Intergenerational Facilities:
Designing Intergenerational Space through a Human Development Lens

Neda Norouzi

Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy
In
Architecture and Design Research

James Jones, Committee Chair
Shannon Jarrott, Committee Co-Chair
Habib Chaudhury
Patrick Miller
Lisa Tucker

April, 12, 2016
Blacksburg, VA.

Keywords: Design process, architectural design, built environment, architectural phenomenology, intergenerational program, contact theory, personhood theory, elders, children, quality of life.

Intergenerational Facilities:
Designing Intergenerational Space through a Human Development Lens

Neda Norouzi

ABSTRACT

The built environment can be structured to encourage or discourage social interaction and can have effects on children's cognitive, social, and emotional development as well as effects on elder's health and well-being. Knowing the profound influence of the built environment on elders (Garin, et al., 2014) and children (Bradford, 2012), the design of intergenerational spaces therefore has the potential to influence the interaction between elders and children engaged in intergenerational programming.

Intergenerational care programs present opportunities for cooperation and exchange of skills, knowledge, and experience between people of different age groups (Bradford, 2012; Jarrott, 2011; Kaplan et al., 2002; Newman, 1997). Highlighting the common points and connections between architectural phenomenology and human development theories, this study presents the benefit of developmental theories being applied empirically in architectural design when creating intergenerational facilities in order to enhance the quality of intergenerational interactions. To address this goal, this study examines physical environments that can effectively and efficiently provide intergenerational services. The objectives of this study are to find out (1) whether or not the identification and adaptation of human development theories and architectural phenomenology inform the extension of normative design for intergenerational facilities and (2) in what ways do architectural conditions of an intergenerational space meet the needs of multiple age groups and facilitates interaction.

The study uses grounded theory framework to develop a theory related to the influence of spatial design on the quality of intergenerational interactions. To accomplish this, a phenomenological description of different intergenerational spaces was conducted,

followed by four to six hours of behavioral/observation mapping of the intergenerational space. The investigator interviewed the architect(s) to ascertain their main ideas and the purpose of designing the building, and the people (participants, educators, coordinators, and facilitators) involved with the intergenerational programs to indicate how the space influences intergenerational interaction. The result of reviewing and analyzing the collected data is a new model of design process grounded in theoretical tenets of personhood and contact theory and applicable for designing intergenerational facilities.

To my Great-Grandfather who made my childhood beautiful.

ACKNOWLEDGMENTS

I have encountered many wonderful people along my path in pursuit of this PhD, friends who inspired me and professors who were my mentors and shaped my life impermeably.

Completion of this doctoral dissertation would not have been possible without the continuous support of my co-chairs, Dr. James Jones and Dr. Shannon Jarrott. I cannot express how thankful I am to have you both as my mentors. When I began this process, I had an idea that made sense to me and although many found it interesting, everyone wondered how I would conduct an interdisciplinary study that integrates the field of Human Development and Architecture. Today, I can say the only way I was able to transform my idea into a dissertation that I can build my career on, was through your support and inspiration.

Dr. Jarrott, you showed interest in my research topic when we met at Generations United, one year before I started at Virginia Tech. Thank you for pushing me to start this program and supporting me, regardless of which department I was in or which state you lived in. This feat was possible because of your continuous support.

Dr. Jones, thank you for accepting me as your student even though I had an unconventional interest in architecture. Thank you for always making yourself available to clarify my doubts and answer my questions, regardless of how busy you were. Thank for all the phenomenological discussions we had about Pallasmaa, Norberg-Schulz, and Zumthor's work. I am truly appreciative of your continuous contribution of knowledge and time.

To my committee members: Dr. Habib Chaudhury, Dr. Patrick Miller, and Dr. Lisa Tucker. I have learned so much from having each of you on my committee. You have all contributed diverse perspectives, a critical eye, and a caring nature.

Dr. Chaudhury, I first met you at the Gerontological Society of America conference when multiple colleagues who were familiar with my research suggested that I talk to you. They

said you are kind, smart, and knowledgeable, and since our first meeting, I knew I wanted to work with you. I have found notes from our conversations and discussions through the last few years, when you made time to meet with me regardless of how busy your schedule was. Thank you for the knowledge you have passed on to me, especially in regards to behavior/observation mapping and how I can use it for my study.
Dr. Patrick miller, thank you for your calming presence, and for encouraging me to include phenomenological description as one of the methods for collecting data in my study.
Dr. Lisa Tucker, thank you for stepping in and supporting me late in the process. I appreciate your input on universal design and evidence based design.

To my family, for all your love and encouragement. My brother, Nima, who has been my best friend since I was three. You encouraged me to start this program, and as always, cheered me on through the process. To my sister, Dena, who is the best gift I have ever received. You make me want to try harder and inspire me to become a better, kinder, and smarter person every day. To both of you, thank you for laughing when I am happy, and making me laugh when I am sad. You are my twin pillars, and without you I could not stand. I love you.

To my parents, who filled our house with books and taught me that life is more beautiful with knowledge. You are kind, loving, and unfailingly generous people. I am proud to be your child. Dad, you never gave me the idea that I could not do whatever I wanted to do or be whomever I wanted to be. Instead, you inspire me to work hard, live life to its fullest, and be happy. Mom, you wholeheartedly believe in me even when I doubt myself. You listen to me talk about my research on daily basis, cry about not being smarter, and laugh when I achieve my goals. You filled my life with unconditional love and encouraged me to read, trying to give me role models. However, I want you to know that the person I most want to be is you. You are my hero.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1
INTRODUCTION

1. 1 CONTEXT

Built environments can be structured to encourage or discourage social interaction. The built environment has effects on children cognitive, social, and emotional development as well as effects on elder's health and well-being. Larkin et al. (2010) believe that "creating spaces for positive [intergenerational] interactions that elicit memorable experiences for both age groups is critical to their well-being" (p. 172). Both elders and children should feel safe in their environment in order to interact with one another and explore new relationships. Knowing the profound influence of the built environment on the elderly (Garin, et al., 2014) and children (Bradford, 2012), the design of intergenerational spaces has the potential to influence the interaction between elders and children engaged in intergenerational programming.

Intergenerational care programs provide both elder care and child care and with great opportunities for people to come together across generational lines and become more invested in each other's lives. These programs present opportunities for cooperation and exchange of skills, knowledge, and experiences between people of different age groups (Jarrott, 2011; Kaplan, Henkin, & Kusano, 2002; Newman, 1997). There are different types of intergenerational activities that are mostly planned, organized, and facilitated by preschool teachers and professionals (Gamliel et al., 2007). Kaplan and Larkin (2004) explain the difference between an organic and a planned intergenerational program while comparing two programs with different planning process. In the organic intergenerational program, the elders get involved directly in children's play while in the planned intergenerational program, the elders facilitate the children's play. While the role of the elderly and children is different in these two programs, the nature of interaction, like most other intergenerational programs, is planned and organized by the teachers and administration of the programs. The purpose of this study is to investigate the use of human development theories through phenomenology in architectural place making of

intergenerational facilities in order to create intergenerational spaces that enhance the quality of intergenerational interactions, planned as well as spontaneous.

1.1.1 Care Settings

The United States Department of Health and Human Services (2013) estimated that the number of elders (ages 65 and older) increased to 12.4% in 2000 and is expected to rise to 19% by 2030. The Census Bureau American Community Survey (U.S. Department of Commerce, 2001) estimated that 13 million adults have difficulties living independently. The same survey reports that 8 million of these elders have difficulty completing daily activities such as bathing, dressing, managing and taking medication, grocery shopping, and going to their doctor appointments. A U.S. Senate Special committee on Aging Reports (2000) states that long-term care needs vary from personal and social care to medical services and specialized housing.

Families turn to formalized care for elders for a variety of reasons, including the inability to provide the level of care needed (Clark & Rakowski, 1983; Naylor et al., 2004) and reducing the caregiver's stress resulting health implications (Crnic & Greenberg, 2008; Newell et al., 2012). A National Health Care Statistics Reports assessed data from the National Center for Health Statistics (2013) survey of adult day services centers and residential care communities, in addition to administrative records obtained from the Centers for Medicare and Medicate Services on home health agencies, hospices, and nursing homes. They conclude that in 2012, 8 million Americans were provided long-term care services by over 58,000 paid caregivers. Spending time at these facilities, although necessary at times, could also mean separation from other age groups and removal from the rest of the society.

While the number of Americans over the age of 65 is increasing, younger people are having fewer, if any children (Colby & Ortman, 2015). There are over 13 million children who spend most of their daily time in out-of-home care (Ehrle, Adams, & Tout, 2001; Laughlin, 2013). The prevalence of children in child care settings is influenced by a

number of factors. Increased work demands on parents (Bianchi & Milkie, 2010), geographical mobility of adult children (Williams & Nussbaum, 2001) and the educational and socialization opportunities offered to young children within the childcare setting (Hargrave & Sénéchal, 2000) influence parents' decision to enroll children in child care.

1.1.2 Intergenerational Programs

Individually, elder care and child care programs have the potential to benefit the elderly and children. However, individual programs separate elder and child communities (Smith, 2002). Children and elders spend their days away from each other and in adult care or child care centers with like-aged people. The limited interaction between elders and children provides a potential basis for the development of prejudice, discrimination and negative perception of one cohort toward the other (Bales et al. 2002).

In an attempt to increase interaction and limit the development of negative perceptions, communities have chosen non-familial intergenerational programs to provide both elder care and child care simultaneously. Non-familial intergenerational engagement is interaction between elders and children who are not necessarily family members (e.g. grandchild-grandparent, uncle/aunt-niece/nephew, etc.). Intergenerational care programs provide both elders and children the opportunities to come together and be in each other's lives. Intergenerational programs capitalize on the strengths of elders and children, utilizing their undervalued skills and knowledge. For elders, this knowledge was acquired throughout their lifetime, while children have inherent capabilities that society often ignores (Holmes, 2009). Many of the elderly prefer to be engaged with the community, maintain old relationships and build new ones, while transferring knowledge and wisdom to younger generations (Arcury et al., 2001).

Intergenerational programs have proven beneficial for elders and children. Research by Holms (2009) illustrates that elders and children participating in intergenerational programming report advancement in sensory stimulation, enhancement of self-esteem, increased positive socialization, special attention to individuals, and intellectual

development. Multiple studies have shown benefit of intergenerational programs for elders with cognitive impairment (Heydon, 2013; Jarrott & Bruno, 2007) as well as for participants with dementia, who show less signs of agitation after an intergenerational experience (George, 2011; Morris et al., 2005). Intergenerational programs provide the elderly with opportunities to use their life experience and expertise to develop and share activities such as cooking, science, and storytelling (Norouzi, Chen, & Jarrott, 2015), to be child care providers (Larkin & Newman, 2001), or partners in intergenerational theatre (Norouzi & Henkin, 2015; Norouzi & Lyon-Hill, 2014). Children involved in intergenerational programs are more prosocial (Kessler & Staudinger, 2007), and the nurturing presence of elders helps bring a familial aspect to the preschool setting (Larkin & Newman, 2001).

Intergenerational activities offer social interaction that often needs to happen within a built environment. Identifying design strategies for creating a place that helps fulfill the needs of the intergenerational community is a prerequisite for intergenerational facilities. Variation of intergenerational interactions depend on the population involved, available resources, and the goals and objectives of each specific program. One type is 'organic' intergenerational programs that create opportunities for positive intergenerational interaction as an end goal (Kaplan &Larkin, 2004). Other types adapted by different programs create jobs for elders (Larking & Newman, 2001), help at risk youth and young adults with drug use problems (Taylor, LoSciuto, Fox, & Hilbert, 1999), and involve elders with community and civic engagement (Wilson & Simson, 2006). Shared-sites intergenerational programs represent a unique age-integrated facility "in which children/youth and the elderly receive ongoing services and/or programming at the same time concurrently" (Goyer, 2001, p.3).

There are many benefits offered by shared site intergenerational programs, among which are shared resources, easy transportation between programs, easier scheduling for shared-site activities, and possibilities for informal intergenerational interaction (Jarrott & Bruno, 2007). In order for intergenerational environments to provide opportunities to link

younger and older generations for mutual benefits, intergenerational spaces need to incorporate design elements to support this goal. This requires the spaces to integrate dimensions of openness, privacy, and personal control as well as promote multisensory activities and positive socialization. Architects need to design a physical environment that is open and inviting for both generations by providing spatial opportunities for organized activities as well as extemporaneous interaction.

1.1.3 Architectural Phenomenology

In order to identify the appropriate spatial design qualifications that would create opportunities for different levels and types of intergenerational interaction and support the goals of intergenerational programs, this research uses philosophical grounds of phenomenology as a pathway for integration of human development theory in architectural place making. Phenomenology as a philosophical movement was founded by Edmund Husserl, and then followed, adopted, extended, and broadened by Martin Heidegger and Maurice Merleau-Ponty. Heidegger is a German philosopher of the 20th century who defined phenomenology as a way of seeing. His text on notion of dwelling and place has continually influenced architects since 1951. For Heidegger, a ‘dwelling’, the relationship between human and space, comes first and establishes the foundation of building and that can then be inscribed as a ‘place’ (Heidegger, 1962). Space exists within a boundary, which is not where things stop but where they begin presenting themselves and possibly connecting to other things through a bridge. Heidegger defines a ‘bridge’ not as a connection of the two ends but as something that causes the emergence of the two ends.

Using Heidegger’s language, intergenerational programs are bridges that connect the generations that have otherwise been kept distant from one another in today’s society and brings them to the forefront of life. Intergenerational facilities are where elders and children dwell, meaning they are able to remain and stay in place while connected to physical and social environments. Therefore, intergenerational facilities can play a crucial

role in the world. Intergenerational facilities create spatial boundaries where elders and children have a voice to present themselves.

Merleau-Ponty was a French phenomenological philosopher, strongly influenced by Husserl and Heidegger. Merleau-Ponty (1962) defines phenomenology as the essence of perception. His main interest was the constitution of meaning in human experience. He writes about perception and the foundational role it plays in understanding the world. He emphasized that human body, the 'lived body', is the primary site of knowing the world, and that it could not be separated from what it perceives. In the sense that the world reveals itself to people from the time they are born, the world and the people become enmeshed. He calls this perception and relates it to the 'lived body', and claims that the perception and designable environment that surrounds a person affects the lived body's experiences and actions—and therefore it affects the perception of that person's mind. More importantly, the lived body's experiences of the built environment affect the phenomenological perception and the human responses to the world, as well as to the social and physical environment.

