). Effective communication enables learners to have a clear understanding of the facilitator's expectations for them (Bloomberg & Grantham, 2018; Hung et al., 2010), including how learners can adjust their performance or behavior to meet those expectations better (Aritz et al., 2017; Bloomberg & Grantham, 2018). One way facilitators can communicate effectively is by sharing expectations before the experience begins through a syllabus and/or articulated learning objectives (Hung et al., 2010). However, it is also essential that the facilitator employ a variety of communication tools (e.g., discussion forums, videos, chat, email) and know which tool will best meet the needs that arise throughout the learning experience (Bloomberg & Grantham, 2018; Grammens et al., 2022). For instance, if learners are working together to address a complex challenge, meeting by video may be more effective than using email, because the richer media source gives more information about collaborators' emotions and developing thought processes (Aritz et al., 2017; Bloomberg & Grantham, 2018). On the other hand, it may be more effective to provide feedback on submitted work by commenting directly on the document, allowing learners to see specific areas for improvement (Grammens et al., 2022). By skillfully selecting communication channels that more effectively meet the intended goal of communication, facilitators and learners can alleviate the stress that sometimes exists in settings that rely on web-conferencing as their primary communication channel.

Finally, effective communication is timely, meaning it is given when it is most needed (Martin & Bolliger, 2018). For instance, some study participants shared that being able to contact their facilitator when they were trying to apply their new knowledge (usually after the session ended) was very helpful in sealing their understanding of the concepts explored. Often, timeliness relates to feedback, which is given when the adult learner is practicing a new skill (Bloomberg & Grantham, 2018; Boyer & Maher, 2005; Martin & Bolliger, 2018). When the feedback is given at the moment of need and when it is "detailed, personalized, and constructive" (Martin & Bolliger, 2018 p. 2013) giving the learner specific actions to take to improve, learners feel supported and more confident in the experience's efficacy (Boyer & Maher, 2005).

Although much of this discussion may seem administrative, SET communication lays the groundwork for transformational learning to occur. When learners understand the communication channels available to them and how to utilize them, they can take ownership of the learning experience and focus their energy on the deeper work (Aritz et al., 2017). Furthermore, when learners consistently use these channels to engage with their peers, their levels of trust in one another increase. Using these tools enables learners to engage in the critical conversations necessary to harness the transformative potential of a learning experience (Boyer et al., 2006). The following section examines one of the contentious aspects of web-conferencing: the use of cameras.

Utilizing Cameras. In this study, participants expressed a range of opinions on whether the use of cameras should be required when learning via video. Some participants found that using a camera was an effective way to feel connected, while others found it distracting. The literature related to this topic supports the findings of this study. Some scholars report that having cameras on helps learners feel a greater sense of belonging and connection with their peers and facilitator (Bennett et al., 2021; Racheva, 2018). Additionally, the use of cameras enhances the feedback delivery process, allowing learners access to the speaker's physical and auditory cues (Bloomberg & Grantham, 2018; Grammens et al., 2022; Martin & Bollinger, 2018; Racheva, 2018).

However, the use of cameras also increases Zoom fatigue (Bennett et al., 2021; Tuan Anh et al., 2023), especially for people who are introverted, women, people who are not white, and people who are engaging in web-conferencing for work-related reasons (including schooling) compared to social reasons (Fauville et al., 2021). These findings suggest that when facilitators design learning activities, they should consider when camera use will enhance the experience and when learners will benefit from a break to reduce the stress and fatigue induced by video use. Doing so ensures learners can build relationships with and connections to their peers while still having the stamina to sustain active engagement in the learning experience.

Communication Conclusion. This section explored the impact of SET communication and camera use on learners' perceptions of learning experiences conducted by video. It demonstrated that when communication is sustained, effective, and timely, learners can fully access and utilize the communication tools they need to build trusting relationships and engage in transformative learning. It also demonstrated how facilitators who adopt a nuanced approach to using cameras can more effectively meet their learners' needs. The following section explores how facilitators and learners can utilize these tools to foster the relationships that cultivate a sense of community.

Relationships. When channels of communication are established and used by facilitators and learners in web-conferencing spaces, they can build and sustain relationships with one another. Participants in this study reported that these relationships were a significant motivating factor in maintaining their engagement and upholding the expectations set by the facilitator. The section explores the facets of relationships in web-conferencing spaces, including (1) presence, (2) rapport, (3) belonging, and (4) trust. Each of these facets feeds into the next, resulting in trust, which is necessary for transformational learning to occur in web-conferencing settings.

Presence. Because learning through web-conferencing creates a transactional distance between facilitators and learners, making them feel psychologically and communicatively distant from one another, it is essential that facilitators design opportunities to increase learners' sense of presence in the environment (Bloomberg & Grantham, 2018). Presence the learner's sense that their facilitator and peers are real people with interests, emotions, cultural backgrounds, and personalities (Bloomberg & Grantham, 2018; Bloomberg, 2020; Garrison et al., 2003; Grammens et al., 2022; Vergara, 2022), and that they are in a shared space with one another (Joo et al., 2011). Presence is built when facilitators and learners share stories about experiences they have had related to the content (Vergara, 2022), upload videos showcasing parts of their lives (Coonin et al., 2011; Roddy et al., 2017), or turn on their cameras at meaningful points throughout the session (Hacker et al., 2020). Perceived presence has the most significant impact on learners' perceptions of an online course (Kim & Park, 2023), and it increases their resilience in the face of obstacles (Bloomberg, 2020). When presence is low, learners are less likely to engage fully in the learning experience and express hesitation about collaborating with their peers (Lim, 2024). When presence is established, facilitators and learners can focus on building rapport.

Rapport. Once a sense of presence is in place, facilitators and learners can build rapport with one another. Rapport is the feeling of mutual enthusiasm, respect, and regard that learners and facilitators hold for one another (Bloomberg & Grantham, 2018; Bigatel et al., 2012; de Beer et al., 2022). When surveyed, facilitators of adult learning identified rapport as one of the key factors in ensuring the success of online learning experiences (Bigatel et al., 2012). Study participants described feeling a greater sense of rapport with facilitators who used calm tones when communicating, which is reflected in Bloomberg & Grantham (2018). Adult learners also tend to perform better when the facilitator treats them as equals (de Beer et al., 2022) or as co-collaborators (Bloomberg, 2020). This stance is necessary for transformational learning to occur because shifting one's beliefs, actions, and/or perceptions is ultimately the work of the learner (Boyer & Maher, 2005; Brookfield, 1990; Mezirow, 2000). Mezirow (2000) writes that facilitators must "make every effort to transfer their authority over to the group itself as soon as this is feasible, and they [the facilitators] are collaborative learners" (p. 31). Baumgartner (2001) notes that when facilitators are unable to see themselves as collaborators alongside learners in the experience, transformational learning is challenging to achieve. Additionally, the ethics of the experience may be called into question, as participants may perceive the experience as manipulative (Hoggan & Hoggan-Kloubert, 2023; Mezirow, 1991; Taylor, 2007). This section demonstrates that rapport allows facilitators and learners to collaborate effectively. The following section explores the feelings learners experience as a result of the sense of presence and rapport in the web-conferencing space: a sense of belonging.

