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I, Leslie J Kochanowski, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Educational Studies.

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What Does the Physical Learning Environment Reveal About Expert Preschool Teachers' Pedagogical Values? An Educational Criticism

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What Does The Physical Environment Reveal about Expert Preschool Teachers' Pedagogical Values? An Educational Criticism

A dissertation submitted to the Graduate School of the University of Cincinnati in partial fulfillment of the requirements for the degree of

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by

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Abstract

Societally speaking, early childhood education has not been deeply understood or respected from a developmental standpoint. Stereotypes of early childhood teachers and misinformation regarding how children learn pervade, leading to confusion about what quality looks like in early childhood classrooms. The underlying premise for this study is that the environment, the child, and the teacher are not mutually exclusive entities, but are connected, dynamic, and interrelated. The focus is on the role the physical environment plays in learning and explores *why* the environment exists as it does, highlighting the critical and active role teachers play. The aim of this study was to articulate the developmental needs of children and the pedagogical values that underpin the decisions that go into designing effective early learning environments, while lifting the voice of expert teachers in shaping the landscape of early childhood care and education.

A complex line of reasoning led to the design, implementation and analysis for this study. The line of reasoning is as follows: 1) children are impacted by their environments (socio-cultural theory), 2) children deserve to spend their time in well-designed spaces that support their learning and development (self-determination theory), 3) teachers moderate this experience for children (ecology of schooling; affordances), 4) as so, teachers must take a critical, reflective approach to ensure optimal contexts for all children (dispositions, reflective practice, critically conscious professional), 5) there is much to be learned from expert teachers with regard to the environment and the pedagogical values that underpin their practice, hence the need for the voice and expertise of teachers within the realm of research (Educational criticism; participatory practitioner research).

Through the lens of Eisner's (2017) educational connoisseurship and criticism and the use of photovoice as a participatory method in education, five expert teachers at a university laboratory preschool documented important elements of the physical environment to examine how the environment communicates values and expectations, and acts as a third teacher for learning. The study generated a rich collection of visual data depicting environments that were open-ended, sensory-rich, literacy-rich, reflective of nature/natural elements, and inviting exploration and relationship building. Through individual sharing, group discourse, and participatory analysis, teachers revealed deeply held pedagogical values that were ultimately distilled into a collective vision statement. The statement honors children as capable and competent learners, teachers as intentional partners, and classrooms as responsive and dynamic learning environments, with the greater purpose of education aimed at both individual growth and societal well-being.

The findings from this study yielded new models for holistically examining early learning environments suggesting the need for ongoing outlets for expert teachers to demonstrate and disseminate what high-quality learning environments for young children look like in practice. Further implications from this study point to practical insights as to how teachers can more deeply reflect upon the classroom environment in greater alignment with their values and developmental needs of children.

Keywords: early childhood care and education, educational criticism, photovoice, physical learning environment, pedagogical values, expert teachers

Dedication

To my Asa Bear, Emmett Lee Bumble Bee, and Ali Bird.

You are my daily teachers and forever inspiration.

Acknowledgements

This has truly been a dissertation journey. From the onset I knew I had to do it in my own way and in my own time and I am grateful to have found people that honored that path and continued to cheer me on to the finish line.

First and foremost, I want to acknowledge the teachers—my fellow educational critics—*Abe Underhill*, *Erin Weirich*, *Jane Chambers*, *Jenn Horwitz*, and *Rachel Konerman* for bringing their expertise and passion to this study. These are their real names. With their permission, I chose to use their true identity throughout as a way to give credit to the active role they played in this research. Pseudonyms would not have celebrated their voices in the same way. These teachers show up with care and intention every. single. day. During a period in time when we are collectively in need of hope, I often find myself thinking, "What would the world be like if every child had a teacher like them?" and I can wholeheartedly say we would all be better off.

To my advisor, *Dr. Vicki Carr*, I would like to say thank you from the bottom of my heart. You have been there from the beginning. You believed in me and gave me the courage to believe in myself. And to my committee members, *Dr. Rhonda Brown* and *Dr. Lisa Vaughn*, for the knowledge, support, and inspiration you have provided over the years. I hope each of you sees pieces of yourself and your work reflected in these pages.

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Chapter 1: Introduction

> *Woven throughout you'll find the threads of love, pride, fulfillment, and even a little pain. Because more than a few tears fall in pursuit of authenticity. We leave our hearts and we leave our traces—the echoes of all the past children, parents and teachers—they're all present—that's what makes a space real, living, breathing. This is hard fought. If it was all easy, it wouldn't be this real.*
>
> —Participant reflection

Early experience matters. The quality of our earliest experiences, interactions, and environments has a direct impact on lifelong development. How do we ensure all children thrive during the foundational years? It begins with a culture that values children and childhood, and requires a deep understanding of early development and the unique ways young children learn and grow.

Early care and education increasingly play a role in the lives of young children, yet the learning environments to which they are exposed range drastically. But what do the environments that nurture children's natural inclination toward curiosity, creativity, and community look like? What are the defining characteristics of effective and supportive early childhood teachers? What is the role of early care and education in developing self-determined individuals who are capable of contributing to the sustainability of our world? These big questions are at the heart of this work. Through the lens of the physical learning environment, this educational criticism elevates the voice of expert preschool teachers to reveal the pedagogical values that underlie their expertise and passion for working with young children.

Developmental research shows that early experiences are foundational to subsequent learning and development, including adaptability, resilience, self-concept, lifelong physical and

mental health and well-being, and adult productivity (Piaget & Inhelder, 1969). Prominent developmental scholars (Gopnik et al., 1999; Piaget, 1963; Ryan & Deci, 2000) agree that humans are born with an innate drive to learn, however, it has long been debated whether genetic predispositions or environmental influences dominate the learning process. Current brain research conceptualizes nature and nurture as intrinsically intertwined, suggesting the developing brain is both biologically-based and environmentally-mediated (Fox et al., 2010; Posner & Rothbart, 2007). Arndt (2012) suggests that stimulating environments, designed to encourage learning by doing, contribute greatly to healthy neural development. Early childhood care and education should therefore be seen as an opportunity to ensure *all* children learn and grow in enriched learning environments, nurtured by meaningful relationships with knowledgeable teachers (Shonkoff et al., 2012).

Background and Statement of the Problem

The range of care and education available to young children in the United States is disparate, often leaving the most vulnerable—the children who would benefit most—in less than satisfactory care situations. Societally speaking, early care and education has not been deeply understood or respected from a developmental standpoint. Stereotypes of early childhood teachers and misinformation regarding how children learn pervade, leading to confusion about what "quality" looks like in early childhood classrooms, and a workforce vastly ranging in education and experience. The physical environment plays an vital role in determining quality learning experiences, and visually communicates the opportunities and expectations within the space. In addition to explicit messages, the environment also holds implicit messaging regarding deeper held beliefs about what and how children should learn. It is therefore important to better understand the role the physical environment plays in the process of learning.

The learning environment is composed of three interrelated domains including *social* (teacher, peer, family interactions), *temporal* (time, routines, schedule), and *physical* (materials/activities, furniture, layout) (The IRIS Center, 2015; O'Brien, 1995). It is widely accepted that the social environment impacts both cumulative and delayed development (Copple & Bredekamp, 2009), however, less attention has focused on the role of the physical environment (Berti et al., 2019; Matthews & Lippman, 2018; Shaari & Ahmad, 2016). Much of the research has been quantitative in nature (Paniagua & Istance, 2017), little has specifically focused on preschool, and even less on the role teachers play in setting the space for learning (Berti et al., 2019).

The interaction between child and environment is not a new concept in child development (Edwards et al., 1998; Montessori, 1965; Piaget, 1963), and has been echoed in the literature on cognitive development (Bjorklund, 2012; Vygotsky, 1967), brain development (Arndt, 2012; Fox et al., 2010; Rushton et al., 2010), self-determination theory (Erwin & Brown, 2003; Palmer et al., 2013; Ryan & Deci, 2000), and environmental psychology (Bell et al., 2001; Evans, 2006; Korpela, 2012; Maxwell, 2007; Moore, 1986), suggesting the physical environment does in fact contribute positively to behavioral and learning outcomes and is worthy of attention. However, these findings are not being deeply examined in teacher preparation, and are therefore not being widely enacted in preschools and childcare centers in the United States.

The Italian schools of Reggio Emilia provide a model for curating high quality learning environments with focused attention on developmental knowledge and respect for the capabilities of young children. These programs revere the physical environment as the *third teacher*, recognizing the power of space to communicate both explicit and implicit messages about children—who they are, how and what they should learn, and their place within the

community (Carter, 2007; Edwards et al., 1998; Strong-Wilson & Ellis, 2007). The physical environment is therefore understood as a concrete representation of underlying pedagogical values. This notion is gaining traction amongst practitioners, but has not yet found its way into mainstream research and policy. Margie Carter (2007) shares this reflection and provocation:

> In my opinion, if we are to embrace the idea of the environment as a significant educator in our early childhood programs, we must expand our thinking beyond the notion of room arrangements and rating scales. We must ask ourselves what values we want to communicate through our environments and how we want children to experience their time in our programs. Walk down the halls and into the classrooms of your program. What does this environment "teach" those who are in it? How is it shaping the identity of those who spend long days there? (p. 22)

Giving reverence to the physical environment requires a shift in thinking about who children are, how they learn, as well as what and why they should be learning, yet these deeper interpretations of early childhood education remain overshadowed by the academic, standards-driven notion of success that pervades in the United States.

As Dewey (1938) espouses, the purpose of education is not merely the communication of knowledge, but the sharing of social experience; the aim of which is to enhance lives. He makes a critical distinction between three forms of educational experience, including *non-educational* (no effect one way or another on growth, leaves no significant trace), *miseducative* ("arrests" growth, limits or diminishes perception and development, promotes prejudice), and *educational* (nurtures growth and human intelligence, curiosity, brings forth satisfaction). The ability to critically evaluate the contexts that support rather than hinder optimal growth and development, and to reflect on the values being transmitted through the physical environment, is a matter of

utmost importance. In order for the physical environment to act as a third teacher, early childhood educators must be informed and intentional about the experiences and environments they provide young children.

Reflective practice has long been regarded as the hallmark of an effective, high-quality early childhood educator and is not new to ECE (Durden, 2015). However, there is a pedagogical shift taking root within the field of ECE urging practitioners to move from "teaching" (modes of direct instruction) to "thinking" (continuous, deep exploration and reflection). Critical reflection, or the act of thinking about and questioning practice, for example, examining how a situation might have been approached differently, is at the heart of this shift (Pelo & Carter, 2018). Building off the work of Schön's (1983) reflection in action and Friere's education for critical consciousness (1973), Durden (2015) argues for the need to develop critically conscious professionals who not only have a thirst for examining their practice, but are also capable of addressing their work through a critical lens "striving toward consciousness by becoming a critical reflector of the self, society, and social relations" (p. 79). This deep reflection, or observation of one's practice through a critical lens, is the foundation of practitioner research, which provides the platform for teachers to share their expertise and interpretations with the broader field. This study capitalizes on the reflective practice of expert teachers, beginning with a critical look at the physical learning environment.

As a precursor to the current study, a qualitative inquiry was conducted as an initial attempt to delineate how one teacher's pedagogical values (beliefs and values related to pedagogy) were reflected in the physical learning environment. The exploratory project included a semi-structured interview with a focus on values, followed by a video recorded guided tour (Balbale et al., 2016) of the classroom, led by the participant-teacher.

The investigation made clear how pedagogical values impact one's orientation toward teaching, setting the tone for what O'Brien (1995) refers to as classroom culture. These values filter into the three domains that comprise the overall learning environment, including the social (person-to-person interactions), temporal (time and routines), and physical (materials/activities, space/layout, and displays/documentation) (The IRIS Center, 2015; Learning Environments Evaluation Programme Series, 2017). Teachers bring these pedagogical values, whether explicit or tacit, to all aspects of their teaching. The assumption here is that the more explicit teachers are about those values, the more intentional they will be about meeting pedagogical goals through the design of the physical environment. The findings from this inquiry pointed to the importance of relationships as a key factor in early care and education and demonstrated how trust, autonomy, creativity, and ownership were fostered in the physical environment. This project propelled the need to more clearly delineate connections between the physical learning environment and clearly articulated pedagogical values while providing clear examples of what high level teaching looks like in practice.

In general, more research is needed to understand the complexity of the physical learning environment and the role it plays in learning and development. Few studies present the professional expertise of highly qualified teachers to provide the deeper reasoning and thought processes involved in preparing the physical learning environment. This voice is largely missing from research and policy and is required to challenge the more commonly held view of early childhood teachers and to allow for more meaningful and sustainable practices in early childhood education to take root.

Research Questions and Design

This study was conceptualized within a constructivist framework with a transformative lens (Crotty, 1998) and draws from socio-cultural theory (Cole, 1996; Rogoff 2003; Vygotsky, 1978) and self-determination theory (Ryan & Deci, 2000), along with the conceptual understanding of the ecology of schooling (Eisner, 2017; Jackson, 2013) and affordances (Gibson, 1979; Heft, 1988; Maier et al., 2009).

The line of reasoning is as follows: 1) children are impacted by their environments (socio-cultural theory), 2) children deserve to spend their time in well-designed spaces that support their learning and development (self-determination theory), 3) teachers moderate this experience for children (ecology of schooling; affordances), 4) as so, teachers must take a critical, reflective approach to ensure optimal contexts for all children (dispositions, reflective practice, critically conscious professional), 5) there is much to be learned from expert teachers with regard to the environment and the pedagogical values that underpin their practice, hence the need for the voice and expertise of teachers within the realm of research (Educational criticism; participatory practitioner research). From this reasoning, the following research questions emerged:

- What do expert teachers at a university laboratory preschool deem important within the physical learning environment?
- What can be learned about the practices and underlying pedagogical values of expert preschool teachers through an exploration of the physical learning environment?
- How does this group of expert preschool teachers collectively conceptualize high-quality learning environments for young children?

Educational connoisseurship and criticism (Eisner, 2017; Uhrmacher et al., 2017) guided the exploration of these questions and provided the overarching design of the study. As influenced by Dewey, Eisner (2017) looked to the arts as a form of qualitative inquiry that allows for deep and nuanced interpretation. More clearly articulated,

> *Educational connoisseurs are people who come to know, and critics are people who can render what they come to know in a language that is accessible to others that enables others to "resee" the work, the performance, or the object at hand.* (Eisner, 2013, p. 3)

Briefly put, *connoisseurship*, or the art of seeing (noticing/appreciation), is honed through experience and a sensitivity to the subtle qualities that embody the work. Connoisseurship alone provides no outlet for what is recognized or understood, it is largely a private act and has by itself little social utility (Eisner, 2017). Eisner suggests that for connoisseurship to have a presence, we must turn to *criticism*, or the art of disclosure, to analyze and communicate these perceptions and render them visible to others.

Following this interpretation, this study positioned expert teachers—those with both education and experience—as connoisseurs of early childhood education, and utilized the participatory method of photovoice (Vaughn et al., 2009; Wang & Burris, 1997) to bring that expertise to light. Photovoice uses images taken from the perspective of participants (or co-investigators) as a tool for delving into exploration of a topic. It is particularly useful at rendering things unseen—taking a tangible element and opening discourse toward deeper interpretations. Moving from concrete to abstract, photographs provided a mechanism for capturing the tangible elements within the classroom as the entry point for discussion. The photo data alone was compelling, however, when paired with the critical reflections offered through the

process of photovoice, the photos revealed apt knowledge and insights related to the pedagogical values of this group of expert teachers.

Purpose of the Study

The aforementioned research questions tapped into the expertise of highly qualified preschool teachers to 1) identify critical elements within the physical environment, 2) reveal the reasoning and values that underlie their design choices and 3) amplify their voice as competent experts able to paint an informed, holistic vision for early childhood education. More specifically, this study used educational criticism (Eisner, 2017; Uhrmacher et al., 2017) to articulate the developmental needs of children and the pedagogical values that underpin the decisions that go into designing effective early learning environments, while lifting the voice of expert teachers in shaping the landscape of early childhood education using participatory methods (Creswell & Creswell, 2017). The participant-researcher team was involved in both the collection of data and initial analysis and provided feedback throughout the project. The project employed photovoice qualitative methodologies including focus group, critical reflection, and affinity mapping. Findings indicated what teachers deem important within the physical classroom environment and revealed insights into the often overlooked "Why?" behind these elements, including core values, quality of experience/emotional climate, modes of delivery, and the greater purpose (for both individuals and society at large) driving their work. These findings provided the framework for articulating a shared vision for early childhood education derived from practicing experts within the field. It is my hope that the findings of this research provide a glimpse into the inner workings of highly trained, highly dedicated professionals to reveal the often invisible dimensions and dispositions that support high-quality early childhood education.

Positionality

I am a teacher. I am a researcher. I am a parent. I have professional training in child development and early childhood education, experience as an early childhood classroom teacher and educational researcher, and the intimacy of being a parent in a world fraught with mixed messages about children and childhood. One commonality holds true: we all want what is best for children. My dedication to this work is born out of a need to advocate for and spread a vision of childhood that is full of wonder, strong relationships and connection, and deep inquiry about ourselves, each other, and the world around us.

My interest in both the topic (physical environment and pedagogical values) and the methods (educational criticism/photovoice) is influenced by my personal experience as a classroom teacher as well as my continued study of theory and current research. I see myself as a co-investigator that facilitates the process of inquiry and empowers the voice of the teacher. Relationships are key to the quality and depth of data that emerged from this study. As an academic researcher at the participating program, I have had the opportunity to build strong relationships and trust among the participants and have witnessed their expertise firsthand. I deeply resonate with Eisner's educational connoisseurship and criticism because my experience as a professional in the field of early childhood care and education has often left me feeling alone— fighting to be heard, fighting to be respected, fighting to be seen as an expert—in a field that is generally misunderstood and undervalued. Eisner's approach to inquiry provided the research outlet I have been seeking. A platform to say, "Yes, there are experts in our field. Yes, these experts have unique observations, knowledge, and contributions, and yes, we have a responsibility to step up and make our expertise known." The acknowledgement of expertise is not downplayed or frowned upon in other professions in the same way it has been in early

childhood care and education, rather it is sought after and respected. The term "critic" does not carry negative connotations when it comes to art or food or theater and should not be frowned upon in education, but rather celebrated and respected.

I am invested in this work. I want to be a voice for what quality looks like in early childhood settings and for pushing forward an approach to child development that is rooted in respect and the natural inclinations of children. As a practitioner, as a researcher, as a parent, I see myself as an educational connoisseur, built upon years of educational training, practice as a classroom teacher, emergence into the world of research, and culminating with this dissertation. The teachers chosen for this study and I bring a critical lens to our practice, capable of providing valuable insights and reflections from *within* the field.

Definition of Terms

- *Connoisseur/Critic* can be used interchangeably. It is assumed that in order to be an effective critic, a person must first be a connoisseur. A connoisseur holds a deep, nuanced understanding of a topic or phenomena, honed through experience and a sensitivity to the subtle qualities that embody the work. A critic takes that understanding and shares it with others, providing new interpretations and complicating mainstream narrative. Eisner (2017) suggests that for *connoisseurship*, or the art of noticing, to have a presence, we must turn to *criticism*, or the art of analysis and disclosure, to communicate these perceptions.
- *Expert Teacher* is used to describe high-quality teachers that have both experience and high level training in early childhood education (ECE). The term also suggests a critical, reflective, intentional approach to teaching that views teaching as an act of inquiry. The lens of connoisseurship is applied to the teacher's expert application of pedagogies,

meaning expert teachers have a deep understanding of and appreciation for pedagogy in relation to their practice (Eisner, 2004; Paniagua & Istance, 2018). This term was generally preferred by the participatory group over related terms such as "master," that historically hold connotations of power and gender.

- *Image of the Child* is used to describe the ideas and beliefs about children that shape attitudes and practices in early childhood education. The term *image of the child* emerged from the schools of Reggio Emilia (Fraser & Gestwicki, 2002; Gandini, 1997; Martalock, 2012; Scheinfeld et al., 2008) and is used to describe the way people think about the capabilities, roles, and rights of children. More clearly articulated, Martalock (2012), defines the term as "what people believe, understand, and assume about the role of children in education and society" (p. 3). This view of children and childhood is shaped by our perceptions regarding their capabilities, how they develop, what motivates them, their purpose, and their agency. Each of us holds an image of the child, shaped by our personal experience, education, and values, and this image infiltrates every aspect of our practice. It is the fundamental pedagogical value (defined in more detail below) from which all teaching and learning begins (Malaguzzi, 1994).
- *Laboratory Preschool* refers to university-based child development centers that are established as model programs. These programs provide high-quality early learning, train teachers and others from the community, and conduct research. This structure provides a natural relationship between education and research, allowing for practice that is rooted in theory, while forging new practices and approaches.
- *Physical Environment*, in combination with the social and temporal domains, comprises the larger overarching learning environment. These three domains are inextricably linked,

but can be examined independently. For this reason, the terms *learning environment*, *physical learning environment, physical environment, space*, and *classroom* will be used interchangeably throughout. Although some would argue against using the term physical environment, in favor of *material* or *built* space, the term reflects the mainstream terminology used in early childhood education in the US. Additionally, while it is important to recognize the structural (i.e., windows, doors) and environmental (i.e., air and light quality) aspects of the physical environment, this study predominantly focused on the elements in the physical environment that teachers make choices about including materials, layout, displays, and other design elements. This can also be understood (and may be referred to) as the *prepared environment*.

- *Pedagogical Values* as defined by Husu and Tirri (2007) conceive of pedagogical values as the implicit "social and individual characteristics concerning pedagogy" (p. 395). Teaching philosophy can be understood as the way teachers *think* about knowledge and the teaching and learning relationship. This philosophy is composed of pedagogical values, including beliefs related to the *image of the child* (Who is a child? What is their role in society? What are their capabilities?) the *role of the teacher* (What is a teacher? What is their purpose? What is their role in interactions, setting environment, etc.) *the role of the environment* (How the environment is perceived, What role it plays in learning) and the *goal/purpose of education* (What is the goal of teaching/learning in preschool? What are the philosophical beliefs about education?). Pedagogical values are impacted by personal experience and values, as well as the pedagogical and philosophical grounding of the teacher.

- *The Third Teacher* is the physical environment where children learn, interact, and build relationships with themselves, others, and the world around them (Fraser & Gestwicki, 2002; Robson, 2017). The concept was inspired by the Reggio Emilia approach to early childhood education with the first and second teachers being the child and adult educator/caregiver, respectively (Edwards et al., 1998; Strong-Wilson & Ellis, 2007). Gandini (1998) suggests that, "In order to act as an educator for the child, the environment has to be flexible; it must undergo frequent modification by the children and the teachers in order to remain up-to-date and responsive to their needs to be protagonists in constructing their knowledge" (p. 177).