Using Merleau-Ponty's language, buildings that are designed to serve intergenerational programs and be used by members of different generations, the elderly and children, influence the lived body's experience. This could lead to positive changes in attitude of one generation toward the other. Merleau-Ponty also believed the physical and designable environment affect a person's actions. This concept in an intergenerational setting could influence the quality of intergenerational interaction between elders and children.

Many architectural theorists and practitioners present phenomenology as a reliable way of comprehending architecture. Christian Norberg-Schulz (2000), Juhani Pallasmaa (2012), and Peter Zumthor (2010), as the leaders of theoretical and practical architectural phenomenology, believe that by manipulation of form, space, material, color, light, and shadow architects can create a memorable encounter through an impact on the human

senses and influence their experience and interaction with social and physical environment. Following the trends of these architects, experience and emotions are used as measuring tools for architects to direct us back to the world and back to the sense of self and being.

However, our self and being is who we are as human beings and our being exists due to our experiences and emotions. Therefore, our self and being are what should be used as measuring tools for design. We gain our emotions and experiences by interacting with atmosphere, which in the context of architecture is spatial and environmental. In designing intergenerational facilities, the spatial design of the atmosphere is dependent on the architect's knowledge and training. However, its environmental atmosphere contains both physical and social environment atmosphere. Based on the concepts of Norberg-Schulz (2000), Zumthor (2010), and Pallasmaa's (2012) architectural phenomenology, people are connected to the environment and the physical environment's atmosphere affects people through sensibility and emotional connection with the building. The social environment atmosphere, on the other hand, would influence people through sensibility and emotional connection with other people in the building.

1.1.4 Integrating Architectural Phenomenology and Theories of Human Development

In today's increasingly mobile society, the limited interaction between elders and children provides a potential basis for the development of prejudice and discrimination (Bales et al., 2000) and negative perceptions and attitudes of one cohort toward the other. The negative attitude toward the elderly creates negative images and beliefs toward aging that could become reality for both younger and older people (Jarrott, 2011; Robinson et al., 2008), and influence functional health, cognitive abilities, longevity, quality of life, and memory (Jarrott, 2011; Jarrott & McCann, 2013; Levy, 2003; Levy et al., 2002), as well as their health insurance and services (Jarrott, 2011). It can also impact employment and the work environment (Gringart et al., 2008) and in some cases it has been linked to how elders are treated in the society (Arnold-Cathalifa et al., 2008; National Center for the

Protection of Older People, 2009); it can also contribute to elder abuse (HSE, 2009). Architects believe that a space is designed and built for humans to use and experience. This experience happens through the notion of sensorial qualities of each person that is related to that person's being. Thus, creating environments that allow the elderly and children to spend time together and engage in intergenerational activities could have a positive effect on their perceptions toward one another.

The theory of personhood is focused on individuals and their being, while contact theory emphasizes positive social interaction in an environment that creates opportunities for different groups of people to come together. Even though contact theory as written by Allport (1954) references social environment, every social interaction happens in a physical environment; therefore, the combination of personhood theory and contact theory with the purpose of bringing old and young together, supports the main concept of intergenerational programs to create an environment that allows for positive interaction between old and young in order to support each other. However, much in the same way as many other programs, there needs to a be a physical building for the intergenerational program to be placed in. In order to create the built environment, architecture is needed, so that not only the building can accommodate the intergenerational program but also it supports the theoretical foundation and enhances the quality of intergenerational interaction.

The theory of personhood and contact theory have the capacity to inform architects' understanding of elders and child development and assess their needs in an intergenerational setting. Design of intergenerational facilities is a new concept to most architects in the U.S.; there are also not many studies that focus on the influence of architecture on the quality of intergenerational connections. Therefore, based on Husserl's (1970) statement of experience being the source of knowledge, there is limited experience on how to best design intergenerational facilities. Phenomenology is a dynamic philosophy that advances the study of subjective conscious experience and the phenomena of focus.

Since there is limited experience and knowledge in the field of architecture for designing intergenerational facilities, using human development theories that are focused on human individuality (personhood theory) and positive social contact between disparate groups (contact theory) will help architects to conscientiously make decisions on how to best design intergenerational spaces that offer opportunities for enhancing the quality of intergenerational interaction. When an architect gets a job of designing an intergenerational facility, s/he might already know or research and learn about what an intergenerational facility is and what type of spaces are needed in this facility; however, theory of personhood and contact theory will inform the architect about the importance of attachment, comfort, identity, occupation, inclusion, equality, common goal, cooperation, support of authorities, and opportunity for friendship.

For example, let's look at the support of authorities and opportunities for friendship and how knowing these points would make a difference in the design of the intergenerational facility. The architect who is designing an intergenerational facility would know to design spaces that allow elders and children to join each other for various activities, and the architect might even design a multipurpose room for the elderly and children to come together for free and unplanned interaction. However, not all elders or children are interested and would take initiative to join in the intergenerational interaction. This could be solved by creating a space that allows different levels of interaction such as watching or waving hello. This could be designed as a bridge on the boundary of elders' and children's section of the building and in a way that staff from both sections can view the participants, elder(s) and child(ren), without interfering with their interaction.

Architecture is an art form that has "a concern for human experience, personal identity, and a carefully developed sense of compositional order and beauty" (Bloomer & Moore, 1977, p.18) and architectural phenomenology is the relationship between human experience and space. The philosophical grounds of phenomenology are a pathway for human development theories to reach intergenerational architectural place making. Following Heidegger's (1962) path and defining phenomenology as a way of seeing, I

suggest using contact theory and personhood theory as the lens through which we find a solution for designing intergenerational facilities. Therefore, architects can use architectural phenomenology as a path that connects human development theories to architectural place making. In other words, architectural phenomenology as a relationship between human experience and space creates a way for architects to design intergenerational spaces that afford the tenets of personhood and contact theory.

1.2 SCOPE OF RESEARCH

Highlighting the common points and connections between human development theories and architectural phenomenology, this study is presenting the benefits of developmental theories when being applied in architectural design of intergenerational facilities in order to enhance the quality of intergenerational programs. To address this goal, the author has examined operational intergenerational facilities that are effectively and efficiently providing intergenerational services.

Chapter 2 presents a purposeful interpretation of relevant writings related to elder care, child care, intergenerational programs, architecture, and the integration of human development theories in architectural place making of intergenerational facilities. The chapter concludes with the proposition of key research questions related to designing intergenerational program spaces.

Chapter 3 presents the methodology proposed to address these questions. This study uses a grounded theory framework to develop a theory related to the influence of the spatial design on the quality of intergenerational interaction. To accomplish this, a phenomenological description of different intergenerational spaces was conducted, followed by a four to six hours of behavioral/observation mapping of the intergenerational space. The investigator interviewed the architect(s) to ascertain their main idea and purpose of designing the building, and the people (participants, educators, coordinators, and facilitators) involved with the intergenerational programs within the identified facilities to indicate how the space influences intergenerational interaction. The result of reviewing

and analyzing the collected data, is a grounded theory applicable for designing intergenerational facilities and programming.

Chapter 4 presents the details of data analysis process. Types of coding, examples, themes, and the results of the study.

Chapter 5 indicates the relation between the results of the study with the tenets of personhood and contact theory. First, the consideration of personhood and contact theory tenets, while collecting data through phenomenological description, behavior/observation mapping and the interviews are presented as a construct in chapter 5. Then, the relation between each set of data collection and the theoretical tenets are highlighted.

Chapter 6 presents how different architectural conditions influence the design of intergenerational spaces in a way that positively impacts intergenerational interactions. This chapter also includes the development of a new design model based on the collected data and how this model could be used by architects designing intergenerational facilities. Finally, the limitations, strengths, and future implications of this research are discussed are also discussed in chapter 6.

CHAPTER 2
LITERATURE AND FRAMEWORK

The purpose of this study is to understand the influence of the built environment in relation to intergenerational interaction and to learn how the elderly and children benefit from a building designed specifically to serve intergenerational interaction. This chapter presents a purposeful interpretation of related literature to define and present a logical argument for conducting this research. The researcher begins by giving an overview of literature associated with architecture, followed by architectural phenomenology. Following this, two theories related to intergenerational interaction and overview of intergenerational programs, the built environment, and the influence it may have on social interaction between children and elders are presented. The chapter ends with proposed research questions from the literature review.

2.1 ARCHITECTURE

2.1.1 Historical Movement of Architecture in Service of Every Day Life

History provides several examples of how architecture has been in the service of people at different times. For instance, in the 1st century, Vitruvius wrote his three principles of *firmitas* (well-made and durable), *uttilitas* (functionality and usability), and *venustas* (beauty related to proportion and human body). Vitruvius also related architecture to culture as an appreciation for sensibility and behavior of the people who see and use the building and how to distinguish between private and public spaces (Willis, 1992). For Vitruvius, beauty was important, but only in the form of mathematical beauty and harmony and concord of all parts in relation to one another (i.e. proportion to be understood by mind) and not aesthetic beauty (i.e. the pleasure taken by eye). In the 16th century, Giorgio Vasari worked on the connection between building and human body (Henry, 1958). In the 18th century, when an architect was in the same class as a baker or a shoemaker, architectural texts were focused on how to build to serve the clients' needs. During this century, Boullée developed the concept of the effect of a building on man. This was followed by Ledoux in the late 18th and early 19th centuries, who connected the function

of the building to social arena. These architectural texts posit the connection and influence of the built environment to human experience and daily life.

According to Sharr (2000), it was not until the 20th century, when "Heidegger felt that architects and historians tended to judge architecture more based on the aesthetic priorities and less according to the priorities of people who make and inhabit places for themselves" (p.37). In a similar way to Heidegger, Edmund Husserl, a German philosopher, believed that experience is the source of all knowledge. As such, he developed a phrase 'world of life' to describe the way that humans experience the spatial world of things in their precognitive existence (Husserl, 1970). Husserl's writings influenced Heidegger, whose method of thinking significantly influenced architectural theory. Within the past few decades, theorists such as Norberg-Schulz (2000) employed phenomenological approaches into architectural design as a method that emphasized the importance of how people experience the built environment.

As illustrated above, many architectural historians and theorists have acknowledged the effect of architecture on everyday life. This acknowledgment has not always transferred into architectural place making. In the next few sections, this study explains the relationship between architecture and people and more specifically, the influence of the built environment on the elderly's and children's everyday life experience.

2.1.2 What is Architecture?

In the course of their work on how buildings are experienced, Bloomer and Moore (1977) realized most people define architecture as "a highly specialized system with a set of prescribed technical goals rather than a sensual social art responsive to real human desire and feelings" (p.ix). What is missing from this more simplistic definition is how buildings affect individuals and communities emotionally, and how they provide people with sense of joy, identity, and place.

The École des Beaux-Arts in Paris, France first introduced architecture as an art with “a concern for human experience, personal identity, and a carefully developed sense of compositional order and beauty” (Bloomer & Moore, 1977, p.18). Pallasmaa (2012) extends this sentiment, stating that architecture “relates, mediates, and projects meaning. The meaning of any building is beyond architecture; it directs our consciousness back to the world and our own sense of self and being” (p.13). As illustrated by Hoffman, Goiorgi, and Grawert (2013), regardless of how architects define architecture, they mostly agree that architecture influences the world and people. As an ‘instrumental art’, architecture might present itself in a different manner in relation to time and place, but it always transforms human life and experiences (Norberg-Schulz, 2000).

To understand how architects view architecture as an instrumental art, it is essential to understand the history of the interaction between architecture and people. Therefore, architecture is most importantly about how buildings are experienced by people who are using the place. By understanding how building influences individuals and their behavior and actions, architects can create spatial environments that are responsive to the users’ feelings, desires, and needs.

2.1.3 How is Architecture Related to People?

The societal and individual benefits of intergenerational programs indicate intergenerational interactions and engagement with members of other generations (usually with a common goal or purpose) are needed in today’s society. Although many communities adopted the model that suggest the programming of bringing the old and young together, most programs occur in existing spaces and not in an environment specifically designed to serve the needs of an intergenerational community. Epstein and Boisvert (2006) analyzed the effectiveness of the environment on intergenerational interaction. Even though their focus was on staff training and its influence on the quality of intergenerational programs, their findings also concluded that it is necessary to have designated spaces that are shared and accessible by both elders and children to provide both planned and spontaneous intergenerational interaction.

In an interview with the *Washington Post*, architect Michael Graves, who became paralyzed from the chest down after dealing with a virus, said he believed “well-designed places and objects can actually improve healing, while poor design can inhibit it” (qtd. in Sadick, 2014). Although there seems to be an awareness of the importance of space on human behavior, there are very few architects and social scientists who have focused on intergenerational spaces and, more importantly, their physical environment.

The built environment matters and both influences and reflects a person’s perceptions, feelings, health, and behaviors (Becker, 1977; Zeisel, 1981; Rapoport, 1982; Sanoff, 1991). In designing intergenerational facilities, spatial environment should accommodate the personal, social, physical, and psychological needs of people across the age and ability spectrum (Kaplan et al., 2007), as well as create opportunities that allow members of different generations to exercise their agency and interact with one another through meaningful thought-provoking activities. For designing an intergenerational facility, architects need to submit themselves to an intergenerational world and gradually internalizes and understand the entire context. In other words, architects need to learn about the functional requirements and understand the spatial needs for social interaction of the elderly and children involved in intergenerational interactions.

2.1.4 Role of the Physical Environment for Children

Children form their identity through interaction and relationships with their surrounding social and physical environment (Howes & Aikins, 2002). The ecological systems theory asserts that child development is influenced by different types of environmental systems. Formulated by Urie Bronfenbrenner (1979), this theory provides a framework to study the relationships of individuals' contexts within their community and wider society through the five systems, including their: (1) microsystem, as the system closest to the person and the one in which they have direct contact such as home, school, religious institutions, work, and neighborhoods; (2) mesosystem, which explains the interaction between the different parts of a person’s microsystems; (3) exosystem, which involves links between the individual and second-hand social settings where the individual does not have an

immediate role, such as the child's experiences at home being influenced by the parents' experiences at work; (4) macrosystem, which describes the cultural contexts of the person's life; and (5) chronosystem, which is about the patterning of environmental events through the life course of the individual. Per this theoretical construction, each system contains roles, norms and rules that influence and help shape the child's development and behavior.