Belonging. In synchronous spaces where presence and rapport are established, learners also feel a sense of belonging within the group. Belonging in an online community occurs when a learner starts to identify with that group and feels accountable to it (Joo et al., 2011; Peñarroja et al., 2019). The use of cameras and audio communication increases learners' sense of belonging in online learning spaces (Racheva, 2018). The feeling of belonging to a group is one of the motivating factors for some adult learners to enroll in an online learning experience (Abedini et al., 2021). Moreover, when adult learners feel a greater sense of belonging, they express higher degrees of commitment to the group's shared goals, feel less isolated within the experience, and report higher satisfaction with the learning experience (Bloomberg & Grantham, 2018; Peñarroja et al., 2019). In contrast, learners who feel less a sense of belonging also tend to feel less productive in their learning experiences (Lim, 2024). The sense of belonging exists when learners feel a sense of presence and rapport within the web-conferencing space. When all three of these factors are present, they will also feel trust in their peers and their facilitator. The following section examines the impact of trust on learning in web-conferencing spaces.

Trust. Trust exists when learners feel that they are in a safe environment in which they can reflect and share openly with one another (Aritz et al., 2017; Bloomberg, 2021; Boyer & Maher, 2005; Grammens et al., 2022; Preston et al., 2014). Study participants reported that their more effective learning experiences were those in which they trusted that their facilitator and peers were committed to one another's well-being, the learning experience, and the group's shared goals. Additionally, learners need to believe that their facilitator is a credible source they can trust (Bloomberg, 2021). Facilitators establish credibility through their (1) ability to use technology proficiently, (2) experiences related to the content, and (3) capacity to facilitate effective learning experiences (Bloomberg, 2021; Boyer & Maher, 2005; Kim & Park, 2023, Vergara, 2022), while still presenting themselves as a co-learner (Bloomberg, 2020; Boyer & Maher, 2005; Taylor, 2007). Transformation occurs through these trusting relationships (Preston et al., 2014; Yorks & Kasl, 2022) because transformation, and perspective transformation in particular, cannot be achieved without the input and reflections of others (Baumgartner, 2001; Mezirow, 1990).

Conclusion of Relationships. This section explored the facets of relationships in web-conferencing environments: (1) presence, (2) rapport, (3) belonging, and (4) trust. This section not only defined each component, but it also showed how each impacted the development of the others. More importantly, it showed how relationships are central in determining the transformative potential of a learning experience. When communication channels and relationships are established in the web-conferencing space, the last component of the lightbulb can be realized: engagement. The following section reviews the study's findings on engagement, their relationship to existing literature, and their implications for learning in web-conferencing spaces and transformational learning.

Engagement. With communication channels in place and trusting relationships established, adult learners have everything they need to engage with the content and with their peers to do the work of transformative learning. This section explores engagement as described by study participants. It first describes the impact of engaging with the content through multiple types of media. It then defines active learning, along with the roles and responsibilities of facilitators and learners within this context. Finally, it defines discourse in web-conferencing spaces and shares how it can lead to experiences that are more effective but potentially transformational.

Utilizing Multiple Media Sources for Enhanced Engagement. Study participants shared that when facilitators used a variety of media related to a concept or idea, it increased both their interest in and understanding of it. For instance, facilitators might have used articles, short video clips, images, and/or guest speakers related to a topic to give learners multiple viewpoints from which to consider it. Presenting information in this way is seen as a valuable approach by adult learners in online settings (Martin & Bolliger, 2018). Bloomberg (2020) found that when facilitators use multiple media sources, learners not only gain an increased understanding of new concepts but also retain them longer. It is essential that facilitators not incorporate a variety of media for the sake of doing it, but rather that they intentionally choose media that will present the information in a new light (Bloomberg, 2020). Choosing and using multiple types of media to convey new information is primarily the work of the facilitator. The following sections explore two topics that are the responsibility of both facilitators and learners: active learning and discourse.

Active Learning in Web-Conferencing Spaces. Many study participants named active learning as a core responsibility of adult learners in web-conferencing spaces. Active learning encompasses two key concepts. The first is the belief that the learning experience is valuable and that teaching and learning are the collective responsibility of the whole group (Lange, 2009). This belief is fundamental in web-conferencing experiences where all parties may be distracted by notifications popping up on the device they are using for the event. While participants and facilitators can uphold these experiences by silencing notifications and committing to engaging only with the experience, organizations can also support active learning by setting the norm that members who are engaging in learning are not available to do other work (Bennett et al., 2021). When these norms are not in place and learners or facilitators feel pressure to multitask while learning, they experience increased role stress due to their inability to dedicate sufficient attention to any one thing well (Tarafdar et al., 2007). Moreover, participants who strive to maintain an active sense of engagement often feel increased frustration when encountering peers who are noticeably distracted and/or unengaged in the experience (Abedini et al., 2021), which can negatively impact their well-being and performance within the experience (Lim, 2024).

The second component of an active learning experience is the tasks learners are assigned; typically active learning incorporates group work, learner-facilitated research and presentations, collaborative sharing of resources, engaging in hands-on activities, or working through real-life scenarios with one's peers (Grammens et al., 2022; Kahn et al., 2017; Martin & Bolliger, 2018; Popa et al., 2020; Vergara, 2022). It is essential that these learning experiences not only be tied to real-world contexts but also require learners to complete them in ways that reflect real-world usage (Martin & Bollinger, 2018). The facilitator's role is to design learning experiences that require the learners to participate in collaborative research, planning, and development (Çakıroğlu et al., 2016). The facilitator must also support learners as they engage in these tasks (Racheva, 2018). The adult learner's role is to collaborate with their peers to implement plans developed by the facilitator, while also pursuing information relevant to their own needs and interests (Racheva, 2018). When learners engage in active learning in a synchronous environment, they perceive the learning experience as higher quality (Kim & Park, 2023) and more impactful than experiences that do not include active learning (Bigatel et al., 2012; Martin & Bolliger, 2018). Learners enrolled in higher education were less likely to drop out when facilitators employed active learning strategies (Lee & Choi, 2010). Additionally, learners who have engaged in active learning have a deeper understanding of how concepts are related to one another, which enables them to apply their new knowledge more effectively in real-world contexts (Laverie et al., 2022). Study participants reported that active learning is critical in web-conferencing settings, as the high engagement levels held their attention more effectively than long lectures. Active learning experiences also provided them with resources they could immediately utilize after the learning experience concluded. Moreover, active learning facilitates transformative experiences.

The lecture-based form of education assumes that the educator is all-knowing and that the learner is entirely dependent on them for understanding to develop and grow (Freire, 1993). In this model, transformation is not possible because the learner is not invited to reflect on their existing knowledge and beliefs in light of what they are currently learning (Kilgore & Bloom, 2002; Kitchenham, 2008). In contrast, active learning leads to perspective transformation at a rate of 40.4% (King, 1999), because adult learners are invited to act in a new way and to reflect upon how the learning experience has changed their beliefs or perspectives (Mezirow, 1991; Taylor, 2007), as some study participants described. During active learning, the learner may experience a disorienting dilemma, causing them to realize they can't make sense of what they are experiencing based on what they currently perceive to be true (Courtenay et al., 1998; Mezirow, 1991; van Bruggen et al., 2019). This disorienting dilemma is the start of their transformative learning journey. At this point, facilitators (and peers) can help the learner work through this dilemma by sharing new perspectives, beliefs, values, and assumptions that allow the learner to see the situation in a new, coherent light (Mezirow, 1991; van Bruggen et al., 2019). It is at this point that the learner makes meaning for themselves, formulates a plan, and determines how to act based on their new perspective (Mezirow, 1991; van Bruggen et al., 2019; Yorks & Kasl, 2022).