Map of Chapters

This dissertation is organized into five chapters. This first chapter has provided the background and rationale for the study and introduced key terms. Chapter 2 develops the conceptual framework, including the philosophical and theoretical grounding, along with a literature review that frames the study in relation to current literature. Chapter 3 details the methodological approach and the specific methods used to carry out the research and analyze the data. Chapter 4 presents the findings, including the elements of the physical environment highlighted by the participants, individual accounts of their critical reflections, the themes that emerged from group discussions, and a culminating statement representative of the groups overall approach to early childhood education. In chapter 5 the findings are discussed in more detail, drawing out the nuanced interpretations and main takeaways from the study. Additionally, future directions for research are presented, and a reflective summary concludes the dissertation.

Chapter 2: Conceptual Framework

This chapter outlines the theoretical and conceptual constructs guiding this study and provides a review of the pertinent literature. The study, which examined early learning environments and the pedagogical values of expert preschool teachers, is grounded in social constructivism and applies a transformative lens. Additionally, it is informed by two bodies of theory (socio-cultural and self-determination) and applied two conceptual tools (ecology of schools and affordances) for more holistically evaluating early learning environments. To further frame the study in terms of quality, a guiding summary of child development and the human-environment relationship is outlined. This is followed by a review of the literature on early learning environments (specifically focused on the physical environment), the role of the teacher, and critical dispositions (namely reflective practice) as well as the use of educational criticism and participatory research methods as an outlet for inquiry, reflection, voice, and empowerment.

Theoretical Framework

Social constructivism is the epistemological stance that grounds this work. Epistemology asks, “How do I know the world?” and “What is the relationship between the inquirer and the known?” (Denzin and Lincoln, 2000). Social constructionism recognizes the existence of complex and diverse realities, as mediated by social and historical contexts, and seeks to identify patterns of interaction between individuals within their unique environments. Additionally, this study affirms the existence of systemic structures embedded within these social and historical contexts and asserts that the purpose of knowledge is to assist people in improving society, thus representing a transformative lens (Creswell, 2013). Transformation, from the social

constructivist perspective occurs through interaction and dialogue—creating connections and constructions through interaction with objects and others. The study in its entirety is guided by Eisner's (2017) qualitative approach to inquiry, which from an epistemological standpoint suggests that knowledge is shaped by action, that knowledge is in fact a verb. From his conception, in order for knowledge to exist, it has to be known, or rendered visible (Eisner, 2017). Specifically, within educational research, this framework can provide practical, collaborative outcomes that engage participants in the inquiry process. For this reason, the review of the literature takes a closer look at the importance of inquiry and critical reflection in education as well as participatory methods that empower and lift the voice of teachers.

Socio-Cultural Theory

Growing out of a constructivist worldview, socio-cultural theory, as influenced by Vygotsky (1978), Cole (1996), and Rogoff (2003), conceptualizes human development as a cultural process. Rogoff (2003) provides the following orienting concept, "People develop as participants in cultural communities. Their development can be understood only in light of the cultural practices and circumstances of their communities—which also change" (p. 3). Growth, learning, and transformation occur through constant interactions between the individual, others, and the environments in which they participate. These cultural conditions—or *contexts*—mediate developmental outcomes, including attitudes and beliefs (Cole, 1997).

Cole (1997) expounds on a cultural approach to *ontogeny*, or the nature of being. To portray the development of the individual in relation to both *phylogeny,* the evolutionary history of a species*,* and cultural-historical contexts, Cole presents a theoretical model that depicts the past, present, and future as deeply interwoven. His model displays an individual's ontogeny positioned within evolutionary, historical, and biological layers. The event of a child's birth

spans these layers demonstrating how our existence is both highly individual and inherently connected.

Key to Cole's model is the process of *prolepsis,* which describes how these layers weave together the past, present, and future. Cole's model demonstrates prolepsis in relation to the ontogeny of mother and child. The mother's memory of her past (which reaches into the cultural layer of her existence) influences her ideas and ideals for her child, and through direct interaction and subsequent behavior, she passes this information on to the next generation. "In other words, adults literally create different material forms of interaction based on conceptions of the world provided by their cultural experience" (Cole, 1996, p. 186). This process is transferable to any interpersonal relationship such as father and child or teacher and child, and multiple influences occur at any given time. Following Cole's description of prolepsis, it is then possible to understand the process of how teacher attitudes and beliefs are reflected in their interactions, curriculum, and classroom environments and transferred to children in their care (Cole, 1997).

Culture as a developmental process, context, and prolepsis are seen as central tenets of socio-cultural theory (Cole, 1997; Rogoff, 2003; Vygotsky, 1978), which are also mirrored in self-determination theory (Ryan & Deci, 2000).

Self-Determination Theory

Self-determination theory (Ryan & Deci, 2000) suggests that we are born with a natural, innate drive to explore the world around us. It is through this internal and personal motivation that we learn. Ryan and Deci (2000) identified competence, autonomy, and relatedness—or self-determination—as the psychological foundation for a high quality of life. Self-determination as a concept can be understood as dynamic and rooted in context (Erwin & Brown, 2003). Self-determination theory holds that individual, social, and environmental contexts influence

development, and that efforts to become self-determined can be supported or undermined by the people and institutions that play a role in daily experience (Erwin & Brown, 2003; Palmer et al., 2012; Ryan & Deci, 2000).

Self-determination in adolescence and adulthood is well studied, however, little attention is focused on the foundational contexts that elicit this outcome. More recently, frameworks have emerged, predominantly from the field of disability studies, that conceptualize the emergence of self-determination as a developmental process, one that begins in infancy and continues across the entirety of one's life (Erwin & Brown, 2003; Palmer et al., 2012; Wall & Datillo, 1995). This process relies on both the acquisition of skills and attitudes, and the opportunity to integrate those skills and attitudes over time through experience (Erwin & Brown, 2003). The underlying traits of self-determination are not unfamiliar in early childhood (Erwin & Brown, 2003; Palmer et al., 2012). Teachers who position their practice toward the goal of self-determination can promote skills (problem-solving, choice-making, etc.) and attitudes (empowerment, confidence, independence, etc.) from the onset (Deci et al., 1991).

In relation to early childhood education, the three previously mentioned contexts—individual, others, and environment—can be specified as the child, the teacher, and the prepared learning environment. The Early Childhood Foundations Model for Self-Determination (Palmer, et al., 2012) suggests that child engagement, choice and problem-solving, and self-regulation (the foundation of self-determination) are mediated by the environment and adult cues. It is therefore critical to identify contexts that support this development.

Conceptual Tools for Studying Early Learning Environments

Ecological Model of Schooling

Ecology, in general, can be understood as the study of living environments, in which individual organisms learn and develop. Relationships (and interactions) are key to this concept and are a helpful mechanism for studying complex environments. Woodhouse (2020) describes the ecological model as one that,

> ...captures a basic truth about human development: there is no one 'childhood' just as there is no one 'adulthood.' Instead, every childhood is shaped by and experienced within a living context. A particular social, cultural, and physical geography sets the stage on which childhood is played out. (p. 15)

Brofennbrenner's (1979) ecological systems theory echoes this conception and asserts that there are multiple levels of influence on an individual, from direct family and school settings to the community to society at large. This model is reflective of a broader socio-cultural stance and can also be applied at the micro level to evaluate the multifaceted nature of a classroom; context and relationships again being key components.

Similar to O'Brien's (1993) conception of classroom culture (composed of interactions, time, and the physical space), Eisner's school ecology (2017) provides an expanded framework. In this model, the classroom is envisioned as containing the following dimensions: *curriculum* (content), *pedagogy* (how the content is mediated), *school structure* (time, routines, rituals, flow), *evaluation* (both formal and informal), and *intentions* (aims, goals, purpose, value-driven). Uhrmacher (2017), suggests the addition of the *aesthetic dimension*, which envelops and exudes from the space, and is largely dependent on the type and quality of materials and furnishings as well as the physical arrangement.

These dimensions are highly influenced by one another and alterations to one dimension will begin to shift the others. For instance, if a novice teacher changes the daily routine to include a larger block of outdoor time (structure), other dimensions will come into question: it may deepen their understanding of learning through play (intention), or how they allow children more freedom in the classroom (pedagogy). As articulated in Uhrmacher et. al (2017):

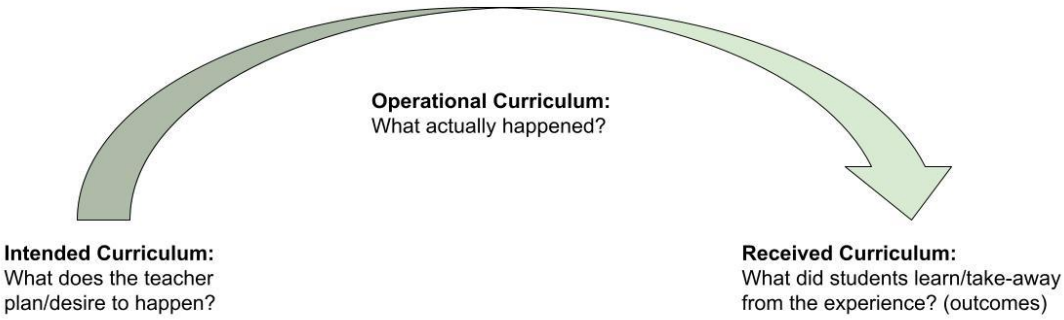
> It is the interactive effects of the ecology that makes these dimensions fit together as a conceptual framework. That is, they are not a laundry list of things to focus upon in observations and interviews, but rather a way of understanding the dynamic interactions and relationships at work. (p. 24)

It is also noted that these dimensions are flexible and are intended to be adapted to accommodate a variety of settings, such as the addition of the aesthetic dimension referenced above, or the inclusion of school administration (Uhrmacher et al., 2017).

Emerging from Eisner's ecology of schooling framework, Uhrmacher et al. (2017) presents a visual model, coined the Instructional Arc, that builds upon the intentional dimension. This model, shown in Figure 1, depicts the connection between the *intended curriculum* (what the teacher plans or desires to happen), the *operational curriculum* (what actually happens/is provided), and the *received curriculum*, (what children learn or take away from the experience).

Figure 1

The Instructional Arc



Note. Re-created from Uhrmacher et al. (2017, p. 25).

The utility of this model lies in its simplicity. Uhrmacher et al. (2017) explains, "The instructional arc offers a simple concept in which to couch complex and subtle qualities of classroom life" (p. 25).

This conceptualization makes clear the role of teacher intentions (goals, aims, values) with regard to what is present in the classroom and the potential outcomes for students. As clarified in Uhrmacher et al. (2017) "The arc provides us a way of seeing what actually happens in schools with a focus on discerning congruence or variance between the *intentions* and *operations*" (p. 25). In the early childhood classroom, the operational curriculum can be understood as the environment itself, or what is being offered to children in terms of design, materials and opportunities within. Research on early childhood environments falls short when it is focused solely on an environmental checklist with little attention given to the pedagogical values of the teacher that underpin the design of the space. Uhrmacher et al., (2017) reiterates this sentiment, stating, "We argue that one needs to know the aims and goals of a school or a teacher before jumping to the results of tests" (p. 24). This is a key aspect of the research that follows.

Affordances

Bringing additional depth to the evaluation of a classroom environment is the concept of affordances. Affordances can be used as a conceptual tool to understand the relationship between environments and those who occupy them (Maier et al., 2009) and has specifically been utilized over the past few decades to evaluate children's interactions and use of their environments (Kernan, 2010).

The term *affordance*, often used in the fields of environmental psychology and design, describes the functional dimensions, or the possibilities, provided by the environment and act as a strong indicator for behaviors (Augustin, 2009; Bell et al., 2001; Gibson, 1979; Heft, 1988). For example, an open field affords running, a small table affords a work surface for a pair of children to gather, blocks afford open-ended play. As described in Maier et al. (2009) "An affordance indicates the potential for a behavior, but not the actual occurrence of that behavior … an affordance must first exist before the behavior afforded can ever be exhibited" (p. 397). Additionally, Maier et al., (2009) provide a model based on relational theory that articulates the relationship between *structure*, *affordances*, *behaviors*, and *purpose*. Applied to early learning environments, the classroom teacher determines the classroom structure, which mediates the affordances of the physical environment, and alters the possibilities for learning and development (behaviors) inherent in the classroom. The overall usefulness of the affordance (purpose) is directly linked to the pedagogical values of the teacher.

The affordances that are available and those that are restricted demonstrate how values and beliefs are imprinted on the environment—adults mediate the affordances based on their own knowledge, beliefs, and values. The physical environment can therefore be evaluated in terms of

the affordances it offers, with the understanding that teachers play a vital role in structuring the availability of opportunities and interactions within the space.

Relevant Literature

The literature review is structured to depict the interrelated dimensions of the child, the environment, and the teacher. It begins with a primer on early development, then delves into the importance of the physical environment, and the role and expertise of the teacher. The section ends with a discussion on reflective practice, practitioner research, and the use of participatory methods in bringing about critical consciousness and empowering teacher voices, making clear the connection between high-level teaching practices and applied research.

The Child: Primer on Early Development

The brain is a complex network made up of trillions of connections between highly specialized brain cells. It is responsible for how we think, process, and communicate information. It is the control center for the entire body, and houses our memories and impressions. It is sensitive, but also incredibly adaptive. The brain is developed through both genetic and environmental input, beginning prenatally. Specific conditions are needed for the brain to develop normally and function at a base level. Beyond the fundamental formation, the environments and experiences to which a child is exposed have an effect on cognition and actual brain structure. Gene expression is dependent on environmental influences, and the interplay between nature and nurture "goes all the way to the molecular level" (Posner & Rothbart, 2007, p. 99). The developmental systems approach, as described in Bjorklund (2012) suggests a bi-directional influence between genes, neurons, behavior, and environment. In other words, genetics are responsible for laying the basic blueprint, whereas experiences adjust the blueprint by physically shaping the architecture of the neural circuits. This framework is developed in

early childhood and provides the foundation for receiving, interpreting, and reacting to the world around us (Fox et al., 2010). Early experiences can be understood as supporting or inhibiting neural connectivity and overall healthy development.

In line with a socio-cultural perspective (Vygotsky, 1978), current research on brain development provides evidence that emotional, cognitive, and perceptual capacities are in fact scaffolded upon early life experiences (Fox et al., 2010). Early experiences can either support or inhibit neural connectivity at integral developmental stages, referred to as *sensitive periods* (Posner & Rothbart, 2007). Although the human brain is highly plastic, its ability to change and/or recover decreases over time, making it critical to consider optimal developmental conditions.

Children enter preschool during the developmental onset of the prefrontal cortex. This sensitive period is associated with developing higher-level capacities related to attention, motivation, and regulation, referred to as *executive functions.* Often used interchangeably, the term *self-regulation* overlaps with executive functioning in a multitude of ways (Eisenburg & Zhou, 2016). Generally, self-regulation refers to the ability to modulate behavior according to the cognitive, emotional, and social demands of specific situations (Posner & Rothbart, 2007). Blair and Diamond (2008) provide the following definition:

> The primarily volitional cognitive and behavioral processes which an individual maintains levels of emotional, motivational, and cognitive arousal that are conducive to positive adjustment and adaptation, as reflected in the positive social relationships, productivity, achievement, and a positive sense of self. (p. 900)

In this conception, self-regulation is both cognitively and emotionally intertwined. Blair and Ursache (2011) suggest that executive functions influence the development of self-regulation,

and conversely, executive functioning may be influenced by lower-order regulatory systems. Self-regulation has been identified as a critical indicator for school readiness and assists in meeting the human need for relatedness, competence, and autonomy, also known as self-determination (Blair & Raver, 2015; Ryan & Deci, 2000).

These critical developmental capacities are best supported in early childhood through *play*. Play has been valued in early childhood education as a constructive mechanism for overall development (Bruner, 1972; Morgante, 2013; Vygotsky, 1967). Play is the way children make meaning—intellectually as well socially and emotionally (Vygotsky, 1967). Current best practice for young children promotes play as a catalyst for learning across developmental domains, and recognizes play to be specifically significant in relation to self-regulation and executive functioning (Bierman & Torres, 2016; Blair & Diamond, 2008; Frost, 1998; Panksepp, 2007; Rushton et al., 2010; Shaheen, 2014) and more specifically, that the environment itself, when intentionally designed, can afford types of play (free play, child-directed, purposeful risk-taking) that can increase opportunities to develop executive function (Carr et al., 2017).

The *playful mind*, as referred to in Wood and Attfield (2005), shapes the experiences of the child, aids in editing and restructuring their knowledge, and develops their unique understanding of the world. In response to playful activity and interaction, new brain circuits are developed. Through play children have the opportunity to explore, create, repeat (persist), problem-solve, make connections, combine materials, extend their thinking, and take risks—reflecting exactly what the brain needs for effective, healthy functioning (Wood & Attfield, 2005).

Fox et al. (2010) advocates for healthy neural development through enriched learning environments—especially necessary during the sensitive periods in early childhood. Providing

time for free play affords the opportunity to build new skills and acquire new knowledge, resulting in a strengthening of brain connections. Pellegrini and Bjorklund (2004) state that children learn about the social and physical world through play, transforming neural circuitry in the process. Through play, the brain makes novel connections and integrates its regulatory systems, which in turn fosters positive emotion, sustained motivation, and strong self-concept.

In alignment with play-based learning, Katz (2003, 2007) draws our attention to the early experiences all children should have, advocating for *standards of experience* rather than the academic tenets often referred to in state standards and core benchmarks. These include (among others) the right to: be intellectually engaged and challenged, participate in long-term investigations stemming from personal interests, take initiative and exercise choice and problem-solving, engage in extended interactions, exist within a community of learners, apply developing conceptual skills in meaningful ways, and feel as if they belong and have ownership of the classroom. These *standards* aim to build both competence and confidence (i.e. self-determination) and support healthy neural development through option-rich, nurturing environments. Preschool environments should therefore provide optimal conditions for learning and healthy brain growth, including the critical development of executive functions and self-regulation necessary for later school success and holistic well-being.

The Environment: Impact on Development and Learning

Current best practice for young children recognizes the impact of early experiences and socio-cultural influences on both cumulative and delayed development (Copple & Bredekamp, 2009). It is widely accepted that the social environment affects early learning, however, much less attention has been given to how the physical learning environment participates in this process (Shaari & Ahmad, 2016).

The interaction between child and environment is not a new concept in early childhood education, in fact many important child development theorists see this interplay as the foundation of social, emotional, and cognitive development (Edwards et al., 1998; Montessori, 1965; Piaget, 1963). This relationship is echoed in the literature on cognitive development (Bjorklund, 2012; Vygotsky, 1967), brain development (Arndt, 2012; Fox et al., 2010; Rushton et al., 2010; Schonkoff, 2011), self-determination theory (Erwin & Brown, 2003; Palmer et al., 2013; Ryan & Deci, 2000), and environmental psychology (Bell et al., 2001; Korpela, 2012), suggesting the physical environment contributes greatly to behavioral and learning outcomes in educational settings.

The physical learning environment has a direct impact on children's cognitive and social competency. A growing interest in the impact of the environment on learning outcomes is evidenced in a recent scoping review curated by Berti et al. (2019), in which they collected and analyzed the current literature on early learning environments. This review revealed two key thematic domains including the *perception of physical environment* (referring to both child and adult perceptions) and *relation between physical environment and child development* (including behavioral, cognitive, and emotional). Additionally, recurring topics emerged, including the relevance of adults' awareness of their perception and value of space, the importance of child-centered approaches, and the need for all stakeholders to be involved in the design process (Berti et al., 2019). The design of the physical learning environment should therefore be seen as an occasion to intentionally arrange and direct activity toward optimal developmental and learning outcomes with input (both direct and indirect) from the children inhabiting the space (Cook et al., 1996).

In line with this notion, the Reggio Emilia approach to early childhood education inspired the concept of the environment as the *third teacher*—in regards to the first teacher (the adult educator) and the second teacher (the child) (Edwards et al., 1998; Strong-Wilson & Ellis, 2007). Gandini (1998) suggests that, "In order to act as an educator for the child, the environment has to be flexible: it must undergo frequent modification by the children and the teachers in order to remain up-to-date and responsive to their needs to be protagonists in constructing their knowledge" (p. 177).

Signifying a socio-cultural attitude, Reggio teachers view the environment as a developmental niche where children learn skills and attitudes that empower them to participate in their unique cultural community (New, 2007). The classroom environment communicates both implicit and explicit messages, which reflect the teaching philosophy—or the beliefs and values of the teacher (Apps & MacDonald, 2012; Edwards et al., 1998; Strong-Wilson & Ellis, 2007).

The classroom can be thought of as a relational space where complex interactions occur between features of the physical environment and social environment (e.g., peer interactions and child-teacher relationships) and is therefore worthy of consideration and respect. Learning environments are not static or strictly aesthetic, but contribute to relationship building (Ceppi & Zinni, 1998). The classroom can therefore be described as *holding an aesthetic*, which is shaped and transformed by those who inhabit and interact within the environment (Apps & MacDonald, 2012).

Doctoroff (2001) considers the physical arrangement and the careful selection of play materials to be critical in the design of effective learning environments. Flexible environments encourage a wide variety of play (e.g., dramatic, constructive, games) and support all developmental domains (emotional-social, cognitive, motor, creativity, language) as well as

diverse ability levels. As suggested by OWP/P Architects et al. (2009) well-designed environments foster autonomy and engagement. Fraser and Gestwicki (2002) highlight eight Reggio principles related to the environment as the third teacher including flexibility, active learning, transparency, aesthetics, collaboration, bringing outdoors in, and relationships. Robson (2017) explores these tenets in detail, elucidating the multitude of ways the environment is dynamic, interactive, and "alive." These principles hold many possibilities for supporting healthy development and learning within the preschool classroom environment.

Arndt (2012) suggests that stimulating environments, designed to encourage learning by doing, contribute to the healthy maturation of the frontal cortex. The learning environment is multidimensional and sets the overall tone for learning. Healthy neural development can be supported or hindered by the interrelated contexts within the preschool setting (Fox et al., 2010). Rushton et al., (2010) provide a comprehensive look at the connection between neuroscience, play, and early childhood education, and discuss the benefits of *brain-enriched classrooms*. Brain-enriched environments are intentionally designed spaces designed to engage and motivate the emotional and cognitive brain of young children. Building on prior work (Rushton et al., 2003; Rushton & Juola-Rushton, 2008; Rushton & Larkin, 2001) this article addresses Developmentally Appropriate Practices (Copple & Bredekamp, 2009) in light of recent findings from the field of neuroscience, and discusses the social and spatial implications for the design of active, stimulating learning environments for young children.

An intentionally-designed learning environment can stimulate creativity and curiosity while developing executive functions and fostering emotional well-being. Following a constructivist viewpoint, Wilson (1995) defines a learning environment as "A place where learners may work together and support each other as they use a variety of tools and information

resources in their pursuit of learning goals and problem-solving activities" (p. 5). This definition conjures an active, dynamic vision for the classroom, as opposed to it being a stagnant bystander of learning.