Children's environment should therefore be designed to support their physical, social, cognitive and emotional development. The ecological systems theory has been used as a model to explain the influence of the environment, social or physical, on human behavior. Galvez, Pearl, and Yen's (2010) study of the influence of physical environment on child obesity related behavior alluded to the necessity of incorporating evaluation measures of specific design features early in the design phase of any facility. Their literature review of over 400 articles on the subject also suggests that there is a need for collaborative efforts between architects and interdisciplinary groups involved in children's lives as an ideal way of having the best result for how the environment would influence the children's behavior. This is because the environment most affects children's mood, ability to form relationships, effectiveness in play and work as well as their health (Dudek, 2005).

Therefore, a well-designed environment provides opportunities for children to explore, feel secure and build strong relationships (Dudek, 2005; Strong-Wilson & Ellis, 2007). Gary Evans (2006), an environmental and developmental psychologist from Cornell University, conducted research on the influence of physical environment on children's behavior and well-being including academic achievement, cognitive, social and emotional development, and their relationship with their parents and peers. He evaluated different aspects of the physical environment, such as lighting, noise and size of the space and concluded that the physical environment impacts child development directly as well as through influencing adult caregivers (i.e. the microsystem). Therefore, while designing spaces for children, not only should architects pay close attention to the needs of children,

but also focus on how the space is going to serve the children's caregivers (including child development educators, and intergenerational facilitators).

As children's experiences are limited to the places they inhabit, it is vitally important for architects to pay attention to the design of these environments (Chawla, 1992; Chawla, 2002; Holloway & Valentine, 2000). The National Scientific Council of the Developing Child compares the importance of the relationship of the physical environment to children's brain development to constructing a house and indicates,

> just as in the construction of a house, certain parts of the formative structure of the brain need to happen in a sequence and need to be adequate to support the long-term developmental blueprint […otherwise] building more advanced cognitive, social, and emotional skills on a weak initial foundation of brain architecture is far more difficult and less effective. (qtd. in Bales et al., 2007, p.1)

On the other hand, Reggio Emilia's approach, developed by Loris Malaguzzi, considered the environment as a third teacher and by emphasizing on how young children perceive and use space to create meaning, developed eight principles of aesthetics, transparency, active learning, flexibility, collaboration, reciprocity, bringing the outdoors in, and relationships (Strong-Wilson & Ellis, 2007).

The spatial properties of the environment influence children's physical movement, cognitive scanning, and social transaction. In his paper on the importance of teaching architectural students about design for children, Said (2007) explains that architects as adults perceive the built environment as form, function and aesthetic, whereas children care mostly about the function of the environment and how they can interact with it. He gives the example of hospitals and how architects generally design a room for toys, a television, and rest, where pediatric nursing studies show these environments lead to boredom, anxiety, and stress to hospitalized children (Said, 2007). Children learn through fantasy, wonder, and play while imagining the reinvention of their world, trying new roles, and learning to play their parts in harmony.

According to Said (2007), children's "physical movement, cognitive scanning, and social transaction in a space is directly influenced by the spatial properties of the environment" (p.3). This means that their sensorial and motoric activities with peers and adults helps them develop their language skills while their physical movement is influenced by the function and features of the physical environment. Children's interaction with the architectural environment, including sensorial (sight, tactile, audio, smell and taste) and motoric actions, is part of the experience that remains in their memory (Sebba, 1994). Their positive connection to a place presents affective opportunities for security and comfort, engagement, discovery, creativity, inspiration, revelation, self-control, symbolic expression, logical thinking, and adventure surprise (Kahn & Kellert, 2002; Weinstein, 1987). Since experiencing the environment is an essential, critical, and irreplaceable dimension of children's growth (Kahn & Kellert, 2002), the design and architecture of the place is just as important.

It has also been noted that children who attend day care often spend long hours at the centers (Larkin & Newman, 1997). However, children usually have no voice in planning and design of the environment that shapes their personality and beings (Senser, 2006). The architects who design a child development center most likely have never worked in a child care center and many might not remember their own childhood. After a building is built, the design is generally final with very little possibility of change or manipulation by children. Designing children's space in a way that would allow them control of their environment would help children generate a sense of place attachment and memories that continue being significant throughout adulthood.

In his book, *Hidden Dimensions*, Edward Hall (1966) wrote about the design of the kitchen space in his house. Hall writes, "if any of the men who designed this kitchen had ever worked in it, they wouldn't have done it this way" (p.105). However, since the 1960s, architects have come a long way and today kitchens are designed with much more attention to the users' needs. But the problem Hall had with his kitchen, is the same problem presented today with designing child development centers. Incorporating the

perspectives of young children in the assessment of children's spatial environments within intergenerational communities is essential for building effective interactions with elders in intergenerational centers.

2.1.5 Role of Physical Environment for Elders

Powell Lawton's environmental press model indicates that behavior is a function of the competence of the person—where competence is the person's physical, mental, and intellectual health and capacity while press are the aspects of the environment that influence the individuals' behavior (Lawton, 1977). Based on this model, the environmental press has a direct relationship with the elderly's behavior as well as with their level of competence. Therefore, an elder's environment should provide different press with opportunities for the elderly to reestablish competence. Applying this theory to architectural design, process means to create an environment with enough environmental stimulation that allows keeping the balance between an elder's press and competence near the adaptation level on Lawton's model (see Figure 2.1).

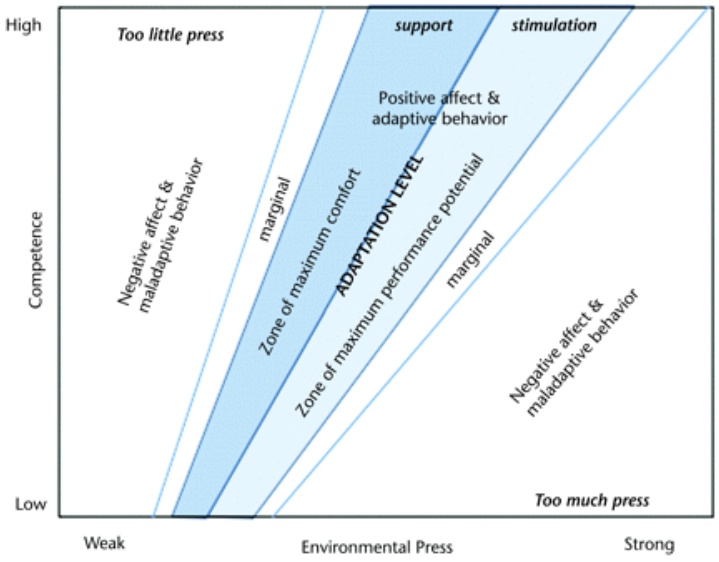

Figure 2.1 Environmental press model (Lawton, 1980, p.12)

According to Lawton (1977), adaptation level represents a "normal balance that most people attain in terms of being able to engage in everyday activities without great deal of environmental awareness" (p.8). In an intergenerational facility, adaptation level could be

provided through programed activities as well as through the design of the built environment by offering opportunities that are modestly, not excessively, demanding on elders. Schwarz (2012) defines environmental gerontology as a field that is focused on "attributes of person-environment relationships, such as accessibility, privacy, independence, autonomy, and personal control, among elders within various contexts across a continuum of conditions, from high competence to chronic frailty" (p.2). With normal aging, some capabilities decline enough to affect the ability of elders to live independently and they become particularly vulnerable to features of their environments. As a result, "place makes a difference in connection with their sociocultural background, somatic and psychic health, and cognitive and physical, functional abilities" (Schwarz, 2012, p.8). When considering the design of an environment for the elderly, architects need to think of a place that allows the users to be independent and satisfied with life in a setting that supports the elderly's physical, cognitive, visual, aural, emotional, and social needs (Regnier, 2002).

Senses are important tools that help understand the environment, differentiate between inputs, assess quality, and formulate a response to the environment. As people age, their abilities to see, hear, smell, and touch may decline. Sensory loss can affect people's connection with their environment where things such as lighting, color, glare, background noise, and even taste is not the same as before. Architects and environment designers can help create a more pleasurable experience for the elderly by making sure to understand the impact of their design decisions on human sensory modalities. For example, the normal aging process causes the cells in the retina, responsible for normal color vision, to be less sensitive. Therefore, colors become less bright and the contrast between different colors will be less noticeable. Aging could also cause a normal loss of peripheral vision where the visual field decreases one to three degrees per decade (Heiting, 2014). Therefore, the source of light, its intensity, distribution, brightness, and color, as well as materials and surfaces that reflect light, in addition to luminance balance throughout the visual source are important factors for architect to pay attention to when designing environments for the elderly.

Although natural age-related changes can have a negative impact on the ability of elders to stay physically and socially active, the built environment can conversely have positive influence on an elder's quality of life (Crews & Zavotka, 2006). Architects can help with this problem by understanding these challenges and use color contrast and lighting that would enhance elders' life experience. Opening to the outdoors such as windows and skylights have important spatial and psychological benefits as they entice elders to go outside and give them a sense of time and weather and reduce feelings of being confined in the building. Other design features such as use of texture to differentiate and identify spaces could be useful for blind or partially sighted elders. Scent is one of the strongest connections to memory. Some of the most pleasant smells are associated with food. Baking bread is very evocative and connected to feeling of being home. Balconies and porches introduce smells associated with different seasons and weather conditions, as well as bird chirping and wave sounds depending on the location (Regnier, 2002). An indoor or outdoor garden can also provide diverse sensory stimulation, including sound, color and fragrance.

Another important aspect of elders' lives is privacy (Duffy et al., 1986; Morgan & Stewart, 1998). Dimensions of privacy have been described in relation to the physical environment as visual, acoustic, and olfactory by Keen (1989), and to the social environment by Netten (1989), as the need to have control over the level of separation and interaction from and with others. Personal space is the immediate surroundings of each person that needs to be in control of the individual who is using the space (Barnes, 2002). Elders should have the opportunity to choose from different spaces and activities that they want to engage with. The power of choice helps to reduce the sense of intrusion into their personal space (Brawley, 1997) and provide a sense of ownership, privacy, and control that would help enhance their quality of life (Willcocks et al., 1987).

Design can resolve the many conflicting issues by creating a place that benefits elders; a place that can compensate for the impairments of old age in a discreet non-institutional way, provide their needed privacy, and offer opportunities for different levels and kinds of

social interaction. Duffy et al. (1986) discovered that both caregivers and designers support spatial design that promotes social interaction, whereas most elders consistently select designs that enhance privacy. This clearly highlights the need for elders to be involved in the design process. Integrating the perspectives of the elderly who are involved in intergenerational program in the assessment of the design of spatial environments within intergenerational communities is important for the effectiveness of the program.

Place makes a difference (Gans et al., 2009). As stated in the previous two sections, the built environment has an impact on different aspects of a person's life experience from academic achievement of children to physical and social health of elders. Architectural phenomenology provides a better way to understand the connection of architecture to these experiences.

2.2 INTEGRATION OF ARCHITECTURE AND HUMAN DEVELOPMENT

Architecture, architectural phenomenology, and human development theories are three different central components of creating intergenerational spaces. Architecture solves the place-making problem, whereas human development theories are focused on the needs of the users. Integrating these components will generate a better understanding of intergenerational facilities. This research presents a path through architectural phenomenology from human development theories to architectural place making of intergenerational facilities.

2.2.1 Architectural Phenomenology

Few philosophers have written for architects (Sharr, 2007); Martin Heidegger (1962) was the first philosopher who applied phenomenology to architecture that still has an influence on modern architecture. While controversial for his affiliation with the German National Socialist movement, Heidegger is a highly regarded philosopher by many architects. Even though architects such as Neil Leach (2006) have criticized Heidegger's work and have argued that his commitment to the German National Socialist movement has

compromised and tainted his thinking as a whole, others such as Christian Norberg-Schulz (2000) in writing and Juhani Pallasmaa (2012) and Peter Zumthor (2010) in building have been influenced and positively responded to Heidegger's work by saying that Heidegger's thinking is compatible with architecture and could help it become a more humane and meaningful professional practice.

Phenomenology is a dynamic philosophy that advances the study of subjective, conscious experience and the phenomena of focus. Heidegger (1962) interpreted phenomenology as a 'method' or a 'way of seeing'. In regard to architecture, phenomenology is a scheme directly related to human experience of the built environment. Once adopted by an architect, phenomenology provides a base for creating conscientious design that focuses on human interaction with one another as well as with the architecture itself. According to Heidegger's phenomenology, we understand our surroundings as individuals, based on our perception and due to our experiences.

Heidegger also claimed that people can experience and describe the world only by inhabiting it and being in it and through their emotional and cognitive responses to the part of the world that surrounds them (Heidegger, 1962). In a good environment, the connection between individuals and their surrounding allows them to appreciate their location in the world and helps them feel comfortable and reach an equilibrium with their surroundings. A good environment is a place where people can interact naturally and comfortably due to the nature of the space and activities associated with it (Community Tool Box, 2015). In his essay titled "Building Dwelling Thinking", Heidegger (1951) argued that the act of remembering a place requires people to project themselves in that place. In other words, when people think of something or some place, they might not remember the details of its architecture, but they will remember the experience they had when they encountered that thing or place. Therefore, in order to create successful architecture, the human experience should be considered in architectural design.

Heidegger also wrote about nearness. Nearness, defined by Heidegger, is the face-to-face relation in the now, time, and space, that allows the space to make room for place and locality (Heidegger, 1962). He replaced the word 'architecture' with dwelling and building, in which building (*bauen*) means to dwell and dwelling is the relationship between human and space. Space is parceled up into places by people based on their identification and connection with the place that manifests in their daily lives. People's understanding of space depends on their relationship and connection with the place, "'space' is appreciated mathematically but 'place' is appreciated through human experience" (Sharr, 2007, p.51).

In this way, buildings that create spaces for people to dwell in are the buildings that set the background to and become a blank canvas on which people can experience life. These are spaces that are designed with detailed attention to serve specific needs, but also give users the freedom of creating the place they desire to experience life in. Based on Heidegger's writings, place—which exists through the establishment of the space—allows individuals to dwell in nearness and to connect with the world through inhabiting and experiencing it. Therefore, architecture should value human presence and inhabitation by focusing on qualities that allow enhancement of human experience.

In designing a facility for children and elders to connect intergenerationally, it is important to design the space while having the place in mind. To accomplish this, architects should ask: How would an intergenerational space develop into a place? What is needed to help the occupants of the building create a place they need after they occupy the building? What kinds of boundaries are needed and how should they be defined? Should boundaries be where things stop or would they be where things start presenting themselves (as Heidegger defines them to be)? How should one celebrate the marriage of social and spatial boundaries of intergenerational interaction?
In order to be able to answer these questions, architects need to submit themselves to an intergenerational world and focus on human experiences and needs of a program that would facilitate intergenerational care program interaction. This allows architects to

deliberately and instinctively take measure of its phenomena through creative acts and design and make an environment that allows the building to be “part of a dynamic set out by the occupant’s routine and by the physical and social micro-organization of those routines in relation to the occupant needs” (Sharr, 2007, p.67).