It is essential that the learning experience not stop at reflection, but that the learners engage in further active learning to act and refine their actions until their behaviors align with their new perspectives and those perspectives feel integrated into their lives (Mezirow, 1990; Preston et al., 2014; van Bruggen et al., 2019). Of course, the experience will likely end before the learner feels as though the new perspective is fully integrated into their life; transformative learning is a lifelong process with invitations to new journeys happening every day (Hoggan et al., 2017; Kitchenham, 2008; McDonald et al., 1999). This study supports the existing literature because many participants reported that their transformation gradually extended to other aspects of their lives over time.

Active learning is more effective in online spaces than experiences that use other structures, and this study demonstrates that adult learners prefer it in web-conferencing settings specifically. Not only is it more effective and preferred, but it also opens the door for transformative learning in web-conferencing settings by allowing learners to act based on new ideas, reflect on those actions to inform new perspectives, and to act in new ways with support from their peers and facilitators. The following section examines a crucial aspect of transformational learning in web-conferencing spaces: discourse.

Discourse in Web-Conferencing Spaces. Many of the learning experiences described in this study incorporated opportunities for learners to discuss what was shared, make sense of the information, plan next steps, and reflect on the actions taken. Online facilitators perceive discussion as one of the most impactful strategies for supporting adult learners (Bigatel et al., 2012; Bloomberg & Grantham, 2018; Hoon et al., 2018; Khan et al., 2017; Martin & Bolliger, 2018; Racheva, 2018). Synchronous discussion allows learners to seek clarification in real-time, which can decrease their frustration (Lim, 2024). Further, discussion reduces the impact of Zoom fatigue (Bennet et al., 2012). As in active learning, the facilitator's role is to plan for and support these discussions (Bloomberg & Grantham, 2018; Çakıroğlu et al., 2016; Grammens et al., 2022; Khan et al., 2012; Racheva, 2018), while the learner's role is to actively engage in them (Hung et al., 2010; Martin & Bolliger, 2018).

In transformative learning theory, these discussions are referred to as discourse, and they are essential to the transformational learning journey (Brookfield, 2009; Brown & Lambert, 2015; Cohen & Piper, 2000; Courtenay et al., 1998; Kitchenham, 2008; Mezirow, 1991; Preston et al., 2014; van Bruggen et al., 2019). Discourse is what enables learners to recognize that their current perspective or beliefs are no longer serving them and to understand that there are alternative ways to approach their situation (Brookfield, 2009; van Bruggen et al., 2019). This process can be confusing, deeply uncomfortable, and even painful, which is why establishing trusting relationships is essential for transformational learning (Hoggan et al., 2017; Kitchenham, 2008; Mezirow, 1990, 1991; Parks & Daloz, 2000; Preston et al., 2014). Facilitators need to be prepared not only to maintain a safe environment during the learning experience but also to extend additional resources, such as national hotlines or providers who can help learners who may need support beyond the scope of what the facilitator can offer (Courtenay et al., 1998; Mezirow, 1991). As the learner works through this discomfort and begins to formulate new perspectives, discourse with their peers and the facilitator allows them to make sense of their new reality and refine their developing understanding (Brookfield, 1990; Mezirow, 1991). This ongoing discourse increases the learner's perception of the experience's effectiveness, making them more committed to the established goals and to upholding a respectful learning environment for their peers (Peñarroja et al., 2019; Racheva, 2018). Additionally, discourse in these settings enables learners to develop shared plans of action that effect change on a larger scale (Ahmed & Tabb, 2021; Brown & Lambert, 2015; Mezirow, 1991).

In web-conferencing environments, discourse does not only occur in the form of synchronous discussion via video. It also occurs asynchronously on discussion boards, via email, through chat and text tools, and on collaborative documents (Bloomberg & Grantham, 2018; Grammens et al., 2022). Discourse occurring through these other channels of communication enables learners to reflect on their peers' work and ideas, comparing them to their own (Hoon et al., 2018). Additionally, Boyer et al. (2006) found that in online settings, "use of only one of the communication tools described would not have been sufficient to create the conditions for this extensive critical reflection" (p. 354). Including a variety of asynchronous communication channels allows learners to work through their dilemmas in authentic ways and at times when inspiration strikes (Cohen & Piper, 2000). Using these tools together is also practical because it better reflects their use outside of the learning experience (Vergara, 2022).

This section demonstrated that discourse is essential to learning experiences conducted via web-conferencing. Discourse helps learners make sense of new information by allowing them to engage in active meaning-making with their peers, with support from the facilitator. Additionally, this section demonstrated that transformational learning cannot occur without discourse, as it is through discourse that learners can access new perspectives and beliefs. For discourse to be practical in web-conferencing settings, facilitators and learners need to employ a variety of communication channels, including synchronous video, chat, email, and collaborative documents, to facilitate a more authentic exchange of ideas. Discourse ultimately keeps learners more engaged in the learning process, leading to lasting outcomes that they can apply in real-world settings.

Conclusion cf Engagement. This section demonstrated that engagement is possible when facilitators and learners work together to utilize communication channels and to establish trusting relationships. It explained how facilitators can help learners develop a deeper understanding of new content by employing multiple types of media. It then showed how active learning leads to increased engagement levels among learners in web-conferencing settings, while also enhancing the transformative potential of the learning experience through opportunities to act and reflect with peers. Finally, it explored the impact of discourse on learners' understanding and their transformational learning journeys.

Community Conclusion. This section described the outcome of all of the other components of the Transformational Learning by Web-Conferencing Circuit Board working together: the sense of community. It explored the channels through which communication is established and maintained in web-conferencing settings, including the importance of SET communication and a balanced approach to camera use. It then described how facilitators and learners develop and maintain a sense of presence, rapport, and belonging, enabling them to establish the trust necessary for engaging in transformative learning within the web-conferencing setting. Finally, it demonstrated how both communication and relationships open the door for meaningful engagement with content through the use of mixed media and with one another through active learning and discourse. This section demonstrated that active engagement in the learning community can lead to transformation in web-conferencing settings.

4.1.5 Conclusion of the Conceptual Model

This section explored the Transformational Learning by Web-Conferencing Circuit Board, including its relationship to existing literature and its contribution to the scholarship on synchronous learning. It shared the conceptual model's assumptions, including that (1) transformational learning is as possible in web-conferencing spaces as it is in physical spaces; and (2) organizations, facilitators, and participants play essential, active roles in allowing the learning to become transformational. These stakeholders are the switches of this conceptual model. The section then explored the circuit board's batteries: (1) the learners', facilitators', and organizational beliefs and mindsets about the experience and about learning in web-conferencing settings; and (2) the importance of maintaining focus on articulated goals and learning objectives throughout the learning experience. The section then explored the wires through which the power travels, which include (1) the facilitator's and the learners' technological efficacy (which are supported by their respective organizations); and (2) a conducive virtual and physical learning environment. Next, the section discussed the circuit board's light bulb: the sense of community that can be built and sustained through communication, relationships, and engagement when all the other components are in place and connected. Finally, this section explored how transformational learning can be achieved in web-conferencing spaces when the circuit is complete and the lightbulb of community illuminates. The following section examines the limitations of this study.