As children explore and problem-solve within a sensory-rich environment, there is a thickening of the myelin sheath, which allows for quicker communication and chemical release. Arndt (2012) also suggests that learning environments, when intentionally designed to reflect biological needs and neurobiological processes, have the capacity to bolster learning with regard to mental resources.

Rushton et al. (2010) summarizes the neuroscientific and educational factors believed to support, rather than hinder, children's optimal learning and developed them into the following principles:

- Rich learning environments that stimulate the senses and embed an emotional element alert the brain's neurological networks that there is something worth paying attention to, making learning more likely to occur
- Interactive, age-appropriate modeling and demonstrations presented in non-threatening manner allow for children's spontaneous and creative abilities to be expressed, resulting in more focused attention
- Relevant choice-making opportunities are available throughout the day; providing freedom and choice is critical for the creation of non-threatening environments
- Stress-related responses, controlled by the amygdala, release hormones and neurotransmitters that inhibit rational thought and control. A safe, nurturing environment that allows children to make mistakes and celebrate accomplishments is critical

- Favorable learning occurs in positive, stimulating learning environments that support the interests of the children. Content choice provides 'buy in' from children and becomes the responsibility of teachers to connect interests and curriculum
- Play is an open-ended model of learning for young children, which supports individual differences and various interests and talents
- Caring, creative teachers who embrace the "whole child" and nurture the natural progression of learning, empower children to realize their own competence and capabilities and build trust with their caregiver, in turn strengthening their desire to learn

Based on the aforementioned principles, Rushton et al. (2010) suggests that in order to influence healthy brain development, the dimensions of an active learning environment include the following: an intentionally-designed space for both small and large group interactions with a focus paid to the arrangement of tables, chairs, and lighting; accessible and easily-manipulated materials and exploratory space to engage the natural curiosity of children; large blocks of time for exploration, role play, and experimentation; and compassionate, nurturing caregivers who model a love of learning through positive interactions.

This type of environment aligns with a constructivist, child-centered, active learning approach (Rushton et al., 2010) and is echoed in the literature on self-determination theory (Palmer et al., 2012; Ryan & Deci, 2000) and the Reggio Emilia philosophy (Edwards et al., 1998)

Defined as the interrelationship between environments, human cognition, and behavior, the field of environmental psychology looks closely at how the contexts (layout, objects, etc.) within the environment influence human outcomes—which is valuable for developing design solutions within socially-constructed spaces such as schools or playgrounds (Wapner & Demick,

2002). Here, the concept of affordances can be applied as a useful approach to evaluating environments for young children. As suggested in Withagen et al., (2017), the notion of affordance is being expanded beyond the functional possibilities the environment provides (Gibson, 1979), to include how affordances attract (or discourage) action/interaction. Namely, how the environment draws children into learning. This is similar to how teachers in Reggio use the term provocation to describe moments or activities that are intentionally designed to pique children's curiosity and appeal to their senses. The following three studies evaluated developmental and learning outcomes in light of the affordances of the physical environment, and see the environment as playing a critical role in influencing children's attitudes and experience.

Kochanowski and Carr (2014) demonstrated how environments intentionally designed for young children afforded opportunities to practice skills and attitudes related to self-determination. This study paired an evaluation of the affordances of a nature playscape alongside vignettes of children's free play in this environment. The nature playscape was intentionally designed to engage children in free play, which allowed for risk-taking, problem-solving, self-regulation, and preference to occur naturally. The physical environment, coupled with the implicit understanding that children are supposed to play freely in this space without the restraints of adult directives allowed children to interact in a way that supported self-determination. The findings also suggested that teacher experience, comfort in nature, and supportive risk-taking influenced the opportunities afforded by the playscape.

Applying a similar research design, Carr et al. (2017) expanded on the findings presented above to more closely examine how the affordances of a nature playscape provided opportunities for children to exercise and develop executive function. Video-based field work revealed clear

examples of children participating in goal-directed behavior and problem-solving, suggesting that affordances found in nature playscapes, where children are encouraged to play and interact freely, can be considered executive function-enhancing environments.

Similarly, research by Fleer et al. (2014) evaluated a preschool classroom for science learning affordances. In this study, they argue that science is afforded not through the physical environment itself, but through the complex interaction of the environment, routines, structure, and what they refer to as the *sciencing attitude* of the teacher. This case study evaluated the physical environment and teacher beliefs to build a stronger understanding of how opportunities for science learning were afforded in this particular preschool classroom. Their conclusion explicitly states that the sciencing attitude of the teacher was influential in maximizing the learning opportunities in the classroom environment.

The usefulness of affordances depends on both the environment and the user (Maier, et al., 2009). Yet it is to be noted that other mediating factors exist, such as rules and social structure. As indicated in the three studies referenced above, teachers act as a mediating factor within the environment. Following Cole's description of prolepsis*,* it is possible to understand the process of how a teacher's pedagogical values are reflected in the affordances (both what is available and how it is used/interacted with) and how this impacts the learning and developmental potential held within the classroom.

One of the primary responsibilities of the early childhood teacher is setting the learning environment—determining firstly what is available to young children and secondly how those affordances can be interacted with (Rushton et al., 2010). The following section takes a closer look at the role of teachers and the importance of reflective and intentional practice, specifically when making decisions about the prepared environment.

The Teacher: Intentional and Reflective Practice

Wilson (1995) conceptualizes the learning environment as a metaphor for instruction, suggesting that teachers' view of knowledge directly correlates with their notion of instruction, and therefore impacts the design of the physical learning environment. For example, if the teacher assumes knowledge is a packet of information to be transferred to the student, instruction may be considered a product that must be delivered by a vehicle (teacher, textbook, flashcards, etc). Conversely, if the teacher understands knowledge as meaning-making through interaction and exploration, the implication is that learning occurs through the use of tools and resources within a sensory-rich environment.

Setting the environment is seen as a major role of the early childhood teacher (Rusthon et al., 2009). Elliott et al. (2018) echoes this sentiment, stating, "The onus is on educators to create learning environments and experiences; to pedagogically interact, to both energize and capitalize on the learning potential" (p. 8). In combination with teachers' moment-to-moment interactions, setting the physical learning environment is a primary responsibility of the early childhood teacher. Yet all too often, the design of the classroom does not receive the deep consideration it deserves, often thought of as "decorating" rather than intentional and provocative. The environment presented to children plays a critical role in drawing them into the learning and affording (or restricting) opportunities to be engaged in a psychologically safe and nurturing space.

Teachers make daily decisions about the materials, classroom furnishings, layout and flow of the room, and displays and documentation that are visually presented. Through this task, teachers provide a variety of assets and inscribe a power structure within the environment that determines *how* the environment is interacted with (Maier et al., 2009). Take for example, a

basket of lacing beads. A teacher will make decisions about the type of bead (wood, plastic, in good repair, size), how the material will be contained and displayed (plastic container, wood basket, on a shelf, in a bin), the quantity (a lot, a few), where the material will be housed (with manipulatives, in dramatic play, art area), and how the beads are allowed to be interacted with (sit at table and string, use on floor, move from manipulatives to dramatic play, alternative uses defined by the child). The extent to which the teacher consciously considers these decisions based on their understanding of child development, the importance of enriched environments, attention to aesthetics, and a keen understanding of the needs of the children before them, will impact the environment and thereby the learning possibilities within the classroom. Additionally, it has been shown that teachers that bring children into the decision-making process (either directly or indirectly), have a positive impact on learning.

Pianta et al. (2005) examined 238 preschool classrooms to determine the extent that program, classroom, and teacher attributes (*program ecology*) predicted observed classroom quality and child interactions. Their findings showed lower quality engagement in classrooms where there was a strong teacher-directed structure, meaning the teachers held less child-centered beliefs, involving them less in all aspects of planning, including the environment. Said et al. (2015) looked at how a shared decision-making structure engaged children in three preschool classrooms as active participants in the re-design of their classroom layout. The process resulted in a more functional classroom space that empowered children to interact with the classroom environment on a deeper level. Studies such as this prompt the questions*, Who has a right to space? To whom is the space accessible? Who makes decisions about what is in the space?* The answers to these questions are rooted in the pedagogical values of the teacher and evidenced in

the environment. Highly-skilled teachers reflect upon these types of questions in order to make intentional choices about their practice.

Teacher actions, interactions, and reactions greatly contribute to the emotional climate within the classroom, and have a tremendous impact on child learning (Panksepp, 2007; Rushton et al., 2010). A positive emotional climate allows children greater opportunity to focus on their interests and thereby broaden their knowledge of the social and physical world around them. Concisely put, "emotions plus attention equals learning" (Rushton et al., 2010, p. 354). The importance of teacher self-reflection in the creation of an inclusive, psychologically safe classroom culture should not be underestimated and the role of the physical environment should be carefully considered. The following section explores the markers of a reflective teacher in further detail and how this critical attribute holds potential for high level practitioner research.

Pedagogical Values, Reflective Practice, and Practitioner Research

Often discussed more broadly in the literature as teacher beliefs (Pajares, 1992; Nespor, 1987) or teacher values (O'Brien, 1993; Tal, 2014), teaching philosophy can be understood as encapsulating pedagogical values including the image of the child, the role of the teacher, and the goal of education, which inform an overall understanding of the teaching-learning process (Beatty et al., 2009).

Explicit pedagogical values help link individuals to the larger community of professional practice and ensure more authentic, consistent, and sound approaches to teaching and learning within the classroom. However, according to Ayers (2008), professional training often occurs at the in-service level, and typically focuses on "how-to" skills, rarely bringing into question pedagogical values or pushing teachers to examine the foundations and purpose of educating young children. Farquhar and White (2014) also call out a need for reflective practice, as well as

an ongoing commitment to furthering philosophical and pedagogical scholarship among early childhood teachers.

In a qualitative, phenomenological study, Fees et al. (2014) looked at how early childhood teachers in China viewed early childhood philosophy and practice in light of the changing national approach to early childhood education. The main findings of the systematic analysis of focus group transcripts indicated there had been a philosophical shift from teacher-directed, whole group instruction to child-centered, experiential learning. Furthermore, the results indicated that this philosophical shift had an impact on the way teachers were setting the physical learning environment. Studies such as this, reiterate the call-to-action advocated in Beatty et al. (2009), that early childhood teachers must make their pedagogical values explicit to better inform and link together the larger community of practice.

Quality teaching stems from the identity and integrity of the teacher mediated by their ability to intentionally enact this in all dimensions of classroom culture—including the physical learning environment (Beatty et al., 2009; Claxton & Carr, 2004). Ramsey and Fitzgibbons (2005) elucidate this idea stating:

> Who we are, what we believe, and what assumptions we hold about students, the material, and the world significantly affect what we do in the classroom, no matter the course content or teaching style. This recognition provides the major impetus to continually question and rethink who we are in the world and what we want our relationship with students and the subject matter to be. (p. 345)

Beatty et al. (2009) further suggests that one's teaching philosophy should be understood as an ongoing, reflective process that acts as a tool for refining and maintaining a well-defined and authentic teacher identity. This process allows implicit values to be illuminated and bring about

personal awareness and awareness of the learners. It also deepens contextual understanding, and allows the teacher to be more present in the classroom (Cranton & Carusetta, 2004; Rodgers & Raider-Roth, 2006; Westman & Bergmark, 2014). Schön (1983), a seminal thinker on reflective practice, also represents this viewpoint, explaining that formal reflection on pedagogical values allows teachers to remain mindful of their beliefs and nourish a sense of thoughtful self-direction (Husu & Tirri, 2007).

As broadly defined by Sellars (2017), reflection is "the deliberate, purposeful, metacognitive thinking and/or action in which educators engage in order to improve their professional practice" (p. 2). Reflective teaching requires close observation and relationship-building with children, with conscious regard to child development theory (Carter et al., 2010). Dewey (1933) considered reflective teaching to be critical practice, in which teachers knowingly contemplate observations, knowledge, and experience to better meet the needs of each child, defining reflective action as an "active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and further consequences to which it leads" (p. 9). The ongoing commitment to reflective practice allows teachers to more explicitly define and evolve their pedagogical values, which in turn guides them toward more purposeful decision-making.

Based on the work of Dewey, Taggert & Wilson (2005) identified reflective thinking attributes which include the ability to:

- see problems relative to educational, social and ethical issues
- be intrinsically motivated and possess high levels of self-efficacy
- think critically about pedagogical and contextual factors
- make intuitive, creative judgments and interpretations

- support and evaluate decisions with evidence/research
- maintain a commitment to values
- skillfully think on metacognitive, analytical, and instructional levels
- welcome feedback, peer dialogue, and critique

Similarly, Farrell (2013) narrowed in on six principles, which suggest that reflective practice is holistic, evidence-based, entails dialogue, bridges practice and values, necessitates a disposition toward inquiry, and is broadly speaking, a way of life.

It is also important to understand reflective practice on a developmental spectrum, meaning the capacity to think critically about one's practice deepens over time with the acquisition of experience and knowledge. Taggert developed the Reflective Thinking Pyramid (Taggert & Wilson, 2005) which conceptualizes the development of reflective practice at hierarchical levels. At the base of the pyramid is the *technical level* where teachers are able to reference past experiences and provide simple theoretical descriptions. Teacher competency at this level is focused on meeting outcomes in relation to behavior, content, or skill. At the *contextual level*, teachers begin to look into alternative practices to enhance their knowledge and strengthen their values in order to provide more contextual, child-centered content.

The *dialectical level* is at the pinnacle of the pyramid, at which point teachers are able to think more deeply about their work, placing it in the context of worldviews, socio-political issues, and moral/ethical considerations. At this level, reflective thinking is embraced through disciplined inquiry, fueled by intrinsic motivation and an autonomous drive to find meaning, make connections, and fuel change within a broader societal milieu.

High-level teaching can be understood as reaching for the topmost level of reflective thinking. In general, this practice is a marker of professionalism (Bleach, 2014) and contributes

to an expanded teacher identity that extends to that of scholar, leader, and researcher (Ryan et al., 2017). In a recent paper, Goh (2019) advocates for professional lifelong learning through critical reflection, suggesting a need to move away from more traditional, individualistic modes, to a more inclusive, collective practice. Although subtle, the concept of critical reflection entails not only thinking about one's own practice, but how those practices reflect our beliefs and values, as well as how they contribute to and are influenced by society at large (Hickson, 2011). Specifically with regard to early education, Durden (2015) promotes an elevated view of the teacher as a *critically conscious professional*. Influenced by a Freirean approach to education (Freire, 1973), which sees reflection as a process between the self and the world and relies on dialogue, Durden (2015) asserts that, "If we are to have a high standard for children, we must start with a high standard for ourselves and colleagues beginning with intentional, critical reflective practice" (p. 79). This is seen as the deep work of the highly-skilled early childhood educator, and is being echoed in practitioner writing, such as the work of Pelo and Carter (2018), which is a call to early childhood educators to reimagine the traditional role of teaching to one of thinking.

The literature on reflection in education, and specifically critical reflection, begins to bridge the gap between practice, theory, and research. Brydon-Miller and Maguire, (2009) describes the potential for participatory forms of action research to create a reciprocal dynamic between theory and practice in education. Reason and Bradbury (2001) define action research in the following way:

> A participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview which we believe is emerging at this historical moment. It seeks to bring together action and

> reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities. (p. 1)

Approaches to action research are positively influencing professional learning in early childhood education (Bleach, 2014; Elm & Nordquist, 2019), and are being connected to reflective practice for teachers (Carr et al., 2019; Parsons & Brown, 2002).

By bringing together the expertise of the educational critic, the dialectical level of reflective/critical thinking, and participatory, practitioner-based research methods, this study seeks to explore the role of the physical learning environment from the perspective of expert preschool teachers, revealing deeply held pedagogical values through the use of photovoice. The following chapter will describe in detail the specifics of the overall methodology as well as the procedures used for data collection and analysis.

Chapter 3: Methodology

Purpose and Research Questions

Although there is a growing interest in the role of the physical environment in education, the majority of research has come in the form of standardized evaluations that take the environment at face value, largely ignoring the teacher as an active agent in setting the space. Specifically, in the United States, the majority of learning environment research has been quantitative, seeking direct connections between the space and learning outcomes. Little to no research in the United States has looked at this phenomenon from the perspective of practicing teachers (Paniagua, A., & Istance, D., 2018). As suggested by Uhrmacher et al. (2017), the educational setting (i.e., decorative features, furniture, materials) can have a strong influence on the educational experience, including outcomes. “Such physical characteristics may pervade the educational situation without being directly addressed or spoken about by the participants, but to the educational critic, exploring the meaning of the physical environment may yield significant findings" (Uhrmacher et al., 2017, p. 51). In general, the expertise of preschool teachers is not widely acknowledged and the voice of highly-qualified teachers is underrepresented in research and policy (Elbaz-Luwisch, 1997). Arising from this gap, the purpose of the proposed dissertation is two-fold. First, this study aims to investigate and clearly articulate the importance of the physical environment from the perspective of expert preschool teachers and elucidate the relationship between pedagogical values and the physical learning environment. Second, this research seeks to generate an expert statement on high-quality physical environments, placing the voice of expert teachers at the forefront of research and policy. From this purpose, the following research questions emerged:

- What do expert teachers at a university laboratory preschool deem important within the physical learning environment?
- What can be learned about the practices and underlying pedagogical values of expert preschool teachers through an exploration of the physical learning environment?
- How does this group of expert preschool teachers collectively conceptualize high-quality learning environments for young children?

This chapter presents the methodology guiding this study and the methods employed to answer the study's research questions.

Research Design

Research conducted from a qualitative viewpoint, assumes there is no singular reality, rather reality is multiple and varies through many lenses (Creswell, 2013). In addition, qualitative researchers believe that knowledge is subjective and that researchers themselves have inherent values and perspectives that they bring to the research process. For this reason, qualitative research relies on inductive logic and meaning-making through the use of an emergent design (Creswell, 2013; Crotty, 1998). These core assumptions are filtered through a social constructivist framework that recognizes the transformative nature of participatory research methods. In keeping with the commitment to critical reflection as a key component of high-quality teaching, the primary goal of this research is to hear and learn from expert teacher voices, as a means of elevating their practice and providing a platform to articulate the nuanced role the physical learning environment plays in learning and development. For this reason, Eisner's (2017) qualitative approach to educational research guides both the study design and corresponding analysis.

Educational Connoisseurship and Criticism

Educational criticism and connoisseurship is a form of qualitative inquiry that borrows the concept of *critic,* familiar in the arts, and relates it to the role of education. Much like an art or literary critic, an educational critic sheds light on specific aspects of classroom ecology, allowing others with less or different experience to see the concept or phenomenon in a new, more textured way. The approach may be referred to in full as *educational criticism and connoisseurship,* but more often is shortened to *educational criticism* or simply *criticism* All are used to identify this type of qualitative research (Uhrmacher et al., 2017). The approach is greatly influenced by Dewey, specifically *Art as Experience* (1934) and *Philosophy and Civilization* (1931) and sees overlap with other qualitative methodologies such as ethnography (Atkinson et al., 2001) and arts-based approaches directed at educational settings such as those popularized by Lightfoot (1983). Each approach prioritizes "naturalistic inquiry" (Lincoln & Guba, 1985). Eisner (2017) lays out the premise for his methodology, including the following tenets:

1. There are multiple ways in which the world can be known: Artists, writers, dancers, and scientists have important things to tell about the world.
2. Human knowledge is a constructed form of experience and therefore a reflection of mind as well as nature. Knowledge is made, not simply discovered.
3. The forms through which humans represent their conceptions of the world have a major influence on what they are able to say about it.
4. The effective use of any form through which the world is known and represented requires the use of intelligence.

5. The selection of a form through which the world is to be represented not only influences what we can say, it also influences what we are likely to experience.
6. Educational inquiry will be more complete and informative as we increase the ways we describe, interpret, and evaluate the educational world.
7. The particular forms of representation that become acceptable in the educational research community are as much a political matter as an epistemological one. New forms of representation, when acceptable, will require new competencies (pp. 7–8).

To provide a more clear distinction between connoisseurship and criticism, connoisseurship can be understood as the art of appreciation, or "the ability to make fine-grained discriminations among complex and subtle qualities" (Eisner, 2017, p. 63). Connoisseurship is considered a private act, one that is concerned with recognizing complex, subtle, and informed qualities within a given setting or phenomenon (Bresler, 1994; Eisner, 2017). Connoisseurship takes a holistic approach that attends to the ecology of how things relate to one another (i.e., school, teacher, child, parents, values) much the same as socio-cultural theory posits (Brofenbrenner, 1979; Cole, 1996; Rogoff, 2003; Vygotsky, 1978). Connoisseurship is therefore understood as the prerequisite for educational criticism (Eisner, 2017).

Whereas connoisseurship—the art of appreciation—is a personal act, criticism is the public act of articulation and dissemination, or the art of disclosure (Bresler, 1994; Eisner, 2017). The more experience with and dedication to the subject (in this case education) one has, the more complex and nuanced their interpretations become, and the more necessary it is for these interpretations to be made public, as a means of positively influencing policy and practice. The following description, articulated by Eisner (2017), makes clear the purpose and aim of educational criticism:

> Works of art—like classrooms, schools, and teaching—participate in a history and are part of a tradition. They reflect a genre of practice and an ideology. Those who know the tradition, understand the history, are familiar with those genres, and can see what those settings and practices consist of are more likely to have something useful and informed to say about them. Criticism is an art of saying useful things about complex and subtle objects and events so that others less sophisticated, or sophisticated in different ways, can see and understand what they did not see and understand before. (p. 3)

To summarize, the four main dimensions of educational connoisseurship and criticism include *description* (an account of), *interpretation* (an account for), *evaluation* (what is of value—to both the immediate group and the broader field), and *thematics* (patterns, big ideas, anticipatory frameworks), with the goal of improving the educational process (Eisner, 2017; Uhrmacher et al., 2017). This approach is useful for addressing the distinctive qualities of teaching that typically go unseen and unsung by standardized methods of evaluation (Eisner, 2017).

Photovoice as Educational Criticism

Arising from the work of Wang and Burris (1994), photovoice actively engages participants in the generation of photographs as a means of inquiry and reflection, and encourages critical dialogue to draw out deeper meanings and empower actionable change (Wang & Burris, 1997). Through the photovoice process participants develop and refine their perspectives through visual means and participation in critical dialogue (Latz, 2017). As articulated in Wang and Burris, (1997) “(photovoice) uses the immediacy of the visual image to furnish evidence and to promote an effective, participatory means of sharing expertise and knowledge” (p. 369).