2.2.1.1 Norberg-Schulz’s Phenomenological View of Architecture

After Heidegger’s death in 1976, Norberg-Schulz (2000) brought attention to Heidegger’s thinking and its value in further developing architectural theory. Norberg-Schulz, like Heidegger, defined phenomenology as a method that helps explain the world, including the world of architecture (Shirazi, 2014). He defined ‘world of life’ as the environment, and explains that in today’s society, the environment varies from the social to the ecological and economic, in which everything has its own place and the combination of these places creates an environment for everyday life to happen. Hence everyday life and place are inseparable and architecture as an instrumental art is at the service of individuals who are experiencing that everyday life (Norberg-Schulz, 2000). Norberg-Schulz also wrote about presence as the relationship of man and space (Heidegger’s *räumlichkeit*), language and design as its instruments, and place as the relationship between architecture and its environment. Combined with Heidegger’s definition of place as the relationship between people and their world, place is created through the relationship of individuals with spatial environment and the world of architecture (shown in Figure 2.2).

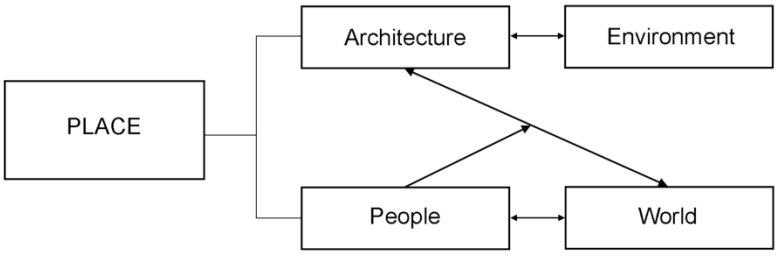

Figure 2.2 The relationship of place

In his book, *Genius loci: Towards a phenomenology of architecture* (1980), Norberg-Schulz adapted Heidegger’s language and expanded the concept of dwelling by stating,

“man dwells only when [...] he experiences the environment as meaningful. Dwelling therefore implies something more than shelter” (p.5). He borrowed the term 'genius loci' or 'spirit of place' from the Romans and explained that architects must visualize the genius loci of place and use it to create spaces that strengthens human experience in the world.

2.2.1.2 Pallasmaa’s Phenomenological View of Architecture

While Norberg-Schulz focused on architecture as an instrumental art and how it should consider genius loci, Juhanni Pallasmaa (1996) is focused on the imortance of human senses in creating architecture that connect people with the world. Pallasmaa defined phenomenology as a way of ‘pure looking at’ phenomena, or ‘viewing its essence’. According to him, phenomenology analyzes the basic feelings and needs of people; architects then use the result of those analyses to design buildings that respond to those needs and desires (Shirazi, 2014). In his book, *The Eyes of the Skin* (2012), Pallasmaa writes that architecture is an instrument which, through connecting us to space and time, articulates the experience of our being-in-the-world and strengthens our sense of reality and self.

Pallasmaa (2012) also states that architects could enrich the experience of individuals by designing buildings that engage multisensory perceptions, including ears, nose, skin, skeleton, and muscle, to allow all human senses to interact and fuse with each other and with the bulding to create a full experience. This is a departure from architects that focused on only the sight and physical appearance of the building. Pallasmaa offers a way to develop multi-sensory architecture that connects people with the world by appreciating all their senses. He believes that the human body is in constant interaction with itself and its surrounding environment and each of the senses use different cues to explore this environment and to enhance the experience of humans in the world.

Pallasmaa (2012) defined multisensory architecture through dethroning the sense of vision by combining it with other senses and creating a sensory balance. Each of Pallasmaa’s senses are described below.

1. *Sight*: Pallasmaa believes that vision has become the dominant sense in the world. Therefore, there is a fixation on visual pleseantry and appearance. In combination with technological inventions since the Industrial Revolution, architecture has been affected to the point that the drama of visual appeal dominates other senses by which people can relate to buildings. Pallasmaa writes, “the eye is the organ of distance and separation, where as touch is the sense of nearness, intimacy and affection [...] Deep shadows and darkness are essential, because they dim the sharpness of vision, make depth and distance ambiguous, and invite unconscious peripheral vision and tactile fantasy” (2012, p.50). Here, he focuses on shadow and darkness as they can create ambiguity and mystery to determine depth and distances and to help awaken the imagination.

2. *Sound*: Pallasmaa continues by writing, “sight isolates, where as sound incorporates; vision is directional whereas sound is omni-directional [...] I regard an object, but sound approaches me; the eye reaches, but the ear receives” (2012, p.53). He reminds his readers that they pursue information with their eyes, but sound comes to a person. Therefore sound has the ability to manifest an experience independently from sight. For example, one can hear the birds singing without seeing them, or hear the dripping water before seeing its source. Pallasmaa believes that tranquility and serenity are the most essential auditory experiences created by architecture.

3. *Scent*: On this sense, Pallasmaa writes, “A particular smell makes us unknowingly re-enter a space completely forgotten by retinal memory; the nostrils awaken a forgotten image, and we are enticed to enter a vivid daydream” (2012, p.58). A particular smell can reminds us of the past. For example, the scent of a particular perfume can remind an individual of a first kiss.

4. *Touch*: Touch is a sense that can easily create nearness. According to Pallasmaa, “The skin reads the texture, weight, density and temperature of matter. [...] The tactile sense connects us with time and tradition. [...] There is a strong connection between naked skin and the sensation of home. The experience of home is essentially an experience of

intimate warmth" (2012, pp.62-63). Pallasmaa believes that places that are built with consideration of the sense of touch are more likely to provide dwelling opportunities, as the sense of touch reports texture, density, weight, and temprature to the brain which enhances the experience of the place.

5. *Taste*: Taste is the least common sense associated with architecture. In fact, there hasn't been a literal taste of architecture since the tale of Hansel and Gretel. However, architecture can stimulate the sense of taste. In other words, taste in architecture means enjoying a built space through the sight of appealing material and design. About taste, Pallasmaa writes, "There is a subtle transference between tactile and taste experience. Vision becomes transferred to taste as well; certain colours and delicate details evoke oral sensations" (2012, p.63). In his book *À la Recherech du Temps Perdue* (translation: Remembrance of Things Past), Proust (1913) calls this an 'involuntary memory' when he writes about the taste of Madeline that takes the main character of his book back to his childhood home.

Through a discussion of the five senses, Pallasmaa offers a way to develop multisensory architecture that connects people with the world by appreciating all of their senses. He believes that the human body is in constant interaction with itself and its surrounding environment and each of the senses use different cues to explore this environment and to enhance the experience of humans in the world.

2.2.1.3 Zumthor's Phenomenological View of Architecture

Peter Zumthor (2010) mirrors Pallasmaa and Norberg-Schulz's view of architecture as being a tool in service of everyday life concerned with experiential interaction and sensual accommodation of people. For Zumthor, although architecture has its own realm, it has a special physical relationship with life. Zumthor's architecture highlights sensory experience, thereby influencing people through the creation of new memories or reminder of old ones. He introduces architecture as a background for life as "a sensitive container

for the rhythm of footsteps of the floor, for the concentration of work, for the silence of sleep" (Zumthor, 2010, p.13).

Zumthor's work was made famous after he was published in a monograph which presented forty-three of his buildings and projects. In his book, *Thinking Architecture* (2010), Zumthor shares Heidegger's celebration of experience and emotion as a measuring tool. He also emphasizes the sensory and physicality of the materials used in a building to involve individuals with their surroundings and to evoke their experiences through memory. In most of his projects, Zumthor uses local materials and the community's culture to create a connection between the spatial design of the building and the people of the community, or the users of the building. A good example is the Therme Vals, a bath that he designed in the Canton of Graubünden, Switzerland. Here, Zumthor used a local stone that contains quartz from the local quarry in Vals (see Figure 2.3.A and 2.3.B).

Figure 2.3.A Therme Vals - use of local material (stone and water)

Figure 2.3.B Therme Vals - use of local material (stone and light)

In his design for the bath, Zumthor creates love affair between water and this stone by slicing and placing the stone in water as if they were in a flooded quarry. Zumthor use of stone, water, color, light and darkness (see Figure 2.4.A and 2.4.B) offers a multisensory

experience and invites guests to unwind, connect with their old memories or create new ones.

Figure 2.4.A Therme Vals - color and texture

Figure 2.4.B Therme Vals - color and light

Zumthor uses the word ‘atmosphere’ and imagines the experience of the place to evoke and create memories. In his book, *Atmospheres* (2006), he writes that the title was generated in search to answer the question, “What do we mean when we speak of architectural quality?” (p.11). For him, quality architecture is when a building manages to move him at first impression. He believes this quality can be achieved through emotional sensibility and also when architecture becomes part of the surroundings. It is not only the physical surroundings architecture must become, but also the ‘human surrounding’, when “the building becomes part of people’s lives” (Zumthor, 2006, p.64).

Zumthor’s application of specific material orchestrates distinct feelings in the building. For instance, he uses light to display the passage of time. One of his favorite ideas is to plan the building as if it is a pure mass of shadows that he is hollowing out to create light (Zumthor, 2006). As illustrated in his Therme Vals design,

> Users enjoy the water not only are various temperatures but in different spaces and conditions: in bright light, darkness, and twilight, or standing in the shadow and looking into the brightness of a colorful illuminator landscape. Sunlight trickles in through narrow slits or through the gaps we left open between the stone slabs of the ceilings. Daylight and landscape images flood the giant windows, giving shape and texture to the surface of stone on the water in the changing light of the day and seasons (Zumthor P., 2014, p.39).

This quote highlights the fact that Zumthor combines the elements of material, time and movement to create an atmosphere that amplifies the overall experience for each individual. More specifically, he often designs the interior circulations of his buildings with a purpose to either persuade the users to stay on a strict path from one point to another or to meander through the building and experience it as they please.
In summary, Heidgger, Norberg-Schulz, Pallasmaa, and Zumthor think of architecture as an extension of human experience. Their phenomenological approach to architectural design focuses on the quality of human experience to provide the users with a 'place to dwell'. This idea implies that architecture is not merely shelter, but a place that has the ability to enrich the life within it.

Many architects adopted a similar philosophy to help them rethink architecture and find a “powerful and reliable ground to establish a unique way of perceiving the built environment” (Shirazi, 2014, p.2). However, architectural phenomenology is not yet a collaborative exploration and analysis of theorists and practitioners coming together to form a group around a common concern. Shirazi (2014) believes that architectural phenomenology is an ongoing discourse that has “presented considerable body and set of discussions in both theory and practice, [that…] needs to be incrementally enriched, developed and organized” (p.111).

One way to enrich architectural phenomenology and use it to inform architectural design is by collaborating with human development scholars as they have developed theories focused on the development, needs and everyday life of people. Using these theories, this study invites architects to focus on Genius Loci and design with and for all human senses to create comfortable, yet awe-inspiring intergenerational environments.

2.2.2 Human Development Theories

Being human is usually equated with being a person in the sense that being in itself is the only criteria. Kant and a few other philosophers believe that in order to qualify as a person, one needs to be able to think logically, process rationality, and have coherent

conversation with other people (Brock, 1993; Cooley, 2007). Descartes described a split between mind and body, in which the thinking nature of the mind is completely different from that of the body and therefore one may exist without the other. Hughes' (2001) view of situated-embodied-agent states that personhood can be best maintained when human existence is linked to a physical body in a particular familial, cultural and historical context. Merleau-Ponty (1962) developed the body-subject concept based on Heidegger's notion of *dasein* (being-there). Body-subject concept differs from Descartes body/mind dualism and implies that humans are capable of thinking, reflecting, and communicating and every individual has a physical form that allows them to experience the world and express themselves in the physical world. For example, the act of seeing is dependent on the eyes but there is always a person, an 'I' behind the eye—so even though the eye is seeing, the 'I' is doing the thinking and processing what is being seen. Pertaining to this research, Heidegger's dasein combined with Hughes' description of personhood is similar to personhood theory of Kitwood (1997).

2.2.2.1 Personhood Theory

Personhood theory is one of the theories with the potential to inform intergenerational place making. Tom Kitwood (1997) stated that personhood is sacred and unique and that every person has an ethical status, life history, and preferences and should be treated with deep respect. A central outcome of Kitwood's model is the need for high-quality interpersonal care that affirms personhood, which he defined as "a status that is bestowed upon one human being, by others, in the context of relationship and social being. It implies recognition, respect and trust" (p.8). Kitwood's personhood theory was developed specifically for persons with dementia, but he writes that personhood starts at infancy. As a result of the relationship with the infant's mother or primary caregiver, the infant acquires selfhood and a sense of agency. This occurs through the support care, and the opportunity to explore interpersonal relationship with the physical world (Kitwood & Bredin, 1992). In a sense, personhood is provided in relationships.

Kitwood and Bredin (1992) write that as children grow into adults, they acquire a personality and a set of strategies in interacting with other people and the outside world. Adults are usually less favorable to change. However, Kitwood and Bredin claimed that there is a higher chance for a person to change when in relation with other people. Kitwood's personhood theory is about "what it means to be a person" and how that person relates to the social surroundings. Therefore, social connections and relationships are very important. An intergenerational program, that encourages the interaction between the elderly and children, could enhance participants' experience in a social setting that encourages personhood by providing opportunities for positive interaction and change of possible negative perception of people of disparate generation.

Person-centered care as an empowering philosophy of care that changes the focus of care from accomplishing tasks to assisting the person in need is one way to apply personhood theory in an intergenerational environment. The term 'person-centered care' originated from the work of Carl Rogers (1980) and Tom Kitwood (1988), where Kitwood used the term to bring together ideas and ways of working that emphasized communication and relationships (Brooker, 2004). Kitwood (1998) believed there is interplay between a person's psychology and the environment, such that the environment has as much effect on the brain as the brain does on a person's abilities.