4.2 Limitations

This section examines some of the limitations of this study, including the size and composition of the sample population, as well as the impact of focusing solely on learners to develop the Transformational Learning by Web-Conferencing Circuit Board. It explains why each of these is a limitation, how these limitations were addressed by the study (if applicable), and what implications they have for future research.

Because I sought to create a conceptual model for transformational learning in web-conferencing spaces that stakeholders could broadly apply across adult learning spaces, I intentionally kept my recruitment pool broad. I only required that interested participants (1) be eighteen or older, and (2) have experience learning in web-conferencing settings. The participants themselves determined what qualified as a "learning experience," which sometimes made it difficult to compare their experiences. Those who described weekly classes in a university context were often working with different variables than those who were part of a team assembled by their employers to address an identified need. Yet participants from across this spectrum described their experiences as "learning experiences" first and foremost. While this allowed me to accomplish my goal of creating a conceptual model that could be applied to a variety of adult learning experiences, conducting a study with fewer variables might add nuance to the findings shared here.

Another limitation is the makeup of the participants. First, this qualitative study included a small sample size (ten survey responses and eleven interviews). Although that number is small, it allowed me to reach saturation and aligns with the recommended numbers for qualitative interviewing (Charmaz, 2014; Lindlof & Taylor, 2019). It is also important to note that all participants in this study came from educational or technological fields. Given that much of my professional network at the time of this study consisted of K-12 educators, the high number of participants from that field is understandable. This group is well-versed in learning theories and tends to be reflective about their own learning experiences, which means they were able to articulate descriptions of the experience and their facilitators' moves in a way that someone outside of the field may not have been able to. Similarly, participants from the technology field were drawn to the study because they felt passionate about the potential of embracing synchronous video technologies more widely, which may have led to biased findings about what is possible. In future studies, it will be essential to engage with participants who work outside of these fields to see how well these findings reflect their understanding and perceptions of their experiences.

A final limitation of this study and its subsequent conceptual model is that it is based solely on the perceptions of learners and does not include the reflections of facilitators or organizational leaders. As facilitators and organizational leaders weigh in on this conceptual model, researchers may discover that significant components are missing or that adjustments are necessary to reflect the realities of all parties. However, the body of literature that informs this study is mainly built upon research examining the perspectives of facilitators (e.g., Aritz et al., 2017; Bigatel et al., 2012; Blonder et al., 2022; Bloomberg, 2020; Bloomberg & Grantham, 2018; Çakıroğlu et al., 2016; Coonin et al., 2011; Cutri et al., 2020; de Beer et al., 2022; Grammens et al., 2022; Hoon et al., 2018; Joo et al., 2011; Khan et al., 2017; Laverie et al., 2022; Martin & Bolliger, 2018; Popa et al., 2020; Vergara, 2022) and that of organizations (Bennett et al., 2021; Butt et al., 2022; Cho, 2012; Epstein, 2024; King, 1999; Lee, 2010; Peñarroja et al., 2019). To date, there have been relatively few studies examining learners' perspectives on learning through web-conferencing (Khalil et al., 2020; Lim, 2024), suggesting that this work addresses a gap in the literature.

The limitations described in this section include (1) the vastly different experiences shared during the data collection period; (2) the size and make-up of the population who informed this study; and (3) the decision to limit the study's scope to learners. The following section explores how future research might address these limitations, as well as other topics that could be further developed to grow the conceptual model.

4.3 Future Research

This section examines some of the areas identified in this study that require further development. It describes the importance of gathering input from facilitators and organizational leaders on the Transformational Learning by Web-Conferencing Circuit Board. Then it discusses the need to determine whether and how the conceptual model varies in asynchronous settings. Finally, it addresses the need for research on specific steps that organizations and facilitators can take to address the inequities that make learning through web conferencing inaccessible for many adult learners.

As stated in the limitations section, this conceptual model does not account for the perceptions of facilitators or organizational leaders who support learning through web-conferencing. Gathering their reflections and input on the conceptual model will strengthen it because their perspectives will add depth and nuance to the scaffolding presented here. For instance, facilitators will be able to share specific strategies they use for setting goals for the learning experience and increasing learning engagement throughout the session. Additionally, organizational leaders can share what is within their purview and what falls beyond the scope of their offerings. One specific category that requires organizational input is the impact of organizational beliefs and mindsets on the transformative potential of learning experiences. All of these perspectives will ultimately lead to a conceptual model that more accurately describes what makes for an effective learning experience in a web-conferencing setting (Laverie et al., 2022), and that better maps out the exchange of responsibility between organizations, facilitators, and learners (Wang et al., 2020). Input from each stakeholder group will enable a more robust conceptual model that incorporates specific strategies each group can employ to ensure that learning experiences in web-conferencing settings are not only effective but also have the potential to be transformational.

Similarly, it is crucial to determine whether this conceptual model can be applied to learning in asynchronous settings. When learners and facilitators do not meet face-to-face (even through web-conferencing), do the components of the circuit board still apply, or do they need to be modified in order to address this unique context? It would also be interesting to determine whether organizations have as much impact on the experience as they do in synchronous learning settings.

Finally, future research should investigate strategies that organizations can employ to address the inequities in adult learners' access to transformational (or even effective) learning experiences through web conferencing. Some of the obvious needs are learners' ability to access the technology and high-speed internet needed to engage in synchronous learning (Cutri et al., 2020; Eruchalu et al., 2021; Gagnon, 2021; Rich & Stennis, 2021; Vergara, 2022) and to increase adult learners' levels of digital literacy beyond the classroom (Eruchalu et al., 2021; Van Dijk, 2017). Additionally, it is essential to explore how organizations can support learners who struggle to access a private environment for engaging in synchronous learning (Rich & Stennis, 2021; Wladis et al., 2016). By addressing these needs, scholars can provide organizations seeking more equitable learning environments with actionable steps that meet the needs of their adult learners in meaningful ways.

4.4 Recommendations

The following section provides recommendations for organizations, facilitators, and learners interested in participating in transformative learning experiences within web-conferencing settings. This portion serves as a quick reference to define the roles and responsibilities of each group, as outlined in the findings of this study. It begins by sharing recommendations for organizations, then facilitators, and finally learners. It is essential to remember that for the Transformational Learning by Web-Conferencing Circuit Board to operate, all stakeholders' switches must be flipped; their unique roles and responsibilities must be fulfilled.

4.4.1 Recommendations for Organizations

This section provides recommendations on how organizations can support facilitators and/or learners as they engage in organizationally sponsored transformational learning through web conferencing. For ease, both facilitators and learners are referred to as "stakeholders" in this section. These recommendations include (1) investing in high-quality training, (2) contextualizing the learning experience within your organization, and (3) providing access to the necessary resources.