Photographs have the capacity to capture our objective world and when paired with reflective, critical dialogue, it is possible to reveal insights not easily conveyed by words alone (Vaughn et al., 2009; Wang & Burris, 1997). Vaughn et al. (2013) describe multiple ways that photographs can be used to unveil deeper meaning and provide the mechanism to move from passive to active voice within practice, research, and policy. As cited in Rania et al. (2015), Barthes' theory (1977) describes photographs as having both a denotative meaning (i.e., the subject of the photograph) and connotative meaning (derived from the individual values of the photographer). This suggests that photographs can capture this unspoken communication and freeze the value that is represented. Specifically in education, Taylor (2002) illustrates the ability of photographs to elicit the deeper, often hidden beliefs of the teacher in relation to their practice. The generation of the photo can be understood as a self-study or self-reflection, but it is the narrative that accompanies the photo that is capable of sparking dialogue that will reveal more complex insights and suggest further areas for exploration. As described by Saldaña (2016), visual data is similar to that of text in that no two people will interpret it in the exact same way, making it clear that "each of us brings our background experiences, values system, and disciplinary expertise to the processing of the visual, and thus our personal reactions, reflections, and refractions" (p. 54).

Photovoice provides a platform for personal reflection through the generation of photos, and uses those images as the starting point for sharing interpretations and the exchange of ideas. Photovoice can therefore be understood as a social process that has the capacity to strengthen critical consciousness and empower participants to articulate their unique perspectives while interweaving those perspectives with those of the other participants (Carlson et al., 2006;

Griebling et al., 2013), making this method a valuable tool for conducting a participatory educational criticism.

As discussed in Urmacher et al. (2017), educational criticism has been used as a complementary method. This study blends the premise of educational criticism with that of the participatory, visual methodology of photovoice. Photovoice and educational criticism are complementary in many ways, namely the importance of both personal and collective reflection. As described in Uhrmacher et al. (2017):

> The critic discerns meanings *with* and *about* the various stakeholders in terms of a set of educational criteria that provide a useful lens and heuristic thinking about educational practices. To do so the educational critic aims to *see with* and *see about*. Or, to borrow again from ethnography, the educational critic utilizes both *emic* and *etic* points of view in order to discern meaning from those involved, as well as by providing fresh eyes to see and offer recommendations or ways of considering the situation (p. 53).

Referring back to the instructional arc (Uhrmacher et al., 2017) discussed in chapter 2, photovoice provides a clear means of capturing the operational curriculum within each of the participating classrooms. Operational curriculum typically refers to what actually happened as would be the case in many educational criticisms, however, this study looks at what actually is present in terms of what is provided and displayed in the environment, which speaks to the possibilities within the space. Photographs have the capacity to capture the concrete elements within the environment. Using photovoice strategies, these photos—or representations—of the physical environment are then used as a window into the intended curriculum, or what the teacher plans or desires to happen. Through these discussions, it is also possible to infer or make projections about the received curriculum, or what students take away from the experience of

being exposed to this environment. In line with the aims of educational criticism, the goal of the photovoice method with regard to this study, is to articulate what best practice looks like from within the field, with the intent of influencing the standards of judgment involved in determining quality in early care and education environments.

Role of the Researcher

The purpose of the educational critic/researcher is to "employ their own sensibilities to 'see' and to help others 'see' what otherwise might go unnoticed" (Urmacher et al., 2017, p. 69). My interest in both the topic (physical environment and pedagogical values) and the methods (educational criticism and photovoice) are influenced by my personal experience as a classroom teacher, my understanding of the arts as meaning making, as well as my continued study of educational theory and current research. In this research, I recognize myself as a co-investigator that facilitates the process of inquiry, empowers the voice of the teacher, and seeks to evolve the art of teaching in the early years.

The highly-qualified, experienced teachers utilized in this study are also recognized as educational critics, capable not only of providing high-quality care and education for children, but also of articulating the nuanced "what" and "why" behind their work. The teachers selected for this study bring a critical lens to their practice, providing valuable insights and reflections from within the field.

Program Selection

A purposeful selection of a critical or "best case" was identified for the study (Creswell, 2013). Due to the aims of this study, it was important to choose a high-quality program rooted in research-based best practice. The Arlitt Child Development Center, a midwestern university laboratory preschool housed within the greater Arlitt Center for Education, Research, and

Sustainability at the University of Cincinnati was chosen for this project. As one of the oldest laboratory preschools in the country, it has a notable history of engaging with and contributing to research that exemplifies best practice in preschool education. The program holds a five star (out of five) rating from its state's rating system, as well as accreditation from the National Association for the Education of Young Children (NAEYC) and serves a diverse range of children and families through both the Office of Head Start and private pay tuition. The preschool is directly affiliated with the university serving as an observation and training site for undergraduate early childhood education students as well as a research site for graduate students and faculty.

Rooted in constructivism, the program encourages active inquiry in a play-based setting. Among other influences, many teachers are inspired by the schools of Reggio Emilia and participate in a monthly study group to more deeply understand the philosophy and reflect on their own practice. In recent years, Arlitt has begun identifying program values such as community, respect, creativity, and knowledge. In 2018, teachers participated in a semester-long self-study examining their practice through the lens of one of the identified values. Supported by program directors, participants found the process rewarding, noting its potential for valuable professional development and practitioner research.

Participant Selection

In addition to choosing a reputable program, the participants identified for this study represent the most expert, tenured teachers on staff. The criteria set forth by the Ohio Department of Education to identify master teachers was consulted (with adaptations for pre-primary settings) to ensure the most qualified teachers took part in this study. In the state of Ohio, a master teacher "strives for distinguished teaching and continued professional growth" and

demonstrates the following criteria: consistent leadership, focused collaboration, distinguished teaching (focus on students and environment; focus on content, instruction and assessment), and continued professional growth (Ohio Standards for the Teaching Profession, 2005). For some participants, the term *master* did not resonate as it conjured historical connotations of power and gender sometimes ascribed to the term. Instead the group chose the term *expert* to signify their training and expertise. The term expert as used here, describes high-quality teachers that have both experience and high level training in early childhood care and education. The term also suggests a critical, reflective, intentional approach to teaching that views teaching as an act of inquiry. The lens of connoisseurship is applied to the teacher's expert application of pedagogies, meaning expert teachers have a deep understanding of and appreciation for pedagogy in relation to their practice (Eisner, 2017; Paniagua & Istance, 2018). The specific criteria used to identify participants for this study include:

- position of lead and/or mentor teacher;
- a minimum of seven years teaching in pre-primary setting;
- a bachelor's degree in early childhood education (or related field), or a bachelor's degree; (alternate field) with a nationally recognized two-year early childhood credential;
- completion of graduate level coursework (master's degree preferred)

In addition to the aforementioned criteria, the selected teachers are responsible for ongoing supervision of university practicum students. The majority of participants have taught undergraduate coursework, have published in practitioner-researcher journals, and/or present regularly at both local and national early childhood conferences. These participants have also been vetted by the program director as being exceptional teachers and program leaders. A total of five teachers met these standards and participated in this study, introduced in Table 1:

Table 1

Overview of Participant Demographics

Participant	Gender	Race	Age	Teaching	Degree(s)/Credentials
Abe	M	W	40–49	11–15 yrs	● BA biblical studies, specialization in music ministry ● Early childhood credential from American Montessori Society ● Graduate coursework in human development
Erin	F	W	30–39	11–15 yrs	● BS human ecology (early childhood development/early intervention) ● MA education
Jane	F	W	50–59	20+ yrs	● BA home economics ● MA education and human ecology (reading) ● Additional graduate coursework in early childhood education
Jenn	F	W	30–39	11–15 yrs	● BS human ecology (human development and family science) ● MA early childhood education
Rachel	F	W	40–49	16–20 yrs	● BS early childhood education ● MA educational studies (child development)

Note. Teacher profiles and their educational styles further expounded upon in chapter 4.

As educational critics and co-investigators who took an active role in the research, it was decided, with permission from participating teachers, that their names (not pseudonyms) would be used in the dissemination of the research.

Protection of Participants

Participants were given a thorough explanation of the study and the expectations involved. Informed consent was obtained and participants given the option to withdraw from the study at any time. Contact information was provided to ensure open communication lines with all study participants prior to, during, and following the study.

Data Collection

Data collection occurred in a series of phases, moving from onboarding and information sharing to photo generation to individual photo sharing and group discussion and finally to initial analysis and idea generation about possible uses and dissemination. Data collection occurred over a two-month period, and consisted of six meetings ranging from 1–2 hours each, for a total of 10 hours of in-person meeting time, in addition to the individual tasks of photo generation, completion of written narration, and the follow-up survey. Photovoice projects typically consisted of three stages including preparation, production, and use. Latz (2017) breaks these stages into the following eight steps: identification, invitation, education, documentation, narration, ideation, presentation, and confirmation. Table 2 diagrams the six phases carried out in this project according to the three stages of photovoice:

Table 2

The Three Stages of Photovoice: Preparation, Production, and Use with Project Specifics

Preparation Stage		
PHASE 1: Onboarding and Introduction Preparation & Meeting 1	Preparation ○ Identification of participants (in partnership with center director) ○ Invitation to participate	○ Email communications
	Meeting 1 ○ Introduction to project ○ Consent- signed and collected ○ Overview of project and methods ○ Ethical Considerations ○ Discuss intended audiences ○ Basic Photography and Technology training ○ Prompt for photovoice project and field journal instructions	○ note taking ○ audio recording
Production Stage		
PHASE 2: Photo Generation Independent Work	○ Participants will take one round of photos in the 2 week period between Meeting 1 and Meeting 2 responding to the prompt: *Photograph the elements within the classroom (physical learning environment) that you deem important.*	○ photos taken, stored, and sorted on provided ipads ○ participant field journals
PHASE 3: Selection & Narration Meeting 2	○ Participants curated 7–10 representative photos (selecting) ○ Selection and Narration: Writing titling, and captioning (Latz, 2017): Participants titled and provided written narratives for each photo	○ audio recording ○ note taking
PHASE 4: Photo Displays & Critical Reflections Meetings 3 & 4	○ Curated Photo Displays (Gallery) ○ Critical Reflection: Individual sharing of gallery followed by group discussion; VOICE (Wang & Burris, 1997) ○ Contextualizing and codifying—following each critical reflection; first cycle concept coding (Saldaña, 2016)	○ Audio recording ○ Note taking ○ Participatory diagramming (Kesby, 2000)
PHASE 5: Affinity Diagramming & Collective Vision Statements Meetings 4 & 5	○ Affinity Diagramming (Holtzblatt & Beyer, 2017)—collapsed initial themes ○ Open coding—identifying similarities and differences—conceptualize categories, build initial themes, think about theory (Strauss & Corbin, 1998) ○ Development of collective vision statements emerging from identified themes	○ Audio recording ○ Note taking ○ Photo documentation (of affinity diagramming exercise)
Use Stage		
PHASE 6: Next Steps & Reflection Meeting 6 & Follow-Up	Meeting 6 ○ Final thoughts/connections ○ Ideas for dissemination/display	○ Audio recording ○ Note taking
	Follow-Up ○ Open-ended survey regarding participation and final statement	○ Electronic survey

Each meeting had time allotted for socializing to establish a comfortable and safe environment that sought to encourage rich, honest, and open dialogue. Each in-person meeting was audio recorded. In addition, note-taking and participatory diagramming (Kesby, 2000) was used to capture the conversational highlights.

It is to be noted that with any qualitative study, and namely a participatory study such as photovoice, data collection and analysis cannot be understood as distinctly separate tasks, and hence data analysis begins at the onset of data collection. As articulated in Latz (2017) "Narrating these images in the presence of one another necessarily begins preliminary analysis of the data as participants begin to see, hear, and reiterate themes" (p. 83). Therefore, the photovoice project both generates data and provides the opportunity for "initial meaning making of those data" (Latz, 2017, p. 83). Following each in-person session, a period for reflection on the research cycle was built in, during which important takeaways were recorded, emergent themes were noted, and decisions about next steps (both logistics and research process) were made.

This following section details each step that was carried out in data collection, leading into initial participatory analysis. The analysis section will delve deeper into the strategies employed and the additional analyses undertaken separate from the larger group.

Phase 1: Introduction to Photovoice Project

The initial meeting gathered participants together for information sharing and rapport building with the aim of communicating project goals and participant responsibilities, answering project-related questions, and ensuring project buy-in. Prior to this face-to-face meeting, participants were sent an email to introduce the project and gauge interest in participation. Informed consent for participation was obtained during the first in-person meeting. The meeting

lasted approximately one hour and provided an introduction to photovoice and an overview of the project aims. At this time participants were also given the prompt for photo generation. The prompt suggested that participants take photos of the elements within their classroom that they deemed important. A variation of the prompt asked participants to imagine they were guiding a tour of their classroom and to illustrate via photographs what was important to them in the space. The prompt was designed to be open-ended and participants were given creative license to ensure there was no preferred way to respond. Due to the nature of the prompt (and study purpose), it was understood that the majority of the photos would not contain human subjects and would therefore not need additional consent. A procedure to obtain consent was established, should the situation arise, and ethical considerations were touched upon. Because the teachers work closely with one another (two of them within the same classroom) it was also decided that photos would not be shared between participants during the photo generation phase to ensure each participant interpreted the prompt from their own personal perspective. Following the project-related discussion, participants were equipped with iPads to take, store, and share photos. At this time helpful photography techniques and basic operating skills were reviewed. In addition, participants were given field journals to jot notes about the photos they were taking and the thinking behind them.

Phase 2: Photo Generation

Participants were given two weeks to respond to the prompt by photographing their classroom environments using the provided iPads. Contact information was shared with the participants to troubleshoot technical difficulties and answer project-related questions.

There was no imposed limit on how many photos were generated. Learnings from prior photovoice studies (Nykiforuk et al., 2011) describe how limiting the number of photos taken

can potentially stifle the extent to which participants respond to the prompt—focusing more on the limitation than the range of possibility. Therefore participants were made aware in the information session that they would eventually be selecting the most representative photos for discussion.

Participants took a range of 11–25 photos to capture the important elements within the classroom environment. It was suggested in self-report, that the participants had begun considering the prompt as soon as it was given, mentally compiling what they would photograph. When it came time to compose the actual photos, they were intentional and often captured multiple elements within one frame in order to reduce the overall quantity of photos.

Phase 3: Photo Selection and Written Narration

Following the two-week photo generation phase, participants returned with their photos stored on the iPads. Each participant signed a photo release form, which granted permission to use project-generated photos in publications, presentations, or for future exhibition/dissemination purposes (both online and in-person). Participants were asked to select 7–10 photos that best represented the prompt. Minimal direction was given for this step, however, it was suggested that participants curate their photos into a representative collection. For example, if multiple photos depicted the same subject or similar ideas, they were encouraged to select one distinctive photo, which would allow for a broader range in the final assemblage. By tapping the heart icon in iPhoto, participants earmarked the prioritized pictures, and each selected image was labeled with identifying information (photographers initials and photo number) using the text editing tool also found in iPhoto. Next participants were asked to complete a written narration for each photo. They were provided with half sheets of paper for each photo, to record the photo ID, create a title, and add a brief description of what was depicted in the photo and why the photo was taken.

Most participants had taken notes in the provided field journals or had otherwise recorded thoughts on the iPad and used this information to develop their written statements. Due to the brevity of this in-person meeting, participants willingly completed the written narration on their own time following the meeting. The written narration ensured that a direct statement from the perspective of the original photographer would accompany each of the photos shared with the group.

Phase 4: Photo Displays and Critical Reflections

The selected and narrated photos were printed and brought to the next in-person meeting. Participants were given their personal photos and were asked to affix the photos on large pieces of chart paper in whatever order or array they deemed appropriate. They were informed that these displays would be used to guide their share-out with the group. In other words, their individual photo galleries would be used to take the group on a virtual tour of the important elements within their classroom and provide the vehicle for group reflection. Three of the participants kept the basic order they assigned to the photos during the narration phase, however, one participant chose to organize the photos in order of importance to her, and another grouped her photos into three main themes. Directions and ground rules were established for the critical reflections where each participant would share their gallery. Participants were informed that they would have approximately 10–15 minutes to discuss their collection of photos, followed by comments and conversation with the rest of the group. The decision to share the photos as a collection rather than individually was an attempt to give larger blocks of time to each participant, and to listen for overlapping themes interwoven through the various elements highlighted throughout the classroom. The critical reflections included three parts: 1) the

individual gallery share, where the significance of each photo was described, 2) the ensuing group dialogue that arose thereafter, and 3) the generation of initial codes.

The goal of the dialogue was to garner what Wang and Burris (1997) refer to as VOICE, an acronym that stands for Voicing Our Individual and Collective Experience, which is achieved through sharing individual perspectives and group responses and reactions. This process was repeated until each participant had shared their photo gallery, which took place over two in-person meetings (approximately 3 hours). The SHOWeD method (What do you See? What is Happening? How does this relate to Our lives? Why does this concern us? Why does this concern Exist? and, What can we Do to improve the situation?) was consulted and adapted to encourage sharing and deepen conversation (Wang and Burris, 1997). To begin, participants were simply asked to take us through their collection by describing their chosen photographs.

This group of teachers was specifically chosen for their knowledge, experience, and ability to articulate their teaching practice and philosophical values, so few probing questions were required to get to the level of conversation needed to address the research aims. Follow-up questions were asked to evoke a more concise, summary statement such as “What is important for people to know about these photos?” and “How could this set of images educate others within and/or outside our field?” Another important question and topic for conversation revolved around what might be missing from the photos and what is *not* depicted in the photos and why.

The group discussion questions reflect the interview methods described in Uhrmacher et al. (2017) where questions are asked for the purpose of seeking concrete examples rather than vague speculation. In this study, the photographs provide the concrete example and act as a vehicle for revealing the deeper meaning and inherent values captured within the frame, by

prompting rich description from the individual and opening further discourse within the larger group. During the individual sharing time, the group played an important role, listening for different terminology and connotations, and noticing the details included and those not mentioned. They made connections between their own experiences, reflected on the similarities and differences, and discussed new ways of seeing and interpreting the familiar. Following the rich conversations that ensued from the individual gallery share, the group listed key terms (singular words or word clusters) that arose and resonated with them. These became the initial codes for thematic analysis. As suggested in Latz (2017), image narration and group discussion in photovoice "necessarily begins preliminary analysis of the data as participants begin to see, hear, and reiterate themes" (p. 83). The rich discussion therefore generates data and begins the process of deciphering meaning of those data.

Each critical reflection generated a range of 8–16 keywords, or initial codes, emerging from the photos, individual share-out, and ensuing group conversation and reflection, with a total of 58 codes. Through this process, the participants actively engaged in the work of participatory research and educational criticism.

Phase 5: Affinity Diagramming and Collective Statement

The next steps were developed to collapse codes and begin narrowing our discussion and interpretations toward a collective statement. A method often referred to as *affinity diagramming* (Holtzblatt & Beyer, 2017) was utilized to sort the codes into categories. Affinity diagramming, theoretically rooted in grounded theory (Glaser & Strauss, 1967), and often employed in the field of design and design thinking provides a systematic approach to collective analysis, and helps make sense of vast amounts of qualitative data quickly. In line with the aims of photovoice, this approach ensures all participants have a voice, as well as a means to visualize their insights and

effectively merge their individual contributions, which grounds the interpretation in the data (Simonsen & Friberg, 2014). This method typically uses sticky notes for the purpose of group visualization and easy manipulation within the larger intent of moving pieces of data into similar themes. Affinity diagramming focuses on shifting the organized data from discussion (ideas) into practice (action).

In the current study, each of the 58 codes generated during photo sharing was written on individual sticky notes and placed on a blank wall. Participants were then asked to work together to physically sort the codes into categories or themes. This sorting experience resulted in four categories. The session ended with the group providing a rationale for each category in the form of a title or heading, which became the four main themes.

Upon the start of the following session, the group was given the opportunity to adjust the themes as needed and reflect on their naming. As shown in Table 3, the theme titles were then used as a provocation for a written statement that would serve as a collective mission statement for the physical learning environment with regard to the larger purpose of teaching and learning in the early years.

Table 3

Developing a Vision Statement Using the Four Themes

Original Theme Titles	Adjusted Theme Titles	Provocation Starters
The Foundation	The Foundation	We cultivate_____
The Feeling	The Feeling	And seek to inspire feelings of_____
What We Do/The Work	The What	By engaging children_____
Goals	The Why (Individual Goals)	With the goal of _____
	The Why (Societal Goals)	Resulting in_____

The individual written statements were shared, analyzed, and synthesized into a succinct statement. This statement was then sent to the group for feedback. The aim of this feedback was to ensure: 1) each participant felt represented 2) it accurately reflected our discussions, and 3) it was robust, yet concise. Feedback was incorporated into the final statement which was approved by each member of the group.

Phase 6: Next Steps and Reflection

In the concluding meeting, the discussion encouraged reflection on who would be a good audience for this work and the ways in which the findings might be effectively presented/displayed for different purposes. There was also discussion regarding possible next steps for a phase two for this project. In addition, participants were given a follow up survey aimed at better understanding their experience of the photovoice project. Takeaways from this phase are incorporated in the findings, while ideas for dissemination and broader implications regarding the use of participatory methods in practitioner research are touched upon in the discussion.

Additional Data Sources

In addition to the teacher's photographs, photos of each classroom, and the overall school environment were taken as supporting evidence. Where teachers focused on specific details or elements within the space, this documentation provided an overall view of each classroom and demonstrates the cohesive feel across the program. Memos were also used throughout the study to track project development and personal reflections regarding emergent themes and theories.

Data Analysis

In general, qualitative data analysis is inductive, iterative, and involves making connections across data collection methods (Miles et al., 2013). More specifically, the aim of both educational criticism and photovoice is to reveal deeper meaning behind the tangible or clearly observable. For this reason, data analysis followed a natural merging of analytic methods employed in educational criticism and photovoice, drawing on the more general qualitative coding strategies set forth by Saldaña (2016). Saldaña (2016) advises that the analysis of visual data use a "holistic, interpretive lens guided by intuitive inquiry and strategic questions" (p. 57), and suggests that documentation of reflection through analytic memos and field notes generate "language-based data that accompany the visual data" (p. 57). In the case of photovoice, the language-based data (descriptors and interpretation) is generated through written narratives, individual sharing, and meaningful group discussion. This is where photovoice as an educational criticism shines.

The overall analysis addressed the four dimensions of educational criticism—description, interpretation, evaluation, and thematics—and sought to unify the concrete (i.e., elements of the physical environment depicted in photographs) alongside the theoretical (i.e., underlying pedagogical values) revealed through the photovoice process.

Researcher Analysis

Using the selected participant photographs, written narrations, and transcribed critical reflections, a spreadsheet was created to indicate the following for each selected photograph from each participant 1) the title as assigned by the participant, 2) descriptor of what was physically present in the photograph, 3) deeper implications (synthesizing written narrative and transcribed critical reflections), and 4) exemplifying quotes (from both written narratives and transcribed critical reflections). This spreadsheet provided the individual evidence from which the group-generated themes emerged.