As explained above, different philosophers and theorists have defined personhood in different ways. Kitwood's (1998) perspective contradicts that of Kant as an important point in Kitwood's argument is that there is no need for individuals to have the ability to be rational or to converse to have personhood but that everyone has a personhood simply by being a person. Kitwood and Bredin (1992) mentioned twelve points that indicate the well-being of a person. These points are: "(1) assertion of desire or will, (2) ability to experience and express a range of emotions, (3) initiation of social contact, (4) affectional warmth, (5) social sensitivity, (6) self-respect, (7) acceptance of others […], (8) humor, (9) creativity and self-expression, (10) showing evident pleasure, (11) helpfulness, and (12) relaxation" (qtd. in Fazio, 2008, p.2). Person-centered care therefore focuses on

independence, well-being, values, and abilities of individuals by providing opportunities for people to feel supported and socially confident (Chaudhury, Hung, & Badger, 2013). It is about inclusion and having a holistic view of every person's unique needs and preferences and honoring their identity by supporting their associated relationships and impacts that the social and physical environment may have on them (Fazio, 2008; Kitwood & Bredin, 1992).

Over the last two decades, a growing body of literature provided evidence on the effect of physical environments on people's behaviors. Person-centered care demands a physical environment that affords spaces for social interaction, communication, relationship and engagement with others while promoting personhood (Brooker, 2004). Kitwood (1998) also emphasizes the importance of social environment. Application of personhood theory in intergenerational environments provides a strong foundation for enhancing human life experience. A well-designed supportive physical environment "reduces challenging behaviors and foster positive ones, such as lower agitation, increase in social contact, less dependence in conducting activities of daily living, and so forth" (Chaudhury et al., 2013). The proposed study follows the path of architectural phenomenology and Kitwood's theory of personhood by stating that the only requirement of dasein is simply being a person and that consideration of human's fundamental needs could enhance their experience. A person-centered intergenerational facility should be focused on valuing individuality, treating every person with respect by offering spaces that connect the users to their past experiences and enhances their experience of being in the world while providing opportunities for them to connect and communicate with people of different generations.

2.2.2.2 Contact Theory

Personhood theory recognizes the environment and the building of relationships as crucial to personhood. Contact theory elaborates on the importance of social contact between segregated groups. Social psychologists and social scientists believe that under specific conditions, social contact between segregated groups facilitates more accurate

perceptions of an out-group and reduction in prejudice towards that out-group (Allport, 1954; Pettigrew, 1998). Contact theory, developed by Gordon Allport in response to racism between Whites 'in-group' and African Americans 'out-group' is considered one of the best ways to create and/or improve relations among different groups (Pettigrew & Tropp, 2006). The main concept of contact theory is to bring people together and change their attitude toward each other by creating environments that would encourage interaction and support positive attitudinal change and to build relationships (Allport, 1954; Emerson, Kimbro, & Yancey, 2002; Pettigrew & Tropp, 2006).

Allport (1954) developed the first four essential conditions to promote positive contact between members of different groups and Pettigrew (1998) added a fifth condition to reflect the value of regular and frequent interaction. These essential conditions include: (1) equal group status, where both groups accept and perceive equal status in the situation; (2) common goals of intergroup contact, with an active goal-oriented effort for all parties involved; (3) intergroup cooperation, or attainment of the common goals needs to be an interdependent effort; (4) support of tradition or authorities, where intergroup contact will be more accepted when supported by authorities; and (5) the opportunity for friendship. Architects can incorporate these essentials in designing intergenerational facilities by designing independent spaces for both the elderly and children that would respond to each group's needs and necessities for equal group status. This can be achieved by designing spaces that encourage elders and children to come together and work on a common goal such as making pottery in a workshop within the intergenerational facility, designing spaces that allow the elderly and children choose their level of interaction with each other is a way of promoting friendship.

Contact theory has evolved since its development and has been used for different groups. Contact theory's application fosters positive intergroup interaction, which is also one of the main points of intergenerational programs. Caspi (1984) is one of the first researchers who applied contact theory to different age groups. He explored the possible perceptual and attitudinal effects between children and elders involved in an elderly volunteer

program at an elementary school (Caspi, 1984). The result of his study was that children who had intergenerational contact were able to better discriminate age-group categories and evaluate the elderly more favorably than children who did not have intergenerational interactions.

Since Caspi, other researchers have used contact theory to analyze the social behavior of the elderly and children in non-familial intergenerational programs (Jarrott & Smith, 2010; Meshel & McGlynn, 2004). Meshel and McGlynn's (2004) research posited that intergenerational contact helps to facilitate positive changes in the attitudes of younger and older persons from pre- to post-test. The elders who participated also showed an increase in life satisfaction. In another study that compared two different intergenerational programs—one theory based and the other traditional based—Jarrott and Smith (2010) discovered that the program informed by contact theory contributed to more desirable social behaviors of elders and children during intergenerational programming. The participants involved in this program had higher levels of active engagement with participants from other generations and lower levels of passive observation (i.e. watching others interact). Therefore, Contact theory, in environments that respect personhood theory, provides the structure for designing the necessary bridge to cover the intergenerational gap.

The goal of this research is to urge architects that design shared spaces for elders and children to join tasks with social scientist and to adopt human development theories in combination with architectural phenomenology to answer basic architectural design questions. I believe in order to serve the everyday life of intergenerational interactions, architects need to learn about the everyday needs of the participants as well as the facilitators, many solutions for which are provided by the theories that human development theorist have spent years on developing. Application of personhood theory and contact theory in intergenerational environments provides a strong foundation for enhancing the quality of human life experience by addressing the rights and respects due

to all individuals and by setting the right conditions for creating positive social environments.

Thus, in an intergenerational setting, personhood theory supports personhood by respecting one's individuality and meeting their needs. Moreover, contact theory sets the condition for positive social intergenerational engagement and architectural phenomenology by offering design qualities that support the tenets of personhood and contact theories and these all together, offer a good environment, social and physical, for quality intergenerational connection. Space, place, perceptions, boundaries, movement, senses, and most importantly the relationship of architecture and human experience as well as the effect of the built environment on its users and more specifically to this study, the influence of the building on the quality of intergenerational interaction between elders and children are some of the important factors to consider while designing an intergenerational facility.

2.2.3 Intergenerational Program

For the purpose of this study, intergenerational engagement is defined as the interaction between elders and children who are not necessarily family members (which typically refers to grandchild-grandparent, uncle/aunt-niece/nephew, etc.). I believe intergenerational engagement is related to the connection between architectural phenomenology, personhood and contact theory in a way that intergenerational engagement can help enhance the quality of life for the people who choose to participate in it. Intergenerational programs create opportunities for elders and children to come together to know one another and share their talent and resources, while working toward common goals and participating in civic and community engagements (Kaplan et al., 2007).

Intergenerational programs not only provide care for their participants (elders and children), but also allow them to care for each other (Kaplan et al., 2002). Intergenerational programs have become more common in the United States because

they offer opportunities for cooperation and interaction that could strengthen and enrich the relationship between the two generations that may otherwise be isolated from one another (Lenartowicz, 2005). The federal government is advocating for intergenerational programs through United States Senate Special Committee on Aging and Foster Grandparent Program (Nash, 1968), however the majority of intergenerational programs have been initiated and funded by individual states (Murphy, 1984).

There are different types of intergenerational programs in different settings. These settings include: K-12 schools, colleges, universities, community centers, neighborhoods, and child development and adult day centers (Hanks & Ponzetti, 2004). Successful programs have been designed based on reciprocity to serve all ages where young and old are viewed as resources. These programs operate differently based on their mission, focus, goals, target population and context; the most common programs are: 1) elders and children engaging in social and artistic activities such as writing, producing and performing a play, 2) elders supporting and mentoring children and youth, 3) children, youth or young adults (e.g. college students) supporting elders by visiting them and/or teaching them skills such as computer related activities, or 4) elders, children, and youth working together to support their community through environmental projects such as community garden (Ayala, Hewson, Jones, Hartley, & Bray, 2007).

Intergenerational shared-site programs are defined as those in which children, youth and elders receive ongoing services at the same site (Goyer, 2001), and where they engage with one another through scheduled/planned as well as informal/spontaneous intergenerational activities. The benefit of having the same-site community, where childcare and elder day care or residents are on the same site or in the same building, is that the two programs can share space, resources, and staff as well as easy transportation and opportunities for planned and informal interactions (Jarrott & Bruno, 2007). The intergenerational programs that happen in a building where both childcare and elder care programs are on the same site have the ability to offer frequent and sustained interaction through planned activities as well as informal and spontaneous

interaction that allows relationships to develop.It is also easier for administrators, program facilitators and caregivers to bring children and elders together and care for their health and safety.

2.2.3.1 Why an Intergenerational Program?

Societal changes such as high divorce rates, rise in single parent families, changes in work and family roles, as well as greater geographical mobility, have all served to create an age-segregated society. Intergenerational programs are designed to positively connect younger and older generations for mutual benefits and to decrease social distance between them. (Angelis, 1992; McKenzie, 2007). In today's society, both children and elders are often cared for in age-segregated, nonfamilial care settings (Gorelik et al., 2000). This physical separation creates social distance, where children and elders could develop negative attitudes toward one another.

Intergenerational programs are designed to positively connect younger and older generations for mutual benefits and to decrease the social distance between them. Elders and children occasionally have the same associated physical and psychological necessities and require similar care (Layne, 2009), however this does not mean elders should be treated as children. Intergenerational interactions restore a sense of worth and being for elders while introducing children to the importance of self respect and dignity (Newman, 1989) by providing elders the opportunity to remain engaged with the community and offering children a chance to teach and help others.

Currently, many elders serve as childcare workers (Larkin & Newman, 2001), home care aides to disabled children (Lutz, 2002), partners in intergenerational theater, living historians to schoolchildren (Stanton & Tench, 2003), and recipients of care provided by service-learning students (Nichols, 2003). At the same time, being involved in intergenerational programs offers children the opportunity to talk, work with, and learn from the elders while overcoming potential fears of interacting with elders, and give affection (Jarrott & Bruno, 2007). Children can serve by providing energy, creativity, and

companionship; when able, they can teach elders computer programs and games, how to use cell phones and email, or other new activities. Through intergenerational contact, elders have the ability to connect the past with the future by transmitting their lifetime of experience and children can establish roots and security. Emerging human development theories in the intergenerational connection suggest that not only elders and children will benefit from intergenerational interaction, but also the preservation of society is dependent on it (Garms-Homolová et al., 1984; Layne, 2009; Schindler, 1992).

There are many things (intention, prejudice, opinion, gender, knowledge of aging, contact with older people, culture, society, media) that can influence young people's attitude toward elders and aging (Meshel & McGlynn, 2004; Robinson et al., 2008). Studies have shown that there are young people—from elementary school children through college students—that have negative attitudes toward the elderly and aging (Galbraith et al., 2015; Robinson et al., 2008) and have used words such as incompetent, grumpy, unhappy, lonely, depressed, closed-minded, forgetful, pessimistic (Tan et al., 2004), intolerant, suspicious, difficult (Arnold-Cathalifaud et al., 2008), out of touch, unattractive, overly affectionate, sexless, and "objects of ridicule" (Robinson et al. 2008, p.247) to describe elders. The negative perception of younger people held towards elders and aging can impact employment, and the work environment. People with negative attitude toward aging might not want to work for or employ elders. Gringart et al.'s (2008) study of Australian employers' attitudes toward older workers found that negative stereotype toward elders is one of the main causes that employers prefer to hire younger workers even-though most employers believe that older workers are generally more reliable, loyal and productive (2008).

Age stereotype and negative attitudes of younger people toward elders can lead to negative self-perception of aging which could also influence functional health, cognitive abilities, longevity, quality of life, and memory (Jarrott, 2011; Jarrott & McCann, 2013; Levy, 2003; Levy et al., 2002), as well as their health insurance and services (Jarrott, 2011). A study by Brook and Taylor (2005) illustrated that negative attitudes of employers

and young staff influences the age-segmentation of the labor force and causes tension and anxiety between younger and older staff. The negative attitude toward elders creates negative images and beliefs toward aging that could become reality for both younger and older people (Jarrott, 2011; Robinson et al., 2008).

In this context, it is not unusual for people to get frustrated and want to cling to staying young (Arnold-Cathalifa et al., 2008). Young people who have negative attitudes towards the elderly and aging use these images toward their own lives, knowing that they are likely to face the same stage of life in the future. Among elders today, and even as young people get older, some might try to hold on to their physical factors such as facial looks and hair color while others might take in the image that are believed to be normal stages of aging and neglect their health and loose motivation to live a healthy physical and psychological lifestyle. The negative attitudes toward aging have also been linked to how elders are treated in the society (Arnold-Cathalifa, et al., 2008; National Center for the Protection of Older People, 2009) and has contributed to elder abuse (HSE, 2009).

Another important issue that can be caused by negative attitude toward elders is the impact it could have on their health care. Lyon (2009) cited the National Council on Aging and Older People (2005b) in Dublin that reported that there has been a tendency for health care staff to stereotype elders as passive and incapable to make decisions and as a result, the staff choose to speak to their family members without consulting with the elders themselves. This same study alluded to institutional ageism and the fact that women over the age of 65 in Ireland are not entitled to receive free breast cancer screening (Lyon, 2009). On a similar note, Grant (2000) asserted that in Scotland, elders who are admitted to the Emergency Department with major trauma injuries were less likely to receive services similar to young people with the same injuries.

Intergenerational connections can be efficient and effective tools that provide beneficial opportunities for individuals and strengthen communities by offering societal and economical advantages. Throughout history and in different cultures, elders of the community have taught the younger generation values and skills needed to support their

society (Williams & Nussbaum, 2001). Intergenerational programs could encourage cultural and traditional exchange. These programs offer community service activities where the elderly and youths volunteer in their community to help others and expand the level of services in the community. On a more practical level, intergenerational programs have a higher chance of getting funded when they share a site and resources between a childcare and elder care facility.

The studies and research that I reviewed to answer this question, present both positive and negative public perception that influences elder's lives but there are more negative attitudes toward aging and elders in the U.S. as well as other countries in the world and a common theme across all the studies is that the negative attitudes toward elders and aging have negative impact on different aspect of elders' lives. Intergenerational programs create a unified group identity by bringing elders and children together as contributing members of the society, which help dispel inaccurate and negative stereotypes.

2.2.3.2 What is an Intergenerational Environment?

All the points about what intergenerational programs are and why they are needed in our society emphasize their benefit for individuals, families, communities, and society as a whole (Ayala et al., 2007). Just as physical space is critical to other organizations, there is need for intergenerational environments. However, within the literature written by intergenerational practitioners and researchers, social scientist, designers, and architects there are very few that studied the role of spatial environment in relation to intergenerational engagement between elders and children.