Invest in High-Quality Training for Your Facilitators and/or Learners. It is crucial to invest in training for the stakeholders you support. Stakeholders who perceive a high level of organizational support for their learning report higher levels of satisfaction with their experiences (Lee, 2010). Conversely, if stakeholders believe the training offered by your organization is ineffective, they will perceive that you do not value your stated goals or your stakeholders (Alfadda & Mahdi, 2021; Lee & Choi, 2010; Taplay et al., 2014).

If your learning experiences incorporate technology, you must teach your stakeholders how to access and use that technology (Alfadda & Mahdi, 2021; Bloomberg, 2020; Cho, 2012; Fischer et al., 2021; Kim & Park, 2023; Popa et al., 2020), even if you believe that the stakeholder has had prior access to that technology (Aritz et al., 2017; Wang et al., 2020). Demonstrate how that technology can help the stakeholder achieve their larger goals, rather than simply showing them how to use the technology (Cho, 2012; Peñarroja et al., 2019). This connection increases the stakeholder's confidence in both the technology and in their ability to use it to effectively meet their goals (King, 1999; LaRose & Eastin, 2004; Lee, 2010). It also makes them more willing to adopt new technologies in the future (Blonder et al., 2022; King, 1999).

Contextualize the Learning Experience Within Your Organization. When offering training to your stakeholders, it is important to share how the training relates to your larger organizational goals (Abdolrezapour et al., 2023; Bloomberg, 2021; Epstein, 2024; Hoon et al., 2018; Onsawarng et al., 2025; Peñarroja et al., 2019; Taplay et al., 2014). Making this connection enables stakeholders to view the broader picture and identify the skills and understandings they need to develop to align with those goals (Epstein, 2024; Hoon et al., 2018; Peñarroja et al., 2019).

Provide Access to Necessary Resources. If you want your stakeholders to have a successful learning experience in a web-conferencing setting, they must have access to the virtual and physical resources needed for success. These include (1) access to high-speed, consistent internet (Cutri et al., 2020; Popa et al., 2020; Tuan Anh et al., 2023); (2) a easy to use platform (Lee, 2010; Peñarroja et al., 2019) that includes both synchronous (video, audio, chat) and asynchronous (discussion boards, collaborative documents, email, etc.) communication channels (Boyer et al., 2006; Lim, 2024; Roddy et al., 2017; Vergara, 2022); (3) the stakeholder's preferred hardware (extra monitor, headset, etc.) (Grammens et al., 2022; Popa et al., 2020); and (4) any texts or physical resources required for the training. It is also vital for your organization to ensure that stakeholder have access to a private space (Cutri et al., 2020; Lee & Choi, 2010; Wladis et al., 2016), and that they are not expected to engage in other work during the learning experience (Tarafdar et al., 2007). If your stakeholders are learning at home, you may consider offering support for parents with young children, as this is the group that struggles the most with online learning (Wladis et al., 2016).

Concluding Recommendations for Organizations. This section explored three recommendations for organizations: (1) invest in high-quality training for your stakeholders; (2) contextualize the learning experience within your organization; and (3) provide access to all necessary resources. The following section presents recommendations for facilitators interested in supporting transformational learning through web-conferencing.

4.4.2 Recommendations for Facilitators

This section provides recommendations for facilitating transformational learning experiences in web-conferencing settings. These recommendations include (1) creating and sharing learning objectives before the session's start; (2) developing a growth mindset towards technology; (3) building a conducive physical environment; (4) utilizing cameras in ways that support learners' engagement and well-being; (5) presenting new information in multi-modal ways; and (6) establishing a learning community through active learning and discourse.

Create and Share Learning Objectives Before the Session Begins. And Stick to Them! Articulated learning objectives inform you and the adult learner of the direction the learning experience will take (Bloomberg, 2021; Bloomberg & Grantham, 2018; Grammens et al., 2012). By providing them before the start of the experience, you are allowing the adult learner to determine whether the experience will help them meet their personal and professional learning goals (Abdolrezapour et al., 2023; Bloomberg, 2021; Grammens et al., 2022; Hoon et al., 2018). If you are planning a transformational learning experience, it is also essential to communicate this upfront, along with a detailed description of what transformational learning entails. Communicating this expectation allows the adult learner to make an informed decision about whether they want to embark on that journey (Hoggan et al., 2017; Mezirow, 1991).

Develop a Growth Mindset Towards Technology. As technology constantly evolves, it is essential to maintain an open mind when encountering new technologies (Bloomberg, 2020; Grammens et al., 2022). Whenever possible, take advantage of training offered through your organization or the tools directly. Becoming proficient with the technologies available to you not only allows you to provide seamless learning experiences in web-conferencing settings, but it also helps you choose the just-right tool to enhance the learning experience you are trying to provide (Bigatel et al., 2012; Blonder et al., 2022; Bloomberg, 2021; Grammens et al., 2022). When you struggle with technology, you and your learners experience higher rates of stress, which can have a long-term negative impact on well-being (Bennett et al., 2021; Fischer et al., 2021; Tuan Anh et al., 2023).

Build a Conducive Physical Environment. Your physical environment must support the virtual learning experience. First, you must have access to consistent, high-speed internet (Popa et al., 2020; Tuan Anh et al, 2023). You should also consider the physical resources you need to offer a seamless experience, including preferred hardware (such as extra monitors, headsets, microphones, and document cameras), textbooks, manipulatives, and other necessary materials (Popa et al., 2020). Additionally, your physical environment should be private and free from unexpected disruptions (Lee & Choi, 2010; Wladis et al., 2016).

Utilize Cameras to Support Learners' Engagement and Well-Being. Cameras enable learners to build connections with one another and enhance understanding among participants (Grammens et al., 2022; Racheva, 2018). Unfortunately, cameras have also been found to increase technostress for learners when used continuously (Tuan Anh et al., 2023), particularly for women, people of color, and members of other marginalized groups (Fauville et al., 2021). For this reason, consider a balanced approach to using cameras, asking learners to turn them on at times when doing so will enhance their learning experiences, while also building in rest periods when cameras can be turned off.

Present New Information Using Multiple Media Sources. When you present new information using a variety of media, learners gain a deeper understanding of the latest concepts and retain them for a more extended period (Bloomberg, 2020). Using multiple media also increases learners' engagement with the content (Martin & Bollinger, 2018). Choose resources that present the information in slightly different ways, allowing learners to see the nuances in what you're sharing (Bloomberg, 2020).

Establish a Learning Community through Active Learning and Discourse. By designing learning experiences that allow learners to collaborate by engaging in shared research, hands-on activities, and real-world scenarios (Çakıroğlu et al., 2016; Grammens et al., 2022; Kahn et al., 2017; Martin & Bolliger, 2018; Racheva, 2018; Vergara, 2022), you create learning experiences that are not only more effective (Bigatel et al., 2012; Bloomberg & Grantham, 2018; Hoon et al., 2018; Khan et al., 2017; Martin & Bolliger, 2018; Racheva, 2018), but that also have the potential to be transformative (Brookfield, 2009; Brown & Lambert, 2015; Cohen & Piper, 2000; Courtenay et al., 1998; Kitchenham, 2008; Mezirow, 1991; Preston et al., 2014; van Bruggen et al., 2019). These experiences do not happen naturally in the web-conferencing environment; they are carefully orchestrated before the session begins (Bloomberg & Grantham, 2018; Çakıroğlu et al., 2016; Grammens et al., 2022; Khan et al., 2012; Mezirow, 2000; Racheva, 2018).