Participant-selected photographs underwent qualitative content analysis. Descriptive coding and sub-coding, an elemental method set forth in Saldaña (2016), was appropriate for this purpose as it provided a detailed catalog of inventory, i.e., what elements of the physical environment are depicted in the photos. According to Saldaña (2016), the codes applied to the data should be related back to the research questions guiding the study and analysis. The descriptive coding aims to address the concrete question regarding what elements these teachers deemed important. So, literally, *what* did they photograph? This layer provides the concrete evidence of the elements physically present in the space that the teachers depicted in their photos. Primary codes were drawn from a school ecology perspective (Eisner, 1998) as well as O'Brien's (1993) model of classroom culture that identifies elements of the physical environment that teachers are responsible for—space/layout and materials/activities, with the addition of displays/documentation.

Additionally, upon further examination of the participatory generated themes (described below), it became evident that the themes themselves corresponded with the pedagogical values identified at the onset of the study, including the image of the child, the role of the teacher, the

role of the environment, and the goal of early education. Working from the themes and drawing on the entirety of photo data and critical reflections, were translated into corresponding pedagogical values

Participatory Analysis

Generated by the critical reflections within the photovoice project, this level of analysis provides the verbal evidence for why the photos were taken and the deeper implications behind them. As discussed in the data collection section above, teachers participated in the analysis in many ways, including the initial selection of which photos were of most importance to them. Following each critical reflection, the group collectively participated in first-cycle concept coding (Saldaña, 2016). An example highlighted in Saldaña (2016) describes how a clock in its physical form is something you can see and touch and observe (i.e., the minute hand moving), but the conceptual attribute it represents is *time.* This coding strategy works well with photovoice in that it brings together tangible concrete evidence (photos) with verbal evidence (individual sharing, group discussion) representative of deeper thinking and ideas. Saldaña (2016) suggests that concept coding stimulates reflection on larger social systems and is therefore appropriate when the study seeks to move beyond the particulars of the study and speak to broader impacts. That is, “The method bypasses the detail and nuance of other coding methods to transcend the particular participants of your fieldwork and to progress toward the ideas suggested by the study” (Saldaña, 2016, p. 120). The ideas represented in this study have import not only to this group of teachers, but to the wider-reaching principles of early childhood education. First-cycle coding took place following each of the five critical reflections to ensure the concepts emerged directly from the individual photo representations and ensuing discussion.

Once each photo gallery had been shared, discussed and initial codes had been generated, we moved into second-round coding using the aforementioned affinity diagramming (Holtzblatt & Beyer, 2017) to condense the codes into themes. The participants actively manipulated the codes into similar groupings and provided a title for each group which became the four main identified themes: The Foundation, The Feeling, The What, and The Why.

As described in Phase 5 (Affinity Diagramming and Collective Statement), the four themes were then developed into sentence starters, which the participants used to generate a concise statement, directly derived from the critical reflections. Separate from the participatory group, the statements were further analyzed and condensed into one cohesive statement. Seeing as the statements were directly derived from the data and coding/theming process, they were similar in nature and contained the ideas generated by the group. This process involved reading and re-reading the statements for similar word phrases and identifying high-frequency words to be included in the final statement. The condensed statement was then sent to the group for feedback and final approval.

In addition, and again separate from the participatory coding, the audio recordings from each session were transcribed and indexed, as were the written narratives, as a means to find/organize illustrative examples of group-generated code pieces reflective of the larger themes. Secondary photos and memos were also consulted as further support of the critical reflections.

Trustworthiness

Whereas evaluation provides the educational critic's perspective in the form of an appraisal, the fourth dimension of an educational criticism, thematics, renders the big ideas, or anticipatory frameworks applicable to broader educational contexts. Uhrmacher et al. (2017)

states, “The themes distill the major ideas that run along general educational matters and provide guidance, not a guarantee or prediction, for understanding broader educational contexts” (p. 54). In this way, the concept of thematics is closely aligned with that of generalization (Eisner, 2017; Uhrmacher et al., 2017).

In order for a study to be generalizable, the issue of trustworthiness must be addressed. Trustworthiness is a key factor in ensuring the rigor and depth of a qualitative study are maintained, and according to Lincoln and Guba (1985), can be established through credibility, transferability, dependability, and confirmability. When taken as a whole, these four criteria distill underlying truths and ensure findings are applicable across contexts, maintain consistency, and are not biased or overpowered by the researcher (Uhrmacher et al., 2017). To attend to the issue of trustworthiness, this study employed prolonged engagement (long standing relationships, well-established rapport), member checking (follow-up to verify information and fill in gaps, and approval on terms and statements), triangulation (multiple data sources including written narratives and secondary photos to support critical reflections), purposive sampling (to maximize the effect of the data in relation to the research questions), and rich description (to depict a deep, holistic representation of the data) (Lincoln & Guba, 1985).

Educational criticisms aim for two types of generalization including a “refined process of perception” and “creation of new forms of anticipation” (Eisner, 2004). In other words, through the process of an educational criticism, the skills of the critic are honed, becoming more generalizable to her practice, and in turn, the critic more artfully articulates anticipatory frameworks capable of generalization across contexts (Uhrmacher et al., 2017). As described in Uhrmacher et al., 2017:

> Such anticipatory frameworks are created by the critic's perception and articulation of the particulars of a situation, and then held up against the backdrop of the larger educational context. These particulars, presented as themes, may be applied to new situations. The critic curates her "repertoire of anticipatory images" (Eisner, 2002, p. 242) and shares them with others by allowing us to appreciate the uniqueness of a situation along with its significance for others. The creation of anticipatory frameworks is a significant component of the role of the critic, as it supports her work toward educational improvement. (p. 55)

The themes generated from an educational criticism become what can be understood as "naturalistic generalizations" (Eisner, 2017) that shed new light and provide guidance for future perceptions and interpretations across educational settings.

To address the notion of validity, or a "state of shared belief" (Uhrmacher et al., 2017, p. 59) it is necessary for the educational criticism to demonstrate structural corroboration (a coherent, holistic picture throughout the study) and referential adequacy (presents a case for the usefulness of the study). Only then can the evaluation and thematics of the study be substantiated.

Summary

This chapter included an overview of the methodology as well as a more detailed description of Eisner's (2017) educational connoisseurship and criticism. Program and participant selection was outlined and a thorough description of data collection and analysis was provided, showing how the participatory method of photovoice can be used in an educational setting, and more specifically, as a tool for reflecting on the physical learning environment. Issues of trustworthiness closed out the chapter to ensure practical and ethical considerations

(credibility, transferability, dependability, and confirmability) remained central to the study, allowing for naturalistic generalizations to emerge. The following chapter presents the findings of this research.

Chapter 4: Findings

It can be argued that expert early childhood educators are intentional about the environments they provide for young children. From the selection of learning materials to the classroom layout to how educators create a sense of belonging through familial, cultural, and aesthetic artifacts, the physical environment is an embodiment of their pedagogical values.

Results from the photovoice exploration indicated what teachers deem important within the physical classroom environment and revealed insights into the often overlooked *Why?* behind these elements. Teachers began this process by photo documenting their classrooms and curating the photos into a representative collection. These collections were shared with the group through critical reflections, which included individual portrayals followed by group discussion and the generation of initial codes. The codes were then brought together using the process of affinity mapping from which four main groupings (themes) emerged: The Foundation (core values), The Feeling (quality of experience; emotional experience), The What (modes of delivery), and The Why (greater purpose for both individuals and society at large). These overarching themes provided the framework for articulating a collective vision statement for early childhood education that is characteristic of underlying pedagogical values. In line with the aims of educational criticism, this statement portrays a vision for early childhood education from the perspective of experienced critics (expert teachers)—a vision that is worthy of recognition and intended to bolster the public understanding of what high-quality early care and education is capable of in the United States.

Moving from concrete (what was photographed) to abstract (deeper implications), this chapter funnels the broader data (individual depictions and interpretations) into the emergent group-generated themes and collective statement.

Photo Overview

To address the basic research question of what teachers deem important in physical space, participants responded, via photos, to the prompt "Photograph the elements within the classroom (physical learning environment) that you deem important." Through this photo exploration, teachers captured multiple aspects of the space, reflective of their personal expertise and values. To clearly lay out what had been photographed and determine the deeper implications, a spreadsheet was created indicating the following for each photo: 1) the participant given title, 2) a description of what is physically present in the photograph, 3) synthesis of written narrative and transcribed critical reflections (both individual reflection and group comments), and 4) exemplifying quotes (also taken from written narrative and critical reflection). The photos selected by participants for their individual gallery displays (48 photos in total) highlighted dimensions of the prepared physical environment including materials, space/layout, and displays. This section describes each of these dimensions and provides evidence from participant photos.

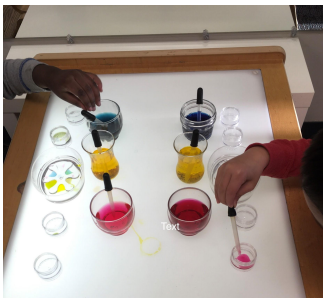
Materials

Materials in the classroom are intended for use by children, parents, and/or teachers. The materials represent opportunities for engagement as well as contribute to the aesthetic quality of the space. In reviewing the photographs, the materials depicted are open-ended, sensory-rich, literacy-rich, reflect nature/natural elements, and are used to invite children into exploration and conversation. Often, the photos represented a combination of these elements. Many of the photographs pointed to the importance of soft, homelike touches as well as authentic or "real" materials such as dishes in the dramatic play area, glass containers to hold paint, child-size hammers (not plastic), staplers, etc.—materials that speak to children's capabilities as well as

their aesthetic awareness. Table 4 provides an overview of the types of materials depicted with examples and photo evidence of each:

Table 4

Dimensions of the Physical Environment Depicted in Participant Photos: Materials/Activities

Type	Descriptor/Example(s)	Photo Evidence
Open-ended	Recycled "loose parts" (i.e., cardboard tubes), natural (i.e., bowl of buckeyes in dramatic play), manipulatives (i.e., blocks, Legos)	
Sensory	Sand, water, light	
Graphic art	Paint, clay, mark making (pencils, oil pastels, markers), tools (tape, scissors, stapler, glue)	
Natural	Live animals, plants, natural textiles	

Literacy/Information	Books, journals (writing), clipboards (writing)	
Home/Comfort	Pillows, soft finishes, plush toys	
Authentic	"Real" dishes, tools (i.e., hammers), technology (i.e., digital cameras), containers (i.e., glass)	

Note: Materials/Activities as intended for use/manipulation.

Space/Layout

The dimension of space/layout was evidenced in participant photos. More specifically, these photos fell into three identified types including: overall space/layout, "areas" or work zones, and furniture to define space. The overall space was captured by one participant to describe the "feeling" when you walk into the room. The feeling of the space was described as open, inviting, and exuding creativity. Across all of the photos, participants captured a variety of areas which included art, sensory, science/discovery, dramatic play, and book/literacy. Furniture such as open-shelving and cubbies was also captured to suggest how these elements define space and use. For example, cubbies offer a private respite and open-shelving suggests that materials can be shared across areas. Table 5 provides types of space/layout depicted in the photos along with a brief description and representative image from participant photos:

Table 5

Dimensions of the Physical Environment Depicted in Participant Photos: Space/Layout

Type	Descriptor/Example(s)	Photo Evidence
Overall Space/Layout	Cohesive room as a whole; the messages transmitted/experienced upon entry; the feel of the space	
Area	Areas house different materials to support interests or development. Examples of areas in participant photos include: art, sensory, science/discovery	
Furniture to define space	Providing different opportunities/suit various needs; can indicate/define experience (small group, large group, quiet or interactive); examples include open-shelving for flexible use of materials across interest areas, individual cubbies as personalized space as well as area for respite	

Displays

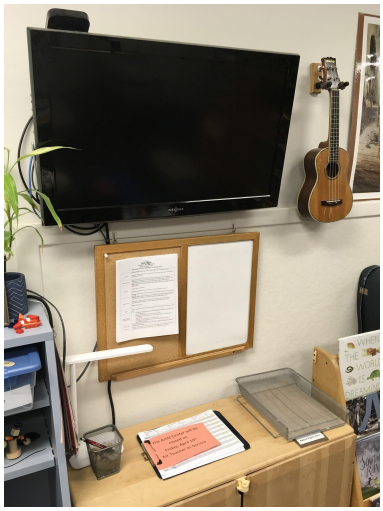
Displays were common in each of the participant's photos. Displays were broken into two types, information sharing and aesthetic, based on their intended purpose, with subtypes further identified for each. Displays designed to transmit ideas and/or engage participants (parents, children, others) with information were categorized as information sharing. The subtypes of information sharing included communication (daily messages to parents), routines/transitions,

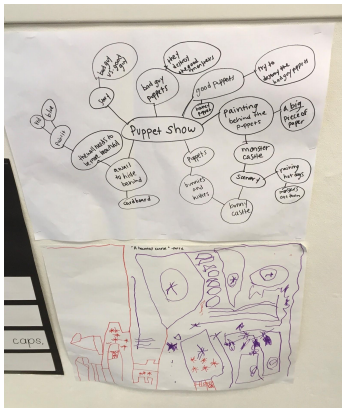
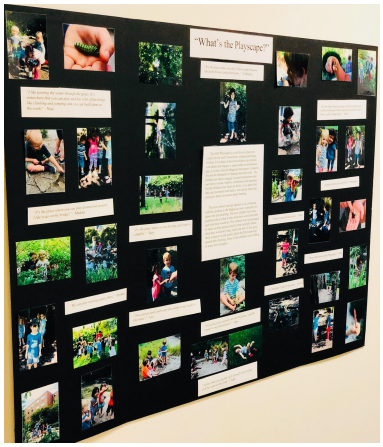
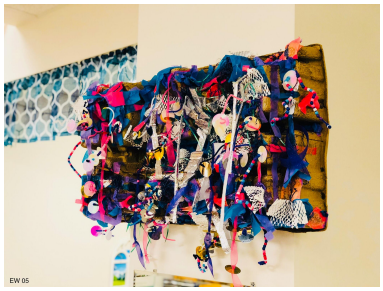
interactive (webbing or charts that can be added to over time), children's work (artwork, writing samples, building structures, etc.), and documentation (teacher-made or child-made). Each of the five participants included a version of documentation as the subject of at least one of their photos, suggesting that documentation was particularly important to the group. Documentation was either formal (highly curated text and photos) or informal (rotating digital photos) with the general purpose of recounting the process/progression of an experience. Documentation was also used with (or developed by) the children to help them reflect upon and revisit their learning, often sparking new ideas. It was also used as a means of communication with parents (as well as administrators, student teachers, and other visitors) to share and elevate daily experiences or long-term projects in relation to child growth and development.

The second type of display identified, aesthetic displays, refers to those intended for seeing/sensing and can be understood as contributing to the aesthetic, sensorial, and cultural qualities of the space, as shown in Table 6:

Table 6

Dimensions of the Physical Environment Depicted in Participant Photos: Displays

Type/Subtype	Descriptor/Example(s)	Photo Evidence
DISPLAYS:		
INFORMATION SHARING		
Communication	Daily message board	
Routines/Transitions	Welcome display, job charts, sharing list	

Interactive	Webbing, child reflections, measurement activity	
Documentation	Curated teacher/child visual representation of experience/learning (print or digital); pairs photos with text to convey process/growth/understanding	
Children's Work	Samples of child artwork, writing, building	

DISPLAYS: AESTHETIC

Artifacts	Family gifts, family/child photos, symbolic artwork, cultural artifacts	

Sensorial Elements	Mirrors, plants, lighting	

Note. The subtypes identified under aesthetic displays include artifacts (symbolic artworks, cultural objects, family-given gifts) and aesthetic/sensorial elements (items such as mirrors, lighting, and plants).

Teacher Profiles

Identifying the elements present in the photographs was important to understanding the deeper meaning and purpose behind the photos. The teacher profiles in this section combine the information gathered through the demographic survey (education and experience) along with individual accounts of the selected photos and a summary of the critical reflection that arose from group dialogue. The goal of the profiles is to illuminate each teacher's *personal signature*, which according to Eisner (2017), "celebrates productive diversity rather than standard uniformity" (p. 79). Each participant presented a large amount of data through their individual photo collection, written narrations, and critical reflection. The purpose of this section is to distill those reflections to capture the personal signature or essence of each teacher—to celebrate their unique qualities and demonstrate how their distinct voices come together to form a unified vision.

Teacher 1: Sparking Interest and Encouraging Innovation

Abe has been working in a preschool setting for more than 11 years. As a musician, his journey in teaching began with a Bachelor of Arts in biblical studies with a specialization in music ministry. His experience working with children through the YMCA as both a summer camp counselor and a before and aftercare supervisor, as well as his time as an elementary music and art enrichment teacher, led him to pursue an early childhood credential (ages 2½–6) from the American Montessori Society (AMS). AMS teacher education programs are accredited by the Montessori Accreditation Council for Teacher Education (MACTE), an accrediting organization formally recognized by the U.S. Department of Education.

Abe has undertaken graduate level coursework in the areas of human development and teaching English as a second language. In addition, he has supervised and mentored numerous university practicum students, guest lectured in early childhood education courses, and presented regionally and nationally on topics including the importance of nature in early development and building community through music exploration—topics that are evidenced in his photos and expounded upon in his critical reflection. At the time this study was conducted, Abe worked in a full-day classroom along with a co-teacher (Teacher 2, also a participant in this study) and an assistant teacher.

Abe curated a collection of 8 photos representative of elements he deemed important within the physical classroom. Figure 2 depicts the curated collection of images (in no particular order):

Figure 2

Teacher 1 Photo Gallery of Important Elements in the Physical Learning Environment

Many of Abe's photos focused on the importance of sparking ideas and interests in children, and encouraging innovation. His personal interests came through in his photos especially with regards to music, literacy, and science. Specifically, his love of books was conveyed through the photo titled, *Book Area* (Photograph B), when he shared, "If I wasn't a preschool teacher I'd be a librarian. I have always loved books and find joy connecting each student with books that excite their interests."

In addition, his care for the natural world and his interest in the intricacies of how things work are regularly shared and modeled for children. Abe is open to bringing unconventional materials into the classroom, including live animals such as snails and pillbugs, and uses the classroom as a laboratory for his own creativity, as evidenced by *Special Activity Table*

(Photograph H), which depicts an ice xylophone he created to capitalize on the long, cold winter and encourage musical exploration with uncommon materials. As he commented on the photo titled *Live Animal Observation Area* (Photograph C), he referenced the concept of a *search image* as explained in the following quote:

> *It's called a search image—it's a psychological thing that when you have experience with something, whether you see it in a book [or firsthand], [you know] what you see is a real snail there. And when you're out in an environment it's something your eyes will gravitate toward. Or if you don't have that [exposure], it's just going to pass by you … it's like somehow your brain has a special magnetism [once exposed].*

His keen understanding of early development and the importance of exposure to a wide variety of information and experiences is evident and he clearly articulated how these experiences build connections with the world and with others.

When asked to reflect on what is important for people to know about his collection of images, he commented:

> *I think so many of these [images] come down to personal connection, whether it's expressing myself through my teaching and connecting with the children, or the children having that opportunity to share with the rest of the group, or that connection with parents. There's education happening in all of it. It means learning and experiencing new things, but the root is somehow making a connection with others. And building classroom community between children, their families, and us as teachers.*

Abe's critical reflection produced the following codes: authentic, values, connection, meaning, joy, intentional, community, and love. These codes began the collection of codes generated by the group following each critical reflection from which the themes were later developed.

Teacher 2: Seeing Beauty and Cultivating Belonging

Erin earned a Bachelor of Science in human ecology with a specialization in early childhood development/early childhood intervention and a Master of Arts in education. Erin has been teaching for nearly 15 years in a preschool setting, with a wide range of additional experience including work in applied behavior analysis, one-on-one instruction to young children presenting with autism, and as a child behavior support specialist for children with developmental disabilities and their families. Erin's tenure includes a long history of university laboratory schools where she gained experience with infants and toddlers as well as preschoolers. Across settings and experiences, Erin has worked with children and youth ranging from 6 months to 17 years of age. Additionally, she has worked extensively with both undergraduate and graduate students as a practicum supervisor and now as an adjunct instructor in a birth to 5 online early childhood education program. At the time when this study was conducted, Erin worked in a full-day classroom along with a co-teacher (Teacher 1) and an assistant.

Erin curated a collection of 10 photographs depicting elements she deemed important in the physical learning environment. Figure 3 showcases her curated collection of photographs (in no particular order):

Figure 3

Teacher 2 Photo Gallery of Important Elements in the Physical Learning Environment

Throughout the critical reflection, Erin spoke passionately about valuing children's ideas, including them in the planning and ownership of the environment, the importance of "belonging" and feeling welcome, and the virtue of beauty. When describing the photo titled, *The Magnolia Planetarium and Solar System* (Photograph D), she specified that this project was driven by the children, stemming from their interest in space, and following their initiative to create representations in the classroom. She explained, "The children were part of the process. And I think that's something that's sort of hidden in that picture that you wouldn't see (just by looking)—it's created by all of the people in the room, not just the teachers."

When sharing the photo she titled, *Welcoming* (Photograph J), she provided the following reflection, "[The entry area] provides them with a sense of belonging and knowing that each

child is an important member of the community. When they enter, and when they leave, they present the leaf that says, *I'm here*." Erin also expressed an appreciation of beauty, that honors the right of children to exist in and contribute to an aesthetically pleasing environment. For example, when describing *Children's Collage* (Photograph E), a group collage that had been intentionally displayed, she shared the following:

> *And now that [the collage] is a part of our classroom, they get to look at the beautiful thing they created, and know that we value their work, that it's important. And it becomes a part of our … the beauty of our room.*

Erin saw beauty in many parts of the classroom and suggested that this aesthetic dimension is a nonverbal communication of worth that says, "You are worthy."

In reflecting on the main takeaway from her photo display, she stated, "I feel like it's important to know that we truly value the children and their ideas. And that we want them to feel like they belong. They are part of the community."

Erin's critical reflection and ensuing discussion generated the following codes: child-centered, pride, beauty, valuing children's ideas, big ideas, wonder, capable, respect, belonging, co-researchers, and emergent interests.

Teacher 3: Valuing Ideas and Building Community

Jane has over 20 years of experience teaching in a preschool setting. She holds a bachelor's degree in home economics, earned a master's in reading education, and also completed master's level coursework in early childhood education. She has taught in a variety of settings and at different levels including 2nd grade as well as 1st through 5th grade reading instruction. Additionally, she has worked with pre-service teachers as a practicum mentor teacher

and as a student teacher supervisor. At the time this study was conducted, Jane worked in a full-day classroom with two other co-teachers.