An example of an intergenerational environment is the Hesston Intergenerational Community in Hesston, Kansas. The architect, Lester L. Limón II, designed a large activity room for the center's planned intergenerational interaction where facilitators organize and administrate the activities. This room created opportunities for inclusion and connection through the large windows that were designed to offer visual connection, where the elders

can choose to watch the children play among themselves or interact with other elders, or even to go inside and engage with children; this space gave the elders a chance to be comfortable with their individuality, create their own boundary and respond to the architectural design as they see fit.

Limón also designed a wide hallway in a streetscape scene, Main Street, that connected the senior housing to the child development center. Main Street contained a gift shop, an ice cream store, a bank, a meeting room, and large windows facing the children's play ground. Main Street is where elders, children, staff and visitors could have a chance to informally interact, while walking through, shopping at the store, eating ice cream, or socializing and watching children play outside. This space acts as a bridge and while it respects the boundary of Schwarts Villa, where the adults reside, and Hesston Intergenerational Child Development Center (HICDC), it creates connections and attachments and allows the occupants to present themselves with different perceptions as individuals or members of a group.

Over the last four decades, there have been different studies on the influence of the physical environment on human behavior and life experience. These studies are typically focused on a specific place type such as housing and neighborhood ((Balchin & Rhoden, 1998; Carmona, 2001), educational facilities (Barker & Gump, 1964; Heschong, 1979); health care environments (James & Noakes, 1994; Ulrich et al., 2004; Verderber, 2010); and work environment (Duffy, 1991 and 1997). The few studies that are related to intergenerational engagement have focused on urban and landscape design or interior design (Chaudhury et al., 2013; Kaplan et al., 2007; Layne, 2009). No research was found that investigated the role of spatial environment in facilitating, restricting, or otherwise affecting intergenerational interaction, nor is there any research on the perception and preferences of elders or children of intergenerational environments. In fact, most of intergeneration analyses are focused on the success of the program without considering how the physical environment may or may not influence the quality of intergenerational interaction.

One of the few studies done on the intergenerational environment and behavior resulted in a set of intergenerational environmental design domains listed as: (1) articulation of basic human needs and experience; (2) bridging, where design principles are operational terms translated from human need or goal into more; (3) branching, where design concepts transform the design principle into environmental terms; and (4) environmental responses to the identified needs and goals (Kaplan et al., 2005). Michael Layne (2009) called this study knowledge based and not an investigation on the influence of spatial environment on intergenerational engagement (theoretical instead of emperical).

Based on previous studies and definitions of intergenerational programs and spatial requirements for intergenerational interactions and for the purposes of this study, intergenerational environments are defined as facilities that (1) provide simultaneous services to both children and elders where they are at the program during the same hours of the day and same days of the week, (2) foster safety, security, and orientation (Chaudhury et al., 2013), (3) empower users by respecting their personhood and affording opportunities for both elders and children to have control over how much and or how long they like to be engaged and interact with others, (4) are flexible and offer mixed and multiple use of space for different types and levels of planned or spontaneous intergenerational interactions (Kaplan et al., 2007), (5) offer a harmonious setting that encourages communication and social interaction (Csikszentmihalyi, 1990; 1997) as well as opportunities for friendship, and (6) provide sensory stimulations (Chaudhury et al., 2013; Pallasmaa, 2012).

A multitude of research studies have suggested that the spatial environment can be psychologically and physically healthful (Chaudhury et al., 2013; Ulrich, 1984). However, intergenerational specialists, for the most part, are not trained as design professionals, and it is not a common practice for architects to design environments specifically to accommodate people across the age continuum and facilitate intergenerational exchange. Therefore, the proposed study is presenting important and specific theoretical

and phenomenological points that could be used in designing higher quality intergenerational facilities.

2.2.3.3 How do Children Benefit from Intergenerational Interaction?

Intergenerational interaction enables children to develop social and communication skills, problem solving abilities, positive attitudes toward aging, and a sense of purpose and community service. During an evaluation study on intergenerational changes that occurred within structured intergenerational activities, Christopher Hays (2003) found that there was a significant increase in verbal exchange and activity interaction between children and elders after a maximum of three sessions of intergenerational interaction; children felt more comfortable interacting with elders and asking for help to finish a task. Throughout the study, children became more empathetic toward elders, to the degree that they physically approached the elders and either ignored or did not consciously appear to be aware of the cognitive limitations of the elders (Hayes, 2003).

Jarrott and Bruno (2007) conducted a case study of an established shared site intergenerational program by surveying parents and family caregivers of the intergenerational program's participants—as well as interviewing the elders involved in the program—and alluded that intergenerational interaction teaches children respect and acceptance of others, the art of active listening and engagement in various forms of communication.

In a study of how the director and teachers of a child care program and the staff of a residential nursing home facility collaborated to develop, implement, and evaluate an onsite intergenerational program, Holmes (2009) identified that children benefit from intergenerational programs by experiencing an enhancement of basic human needs such as emotional support, acceptance and self-esteem, socialization, and intellectual development as well as developing positive attitudes toward elders and aging. A qualitative study done by Bales et al. (2000) also has shown positive intergenerational interaction decreases biases and negative stereotypes toward elders. By being involved

in intergenerational interactions, children learn about the range of abilities and life history of elders through which they learn about themselves as they interact in physically and emotionally safe environments that are responsive to their unique individual needs and abilities (Brown & Roodin 2001; Knapp & Stubblefield 2000).

Other benefits for children involved in intergenerational programs include nurturing and attention given by elders in one-on-one or small group interaction, enhancement of social and cognitive development (Kaplan & Larkin, 2004), language development (Larkin & Newman, 1997), improvement in academic performance (Teale, 2003; Rebok et al., 2004), enhancement of acceptance, self-esteem, and self-confidence (Newman & Hatton-Yeo, 2008), and establishment of roots and security for the future (O'Rourke, 1997). Other studies have shown that involvement in intergenerational interaction helps children build trust and decreases the chances of youth to begin using drugs and alcohol or to skip school (Tierney, Grossman, & Resch, 2000).

2.2.3.4 How do Elders Benefit from Intergenerational Interaction?

Intergenerational interactions provide elders with opportunities to use their skills accrued over a lifetime in new ways and to teach children (Norouzi et al., 2015). This gives elders satisfaction from making a difference by helping others, being needed and appreciated, and allows them to achieve a sense of fulfillment by passing on their wisdom and knowledge and remain productive members of society (Kaplan & Larkin, 2004). Interaction with children can also stimulate learning for elders, where they can learn about new innovations and technology from their younger counterparts (Butts & Chana, 2007), have new expereinces, adopt a more optimistic view towards life (Fried et al., 2000), and recognize that the past may be connected to the future through the succeeding generation (O'Rourke, 1997).

Jarrott and Smith's (2011) comparison of two centers—one influenced by contact theory and the other with a traditional setting of an intergenerational program—showed that even in the traditional setting elders were interested and benefited from intergenerational

interaction. Benefits of intergenerational interaction for elders include: higher self-esteem and confidence, feeling of self-worth and usefulness, better health and well-being, higher levels of life satisfaction, being happier, discovering new things about themselves, learning about technology and new techniques on manipulating computer related programs, and creating opportunities to forge new friendships and relationships with people of the same or different cohorts.

Meshel and McGlynn's (2004) study reported significant positive change in elder's life satisfaction from pre- to posttest of a six-week theory based intergenerational program. Elders who participated in this study also showed improvement in their attitude toward the younger generation. Jarrott and Bruno's (2007) case study of One Generation in Los Angeles reported that 91% of the elders' family caregivers indicated that their family member benefited from intergenerational interaction, where 33% of the elders were happier and more relaxed and 15% of the elders had more self-confidence. Staff members and caregivers of elders confirmed enhanced participant self-confidence that resulted from intergenerational interaction. Their results suggested that some of the benefits gained by the elders included social interaction, happy and relaxing days, self-confidence, caring for and watching children, children's affection, friendliness, playfulness and stimulating energy. According to Jarrott and Bruno (2007), most of elders who participated in the study "reported feeling happy (97%), interested (90%), loved (89%), needed (86%), and younger (65%)" (p.248).

Gigliotti and colleagues (2005) mentioned that elder participants in intergenerational programs have experienced positive affect (Jarrott & Bruno, 2003; Short-DeGraff & Diamond, 1996), engagement (Camp et al., 1997), and generational empathy (Hayes, 2003). This study of implementation and evaluation of an intergenerational summer program reported that many elders enjoyed interacting with children and developed strong bonds and special relationships with them. Chapman and Neal's (1990) study of an Elder-Youth Exchange (EYE) program with two components of youth helping elders

and elders helping youth, was implemented and supervised by staff of a senior services agency in collaboration with a youth services center in Portland, Oregon.

The program objective was to establish reciprocal relationships with providing needed services by one generation for the other and vise-versa. Youth helped elders by providing house and yard care through an employment program and elders helped youth by tutoring individuals and groups, and leading or teaching in recreation programs. Chapman and Neal (1990) collected pre- and posttest interviews and questioner. The results indicated that elders felt positive about the program and enjoyed contact with other generations. Some of the elders reported that they were more patient than they had previously thought and several elders who had received help from teenagers mentioned that their trust of teenagers had increased. Others indicated that not only they enjoyed their relationship with teenagers, but they were surprised at how easily they were able to develop that relationship. One of the elder participants in this study said, "I enjoyed interacting with a teen in my home and seeing my home and life through her eyes." (p.830).

Galbraith et al.'s (2015) literature review of the positive impact of participating in intergenerational programs on quality of life and well-being of persons with dementia indicated that most elders would like to and enjoy having meaningful and purposeful interaction with children and youth. Galbraith et al.'s findings referenced studies that indicated an increase in elders' sense of purpose and usefulness, decrease in anxiety, and a renewed sense of youthfulness (George et al., 2011; Jarrott & Bruno, 2007). Other benefits of intergenerational interaction for elders included feeling of acceptance and reciprocity (George et al., 2011), positive behavior outcomes for persons with dementia, more hand-holding (Newman & Ward, 1993), eye contact, and more positive emotional expression such as smiles and laughter as well as improved engagement among elders themselves (Giglio, 2006). Elders tend to get less social, less productive, and less engaged in the community as they age. Intergenerational programs help elders stay more active socially and physically, develop new friendships and therefore live a mentally and physically healthier life (Cobb, 1976; Bassuk et al., 1999; Glass, 2003; Butts & Chana,

2007; Bath et al., 2010). Other studies have shown greater positive social interactions for participants with dementia who are involved in intergenerational interaction (Short-DeGraff & Diamond, 1996), and higher levels of engagement and positive affect during intergenerational engagement (Jarrott et al., 2011).

2.2.4 How Architects Can Support Best Practices of Intergenerational Programs

Architecture has evolved over time, becoming more than a response to a basic need for shelter and protection. Today, architecture is a representation of societal and cultural identity while still responding to personal and community needs. One of the necessities of today's society is designing physical environments specifically to serve intergenerational programs. In the past, "environmental design strategies and decisions have produced desired patterns of intergenerational exchange in various settings" (Kaplan et al., 2007, p.82). Examples of physical environments are schools and their open space plans, health care settings such as hospitals, or smart homes to allow elders to live independently for as long as possible.

When an architect is given a problem, the first step is to understand the needs of the client. The architect then must study the interaction of those needs, imagine it within the building that is being designed, and finally create a solution that solves the client's problem as best as possible (Scruton, 1979, p.23). Architects mostly use empirical knowledge of their practice that was accumulated through experience. This kind of knowledge is subjective and often unverifiable and volatile (Schwarz, 2012). Scientific research, on the other hand, is generally grounded in theory and based on patterns found in past experiences and observations.

Even though there is a distinction between theoretical and practical knowledge, they cannot be separated in the area of means (Scruton, 1979). In order to find the best solution to the design problem, architects need to understand the completed building as it will be experienced by those who will use it. They need to answer the question of "what it would be like?" to walk, work, live and play through this building. Architects therefore

need to acquire the knowledge of the end product not just the means to it. However, since the building is yet non-existent, this understanding will be partly imaginative.

In his essay “What is it Like to be a Bat?,” Thomas Nagel (1974) indicates that imagining ‘what it is like to be’ is a subjective perspective, where experience is more personal in a way that the connection is only from a specific point of view and cannot be comprehended from other points of view. Nagel’s point about our inability to fully understand certain mental phenomena from the third-person perspective is an indicator that even if the architect has a perfect understanding of the problem and would find the best solution to solve the problem, the solution is still subjective and that the architect could never truly know ‘what it would be like’ to experience the experience of those who would use the building after it is completely built. This brings us back to the point that this study emphasizes on the importance of using human development theories in architectural design of intergenerational facilities.

Even though the importance of the role of immediate physical and spatial environments on children and elders’ wellbeing and quality of life is obvious, there have been very few studies focusing on these topics, and there has been a failure to clearly “specify the objective and subjective characteristics of the environment that may influence gains and losses” with these environments (Wahl et al. 2012, p.308). The limited volumes of books and articles written on the subject have followed the trend of society in terms of writing about separate environments for elders and children. Because of this, current practice of designing age-segregated environments, this study aims to inform designers and architects in understanding the boundaries between architectural phenomenology and human development theories, as well as the importance of involving the elderly and children in creating safe and inviting places that support intergenerational exchange.

2.3 THE IMPORTANCE OF THEORY AND PRACTICE INTEGRATION

The importance of theory in clarifying ideas before transforming them to reality cannot be overemphasized. According to Leonardo da Vinci, “he who loves practice without theory is like the sailor who boards a ship without a rudder and compass and never knows where he may cast. The supreme misfortune is when theory is unconnected to performance”. Hendricks et al. (2010) describe the importance of integrating theory into applied social interaction, noting that without carefully conceptualized measures and a theory about how and why programs are expected to work, it is impossible to assess program impacts on the lives of the participants.

Good practice depends on the correct understanding and use of theory. The primary trade of architectural practice is arguably human experience (Sharr, 2007), yet an architect cannot inhabit a building before designing and constructing it. Even after the building is built, the architect’s experience and understanding of the building would be subjective and an “interpretive integration” (Heidegger, 1962, p.XIX) of whom the architect is. This of course could be different every day and interfere with an understanding of the actual users of the facility whether as children and elders participating in intergenerational programs or facilitators and administrative members of the program. As stated by Bronfenbrenner (1979), the individual, social interaction, and physical environment are linked and have an effect on one-another. Therefore, intergenerational environmental design could facilitate more social and physical support for all ages and an intentional strategy to develop engaging spaces that support intergenerational congregation and interaction can yield profound results in providing more social support for both elders and children (Kaplan et al.,2002).