First, you must collaborate with organizations to identify the available platforms and communication resources that enable learners to engage in this type of work (Boyer et al., 2006; Grammens et al., 2022; Lim, 2024). Next, you must determine which tools are needed for each activity to develop your system for SET before the start of the experience (Bloomberg & Grantham, 2018; Grammens et al., 2022; Lee, 2021; Martin & Bollinger, 2018). Your system for SET communication should include norms related to camera use, considering when cameras enhance learners' connection to one another and the content (Bennett et al., 2021; Bloomberg & Grantham, 2018; Grammens et al., 2022; Martin & Bolliger, 2018; Racheva, 2018), and when they can be turned off to limit learners' sense of Zoom fatigue (Bennett et al., 2021; Fauville et al., 2021; Tuan Anh et al., 2023). You must also design the learning experience so that learners have opportunities to build relationships and trust with one another (Bloomberg, 2020; Kim & Park, 2023)

Conclusion of Recommendations for Facilitators. This section explored five recommendations for how facilitators design transformational learning experiences offered in web-conferencing settings, including (1) creating and sharing learning objectives before the session's start; (2) developing a growth mindset towards technology; (3) building a conducive physical environment; (4) presenting new information in multi-modal ways; and (5) establishing a learning community through active learning and discourse. The following section explores recommendations for participants.

4.4.3 Recommendations for Adult Learners

This section provides recommendations on how adult learners can support transformational learning experiences in web-conferencing settings. These recommendations include (1) choosing learning experiences that align with their goals and preferences; (2) building supportive physical environments; (3) following the expectations for communication set by the facilitator; (4) investing in relationships with peers; and (5) being fully engaged in the experience.

Choose Learning Experiences that Aligned with Your Goals and Preferences (When Possible). Although it is not always possible to choose which learning experiences you will engage in, when given the opportunity, opt for experiences that align with your personal and professional goals. Doing so increases the likelihood that the experience will be transformational (Hoggan et al., 2017; Mezirow, 1991; Parks Daloz, 2000; Taylor, 2007). Additionally, you will be more motivated to engage in sessions that will help you meet your goals (Aldholay et al., 2019; Hoon et al., 2018).

Build a Supportive Physical Environment. Although it may be surprising, the physical environment from which you call into a web-conference can have a significant impact on how you perceive that experience. For synchronous experiences, it is essential to have access to consistent, high-speed internet (Popa et al., 2020; Tuan Anh et al., 2023). It is also crucial that you have any physical resources recommended by your facilitator, in addition to your preferred hardware, such as an extra monitor or headset (Popa et al., 2020). Most importantly, it is best to call in from a private place where you will not be interrupted if possible (Lee & Choi, 2010; Wladis et al., 2016). Ensuring privacy may involve choosing to participate in learning experiences available while your children are at school, arranging childcare, or collaborating with your organization to secure suitable accommodations.

Follow the Expectations for Communication Established by the Facilitator. When entering a learning experience that is conducted by web-conferencing, it is necessary to understand the communication channels that are available to you (Bloomberg & Grantham, 2018; Grammens et al., 2022; Lee, 2021; Martin & Bollinger, 2018) and how your facilitator expects you to use them

(Bloomberg & Grantham, 2018; Hung et al., 2010). Using these resources as prescribed helps you develop a greater understanding of the content (Aritz et al., 2017; Bloomberg & Grantham, 2018) and closer relationships with your peers (Bennett et al., 2021; Bloomberg & Grantham, 2018; Grammens et al., 2022; Martin & Bolliger, 2018; Racheva, 2018).

Invest in Relationships with Your Peers and Facilitator. Getting to know the people involved in your learning experience makes it more enjoyable and effective (Kim & Park, 2023). These relationships also make you more resilient in the face of obstacles, which often arise during synchronous learning experiences (Bloomberg, 2020). Getting to know your peers in facilitators increases your trust in them (Aritz et al., 2017; Bloomberg, 2021; Boyer & Maher, 2005; Grammens et al., 2022; Preston et al., 2014), which makes it more likely that you will experience transformational learning through that experience (Baumgartner, 2001; Mezirow, 1990; Preston et al., 2014; Yorks & Kasl, 2022).

Be Fully Engaged in the Experience. To be fully engaged in the learning experience means removing as many distractions as possible so that you can participate in the learning activities the facilitator invites you to join (Racheva, 2018). By participating in active learning and discourse with your peers, you can get your questions answered in real-time (Lim, 2024), access ideas that you couldn't on your own (Brookfield, 2009; Brown & Lambert, 2015; Cohen & Piper, 2000; Courtenay et al., 1998; Kitchenham, 2008; Mezirow, 1991; Preston et al., 2014; van Bruggen et al., 2019), and even experience transformation (Brookfield, 1990; Mezirow, 1991). Moreover, your quality of engagement in the learning does not just impact your perceptions of the experience, but it also can positively (or negatively) impact your peers' perceptions of the experience (Abedini et al., 2021; Lim, 2024).

Conclusion of Recommendations for Participants. This section explored five recommendations for how adult learners can support transformational learning experiences offered in web-conferencing settings, including (1) choosing learning experiences aligned with their goals and preferences; (2) building supporting physical environments; (3) following the expectations for communication set by the facilitator; (4) investing in relationships with peers; and (5) being fully engaged in the experience. In these recommendations, it is clear that learners play a crucial role in ensuring that transformational learning is possible in web-conferencing spaces.

4.4.4 Conclusion of Recommendations

This section explored recommendations for organizations, facilitators, and learners interested in engaging and/ or supporting transformative learning experiences in web-conferencing settings. First, it shared recommendations for organizations, including that organizations (1) invest in high-quality training; (2) contextualize the learning experience within your organization; and (3) provide access to the necessary resources. It then shared the following recommendations for facilitators: (1) create and share learning objectives before the session's start; (2) develop a growth mindset towards technology; (3) build a conducive physical environment; (4) present new information through multiple sources of media; and (5) establish a learning community through active learning and discourse. It concluded with recommendations for adult learners, inviting them to (1) choose learning experiences aligned with their goals and preferences; (2) set up conducive physical environments; (3) follow established norms for communication; (4) build relationships with peers and facilitator; and (5) engage fully in the experience. By fulfilling the roles and expectations outlined here, organizations, facilitators, and adult learners enhance the transformative potential of their synchronous learning experience.

4.5 Chapter Conclusion

This chapter discussed this study's findings, exploring how they relate to current research on online learning, transformational learning, and transformation in online learning environments, and how they extend the existing literature. This chapter described the Transformational Learning by Web-Conferencing Circuit Board, including the components that organizations, facilitators, and learners must establish and sustain throughout the experience that allow for transformation to occur: (1) goal orientation; (2) mindsets & beliefs that are conducive to learning in web-conferencing environments; (3) technological efficacy; (4) productive learning environments; and (5) a sense of community. It went on to describe the study's limitations as well as some directions for future research. It concluded by providing a summary of recommendations for organizations, facilitators, and adult learners seeking to support or engage in transformational learning through web-conferencing.