Jane curated a collection of 10 photos, many of which represented aspects of project work that had been taking place in the classroom over the previous month. The children were interested in puppet making and this interest impacted the classroom environment in many ways, including the materials that were incorporated as well as changes to the classroom layout to accommodate the working needs of the children. Other elements featured included loose parts (open-ended play materials), displays of children's stories, artwork, interactive webbing, documentation, and soft, homelike touches. Figure 4 shares her selected photos:

Figure 4

Teacher 3 Photo Gallery of Important Elements in the Physical Learning Environment

Jane shared a genuine interest in and respect for children's ideas, as evidenced in the photo titled, *Grouptime Web Map* (Photograph J) that depicts a webbing experience branching what the children know and what they want to know with respect to their emerging interest in puppets. This web was displayed at child level and they were encouraged to revisit and add to the web over time. Jane clearly remarked, "Displaying this shows value for children's ideas." When sharing the photo titled, *Block Area Loose Parts* (Photograph E), she also referenced that children have an opportunity to express their creativity and abilities when they are when provided with open-ended materials, stating, "I can't even believe we didn't do loose parts before [reflecting on earlier teaching years], because now it's just so fun and interesting and creative … and [shows how children are] so capable … just to see their ideas are limitless." In addition, Jane provided a multitude of examples that included children in the decision-making process, for instance, when describing the photo titled, *Puppet Making Workshop* (Photograph A) she shared, "Materials were provided for children to make puppets. This interest was expressed at group time and children made a list of materials they thought they might need." This quote sheds light on the role of the teacher—the teacher brings children into the planning by asking "What do you need?" She listens and records their thoughts, and then sources those materials and incorporates them into the classroom. This sends the message that their ideas are important and that the adults in the room are there to support them in making their ideas a reality.

Another prominent topic that emerged was building community, specifically noted were the importance of parent engagement, documentation, and shared responsibility in the care of the classroom. The photo titled, *Documentation of Parent Involvement* (Photograph D) depicts a documentation panel created to capture a visit from a parent, a biologist at the university, who brought in blind fish for the children to observe and discuss. In her critical reflection, Jane

excitedly recounted her personal fascination and learnings from this experience. She went on to describe the importance of this documentation stating, "Several parents have come to share special interests and talents with us. Creating documentation allows children to revisit this experience and allows for further discussion." She also alluded to the fact that the simple act of hanging documentation of this visit suggested to other parents that they were welcome and their interests and areas of expertise were worthy of sharing with the children, extending that sense of community to the family. Jane provided many examples of how she works to foster relationships in the classroom, including the *All About Me Books* (Photograph B) that children make with their families at the beginning of the year. Once returned, the children share their stories and revisit the collection often. Through this opportunity, Jane said, “We get to know each other better.”

Jane’s critical reflection brought awareness to the duality involved in high-quality teaching, including the bi-directional nature of teaching and learning, the balance between listening and responding, and the paradox of the environment being both predictable and flexible. When asked to specify the key factors captured in her photographs, Jane thoughtfully offered, “I think child interest is one thing. I think parent involvement is another. Sense of community and community-building; creativity; valuing children’s ideas.” Jane’s critical reflection generated the following codes: child interest, parent involvement, community, creativity, valuing children, authentic, empowering, listening-responding, respect, predictability-flexibility, documentation (communication), risk-taking (for both children and teachers), taking a leap (i.e., with loose parts), open-ended/variety, beauty, and playfulness.

Teacher 4: Security and Challenge for the Head and Heart

Jenn earned a Bachelor of Science in human ecology, with a focus on human development and family science, as well as a Master of Education in early childhood education,

both from a large state university. She holds a state-approved professional early childhood (PreK–3) teaching license and has earned over 30 additional graduate level credits for professional development and state license maintenance. Jenn has spent more than 11 years teaching in a preschool classroom and contributes professionally in a variety of roles and settings, including mentoring practicum students, presenting at local conferences, teaching/developing university courses for pre-service early childhood teachers (both online and in-person), participating in local and national policy/advocacy efforts, and directing an instructional media series for early childhood professionals. At the time this study was conducted, Jenn worked as a lead teacher in the half-day program. This classroom was shared with two groups of children, with two different lead teachers, and a shared assistant teacher.

Prior to sharing her photos, Jenn reflected on the fact that she took time to consider the prompt before capturing her ideas with the camera, saying, “Actually, I took these pictures in under five minutes. I knew exactly.” Her collection of 10 photos, shown in Figure 5, portrayed a homelike environment that includes opportunities for self-expression and open-ended exploration, as well as a variety of displays and documentation.

Figure 5

Teacher 4 Photo Gallery of Important Elements in the Physical Learning Environment

A main theme that ran throughout Jenn's critical reflection included the importance of safety. This notion went much deeper than keeping children physically safe, rather it extended into the realm of nurture, love, and freedom as the foundation for creating and protecting a safe space for both the head and the heart to flourish. When sharing the photograph titled, *Hands and Heart* (Photograph E), which pictures a cross-stitched artwork of two hands coming together in the shape of a heart, she stated:

> *Aesthetically, I love it—it's simple, but really pretty. And then, the meaning that it carries as well—it's really powerful. The more that I work, that's the most important thing ... that they feel value from me. That's the way I want them to feel about themselves, if only in my classroom. I've been digging a lot into trauma-informed work because I need to, because*

> *that's my population. And so it's just that I want them to encounter it [love, security] in as many different ways, so that, you know, one of them will stick. And they'll know the tremendous safety, love, and value they have for the half day they are with me. Because that's how they're going to be able to do their best work. That's like the absolute foundation on which anything else can be built … that's the base that drives my classroom, and it drives everything, you know, my classroom management. I'm doing this, because at school, I'm the one that keeps you safe. And I keep you safe because I love you.*

This sense of love and security was embodied through homelike touches, such as soft finishes, handmade decor (much of which was sewn by her), and opportunities for children to enact familiar homelike experiences through play. This safety also comes in the form of protection—protecting the rights of children to learn and grow in intrinsically-driven, personally-chosen ways—as evidenced in the photos *Paint Shelf* (Photograph A) and *Personal Journals* (Photograph G), which portray art materials and journals readily and freely available to children. The photo *Glass Paint Jar* (H), picturing child-mixed paint colors stored in glass jars on an open cart, elicited the following anecdote of a child who was interested more in mixing paint than painting with it. She stated:

> *It helped me realize, as they got to mix their own colors, there are children who paint to create a picture and there are children who paint to work with the paint. I had one child who could make colors I had never seen before. And she would just always paint lines. And I realized she was doing it all in service of the color … she wanted to test [the colors] out on the paper.*

She went on to reflect further on the less visible aspects of the photo, stating:

> *I was worried at first, I was like, "she needs to paint things eventually." And then I was like, "No, she doesn't, she's doing something way more important." She could [had the ability to] draw, there were no concerns about representation or fine motor. There were no concerns, there was just me thinking she had to paint something, and these lines were of lesser value. And she challenged me and flipped that. So I also liked it [the image] because it represents a challenge in my thinking and a growth point.*

Through her critical reflection, Jenn indirectly highlighted important aspects of her work as an early childhood educator such as observation, reflection, vulnerability, and willingness to take risks and try new things in the face of challenge. She alluded to the fact that teachers, as well as children, need safe and supportive environments for these attributes to thrive. As she stepped back and observed her collection of photos, she remarked, "I like looking at these pictures, they remind me of times I've pushed myself and took a chance, and did really well as the result of that."

The codes generated from Jenn's critical reflection included: care, love, safe/safety/security, communicating expectations, risk-taking, challenge (in the sense of growth—for both teachers and children), relationships, living more deeply, self-actualization, and higher-level work.

Teacher 5: Shared Ownership, Creative Expression, and Higher-Level Thinking

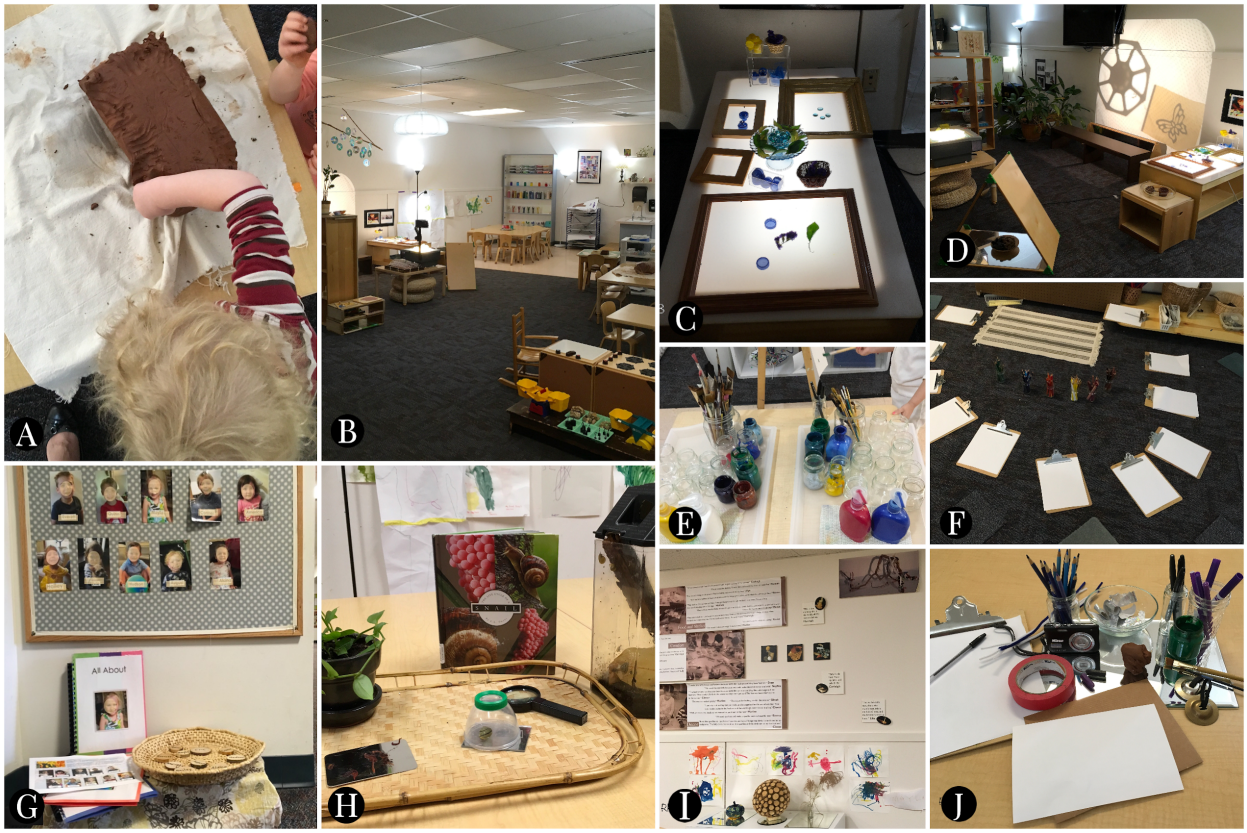
Rachel has spent her professional life learning and evolving with the university laboratory preschool. Her involvement began as an undergraduate in the early childhood education program, then as a young mother of an enrolled preschooler, and for more than 15 years now, as a lead teacher. In addition to her role in the classroom, Rachel has been integral in the implementation of a children's studio and has held the role of part-time studio teacher for

eight years. The envisioning of the studio was heavily influenced by the ateliers found in the preschools of Reggio Emilia. In this role, she engages small groups of children with inquiry-based project work using a variety of media, technology, and tools. Rachel holds a Bachelor of Science in early childhood education and a Master of Arts in educational studies with a focus on art, inquiry, and creativity in the early years. For over a decade, she has been a leader in the local chapter of a statewide Reggio Emilia study group, traveling with this group to Italy to study the philosophy and practices of Reggio firsthand. In addition, Rachel has mentored numerous practicum students in both the classroom and studio setting and is a certified Classroom Assessment Scoring System (CLASS) observer. She is an adjunct professor in the department of early childhood education, teaching coursework in child development/early learning, creativity, and authentic assessment practices. She also works in the community as a trainer and Child Development Associate (CDA) instructor. Rachel has published and presented on topics such as creativity, the role of "listening" in teaching practice, nature play, and teacher-as-researcher. At the time this study was conducted, Rachel was the lead teacher in a half-day enrichment program and acted as the part-time studio teacher.

Rachel included 10 photos in her curated collection of images, shown in Figure 6. After taking the photos, and for the purpose of sharing, she broke her collection into the following three groupings: *General Environment* (Photographs B, C, D, H), *Reflection of Children* (Photographs G, I), and *Expression/Habits of Thinking* (Photographs A, E, F, J).

Figure 6

Teacher 5 Photo Gallery of Important Elements in the Physical Learning Environment



Note. Figure 6 does not display the photos in their designated groupings. Many of the photos were posed in order to highlight multiple elements/ideas in one shot.

With regard to the general environment, Rachel shared the photo *Room Overview* (Photograph B), which was taken from the main entrance of the room to signify the room as a whole and give a sense of the feeling and messaging it evokes. She describes the image in the following way:

> *I try to communicate to the children in many ways that this space is ours to share, but mostly theirs to work in. I arrange spaces and provide materials in ways that I hope let the children know that we can work together to design a space that meets their needs. I want the room to feel welcoming, warm, and engaging yet open to their ideas. With a*

> *balance of inspiration [to draw them into exploration] and room for their voice to be heard.*

She hoped, aloud, that people entering the space would conjure words such as engaging, inspiring, beautiful, welcoming, and "ours" to describe the environment. The idea of shared ownership was a recurring theme throughout her critical reflection. She described a high level of intentionality in leaving room for children to influence the physical space (i.e., materials, layout, displays) as well as the intellectual space (i.e., ideas, ways of thinking, and expressing).

In addition, she discussed the importance of flexibility and variability, as depicted in her photo titled, *Fluid Spaces* (Photograph D). She stated:

> *The materials in this section of the room are designed to fluidly be used for building or light exploration. The inclusion of the large open shelf helps define the spaces while still allowing for cross-exploration. The light projector, light table, and mirror triangle offer children the opportunity to engage in their work in new ways, offering new perspectives and added dimensions.*

As described in the quote above, Rachel frequently refers to a nuanced practice, which is the invitation to explore materials and ideas in a different way, from a different perspective or dimension, hence the addition of light and shadow play, mirrors, and a variety of open-ended materials. "I give them a lot of things that they've probably seen and [add] another level, another dimension, another angle on it … anything to give a new perspective." She recognizes the value in this type of varied experience, noting, "I just think it heightens their attention to details … and adds for them another way to explore what they are doing."

For Rachel, documentation is the way in which classroom experiences are captured and shared. In the grouping "Reflection of Children," which includes the photos *Documentation and*

Displays (Photograph I) and *Child Photos, Names, All About Me Books* (Photograph G), she described ways children are represented throughout the classroom. Not only do they see their work on display, they see themselves throughout the classroom—their picture, their name, their words, their learning, ideas, opinions, unique contexts, and perspectives. She described documentation as a way to tell the learning story and a way to create a lineage, or a history, of the work that has taken place. She also makes clear that both the teacher and children partake in the documentation process. The following written narrative captures her commitment to documentation and inclusion of children in all aspects of the classroom and their learning:

> *I try to reflect the work currently underway in the classroom, but also the history of the work in the past, so that I can communicate to children that their work is important, and that they are important. When a child is inspired by the work of past children, they can see the potential they themselves have to inspire others. If a child from the past did work worthy of preserving, then they too are worthy of such preservation. As children begin to feel more ownership of the room and of their own learning processes, they often begin to take part in the documentation process, hanging or displaying the traces they deem important. Because we share and co-construct the space, there is room for both teacher and child-chosen work; teacher and child-narrated stories of learning. So they can start to feel like their voices are intertwined*.

The inclusion of authentic, real, natural materials and tools communicates a respect for children's capacity to explore the world in a more important, real, more meaningful way. The grouping of photos *Expression/Habits of Thinking* (Photographs A, E, F, J) reflects the influences of studio practices and the Reggio philosophy on Rachel's teaching. She stated:

> *Clay, digital cameras, clipboards, a variety of painting, writing, and drawing materials, collage materials, and, especially for this year's class, a variety of musical instruments, create a palette that invites exploration and expression through many "languages" helping to build the "grammar of materials."*

By providing children with a range of experiences and outlets for self-expression, children begin to scaffold their own learning and increase their ability and confidence in sharing their growing understanding of themselves, others, and the world around them. Rachel's critical reflection generated the following codes that were included in the larger set of initial codes: provocation, intentional, flexible, inspirational, "priming the pump" (building experience/awareness), "search image" (application), deeper work, fluency (with materials/ideas), thinking skills, welcoming in, welcoming exploration, history/leaving a trace, and connection.

Descriptive Categories (Themes)

An aim of this study was to develop a collective statement that signifies the underlying pedagogical values driving the work of high-quality early childhood educators as evidenced by their physical learning environments. To meet this aim, it was necessary to merge the individual perspectives into a collective shared space. The codes produced following each critical reflection were brought together through the affinity mapping exercise discussed in chapter 3. This process enabled the group to find the overlap and commonalities among the codes. With each code written on individual sticky notes and placed together on the wall, the group sorted the codes into categories. These categories, once refined, became the four themes discussed in this section and suggest a holistic view of high-quality early care and education. These included: *The Foundation* (core values), *The Feeling* (quality of experience)*, The What* (modes of delivery)*, and The Why* (greater purpose for both individuals and society at large)*.* Table 7 summarizes key findings:

Table 7

Descriptive Categories Emerging from Critical Reflections

Descriptive categories (Themes)	Associated concepts (from original codes)
The Foundation Encompasses core values	• Love • Respect • Belonging • Welcoming • Relationships • Security/Safe • Trust • Valuing (ideas and people)
The Feeling Evokes emotion; Quality of experience	• Joy • Wonder • Beauty • Pride • Creativity • Imagination/Inspiration
The What The work; Modes of delivery; Approaches to teaching and learning	• Co-researchers • Child-led • Emergent interests • Authentic experiences • “Search Image”/“Priming the Pump” • Documentation • Reflection • Intentional • Challenge (in the sense of growth) • Predictable yet flexible • Listening-responding (a balance) • Risk-taking (for teachers and children)
The Why Greater purpose for individuals and society at large; Reflective of deeply-held worldviews	• Fluency • Thinking skills • Meaning • Higher-level work • Deeper work • Empowering • Big ideas • Intentionality • Living more deeply • Self-actualization

The Foundation

> Education is not the preparation for life; education is life itself.
>
> —John Dewey

The Foundation was the initial theme identified by the teachers. They referred to it as the "meat" of what they do and related it to previously identified programmatic core values—the lens through which the rest of their practice is viewed from. Foundational words included love, respect, belonging, welcoming, security, and the valuing of people and ideas, among others.

As the group contemplated this theme, the conversation brought up deep-rooted emotional reactions to the work they have dedicated themselves to. Specifically, it elicited a desire to articulate the deeper and tougher work teachers have a sensitivity and intelligence about that often goes overlooked. The following excerpt was formulated by Teacher 5:

> *None of this comes without pain and tears. I wrote, "woven throughout the layers, you'll find the threads of love, pride, fulfillment, and even a little pain. Because more than a few tears fall in pursuit of authenticity. We [teachers and children] leave our hearts and we leave our traces—the echoes of all the past children, parents and teachers—they're all present. That's what makes a space real, living, breathing" ... and that's what makes it real. This is hard fought. If it was all easy, it wouldn't be this real.*

The conversation continued to address the connotation of words like "love," that when taken at surface level (often when referring to young children), conjures what one teacher referred to as "sunshine and rainbows." This discussion led them to the importance of unpacking words such as love to also acknowledge pain and vulnerability, and working through difficult things in

pursuit of authentic and meaningful relationships. By playing on the stereotypical images of preschool (and preschool teachers), and the more inclusive values and convictions that drive their work, they attempted to reveal and lay claim to a deeper mission. In the ensuing discussion, the teachers reflected on whether this depth was captured in their images to which Teacher 4 stated:

> *I would argue that it's in some of my photos, or that intention was there.* Hand and Heart *was my most important [photo], because I know shit goes down in our room, in their lives. Or the [photo] with the glass jars, I took that photo because it's all encompassing. It's there to activate beauty and exploration, but it's also there—it's a conscious decision—to give them a good lesson in mistakes, and recovery from mistakes. So I intentionally chose that [photo] for a myriad of reasons, but one of them is knowing some glass is going to break. It's a good metaphor.*

This clarity brought about further reflection as this teacher explained that the soft touches in the room (i.e., pillows, stuffed animals) are there not only to feel homelike, but also to offer support and coping/calming strategies for those who need it, those dealing with trauma. She went on to state:

> *So like all of these things [soft touches], for the most part, are there in support also of the rough stuff. I'm going to tear up [becomes emotional]. It's not absent from the equation. Like that's why this stuff [referring to the codes in the foundation category] is the most important to me—like the "foundation" is what makes everything else go down.*

Teacher 3, agreed with the sentiments, and went on to assert, "Under the foundation, too, and maybe this is already included somewhere, but our *acceptance*. Acceptance of children and families, *whatever* [emphasis added] they bring us." Closely related to acceptance is the notion of belonging to which Teacher 2 stated, "It's really, also a strong symbol of belonging. Yes, you

know, it's like saying, 'I am a part of this room and I feel like this needs to be here, and I know that I can, and it will live there, because I know my teachers respect me.'" This dedication to truly seeing children for who they are and welcoming children and families, no matter what, is the foundation upon which their work rests. It is this foundation, rooted in love and respect, that fuels the pursuit of larger outcomes such as empowerment and self-actualization, addressed in further detail in the themes to come.

The Feeling

> Art is not the possession of the few who are recognized writers, painters, musicians; it is the authentic expression of any and all individuality.
>
> —John Dewey

The Feeling theme was designated to capture the emotional experience (aesthetic and intangible feelings) that the participants hoped to spark and inspire through the design of their classroom environment. The codes condensed into this theme included beauty, creativity, wonder, and joy—elements of childhood that should be cultivated and celebrated. These intangibles are evidenced in the photos through the depiction of invitations, provocations, and the inclusion of natural and authentic materials. As described in the Teacher 2 profile, Erin sees beauty as a way to communicate to the children that they are worthy of a beautiful environment, in turn deepening their understanding that they themselves are worthy.

By honoring their own creativity, appreciation of aesthetics, and wonder of the natural world, teachers bring these dimensions to the classroom and share them with and encourage them in children. Teacher 1 referred to his personal interests multiple times throughout his critical reflection, making clear that he himself is of service to the children, as exemplified in this quote:

> *As a musician, I love to share my passion for music with my students. We always have a classroom instrument for the children to play … I play my guitar or another instrument daily. I love to see students enjoying music and developing a skill through experimentation and exploration.*

The classroom, and teaching itself, can be seen as an outlet for the teacher's own creativity and interests which is then modeled for the children. Additionally, the way teachers revere the work of children contributes to the feeling of an environment. This can take the form of verbal communication. For example, Teacher 2 described the children's group collage as a "colorful, textural display of children's work" that conveys an elevated interpretation of what commonly is seen as "cute," a description that undermines its value. Similarly, it is also communicated through the intentional design of the classroom and the choosing of authentic, interesting, and beautiful materials. Combined, this type of messaging communicates a deep respect for children, and holds beauty, creativity, wonder, and joy as a right of children to grow and develop in a holistic and healthy way.