Kitwood’s (1997) personhood theory combined with Allport’s (1954) contact theory for positive social connections creates a solid theoretical foundation to organize architectural research, interpret the results, inform interventions of elders and children’s interactions, and guide architectural practice in designing and buildings better environments for intergenerational interactions. These findings can be added to what architects know from

architectural phenomenology in order to set up the appropriate spatial design qualifications that would create opportunities for different levels and types of intergenerational interaction. According to Holl (1996),

> Phenomenology concerns the study of essences; architecture has the potential to put essences back into existence. By weaving form, space, and light, architecture can elevate the experience of daily life through the various phenomena that emerge from specific sites, programs, and architectures. On one level, an idea-force drives architecture; on another, structure, material space, color, light, and shadow intertwine in the fabrication of architecture. (p.11).

Therefore, this research uses philosophical grounds of phenomenology as a pathway for the integration of human development theory in architectural place making.

Through the creation of intergenerational physical environments, architects can enhance current interactions between different generations to cultivate personal strengths and empathy towards one another since “space is unquestionably linked to experience” (Miyasaka, 2014, p. 56). Physical environments have the power to either hinder or promote social interaction among individuals. Interacting with the environment requires the use of one’s entire body and senses, which links the experience of the user to the design of the architect. In designing an intergenerational facility, personhood theory and contact theory help architects be aware of not only the ability and capabilities of both elders and children, but also the importance of their individuality and quality of interaction and how to address this by means of material, form, color, texture, and other perspective qualities of design. By conscientiously designing an environment that allows for opportunities of various interactions levels—for instance observation, one-on-one interaction, small or large group interaction—as well as multiple simultaneous activities, participants have opportunities to choose their modes of interaction based on their desires at any given moment while achieving the goal of linking younger and older generations for mutual benefits (Newman, 1997), fostering positive contact and decreasing social distance between generations (Jarrott & Bruno, 2007).

2.4 CURRENT STUDY

Although many human development researchers and social scientists in the field of gerontology and child development have been strong advocates for non-familial intergenerational interaction involving unrelated youth under the age of 18 and adults usually over the age of 60 in the past few decades, most intergenerational programs in the United States take place in existing spaces that have not been designed specifically to incorporate children and elders at the same time. Generations United, a national intergenerational membership organization representing over 500 agencies and individuals, mentions that only 2% of the intergenerational programs are placed in a building designed to explicitly serve that program. This small percentage could be due to the lack of knowledge about the value of the effect of the built environment on intergenerational exchange, the differences between how architects and social scientists define successful design of an intergenerational facility, or that the role of physical environment tends to be ignored by most social scientist involved in intergenerational programs, or the limited funding and the need to work with cheap or donated space.

Whilst several social scientists, educators, and researchers have written on the subject (Haider & Kaplan, 2004; Kaplan et al., 2007; Rogers & Taylor, 1997), others involved with intergenerational programs have only focused on planning and facilitating the intergenerational activities and paid no attention to the influence of the physical environment (Layne, 2009). More importantly, to my knowledge, no one from the field of architecture has shown interest in writing about the design of intergenerational facilities. Even architects who are interested in creating spaces for children as well as spatial design for elders have chosen to write separately on each subject and not focus on the shared site (e.g. Mostaedi, 2003 and 2006). Consideration of the built environment and its influence on intergenerational interaction requires a dialogue between social scientist and architects. This study considers a path through architectural phenomenology and human development theories to connect intergenerational programs with the design of their built environment (see Figure 2.5).

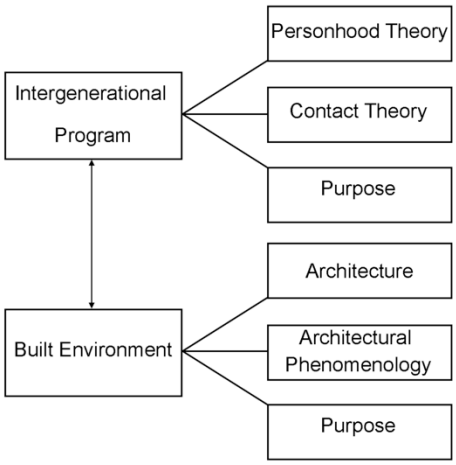

Figure 2.5 A design path to an Intergenerational Built Environment

This study seeks to answer the following questions in order to promote the success of intergenerational programing:

1. How can the identification and adaptation of human development theories and architectural phenomenology inform the extension of normative design for intergenerational facilities?
2. In what ways does the physical environment and design features of an intergenerational space meet the needs of multiple age groups and facilitates interaction?

The review of by phenomenological, social science, and architectural literature led to the discovery of two major qualities that are important in having an effect on human experience. These points are respecting privacy and personal control (Chaudhury et al., 2013; Duffy et al., 1986; Schwarz, 2012; Sharr & Unwin, 2001) and offering multisensory experience (Chaudhury et al., 2013; Heidegger, 1962; Holmes, 2009; Larkin et al., 2010; Pallasmaa, 2012; Zumthor, 2006). These two points can be translated into a set of architectural conditions: boundary, bridge, atmosphere, and perception. These conditions translate into architectural elements and spatial qualities that can be analyzed in the space and help identify and choose intergenerational facilities as case studies. Other architectural conditions such as sight, sound, scent, touch, taste, place, human responses to architectural design, individuality, inclusion, comfort, and attachment will also be used

to study the quality of the intergenerational spaces through observation and interview questions that will be asked of the people involved with each intergenerational program. For the purpose of this study, the architectural conditions that were used to choose the case studies are described as follows.

2.4.1 Boundary

Boundary is not where things stop, but where they begin presenting themselves and possibly connecting to other things through a bridge. Therefore, in reviewing intergenerational spatial conditions, the researcher will look for how the architect has designed the connections and separations between exterior and interior spaces as well as between elders and children. Specifically, the researcher will focus on if and how these boundaries respect the individual's privacy and allow for personal control over how much and for how long each person can be involved in any types of intergenerational engagement. To do so, the research will ask the questions: Are the boundaries translucent, transparent, permeable or opaque? Were they designed for the purpose of separation to protect and shield or connection and other purposes were considered by the architect(s)? Are there any relationships between physical and social boundaries?

For example, in designing an apartment for senior citizens (see Figure 2.6)**,** Peter Zumthor writes:

> the architectural feeling, the materials used –came out of the idea of offering something that the occupant knew, liked, and could easily use: a bay window in the living room looks out onto the evening sun, the balconies are placed in niches protected from the wind, the kitchen window opens out to the entrance hall and encourages social contact. The entrance hall is larger than a social corridor so that the occupants can set up the area outside their apartment with their own furniture and personal articles from their former homes, sit there and have a chat with their neighbors, as they once did in the village on a bench outside the house (Zumthor, 2014, p.123).

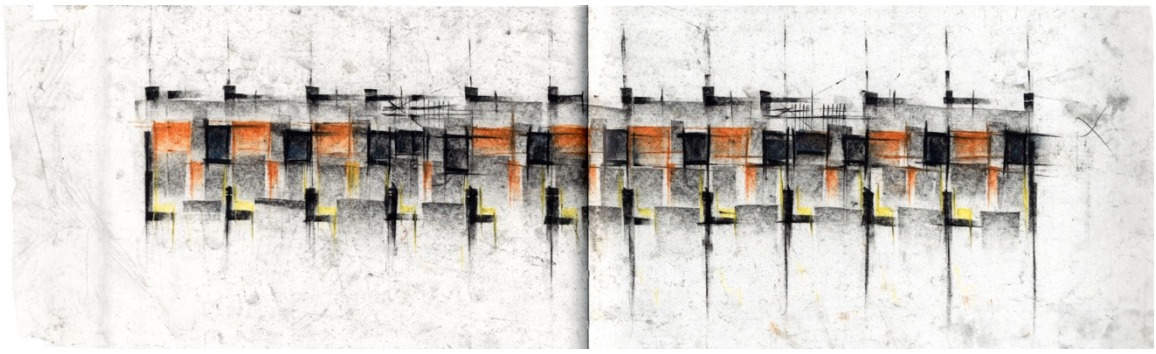

Figure 2.6 Diagrammatic drawing showing the poor over the private rooms to the public corridor

In this design, boundaries have been used not only to protect and shield against natural elements such as wind, and to provide privacy and personal control, but also to create social and emotional connections through wide corridors and west facing windows (See Figure 2.7.A and 2.7.B).

Figure 2.7.A Boundary providing opportunities for social interaction

Figure 2.7.B Boundary connection indoor and outdoor

The investigator of the proposed study, also considered the types of boundaries used in each of the case studies in terms of whether they are only traditional architectural boundaries such as walls, windows and door; or other creative moments, elements and materials were used to enhance the user's experience. Although a climbing wall might not be necessary for an intergenerational facility, a good example of a creative boundary is the Vertikale Kletterhalle (see Figure 2.8), designed by architects Martin Mutschlechner and Barbra Lanz of Stadlabor in collaboration with Wolfganag Meraner in Brixen, Italy.

The façade of this climbing center is made of rippled aluminum cladding with tiny perforations that allow the wall to become transparent after dark. This blurs the inside/outside boundary, connecting the climbers who are climbing the 15-meter climbing wall to the outside world by revealing them at night, while providing them with a bright interior and the view of the Dolomite Mountains during the day.

Figure 2.8.A Vertiklae Kletterhalle —daytime

Figure 2.8.B Vertiklae Kletterhalle —Climbing wall

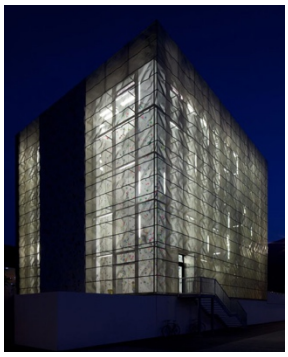

Figure 2.8.C Vertiklae Kletterhalle —nighttime

2.4.2 Bridge

A bridge that swings over the stream does not just connect the banks that are already there, but the banks emerge as such only when the bridge crosses the stream (Heidegger, 1971). Using the same concept, the bridge that connects elders and children creates many far and near places that can be occupied by its users. While reviewing the spatial connection between elders and children in intergenerational facilities, the researcher will focus on if and how a bridge provides multisensory opportunities as well as allowing individuals to choose the time and level of activities they want to be involve in. For example, the bridge at Hesston Intergenerational Center is called “the Main Street” and it includes an ice cream shop where elders and children can connect while tasting different flavors of ice cream. Mount Kisco Child Care Center in Mount Kisco, New York has a ‘bridge’ that includes an art and craft area, a sunroom and view to a courtyard garden. Last but not least is the example of the Seagull School in Kapolei, Hawaii. The school was designed to resemble a small village with an adult day services program integrated in it.

Figure 2.9 Seagull School at Kapolei, HI.

Some of the benefits of the village-like community are interconnectivity, mixed use and diversity, comfort, having a sense of place and belonging, and discernable center and edge. These benefits, on a smaller scale, are used at Kapolei Seagull School to bridge childcare and elder care in an intergenerational setting.

2.4.3 Atmosphere.

For architects, atmosphere is often an allusive quality, as it cannot necessary be built directly but instead emerges out of a built space and the people who occupy it. In an attempt to define atmosphere, Havik et al. (2013) write:

> atmosphere cannot be defined but it can be recognized, […] atmosphere exists where architecture, beyond its autonomous trajectory, its technical apparatus, and its programmatic approach, is connected with the surpassing of daily use. And by doing so it bridges the gap between professionals and laymen, since it affects both. Atmosphere delivers, moreover, a conscious experience of room, place, space – an experience that lasts (p.1).

In this same way, Zumthor says that the title of his book, *Atmospheres* (2006) was generated when he thought about what architectural quality is. For him, quality architecture enriches people's lives and allows them the opportunity to create new memory or reconnect with old memories. During his Royal Gold Medal lecture at the Royal Institute of British Architects (RIBA) in London, Zumthor alluded to atmosphere as a "condensation of emotion" that can be created in any building.

Recognizing these definition of atmosphere, the researcher of this study searched for emotional spaces with spatial qualities that amplify the overall memory experience for elders and children by offering opportunities for multisensory experience as well as having privacy and personal control while visiting the intergenerational facilities.

As one example, Hesston Intergenerational Community provides individual rooms for elders who reside at the Schowalter Villa. It also offers small and large group activity areas, as well as different spaces to connect with children from the Hesston Intergenerational Child Development Center (HICDC). At Mount Kisco, one of the intergenerational spaces is adjacent to the kitchen where all the baking and cooking happens since some human memories are connected to the smell of a specific food or pastries. This also allows the elders to remember a past experience and for children to create new memories and to learn about different smells and how smell is associated with taste. As a final example, the Seagull School in Kapolei's main intergenerational space is outdoors, surrounded by trees and flowers.

2.4.4 Perception

Winston Churchill believed that we make our buildings and afterwards they make us. In designing and constructing the physical environment, architects reflect their own qualities into the building. However, after the building is built, the people who are using it take on the qualities of the building. Therefore, there needs to be an explicit intention on how to influence behavior through spatial architectural design. Hillier et al. (1987) write, "spatial layout in itself generates a field of probabilistic encounter, with structural properties that vary with the syntax of the layout" (p.233). One of the main intentions in designing intergenerational facilities is to provide opportunities for positive intergenerational interactions. Children may have negative feelings toward elders and perceive being old as a negative experience. Architects can influence the elders and children's behavior and change misconceptions and stereotypes by intentionally designing the building to influence social interaction. As mentioned above with Zumthor's design of apartments for

senior citizens in Switzerland, the arrangement of rooms, doors, windows, and hallways serves to encourage or hinder communication and as a result affects social interaction.

In designing intergenerational facilities, architects need to use specific tactical design techniques to create potential opportunities for engagement, involvement and knowledge sharing between elders and children. Christopher Alexander et al (1977) believe that architecture connects people to their surroundings in an infinite number of ways, and architects use physical arrangement of building elements or a change in material properties, inside or outside, to make this happen. This study investigates how architecture can influence the connection between elders and children by offering spaces that enhance the quality of their interaction.

CHAPTER 3
METHODOLOGY: DATA COLLECTION AND ANALYSIS PROCEDURE

This Chapter reviews the method of data gathering, organization and analysis specifically to investigate the use of human development theories through phenomenology in architectural place making of intergenerational facilities. This research serves to inform how intergenerational spaces can enhance the quality of intergenerational interaction.