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Appendix A: Survey Questions

Directions:

- Please answer each of the questions listed below in as much detail as possible.
- You may choose to skip any question that does not apply to you or that you feel uncomfortable answering.
- We use the word "web-conferencing" to stand for any live learning you've done by video through any tool or platform (Zoom, Google Meet, Microsoft Teams, etc.).
- We use the term "learning experience" to include any event you participated in that had a facilitator or teacher structuring the session, including a single workshop or webinar, a course that included many classes, a coaching experience, etc.

Warm-Up Questions

1. How have you used web-conferencing tools in your personal, professional and/or schooling settings?
2. How do you feel about these tools in general?

Tell us about the best learning experience you have had through web-conferencing.

1. What was the topic and the structure of this experience (one-on-one, small group, large group)?
2. Why did you participate in this experience?
3. What were you expecting going into this session? How did your actual experience match your expectations?
4. What specific factors or elements made your experience so good?

Tell us about the worst learning experience you have had through web-conferencing.

1. What was the topic and the structure of this experience (one-on-one, small group, large group)?
2. Why did you participate in this experience?
3. What were you expecting going into this session? How did your actual experience match your expectations?
4. What specific factors or elements made your experience so bad?

Summary Questions

1. If you were running a training session, what strategies would you use to make it an engaging experience?

2. What else would you like to contribute that you think would assist in this research?

Closing Questions

1. Are you interested in participating in an interview with the researcher? Yes/No
2. If yes…
    a. Please share your email address here.
    b. Are there days or times that work best for you to participate in a 30 minute interview?

Thank you for contributing to this study!

Appendix B: Interview Questions

Research Questions to Explore

(RQ1) What conditions do participants view as essential in a web-conferencing setting for transformational learning to occur?

(RQ2) How do participants perceive the host's role and moves in facilitating their transformational learning experience?

(RQ3) How do participants perceive their role in ensuring that transformation occurs in a synchronous, virtual learning environment?

Interview Questions

Rapport-Building Questions

1. Tell me a little bit about yourself.
2. Describe yourself as a learner. What kinds of learning opportunities do you seek out and/or take part in?
3. What is your general feeling about web-conferencing at this point?

Questions Addressing the RQs

1. Let's start by thinking about a session that was good, or even *really good*, the kind of session that led to a new understanding that you didn't have before. Describe this session for me. **(RQ1, RQ2, RQ3)**
    a. If this person does not have a positive/transformative example, I'll ask these questions in the context of a bad experience.
2. What did you feel about the session before it started? **(RQ3)**
3. What were you hoping to get out of the session? Why had you signed up for it? **(RQ3)**
4. Tell me about the time commitment of this experience. **(RQ1)**
5. Tell me about the physical space you were in during the session. **(RQ1, RQ3)**
6. How was the virtual space set up? What web-conferencing platform did you use? What were your experiences with that platform before the session began? What tools did you use within that platform? (Looking for numbers of people, norms for collaboration, tools used within the video). **(RQ1, RQ2)**

7. Tell me about the host of this experience. What was your relationship to them before the session? How would you describe their teaching/facilitation style? What did they do that contributed to your positive experience? **(RQ2)**
8. Who else was in the room with you? What was your relationship to them before the session began? How did those relationships change? How would you describe their level of engagement in the learning experience? How would you compare their experience to yours? **(RQ1, RQ3)**
9. Describe your A-Ha moment(s) in this experience. **(RQ1)**
10. How did this experience impact your life? **(RQ1)**
11. What did you do that made your experience so positive/negative? **(RQ3)**
12. Alternate Universe Question:
    a. If they described a positive experience: What could have happened that would have made this a bad experience? What could the facilitator have done? What could you have done? **(RQ2, RQ3)**
    b. If they described a negative experience: What if anything could the facilitator have done to improve your experience? What if anything could you have done to improve your experience? **(RQ2, RQ3)**

Closing

1. Describe your role in creating a positive (or negative) learning experience by video? **(RQ3)**
2. What do you wish that educators knew about leading learning through video? **(RQ2)**
3. How does your physical and virtual environment impact your experiences learning by video? **(RQ1)**
4. Is there anything else you would like to share?

Demographic Questions (Posted in the Chat)

1. What are your pronouns?
2. What pseudonym, aka fake name, would you like to go by in the write-up of this research?

Appendix C: IRB Approval

UNIVERSITY OF ALASKA FAIRBANKS

(907) 474-7800
(907) 474-5444 fax
uaf-irb@alaska.edu
www.uaf.edu/irb

Institutional Review Board

909 N Koyukuk Dr. Suite 212, P.O. Box 757270, Fairbanks, Alaska 99775-7270

April 25, 2023

To:	Amy May, PhD Principal Investigator
From:	University of Alaska Fairbanks IRB
Re:	[2041457-1] Transformative Learning through Web-Conferencing

Thank you for submitting the New Project referenced below. The submission was handled by Exempt Review. The Office of Research Integrity has determined that the proposed research qualifies for exemption from the requirements of 45 CFR 46. This exemption does not waive the researchers' responsibility to adhere to basic ethical principles for the responsible conduct of research and discipline specific professional standards.

Title:	Transformative Learning through Web-Conferencing
Received:	April 2, 2023
Exemption Category:	2
Effective Date:	April 25, 2023

This action is included on the May 3, 2023 IRB Agenda.

Prior to making substantive changes to the scope of research, research tools, or personnel involved on the project, please contact the Office of Research Integrity to determine whether or not additional review is required. Additional review is not required for small editorial changes to improve the clarity or readability of the research tools or other documents.

America's Arctic University

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Institutional Review Board
909 N Koyukuk Dr. Suite 212, P.O. Box 757270, Fairbanks, Alaska 99775-7270

September 30, 2023

To:	Amy May, PhD Principal Investigator
From:	University of Alaska Fairbanks IRB
Re:	[2041457-2] Transformative Learning through Web-Conferencing

Thank you for submitting the Revision referenced below. The submission was handled by Exempt Review. The Office of Research Integrity has determined that the proposed research qualifies for exemption from the requirements of 45 CFR 46. This exemption does not waive the researchers' responsibility to adhere to basic ethical principles for the responsible conduct of research and discipline specific professional standards.

Title:	Transformative Learning through Web-Conferencing
Received:	September 27, 2023
Exemption Category:	2
Effective Date:	September 30, 2023

This action is included on the October 11, 2023 IRB Agenda.

Prior to making substantive changes to the scope of research, research tools, or personnel involved on the project, please contact the Office of Research Integrity to determine whether or not additional review is required. Additional review is not required for small editorial changes to improve the clarity or readability of the research tools or other documents.

Appendix D: Advertisements

Survey Advertisements

Email Advertisement

Greetings:

I am a graduate student at the University of Alaska Fairbanks, and I am studying peoples' experiences with learning by video (Zoom, Google Meet, etc.). It is so important that this study includes people from many backgrounds and many identities, because that is what makes a theory matter. Your stories will help to shape a theory that could make learning online better for you and for your loved ones.