This version of childhood paints a vision for the future that is hopeful, full of potential, and open to the wonders of the natural world, and also honors individuals as part of a collective community. These feelings are built upon on a mindful approach to life and learning, and encourage children (and adults) to hone the skills to slow down, observe, explore, appreciate, listen, question, contemplate, try on different ways of knowing/seeing, express themselves through multiple "languages," reflect, document, and share.

The What

> Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results.

—John Dewey

Simply put, *The What* refers to the work of teaching. This work includes the tangible act of curriculum planning, choosing materials, and setting the stage for learning, but also embodies dispositions and the broader approach influenced by theory and research, as well as all-encompassing worldviews. Examples of codes found in this theme included child interest, emergent interest, risk-taking and challenge (in the sense of growth), intentional, provocation, reflection, capable, co-researcher, and documentation/communication. Additionally, the balance between listening and responding (active listening), and flexibility and predictability were noted. These words speak to an image of the child that is capable, competent, and active in their own learning. This image has direct implications for the overall approach to teaching-learning, the role of the teacher, and the influence on the environment.

This group of teachers understands the bi-directional nature of teaching and learning and refers to themselves as "co-learners" and "co-researchers," explicitly acknowledging themselves as partners in this process, which includes their own growth and learning as an integral piece of the work. This shared learning and shared ownership was evidenced throughout the critical reflections in the form of leaving room for children—their ideas, their work, their presence—in the design of the physical environment and also the curriculum. When discussing the work of planning, teachers referred to "emergent curriculum" that centers around the interests of the children and "projects" that extend those interests into deep, meaningful work for the group as a whole while honoring individual preferences and developmental ranges—in line with a self-determination framework.

It is this deep knowledge about and respect for children that allows these teachers to function as expert teachers—it enables them to be intentional, vulnerable, take risks, and

constantly seek to push their practice forward to the benefit of everyone's growth. These attributes are indicative of 21st century learning skills and a growth mindset discussed in more detail in chapter 5. With this conception of the teaching-learning process we can look to the physical environment for evidence, where the design and material selection can be understood as the manifestation of the aforementioned approach to teaching and learning.

As initially described in this chapter, the photos taken and selected by the participants portrayed information-rich environments (literacy, sensory, nature, exploration/discovery, belonging/ownership). Materials depicted in the photos were aesthetically pleasing, interesting, authentic (real, high-quality), open-ended (able to be used creatively in a multitude of ways), encouraging research, representation and self-expression, and providing a sense of homelike security. The layout/space was represented as being organized yet flexible, with displays that peak interest, spark new ideas, display growth changes in understanding, and leave a trace. A summary of these combined elements is detailed in Table 8:

Table 8

Summary of Elements in the Physical Environment Depicted in Participant Photos

Dimension	Elements Depicted
Materials	Open-ended materials (loose parts, manipulatives); sensory (sand, water, light, etc.); natural materials (plants, living things); interesting and real objects (musical instruments, glass); homelike touches (for pretend play and comfort); a variety of literacy/information sources (books, reference materials); tools and technology for representation/self-expression (graphic art materials, journals, clipboards, digital cameras)
Space/Layout	Overall feel of the space as a whole; defined interest/development areas (art, science, sensory, reading, dramatic play); furniture to define space and communicate use (open-shelving to define play areas while keeping material use flexible, cubbies as personal space)
Displays	Information sharing: communication (daily messages); routines/transitions (job chart, daily schedule); interactive charts (webbing); documentation (teacher- or child-generated—making learning visible); children's work (artwork, writing, building) Aesthetic (for seeing/sensing): artifacts (family gifts, family/child photos, artwork, cultural pieces); sensorial elements (mirrors, plants, lighting)

Through careful examination of the elements identified in participants' photos and elaborated upon in the critical reflections, the following four intentions were identified: 1) spark interest and draw children into exploration, 2) provide access to a range of experiences and information, 3) give children the freedom and tools to express their ideas, feelings, interpretations, and growing understanding, and 4) be a reflection of who they are, what they know, and what they value. The onus is on the child—with support from the teacher— to determine what is of interest, how they will interact with the materials and the space, what they will notice and take away from the experience, and how they will express that learning. It is through the intentional design of the environment (the choosing of materials, the layout and designation of space, and the displays and documentation) that teachers support this

child-centered, inquiry-driven approach to teaching-learning. The "things" in the environment can be envisioned as the "icing on the cake." The physical environment can therefore be seen as a manifestation of the overall approach.

The Why

> What the best and wisest parent [teacher] wants for his own child [individual children], that must we want for all the children of the community. Anything less is unlovely, and left unchecked, destroys our democracy.
>
> —John Dewey

The Why describes the intention behind the work. For what purpose is the work carried out? Through the discussions, it became evident that the goals the teachers held for individual children were also reflective of a larger societal/global vision. Codes in this theme included thinking skills, fluency, meaning, higher-level work, deeper work, empowering, big ideas, intentionality, living more deeply, and self actualization. When further examined, this collection of codes was broken into two overarching goals: thinking deeply and feeling deeply. Through the discussions, the reciprocity between these two dimensions came to light. For example, when the group talked about creating a safe environment, they dug deeper into the term. Teacher 4 expounded:

> *My drivers are [that] I want to keep them safe. I want to keep everyone safe. And that's what I'm saying in [all aspects of] my classroom…my goal is to keep you safe, because if you're safe and loved, then everything else is going to follow. It's not a desire to control them, it's a desire to care for them [and help them care too] ... we're going to listen to each other and we're going to respect your words.*

The conversation continued and is presented in the dialogue below:

Teacher 1: *I keep coming back to what you were saying about wanting to keep them [children] safe. I mean safety feels like so much more than crossing the street and not getting hit by a car. Yeah, it's like the "wholeness" or something, when I hear you talk about it and see you working with children.*

Me: *It's about wrapping a child in that love, in that safety … it's not a sterile definition of "safe."*

Teacher 1: *It's a bigger meaning.*

Teacher 4: *Yeah, I think the societal concept of safety is a very narrow slice of what the real concept is.*

Teacher 5: *This is about security— like emotional.*

Teacher 4: *I want them [parents] to know that I'm promising to keep their child literally safe, but then that's so much more than just physically safe, I'm going to work to keep them emotionally safe too … and you can trust me to do all of that.*

The conversation went on to consider the element of risk-taking, in terms of ideas and emotions, being vulnerable, and willing to make mistakes and learn from them. In other words, in order to think deeply, you must also feel deeply. You must feel secure in your ideas and growing understanding of yourself and the world around you. Children need feelings of security to try new things, speak up, share their ideas, and express themselves and their emotions—to know without a doubt that they will be supported. It is this secure foundation upon which authentic learning rests upon, and when supported and nurtured over time can lead to self-actualization. This is what is meant by creating a psychologically safe environment—it is safe for both the head and the heart.

The interplay between the head and the heart arose multiple times throughout our conversations and drove home the point evidenced in current brain research that the cognitive and emotional systems are inextricably linked. Positive self-concept, trust, empathy, and feelings of joy and security fuel the drive to look closely, focus, persist, question, problem-solve, and ultimately gain and retain new information that will scaffold future learning. Circling back to The Foundation, where teachers identified love, respect, and security, it becomes clear that only when rooted in these foundational elements, can a vision or purpose be fully realized. This is the holistic approach described by the participants, and is the vision they hold for individual children and society at large.

Conceptualizing Pedagogical Values

Emerging from the themes, the corresponding pedagogical values are conceptualized below:

The Competent Child

Loris Malaguzzi (1994) suggests that every individual holds an *image of the child* within. This image influences relationships and interactions—it guides the way we speak to and involve children, the way we present information, and the way we differentiate instruction. As indicated in socio-cultural theory, the child cannot be extricated from the world in which they exist, meaning they are deeply connected to and shaped by their unique circumstances and surroundings. For this reason, it is critical to get to know children, or "see the group of children in front of you" as articulated by one participant. Throughout the study, participants referred to children as capable and competent. The tone of conversation was rooted in respect for the unique abilities and perspectives of young children as well as a deep understanding of early childhood from a developmental, societal, and evolutionary lens. Early learning was seen as the foundation

for all other learning, growth, and dispositions. Children were viewed as equal participants and active agents in their own learning, worthy of having opinions and ideas that were welcomed into the fold of the classroom practices—from project planning, to the ability to engage in high level thinking and dialogue, to implementations in the physical environment. It is this conception of children from which all other interpretations flow. As our image of the child deepens and evolves, so too will our understanding of the role of the teacher. And the more explicit we are about these interpretations, the more clearly and intentionally they will be reflected in the environment.

The Responsive Environment

Following the image of the child, the environment was conceptualized as being a tool for learning and relationships to emerge. Setting the environment was seen as a major role of the teacher, and was understood as evolving, dynamic, and ever-changing, shifting with the needs, interests, and input of the children. The prepared environment was seen as influential to the overall feel and energy of the classroom, and clearly held important messages regarding expectations and beliefs about children's capabilities and ownership. These teachers used the environment to invite children into learning by adding elements of wonder and beauty providing appropriate levels of ownership to encourage feelings of belonging and self-worth. The environment was described by the teachers as being "alive" and an "ecosystem." The environment is nothing without interaction and relies on the inhabitants to define and live into the space. As one participant noted in response to a discussion on how educational supply companies are marketing prefabricated classrooms in a one-size-fits all approach, "if you strip individuality out of it, then it's heartless, it's soulless, and it's less effective. So you need a room that represents the individuals that are in it, and only the individuals can create that in an

authentic way."

The Intentional Teacher

The image of the child and environment as portrayed above, shifts the role and responsibilities more typically associated with traditional teaching to that of observer, guide, faciliator, relationship builder, role model, and creator of healthy and engaging environments. The participating teachers see themselves as being sensitive and responsive to the needs of the individual children and families in their care, and positioned themselves as co-learners or co-investigators. They also used the terms "active agent" and "translator" when describing their role. A defining characteristic that emerged through the photovoice project was *intentionality*. This intentionality was linked to reflective practice and a dedication to continuous improvement/learning on both a professional and personal level, including self-reflection and education regarding identity and bias. The teachers also saw the relationship between what they wanted for children and what they valued for themselves. For example, the importance of a psychologically safe environment to try new ideas, problem-solve, and have agency, was equally important at the child level as it was at the professional level. These teachers saw their role as being impactful and meaningful, rooted in relationships and bringing their whole selves to their work, with the understanding that the early years are foundational to life-long learning and well-being. The teachers recognized their work as being dedicated to more elusive soft-skills (21st century skills, executive functioning, and self-regulation) that are highly aligned with self-determination. The teachers revered their role in developing a classroom culture that valued the individual while cultivating collective agency and belonging within a group. This level of reflective practice was also regarded as being one of critically-conscious professionals and practitioner researchers, roles that these teachers were actively embracing and growing into.

The Dual Purpose

As suggested by The Why, the values assigned to the child, teacher, and environment are suggestive of the deeper purpose of early childhood care and education at both the individual and societal levels. This group of teachers recognizes early childhood education as being foundational to lifelong learning and for children to develop into conscious, compassionate members of society. Early childhood is the time when attitudes and beliefs are formed. When children become more confident and secure they can successfully contribute their gifts to the collective whole. The teachers conceptualize the purpose of early childhood education as supporting and protecting children's intrinsic motivation and their right to learn through play, hands-on exploration, critical/higher-level thinking, and opportunities to be in relationship with themselves, others, and their environment. This conception is based in developmental and evolutionary theory, as well as current research. The participants make clear connections between these foundational years and more positive, long-term societal outcomes.

Collective Vision Statement

The themes were further condensed into a singular collective statement to more clearly and succinctly address the sub-question, "How does this group of expert teachers conceptualize a high-quality early learning environment?" As described to the participants in the session, the collective statement is intended to distill the breadth of data into a concise declaration, getting to the heart or essence of the work. The statement does not focus purely on the physical aspects of the learning environment, but rather reflects an all-embracing vision for early care and education, directly derived from the photovoice exploration. The statement was structured to reflect the four themes beginning with the foundation and feeling, leading to the approach and the work, and ending with the broader purpose for both individual children and society at large. Using sentence

starters as a jumping off point, each participant crafted their own statement using the previously identified codes and themes to guide their writing, shown in Table 9. This approach was used to ensure that their individual voices (and the most pertinent themes) were represented within the collective work.

Table 9

Individual Statements Using Sentence Starter

Participant		Statement
Teacher 1		*We cultivate community and seek to inspire creativity by engaging children fully with the goal of authentic exploration resulting in expansive growth.*
Teacher 2		*We cultivate our foundation, which is built upon the authentic connection between community, respect and relationships, to create a feeling of belonging. It is through this, that we seek to inspire beauty, creativity, and pride by engaging children as capable co-researchers. We embrace their emergent interests, which enables us to provide intentional, authentic educational experiences with the goal of empowering thinking skills, and big ideas (fluently), resulting in a higher level of meaningful work and living more deeply.*
Teacher 3		*We cultivate community, care, relationships, and respect and seek to inspire creativity, wonder, and joy by engaging children in authentic, child-interest open-ended work with the goal of each child seeing himself or herself as capable and belonging resulting in living more fully and intentionally with each other and the natural world.*
Teacher 4		*We cultivate a safe, inclusive, and strong community so we can inspire joyful exploration of the world in which we live. By engaging children in deeply personal and meaningful interactions with the objects, concepts, and people around them, we pursue our goal of honoring children by supporting their deeper development in who they are to themselves and this world, resulting in citizens who can contribute to our society in a kind, respectful, inclusive, and innovative manner.*
Teacher 5		*We cultivate relationships and seek to inspire joy and creativity by engaging children in meaningful, authentic work set in an intentionally-designed environment, empowering deep thinking, expression, communication, and research, resulting in a life lived more deeply by individuals, families, schools, and communities.*
Primary Researcher		*We cultivate a community rooted in respect and love, and seek to inspire feelings of joy, wonder, and belonging by authentically engaging children as co-learners, while honoring their interests and ideas with the goal of empowering children to think deeply and feel deeply, resulting in self-actualized adults equipped with the knowledge and heart to build a better world for all people.*

The individual statements were shared, analyzed, and synthesized into a succinct statement. This statement was then sent to the group for feedback and final approval. The collective statement that emerged reads as follows:

> *We cultivate a community rooted in love and respect and seek to inspire creativity, wonder, and joy through authentic interactions and engagement in meaningful work. We intentionally design environments that empower critical thinking, self-expression, and a sense of belonging, with the collective vision of a more peaceable society and sustainable world.*

The collective statement is the culminating artifact that unfolded gradually through the photovoice experience. To summarize this experience, the participant photos depicting elements of the physical environment they deemed important evoked the discussions leading to the identification of themes that were further distilled into the collective statement. The photos inspired the statement, and conversely, the statement is evidenced in the photos. The physical learning environment can therefore be understood as an embodiment of—or a window into—the less tangible values and practices of expert early childhood educators. The more explicit the connection between environment and values, the more influential the environment will be in reaching the desired potential of children and families.

Chapter 5: Discussion

> *This type of process [photovoice among co-educators] could be transformative for our school … it honors our uniqueness while simultaneously encouraging connections that lead to cohesiveness. Finding so many similarities in our underlying values reaffirms that although teaching styles or specific methodology may vary, at our core, where it really matters, we have so much in common.*
>
> —Participant reflection

This chapter briefly summarizes the study, and makes connections among the research findings, current literature, and theories guiding this work. It notes limitations for the study and concludes with implications for future research with regard to the evaluation of early learning environments and teachers' pedagogical practices. The teachers selected for this study were chosen for their expertise and ability to bring about a more complex understanding of how elements of the classroom (both discrete and as a whole) communicate deeper messages and values. Individual interpretations, along with group dialogue and analysis, allowed for a layered and meaningful vision of high-quality learning environments to emerge.

Summary of the Study

The type of early care and education available to young children in the United States varies drastically. A wide range of interpretations exist in regard to what children need and the types of services available (i.e., childcare as a service that keeps children safe so parents can work vs. a child development center that roots its practice in theory and research for the purposes of child growth, development, and enrichment). The environment plays an important role, communicating both implicit and explicit messages about who children are, what they should be learning, and how they are allowed to interact.

There is a rising interest in the role of the environment (Berti, et al., 2019). This is reflected in the growing popularity of approaches to early care and education, for example, the Reggio approach, which values the environment as a third teacher (Robson, 2017). Much of the evaluation and research on early learning environments in the United States has been quantitative in nature, focusing on the face value of items held within the space, rather than the ways it participates in the learning process (Paniagua & Istance, 2018). This is unfortunate because a major role of early childhood teachers is to consider and make choices about what goes into the physical—or prepared—environment. These choices reflect the pedagogical values of the teacher, which are more challenging to ascertain through quantitative measures. Teachers working in university laboratory preschool environments, which act as research and demonstration sites, consider these values in light of their practice, theory, and current research (Barbour, 2003). It is essential for expert teachers in the field to share their knowledge so that others can be brought into a more holistic vision for what quality, intentionally-designed environments for young children look and feel like.

This study was based on the following assumptions: 1) children are impacted by their environments (socio-cultural theory), 2) children deserve to spend their time in well-designed spaces that support their learning and development (self-determination theory), 3) teachers moderate this experience for children (ecology of schooling; affordances), 4) teachers must take a critical, reflective approach to ensure optimal contexts for *all* children (reflective practice, critically conscious professionals), and 5) that there is much to be learned from expert teachers with regard to the environment, hence the need for their input within the realm of research (educational criticism; participatory practitioner research). From these assumptions, the following research questions emerged:

- What do expert teachers at a university laboratory preschool deem important within the physical learning environment?
- What can be learned about the practices and underlying pedagogical values of expert preschool teachers through an exploration of the physical learning environment?
- How does this group of expert preschool teachers collectively conceptualize high-quality learning environments for young children?

As suggested by the research questions, this study's purpose was twofold. The first aim was to better delineate the importance of the environment and its role in learning and development, including what is physically present in the space. The second aim was to gain a collective interpretation of quality learning environments from the perspective of practicing experts in the field in order to influence practice and policy from within the field. These teachers should be embraced as educational critics (Eisner, 2016).

This study was guided by Eisner's (2016) qualitative approach to inquiry, educational connoisseurship and criticism. This approach relies on the ability to see, or appreciate, the art of education from a philosophical and knowledgeable perspective (connoisseurship) in order to interpret new perspectives for others less knowledgeable or practiced (criticism). The approach, derived from the arts, relies on observation, critical reflection, and the ability to consider at all levels, the multidimensional facets of school ecology. By engaging a transformative lens, this study delegated teachers as researchers, creating an outlet to reflect on personal practice, to strengthen connections, and to strategize with fellow practitioners, while contributing to and shaping the broader professional landscape.

This study employed the participatory method of photovoice (Latz, 2017; Vaughn et al., 2009; Wang & Burris, 1997) to capture the perspectives of expert teachers at a university

laboratory preschool with regard to the learning environment. The process began with the participating teachers photographing important elements within their respective classrooms, followed by critical reflections that included the sharing of photographs and the thoughtful discourse that ensued. The participating teachers generated initial codes through this process and developed overarching themes that became the basis of a collective vision statement for early childhood education.

This study generated a rich collection of visual data. The selected photographs depicted a wide range of elements across materials, space and layout, and displays, revealing environments that were open-ended, sensory-rich, literacy-rich, reflective of nature/natural elements, and that invited children to explore and build relationships. Through critical reflections the participants shared their reasons for including the photographs in their curated galleries. The explanations typically began with the specifics of what was pictured, and moved into broader themes less visible to the eye, for example, a photograph of children's artwork and quotations displayed on the wall represented themes of belonging, creativity, and respect for the capabilities of children. Initial codes were generated following each critical reflection (which included individual sharing and group dialogue) and later batched into overarching themes using affinity mapping. The participants then grouped the codes into four themes (i.e., descriptive categories):

- *The Foundation*—core values (love, respect, and sense of belonging)
- *The Feeling*—the emotional and aesthetic dimensions of classroom elements (creativity, pride, and beauty)
- *The What*—the approach to teaching and learning, or the daily work of the teacher (child-led, emergent interests, and risk-taking)

- *The Why*—the broader purpose/goals of the environment on an individual and societal level (higher-level thinking, empowerment, and intentionality)

The four themes were then translated into corresponding pedagogical values including the image of the child, the role of the teacher, the role of the environment, and the purpose/goal of early education.

As described in the findings, the themes and pedagogical values were further developed and distilled, ultimately resulting in a collective vision statement. The statement is a powerful representation of more than 45 photographs, merging what began as individual representations of the physical environment into a shared conception of what it means to bring your whole self to your work; to create environments and experiences that challenge and nurture the intellectual, emotional, physical, and spiritual development of young children.

Making Connections: Relating Findings to Literature and Theory

The underlying premise for this study was that the environment, the child, and the teacher are not mutually exclusive entities, but are connected, dynamic, and interrelated. The concept of the third teacher refers to the physical environment where children learn, interact, and build relationships with themselves, others, and the world around them (Fraser & Gestwiki, 2002; Robson, 2017). This linkage was evidenced in the findings and will be elaborated upon in relation to pertinent literature and theory to more thoroughly address the research questions of this study.

The Physical Environment and the Development of Hands, Hearts, and Minds

> We value space because of its power to organize, promote pleasant relationships among people of different ages, create a handsome environment, provide changes, promote choices and activity, and its potential for sparking all kinds of social, affective, and

> cognitive learning. All of this contributes to a sense of well-being and security in children (Malaguzzi as cited in Gandini, 1998, p. 177).

The environmental elements highlighted in the participating teachers' critical reflections are indicative of what Rushton et al. (2010) describe as brain-enriched classrooms, or the foundational skills and attitudes related to self-determination (Palmer et al., 2012). This type of environment at once supports the development of the hands, heart, and mind—a holistic and scientifically proven notion that brain systems do not develop in isolation, but in response to one another. In basic terms, children who feel safe, happy, and engaged in a classroom will be more likely to focus, be vulnerable, and take in new information. Teachers that are equipped with this understanding work toward creating psychologically safe environments that prioritize physical, cognitive, and emotional security, that then empower children to take risks, problem-solve, express their creative and emotional selves, ask questions, collaborate, and share ideas—all of which are indicative of 21st century skills (Hirsh-Pasek et al., 2020). Preschool, when considered from this standpoint, is thereby an opportunity to set the stage for foundational skills and attitudes needed for lifelong learning and success.