Anyone who is older than 18 and who has ever done any learning through web-conferencing is qualified to participate in this study. This survey will take 10-20 minutes. If you are eligible and interested, please complete this survey to let me know about your experiences: https://uaa.co1.qualtrics.com/jfe/form/SV_6rNiCrdFWUpMKz4

Participating in this study will allow you to share your thoughts and add to larger conversations about learning by video. This research will also be shared with educators so that they can design learning experiences that are more interesting and meaningful for learners like you.

If you have any questions about this study, please feel free to contact me by email at rlreilly@alaska.edu or Dr. Amy May (amay11@alaska.edu), principal investigator. For questions regarding IRB, contact UAF IRB phone number 907-474-7800 or uaf-irb@alaska.edu.

I look forward to hearing from you! Please take the survey and/or pass this invitation along to your friends.

Thank you!

Rachel Reilly

Social Media Advertisement

To view the ad, visit:
https://www.linkedin.com/feed/update/urn:li:activity:7091191347482656768?utm_source=share&utm_medium=member_desktop&rcm=ACoAABV8rLgBV784L_Gi_qXEiq35Fz8inJ1lVjE

Interview Advertisements

Email Advertisement

Greetings:

I am a graduate student at the University of Alaska Fairbanks, and I am studying peoples' experiences with learning by video (Zoom, Google Meet, etc.). It is so important that this study includes people from many backgrounds and many identities, because that is what makes a theory matter. Your stories will help to shape a theory that could make learning online better for you and for your loved ones.

Anyone who is older than 18 and who has ever done any learning through web-conferencing is qualified to participate in this study. If you are eligible and interested, please consider participating in a 30 minute, 1-1 interview with me. Fill out this form to sign up for an interview: https://bit.ly/UAFLearningByVideo

Participating in this study will allow you to share your thoughts and add to larger conversations about learning by video. This research will also be shared with educators so that they can design learning experiences that are more interesting and meaningful for learners like you.

If you have any questions about this study, please feel free to contact me by email at rlreilly@alaska.edu or Dr. Amy May (amay11@alaska.edu), principal investigator. For questions regarding IRB, contact UAF IRB phone number 907-474-7800 or uaf-irb@alaska.edu.

I look forward to hearing from you! Please sign up for an interview and/or pass this invitation along to your friends.

Thank you!

Rachel Reilly

Social Media Advertisement

To view the ad, visit:

https://www.linkedin.com/posts/rachel-reilly-22088aa0_yall-im-moving-into-the-final-phase-of-activity-7113992824370434048-i6GE?utm_source=share&utm_medium=member_desktop&rcm=ACoAABV8rLgBV784L_Gi_qXEiq35Fz8inJ1lVjE

Appendix E: Informed Consent Forms

Survey Consent Form

IRB #: 2041457-1

Date Approved: 4/25/2023

Information about this study:

You are being asked to take part in a study exploring learning through web-conferencing. Anyone who is at least 18-years-old and who has attended a learning event through a web-conferencing platform (Zoom, Google Meet, Microsoft Teams, etc) is eligible to be a part of this study. Please read this form carefully to decide whether you would like to continue.

If you do decide to participate, you will complete a survey. It will take about 20 minutes. You will be asked questions about positive and negative learning experiences you have had by Zoom, Google Meet, or other web-conferencing tools.

Your answers will help the researchers see what has made learning by video meaningful for many learners. This study is being done as part of a thesis project. The researchers may also seek to publish the findings so that they can be shared with more people.

Risks and Benefits of Being in the Study:

There are no risks to you if you decide to participate in this study. One possible benefit of this experience for you is that you will be able to share your experiences with many people. This research will also benefit all learners by sharing ways that educators can make online learning more effective and more engaging.

Confidentiality:

- No information that could identify you will be shared in the final report.
- Your responses will be stored on a password-protected Drive that can only be opened by the researchers. These files will be deleted 5-years after this project is over (May 2028).

Voluntary Participation:

You are free to choose whether to take part in the study. You may end the survey at any time or skip any question for any reason. Whether or not you choose to participate will not affect your relationship with the researchers.

Contacts and Questions:

If you have questions, contact Rachel Reilly, co-researcher, by email at rlreilly@alaska.edu or by phone at (907) 687-4647, or Dr. Amy May, the primary investigator, at amay11@alaska.edu or by phone at (516) 404-5828.

Statement of Consent:

By clicking "Submit," you are consenting to participate in this study.

The UAF Institutional Review Board (IRB) is a group that examines research projects involving people. This review is done to protect the rights and welfare of people involved in the research. If you have questions or concerns about your rights as a research participant, you can contact the UAF Office of Research Integrity at 474-7800 (Fairbanks area) or 1-866-876-7800 (toll-free outside the Fairbanks area) or uaf-irb@alaska.edu.

Interview Consent Form

IRB #: 2041457-2

Date Approved: April 25, 2023

About this study:

You are being asked to take part in a study that looks at learning through web-conferencing. You can participate in this study if you:

1. Are at least 18 years old; and
2. Have done some learning through a web-conferencing platform, like Zoom, Google Meet, Microsoft Teams, etc.

Please read this form carefully to decide whether you would like to continue.

If you decide to be a part of this study, you will be interviewed for about 30 minutes. You will be asked questions about good and bad learning experiences you have had by video. This interview will be recorded. After the interview, the researchers will create a transcript of this interview and remove anything that can be used to identify you, including names, locations, or other specifics like these.

Your answers will help the researchers see what has made learning by video meaningful for many learners. This study is being done as part of a thesis project. The researchers may also try to publish the findings so that they can be shared with more people.

Risks and Benefits of Being in the Study:

There are no risks to you if you decide to be a part of this study. This interview process may feel rewarding because it is a way to share your experiences with many people. This research will also benefit all learners by showing ways educators can make online learning better.

Confidentiality:

- This interview is taking place in a private space. Only the interviewer will hear what you share.
- No information that could identify you will be shared in the final report or in the transcripts.
- The recording and transcript of this interview will be stored on a password-protected Drive that can only be opened by the researchers. These files will be deleted 5-years after this project ends (May 2028).

Voluntary Participation:

You are free to choose whether to take part in the study. You may end the interview at any time or choose not to answer any question for any reason. Whether or not you choose to participate will not affect your relationship with the researchers.

Contacts and Questions:

If you have questions, contact Rachel Reilly, co-researcher, by email at rlreilly@alaska.edu or by phone at (907) 687-4647, or Dr. Amy May, the primary investigator, at amay11@alaska.edu or by phone at (516) 404-5828.

Statement of Consent:

If you agree to participate in this study and be recorded, please recite the following statement:

> I understand the information that was shared on this consent form. My questions have been fully answered. I agree to participate in this study. I was sent a copy of this form before our interview started, and I know how to contact the researchers if I have questions later.

The UAF Institutional Review Board (IRB) is a group that examines research projects involving people. This review is done to protect the rights and welfare of people involved in the research. If you have questions or concerns about your rights as a research participant, you can contact the UAF Office of Research Integrity at 474-7800 (Fairbanks area) or 1-866-876-7800 (toll-free outside the Fairbanks area) or uaf-irb@alaska.edu.