In the case of the participating teachers, the physical environment was designed with these goals in mind, as reflected in the classroom materials available to children such as digital cameras, high-quality art supplies, a variety of books and resources, the inclusion of natural and living things, and spaces for both individual reflection and group interactions. The materials chosen for the classroom were meant to intrigue, enhance, and extend learning, encourage individual and social play, and represent the unique cultural makeup of the classroom. This is the intention of a child-centered educational approach—one that values intrinsically motivated learning that stems from the unique capabilities, contexts, and interests of the children. The

freedom and support afforded by this type of environment builds confidence and regulatory skills and reaches into deeper levels of worthiness, belonging, and connectivity. This reiterates to each child that their ideas matter, that their feelings matter, and that they themselves matter. Self-regulation is both cognitively and emotionally intertwined (Blair & Diamond, 2008; Posner & Rothbart, 2007) and has been identified as a critical indicator for school readiness (Blair & Raver, 2015). These regulatory skills, prioritized by the participating teachers, assist in meeting the human need for relatedness, competence and autonomy, or self-determination. The participants' description of the dual purpose of education is mirrored in the literature on self-determination, which suggests that the foundational skills and attitudes that lead to authentic growth directly benefit children at the individual level, leading to a happier, healthier society as a whole (Palmer et al., 2012; Ryan & Deci, 2000).

The environments pictured and described by participating teachers embody what Katz (2007) refers to as standards of experience. Contrary to the accepted notion of learning standards or benchmarks, Katz poses a criticism to the traditional nomenclature of kindergarten readiness asking, "Ready for what?" Rooted in philosophical commitments and empirical evidence regarding children's development and learning, Katz instead presents markers of high-quality learning experiences that all children should have, where the focus is on intellectual dispositions and understanding, rather than surface-level academic outcomes.

Table 9 aligns Katz's standards of experience with examples of elements represented in the participating teachers' photographs and critical reflections:

Table 10

Standards of Experience (Katz, 2007) alongside Elements of the Physical Environment

Standards of Experience	Corresponding elements represented in teacher photographs/critical reflections
Being intellectually engaged, absorbed, and challenged	Authentic materials including "real" tools and technology; provocations for exploration; access to books and digital resources; flexibility with materials and use of space; sensory-rich and open-ended play materials
Having confidence in their own intellectual powers and their own questions	Access to a variety of interest areas; displayed documentation of their ideas, thought processes, and work; interactive topic webs; access to authentic materials (tools, paint, staplers, tape)
Being engaged in extended interactions (e.g., conversations, discussions, exchanges of views, planning)	Interactive documentation throughout the classroom including topic webs, child reflections, charting growth, letters to other groups of children; documentation of learning/project work (wall displays, class project books, video/photo playback); layout/material changes (with input from children) to sustain project work (i.e., puppet project)
Being involved in sustained investigations of aspects of their own environment worthy of their interest, knowledge, and understanding	Materials that encourage investigation, literacy, observation, wonder/appreciation of beauty, self-expression, information gathering (books, journals, clipboards, digital cameras, magnifying glasses, graphic arts materials, natural materials); interactive charts reflecting their words/thoughts; materials for self-expression and documentation (clipboards, journals, graphic arts materials, digital cameras)
Taking initiative in a range of activities and accepting responsibility for what is accomplished	Access to a range of interest areas; flexibility and choice exemplified in classroom layout; documentation that shares learnings/processes with others; job charts; sharing lists
Knowing the satisfaction that comes from overcoming setbacks and solving problems	Documentation of classroom experiences/project work that prioritizes the full learning process including planning, problem-solving, collaboration, variations, extensions, and reflections; accessibility to and flexibility with classroom materials
Helping others to find out things and understand them better	Documentation of classroom experiences/project work; literacy and research resources; cultural and family displays

Making suggestions to others and expressing appreciation of others' efforts and accomplishments	Documentation of classroom experiences/project work; interactive displays (topic webs, comment charts); displays of children's original work and words
Applying developing literacy and numeracy skills in purposeful ways	Materials throughout the classroom that encourage literacy, information gathering, and writing/documentation; interactive webs and charts; interest areas that encourage observation, measurement, documenting change over time
Feelings of belonging to a group of their peers	Overall space/layout (i.e., the feel of the space); welcome boards/entryways, job charts, sharing lists; displays of children's work (artwork, writing, etc.); documentation displays of children's learning both individual and as a group; displays of cultural artifacts and family/child photographs; interest areas that encourage cross collaboration; places of respite and individual spaces within a group setting; materials that invoke a sense of home/comfort

The physical environment and how the space is experienced has a direct impact on the types of opportunities and potential outcomes for children. Interestingly, not one participant photographed academic-based materials such as counting bears or math games, recognizing that concept development is intrinsically embedded throughout the physical space in meaningful ways. As opposed to a ready-made curriculum, teachers develop a keen understanding of children's individual interests and needs, modifying the environment and infusing it with learning opportunities accordingly. The ability to observe, reflect, plan, and adapt in this way, is a marker of high-level teacher practice.

Additionally, the aesthetic dimension of the physical environment, prioritized by the schools of Reggio Emilia and evidenced in the findings of this study, emerged as an important influence in the overall feeling of the space, setting the tone for learning and interacting. This relatively recent shift in programmatic focus was described in the final meeting as "a focus more on that *feeling* [theme: The Feeling] … those intangibles that we talked about. I think now the

focus [at Arlitt] is on making it feel a certain way, with the curricular elements embedded, versus a specified curriculum that drives the environment."

Leddy and Puolakka (2021) write extensively on Dewey's aesthetic experience, noting that the "Aesthetic experience, in fact, is something that precisely ties the practical, the emotional, and the intellectual into a single whole" (Dewey, 1934, p. 61). This parallels the findings in neuroscience, which recognizes the integrated nature of the emotional and cognitive systems. Experiencing the classroom as a whole, rather than distinct parts, allows the aesthetic dimension to come alive.

Aesthetic education rooted in the arts (graphic art, music, story telling, dramatic play, etc.) is foundational learning in preschool, inviting children to perceive and explore their rich surroundings, feel and express emotions/ideas, and develop holistically. The aesthetic domain is therefore a means to holistic development (Chen, 2017). A classroom that invites the child (and anyone who enters) to breathe in beauty, calm, inspiration, and a sense of belonging, will set the tone for all other learning to occur. Referring back to the participant who photographed their classroom from the entryway, she described the wholeness and intentionality of the space in the following way, "I want the room to feel welcoming and warm, engaging yet open to their ideas—with a balance of inspiration and room for their voice to be heard. Engaging, inspiring, beautiful, welcoming, ours."

The aesthetic dimension is influenced by architectural elements such as high ceilings and large windows that allow for natural light to shine through, but also, and perhaps more importantly, by the components and layout of the everyday prepared environment. As evidenced in the photo displays and critical reflections, this may include: natural elements, things of beauty and cultural relevance, pictures and words that reflect the inhabitants of the space, materials that

invoke curiosity and wonder (i.e., shadow, reflection, movement), features that provide nurture and comfort (i.e., soft lighting, plush items), and storage and layout options that inspire a sense of cohesion and order while allowing for flexibility and creativity. Referring back to the work of Fraser and Gestwicki (2002), the data reflect the Reggio principles related to the environment as the third teacher including flexibility, active learning, transparency, aesthetics, collaboration, bringing outdoors in, and relationships. When taken together, it is possible to conceptualize the environment as being dynamic, interactive, and "alive" (Robson, 2017).

Teachers that achieve this type of environment will invoke feelings of importance (i.e., the people who live and play here are important, the work they do is meaningful), leading to an elevated understanding of the capabilities and worthiness of children and the work of the teacher. The schools of Reggio, like that of the participating program in this study, create neutral, natural, and organized spaces that act as the backdrop or canvas for children's ideas to shine. The children themselves, in interaction with the space and materials, provide the color, shape, and energy. This seemingly intangible dimension, when understood and valued, contributes greatly to the overall quality of the classroom environment.

The Physical Environment, Pedagogical Values, and Potential Outcomes for Children

The photovoice project provided ample evidence of deeper pedagogical values, as further revealed through critical reflections, group analysis, and the development of a collective vision statement. Pedagogical values, whether implicit or explicit, guide all other dimensions of practice. As conceptualized throughout this study, pedagogical values include the image of the child (what is believed about children, childhood, development), the role of the environment (dynamics, aesthetics, provocation, interactions), the role of the teacher (responsibilities,

dispositions), and the overall purpose of education in the early years (what is learned, why is it learned).

Drawing on Cole's theory of prolepsis (1997), it is possible to see how the participating teachers transmit their attitudes and beliefs to the children in their care through daily interactions and the prepared environment. Uhrmacher's Instructional Arc (2017) brings this notion into the realm of schooling and is useful for visualizing the trajectory from teacher intentions to children's generable developments. It demonstrates the natural flow from intended curriculum to operational curriculum to received curriculum. Adapting this model for the purpose of this study elucidated how the participating teachers' intended curriculum (pedagogical values) influenced the operational curriculum (the prepared physical environment), and how that related to children's received curriculum (experiences, attitudes, skills, potential outcomes).

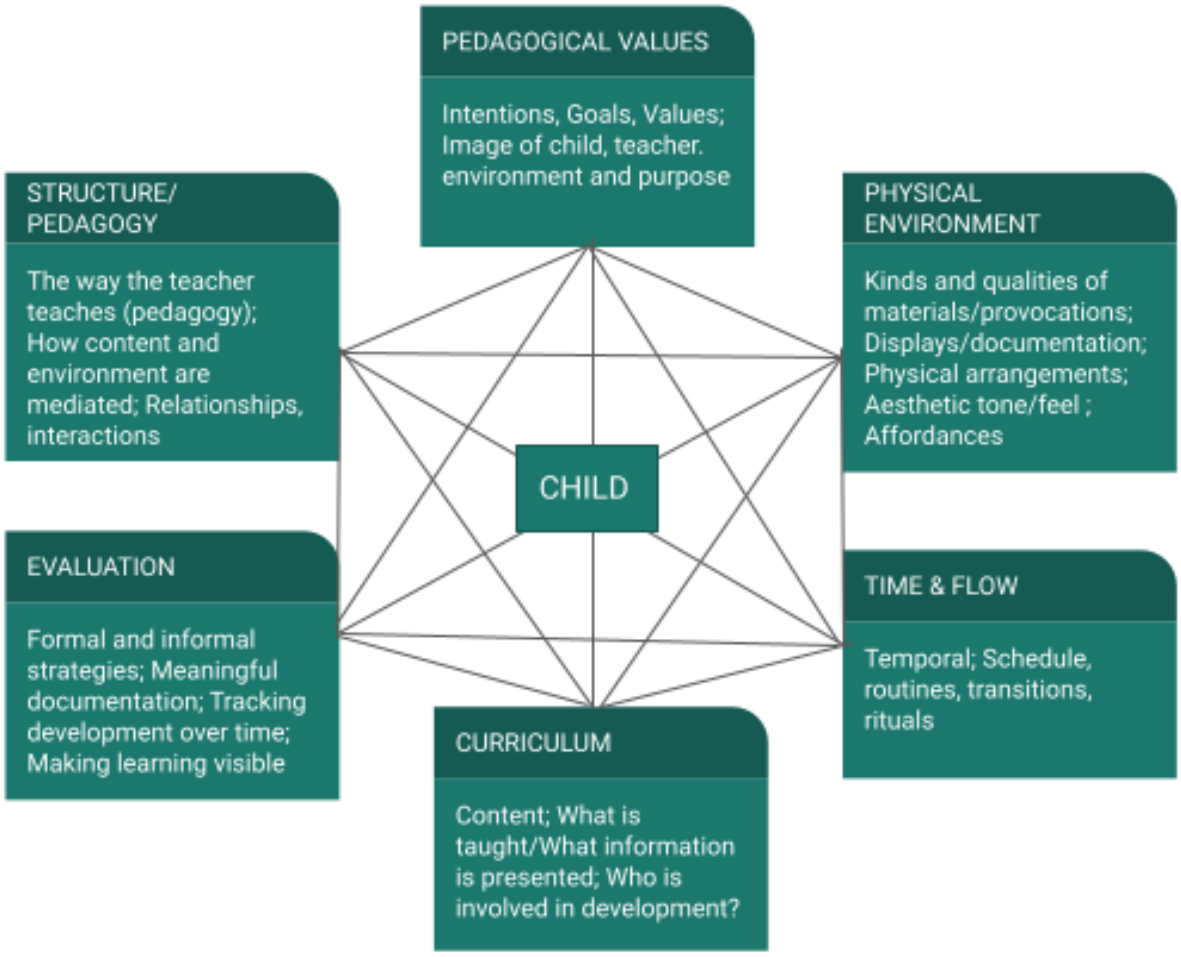
The concept of affordances, and specifically the relational model presented in Maier et al. (2009), is helpful for elucidating the relationship between structure, affordances, behaviors, and purpose. In the context of this study, the teachers described an authoritative structure, which encouraged open communication and involved children in problem-solving and planning while providing clear expectations and guidance. The teachers furnished their classrooms with materials and layouts that afforded a wide range of opportunities for flexible, child-led, play-based discovery and exploration. Rooted in an image of the child as capable, competent, and worthy of respect, the teachers perceived the physical environment as an invitation, a provocation to explore, interact with, and imprint upon—prime conditions for critical thinking, creativity, positive self-concept, and regulatory skills to naturally emerge. To reiterate, although the physical features do not point to definitive outcomes, they do act as strong indicators for possible behaviors and potential learning. As such, it is important to heed the compelling

elements described by the participating teachers when setting out to to design effective early learning environments. Applying the concept of affordances, encourages teachers to think not only about what is physically present, but also the mediating structure, intentions, and values that influence the use of the environment, and the potential benefits and outcomes the environment can foster.

When evaluating any aspect of teaching practice, such as setting the physical environment, it is critical to consider it in light of the larger school context or ecology. Eisner's systems-driven model (2017) suggests that each domain (curriculum, pedagogy, structure, etc.) is separate yet connected. A marker of an expert educational critic is the ability to attend to all domains in relation to the others. The domains outlined in Eisner's ecology (2017), were re-envisioned in light of the findings to better reflect developmentally-appropriate considerations for young children. This is needed because young children are routinely subjected to the misguided notion that early learning means more learning earlier, leading to academic-focused environments and practices that thwart their natural development and hinder authentic long-term success (Durkin et al., 2022). As presented in Figure 7, the participants' critical reflections touched on all aspects of the model:

Figure 7

Early Childhood Care and Education Ecology



Note. Pedagogical values are at the top of this model, because they directly impact all other areas of practice. The model provides a template for reflection and ongoing classroom evaluation.

The domains of Eisner's ecology (2017) are not stagnant. They evolve and change over time and are impacted by each new experience with children as well as the acquisition of knowledge through personal endeavors, continuing education, and professional development. As

one aspect shifts, grows, or deepens, all other aspects of the ecology are impacted. In a recent article, Bagadaeva et al. (2021) points to the importance of a number of factors related to the personal prerequisites of the teacher in relation to the ecological properties of preschool settings. The physical environment is a tangible entry point for examining these factors and developing more intentional teaching practices. When taken together, this model provides a holistic framework for authentically evaluating the quality of early childhood care and educational settings.

The Physical Environment as a Vision for Quality: Lifting the Voice of Expert Teachers

"Each [environment] shows how teachers, parents, and children working and playing together, have created a unique space: a space that reflects their personal lives, the history of their schools, the many layers of culture, and a nexus of well thought out choices" (Gandini, 1998, p. 177). This quote exemplifies quality in a new light. Here the school and classroom environment is understood as being intentional, contextual, living, breathing, evolving, yet rooted. This is in stark contrast to the more standardized notion of quality we have come to know in the United States. The participants in this study share a vision more closely aligned to that of the Gandini (1998), illustrated in the vision statement that they collectively generated:

> *We cultivate a community rooted in love and respect and seek to inspire creativity, wonder, and joy through authentic interactions and engagement in meaningful work. We intentionally design environments that empower critical thinking, self-expression, and a sense of belonging, with the collective vision of a more peaceable society and sustainable world.*

This encompassing statement at once elevates the work of early childhood education and lifts the voice of expert teachers, providing a succinct vision for quality from within the field. A major

aim of this study was to capture the expertise of the participating teachers and empower them as educational researchers— more specifically, educational critics—to give credit to their professional practice and thoughtful perspectives.

Blending educational criticism, the aim of which is to improve educational processes and practice, with the participatory method of photovoice, which aims to raise the voice of participants and empower them toward action, proved to be practical and enlightening. This approach allowed for both concrete examples (photographic evidence) and deeper values and interpretations (critical reflections/analysis/dialogue) to emerge. Additionally, the concept of VOICE (Voicing our Individual and Collective Experience) (Wang & Burris, 1997) was central to this project, moving from individual data collection to a place of shared meaning that manifested into a singular collective vision statement. As one participant noted in the concluding meeting, "What I appreciate about this process is seeing all the connecting points between our pictures, and the ways we described and discussed them. Even in the end, there's still a diversity of thought [represented] … I feel like that is really valuable." Through this process, teachers had their unique perspectives validated, allowing for a more collaborative approach as ideas merged.

Although there is utility for these findings beyond the scope of this project, participation in and of itself allowed teachers to feel empowered, more connected with their colleagues, and inspired to share interpretations and perspectives of their findings through participation. The post study follow-up survey (see Phase 6 in chapter 3) was sent to the participating teachers to get feedback about their experience with the photovoice project. Some broad takeaways are included here to make the case for this type of professional activity as well as acknowledge some of the structural boundaries that impede expert teachers from inserting their voices in research and policy.

When asked to share positive aspects about participating in the photovoice project, the most oft-cited benefit was the act of reflecting upon educational practices and the act of engaging in deep discussion with colleagues. One participant appreciated the opportunity to reflect not only on the environment they teach in, but also themselves as a teacher, making connections between aspects of the environment and the vast opportunities to foster growth. Another participant stated the following:

> *I appreciated the time to reflect on my practice and hear the thoughts of my peers. It was interesting to see the similarities and points of divergence while acknowledging the solid bedrock of constructivist philosophy that supports our daily interactions and choices about classroom setup.*

Another participant referred to participation in the project as rewarding and "soul nurturing." These reflections show that the benefit of engaging in this type of research is two-way: the teachers were able to provide a wealth of adept knowledge to the field while also validating and strengthening their personal practice and relationship with colleagues.

Time to engage with colleagues and reflect on practice was referred to as a luxury and a gift. Interestingly, the main feedback with regard to what they might change about the research process was time-related. Classroom schedules, finding classroom coverage for the participating teachers, and workload were constraints when it came to the time spent in conversation and analysis together. One participant noted, "It's not that I would change it at all, but that I think this type of sharing and reflection could be transformative for our school and I wish we could find ways to do it more often." Another participant shared, "I think the project was well planned and the format provided a chance for everyone to share. I can't think of anything I would change, except that there is always the constraint of time!" Although reflective practice and collaboration

are indeed valued at this program, it is evident that the time to engage professionally is limited. Time should not be the major restraint when it comes to the professional growth of teachers and the inclusion of expert voices in research and policy, and yet it remains a barrier that requires creative solutions with regard to the role of the teacher (Phillips & Bredekamp, 1998). This suggests the need for new professional pathways that allow for high-level classroom practice to flourish alongside accepted (and acknowledged) forms of practitioner research and an expanded teacher identity that extends to that of scholar, leader, and researcher (Ryan et al., 2017). These pedagogical leaders should be shaping the field and actively challenging the current narratives that define quality in preschool.

Limitations

The findings of this study should be interpreted in light of some limitations. Firstly, as with the majority of qualitative studies, the sample size was small. Although the low sample is intended to obtain robust, detail-rich data directly from the voices and experiences of individuals, it is limited in terms of reach and representation. This study was specifically limited by the number of teachers at the participating program that met the selection criteria. Additionally, the sample diversity was relatively homogenous, with 80% of the group identifying as female and 100% identifying as white. According to Allmark (2004), issues of representation in qualitative research should not be altered at the sample level, rather through the proliferation of the research.

Secondly, time was a limitation of this research. Although the main research questions were sufficiently addressed, the meetings' start and end times were strictly adhered to, as the teachers required release time from their classrooms to participate. This cut some discussions short that would have benefitted from more time. This study was also bound by the program's

year-end date. Had there been more time and additional planned meetings, the participants could have engaged more deeply with the analysis process and the development of actionable steps.

Lastly, this study focused on the classroom level. Factors such as program values and state-imposed regulations were brought up throughout the conversations, which no doubt have an impact on the classroom environment. Moving forward, it will be important to address factors out of teachers' control such as district-wide curriculums that may impede the way they prepare their classrooms.

Future Directions

The implications arising from this study point to new directions for both theory and practice. First, it would be prudent to continue this study with the original participants to build out the early childhood care and education ecological model within the unique context of the participating program. The model could be developed into a robust case study that defines high-level practices and demonstrates alignment across domains. It would also benefit this study to involve participants in actionable steps to further develop and disseminate these findings. Some practical ideas that emerged from the concluding meeting with participants included compiling findings into a document or book that could be used for new teacher orientation as well as a provocation in the interview process, or as a virtual tour to spark professional dialogue.

Second, a next step would be to replicate this study across laboratory preschools in the United States to increase sample diversity and determine whether pedagogical values and themes remain consistent. Multiple case studies of high-level practice could better define the genre of early care and education, and refine the ecological model presented here. These findings would bolster naturalistic generalizations (Eisner, 2002) that support educational improvements. Through this process, a unified vision for high-quality early learning environments could

emerge, amplifying the voice of expert practitioners as educational critics and reclaiming laboratory preschools as pedagogical leaders in the field (Barbour & McBride, 2016).

Additionally, it would be of interest to replicate this study across a variety of early childhood settings, such as independent childcare centers, school-based preschool programs, and corporate childcare chains to capture the broad range of environments present within the landscape of early childhood programming. This information could better delineate the spectrum of environments available to children and families, determine what underlying values remain consistent, and identify gaps and other factors that should be accounted for when considering policy and professional preparation and training.

It is anticipated that future research will reveal hierarchal indicators within early care and education ecologies that will inform professional learning opportunities for preservice and practicing teachers. The model could be a helpful tool for evaluating program-wide visions, values, and practices, more specifically through the use of photovoice as the catalyst for that exploration. Photo documentation is a straightforward way to invite professional dialogue among a community of learners, allowing opportunities for growth to emerge from teachers' representations.

Concluding Statement

Through the lens of Eisner's (2017) educational connoisseurship and criticism, and the use of photovoice as a participatory method in education (Latz, 2017) expert teachers documented important elements of the physical environment to examine how the environment communicates values and expectations, and acts as a third teacher for learning. Through this process, teachers revealed deeply held pedagogical values and developed a collective vision for early learning environments. When paired with the conceptual framework presented in chapter 2,

the findings from this study yielded new models for how to holistically examine early learning environments. This study suggests the need for ongoing input from expert teachers for demonstrating and disseminating what high-quality learning environments for young children look like in practice, while providing practical insights as to how teachers can begin to reflect upon the classroom environment in greater alignment with their values.

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