3.1 RESEARCH DESIGN AND METHODOLOGY

This research utilizes a constructive grounded theory methodology as a qualitative study. Grounded theory was originally developed by Glaser and Strauss (1967) as one coherent and complete method. Glaser and Strauss stated that theory should be developed in relationship with data and with full awareness of the researcher as the instrument developing the theory. However, over the next two decades, each author worked independently and wrote significantly different methodological texts that according to Stern (1994), led to two schools of grounded theory—Glaserian and Straussian (Richards & Morse, 2007). Glaserian grounded theory takes the more objective perspective by separating the data from both the participants and analyst and allowing it to tell the story (Charmaz, 2006). The analyst attends to the data and asks the question “what do we have here?” (Stern,1994, p.220). Glaserian analysis focuses on process, categories, dimensions, and properties as the components of the data and allowing the theory to emerge from the relationship between these components (Richards & Morse, 2007).
Straussian grounded theory, on the other hand, was developed from examination of the data while asking the question of “what if?” by the analyst bringing every possible contingency that could relate to data (Stern, 1994) regardless of its existence in the data. Therefore, Straussian grounded theory is the product of detailed examination, discussion, and reflection of data (Richards & Morse, 2007).

Since its development by Glaser and Strauss, grounded theory has taken different forms of which one is constructivist grounded theory (Charmaz, 2006). Constructivist grounded theory responds to questions of how, when, and to what extent the study is involved with

other positions, networks and situations (Charmaz, 2008) as well as how, when, and to what extent the study (both data and analysis) is influenced by relationships and experiences of participants and the researcher. The constructivist approach does not only theorize the interpretive work that research participants do, but acknowledges that the resulting theory is also an interpretation based on the researcher's point of view and that the researcher's perspectives, positions, and interactions affect the construction of the research process and products (Charmaz, 2014). According to Charmaz (2006), "Constructivism fosters researchers' reflexivity about their own interpretations as well as those of their research participants" (p. 131). Thus, an analysis of the constructivist view is "contextually situated in time, place, culture, and situation. Because constructivists see facts and values as linked, they acknowledge that what they see—and don't see—rests on values" (p. 131). Constructive grounded theorists make the assumption that reality is constructed under particular conditions and that the research process emerges from the interaction of the researcher and the research participants. Therefore, data is influenced by the researcher as well as the participants' personalities and prior knowledge and experiences (Charmaz, 2008). It is important to note that both the researcher and the research participants' pre-existing positions influence their interpretations of the surroundings and therefore, also influences the research.

In the case of this study, the investigator has prior training in architecture as well as experience in working as a preschool/kindergarten teacher and as a volunteer at adult day centers working with elders, which lead to a specific perception and position on how intergenerational spaces could be designed in order to enhance the quality of intergenerational interaction. Her prior knowledge might shape the assumptions she makes about how these spaces should be designed to meet the needs of elders and children. Furthermore, her understanding of what those needs are and how to define them might be influenced by her experiences. In order for the researcher to develop data while taking into account her preexisting frame of knowledge and experience, she used constructive grounded theory as the method of this study to develop an explanatory theory of social interaction (Charmaz, 2006) within an intergenerational environment. The

findings of this study is the development of a theory that addresses the following questions:

1. How can the identification and adaptation of human development theories and architectural phenomenology inform the extension of normative design for intergenerational facilities?
2. In what ways does the physical environment and design features of an intergenerational space meet the needs of multiple age groups and facilitates interaction?

Three sources of data were collected to generate a theory based on existing architectural conditions presented in the literature review as well as the themes that emerged from the interviews. The connections between human development theories and architectural phenomenology were identified by triangulating data from three different sources including phenomenological description, behavioral/observation mapping, and Interviews. An overview of the research design is presented in Figure 3.1.

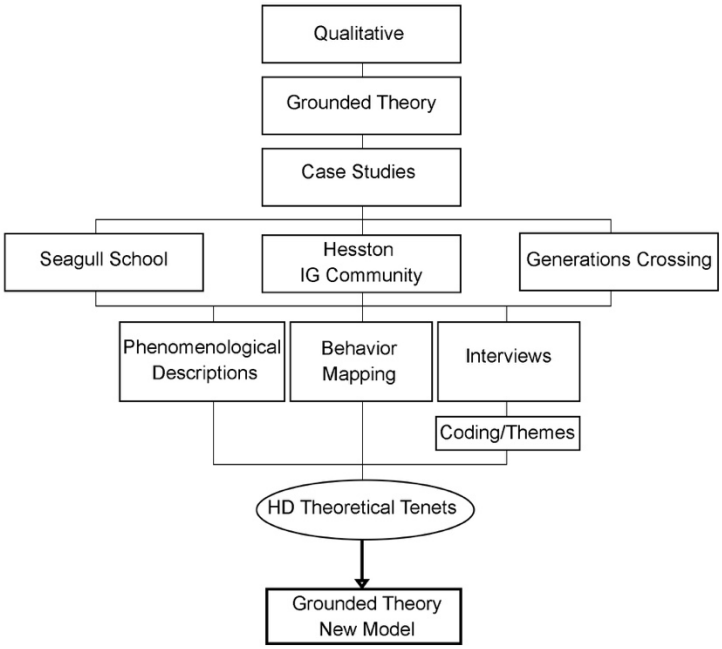

Figure 3.1 Overview of research design

3.2 DATA COLLECTION

The researcher sought out multiple informants based on their unique contributions to the research questions (Glaser & Strauss, 1967). She gathered data through writing a phenomenological discription, conducting behavior/observation mapping, and interviewing people with different perspectives of the case studies. These data sources allowed her to follow the guidelines of grounded theory methodology and to explore multiple dimensions of the influence of built environments on the quality of intergenerational interaction by collecting data through interviews with participants who have different experiences of the program (Starks & Trinidad, 2007), in addition to her own experience of the place and behavior/observation mapping of intergenerational spaces in each facility. All procedures have been approved by Virginia Tech's Institutional Review Board.

3.2.1 Identification of Intergenerational Facilities

Generations United (GU) directory mapping of intergenerational programs across the United States guided the process of choosing intergenerational facilities. The researcher eliminated programs that were not in a building designed for intergenerational services. The remaining facilities were designed for daily intergenerational engagement. In order to reduce investigator bias, the researcher contacted the special projects director of Generations United and asked for a recommendation of the ten most successful intergenerational programs in the country. Generations United has developed and launched a "Program of Distinction" designation that "serves as the U.S. benchmark for intergenerational programs and is based on the criteria that underpin the effectiveness of any intergenerational program. The intention of the designation is to recognize excellence while celebrating the rich diversity among intergenerational programs" (Generations United, 2015).

Simultaneously, the researcher examined each of these facilities to understand the similarities and differences between their spatial design and how that influences intergenerational engagement in each facility. These similarities and differences were

studied by the researcher and based on the two points that emerged from the literature review: (1) respect of privacy and personal control and (2) multisensory experience. The researcher specifically looked for architectural conditions that would provide privacy for elders and children such as separate spaces for each generation, offer elders and children personal control over the types and levels of activities they participate in, and provide multisensory opportunities for intergenerational interaction through environments that allow sensory stimulation for elders and children such as a secure, outdoor courtyard with waterfalls and seasonal flowers. The final list included seven intergenerational facilities, from which three were chosen based on their architectural qualities, specific design elements, and the spatial layout as described in the literature review (boundary, bridge, atmosphere, and perception). An example of these criteria are: (1) separate spaces for elders and children— boundaries that afford privacy for elders and children as well as offering them opportunities for personal control on how much and for how long they want to be involved with one another; (2) bridges that connect elders and children by providing druthers for different types and levels of interaction; (3) atmospheres that offers multisensory experiences and/or connects the elders with memories from the past or allow for creating new memories; and (4) spaces that offer high quality interaction of different types and levels between elders and children.

The original contact to each center was made through their website. All three centers are non-profit organizations. All had been involved with intergenerational programs prior to building their current facility. These facilities are (1) Hesston Intergenerational Community in Hesston, KS, (2) Seagull Schools at Kapolei, HI, and (3) Generations Crossing in Harrisonburg, VA. This process is illustrated in Figure 3.2.

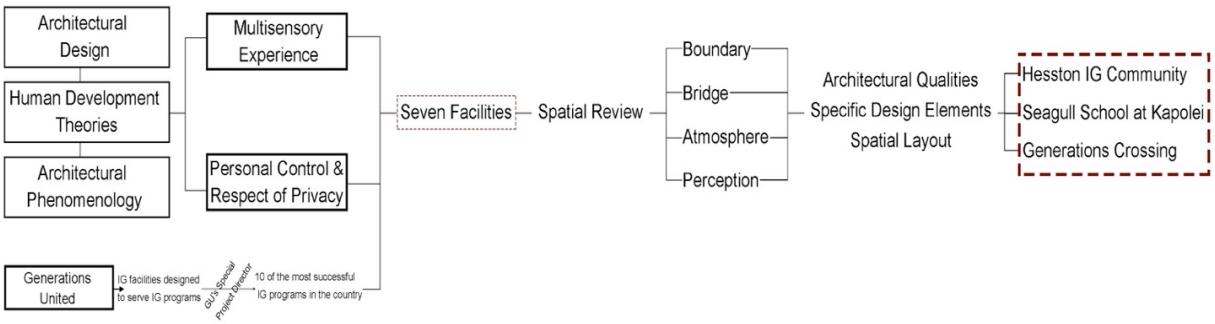

Figure 3.2 Identification of intergenerational facilities for case study

In order to collect extensive, rich data while using grounded theory strategies to direct the data collection process, the researcher immersed herself by spending four to eight hours a day for two to five days at each facility. The number of days and hours are different due to differences in the program size. For example, Generations Crossing is the smallest size program and therefore it required less time than the other two facilities. Overall, the researcher spent two eight-hour days and two four-hour days at the Seagull School, two four-hour days at Generations Crossing, one four-hour day and four eight-hour days at the Hesston Intergenerational Community.

The researcher used three sources of information to develop the theory. Using a spatial analysis, she assessed each space based on the four architectural descriptions of boundary, bridge, atmosphere, and perception as identified in the literature review. As mentioned above, the first source of information was the study of intergenerational program spaces through a phenomenological description of each space. The second source of information was behavioral/observation mapping to document the social interactions and behaviors that happen within each space. The third source of information was interviewing the architect responsible for designing each of the facilities as well as the people involved with the intergenerational programs within the facilities. These steps are described below.

3.2.2 Phenomenological Description

A phenomenological description of a place depicts the first person experience of that place. The researcher attempts to transfer her understanding of the place by providing a texture that brings the fullness and richness of her experience to the reader and allows them to imagine themselves going through the same experience (Wertz, Nosek, McNiesh, & Marlow, 2011). As outlined by Todres (2007), the composite first person narrative is more than a definition of a phenomenon; it is about telling a story that connects with universal human qualities and so that the reader can imagine it in a personal way. The composite first person narrative contributes to a new understanding of the phenomenon by allowing the reader to have an increased sense of contact with it without completely experiencing it. This means that the researcher switches between a third and first person perspective for the rest of this project.

Upon my arrival at each center, I became the interpreter on a phenomenological journey of the place. I approached the building from its periphery, and through public pathways to the more private sections. This offered me the opportunity to experience the building from different views and through movement. Approaching the building from its periphery allowed me to move toward the building and experience the exterior, enter into the interior, and step by step follow the general circulation of the building, while considering all aspects and elements of the building that drew my attention. I captured the essence of the place through observation, analytical photography and sketching to identify and examine the quality of each condition, the relationships within specific architectural conditions, and the influence of the conditions on the quality of intergenerational interactions. The quality of boundary, bridge, atmosphere, and perception as the architectural conditions that I focused on during this process was based on the opportunities each one of these conditions provide for respect of privacy and personal control, as well as multisensory experience. The ideal architectural conditions are the ones that afford opportunities for different levels and types of intergenerational connections such as watching, one-on-one, multiple small groups, and large group interaction.

Janet Donohoe (2014) writes that “anytime we enter a building we come under its sway” (p.4) as we need to find our way around, walk through its hallways, and adjust to the spaces it offers us. The building should motivate us in various ways by being accessible to us, offering opportunities for us to look through a window and enjoy the view, or stay in one specific place and become involved with what is happening in that section inside the building. In a way, the built environment structures our experience (Donohoe, 2014). Hillier and Hanson’s (1984) study of the spatial layout of homes from the inhabitants’ point of view showed a relationship between the spatial layout of each home and the success of its residents in performing daily activities. Well-designed spaces play an important role in communicating this kind of information to the users. Through the utilization of size, shape, colors, materials, lighting, and furnishing, the environment can inform the users of where they are, what the intended use of the space is, and what behavior is appropriate in that space (Marquardt, 2014).

However, not everyone involved with the same built environment will have the same experience. The environment of the preschool teacher is different from that of the child, which is different from that of the developer or the architect—even if they all experience the same place at the same time. Individual experiences are influenced by occupational, social, communal, cultural, and historical aspects of each person’s life. The teacher may focus on the location and potential of the place, while the architect may see the beauty, size, and accessibility, or focus on light, color, and wayfinding. The child might identify a corner as a perfect hiding place for playing hide and seek, while the teacher will see the same corner hazardous as the child is not in her/his line of vision. In the case of this study, my architectural training in addition to being a preschool/kindergarten teacher for a decade and a volunteer in assisted living communities influenced my interpretation and description of the places I visited. Below are my phenomenological descriptions of each place.

3.2.2.1 Seagull School at Kapolei

Seagull school in Kapolei, Hawaii is located in the center of the Kapolei business district across from Kapolei shopping centers and hotels, and adjacent on south and east sides to the Kapolei regional park. The school was constructed in multiple phases. The first phase was designed in 1995 specifically for young children, the second and third phases were the design and construction of the Adult Day Centers (ADC) I and II. The school is licensed to care for 240 children between the ages of 2 and 12 and is accredited by the National Association for the Education of Young Children (NAEYC). It is open Monday through Friday. The Adult Day Center is divided to two sections—ADC I (quiet room) and ADC II (activity room)—and cares for fifty elders. For my visit to the Seagull School, I contacted the ADC center director and set a time to visit the center for a week during the month of July. On the agreed date, I drove to the center, parked in the parking lot on the north-east of the center and was expecting to walk through the entrance through a locked door and into the office without a problem. Instead, I was not sure which entrance to take when I got out of my car. There were two wooden gates, one right across from where I parked, and the second one a few feet to the west (see Figure 3.3). I went through the gate closest to me and walked into a park-like environment with a beautiful landscape and different kinds and colors of trees and bushes. I soon realized that I was in the children's playground.

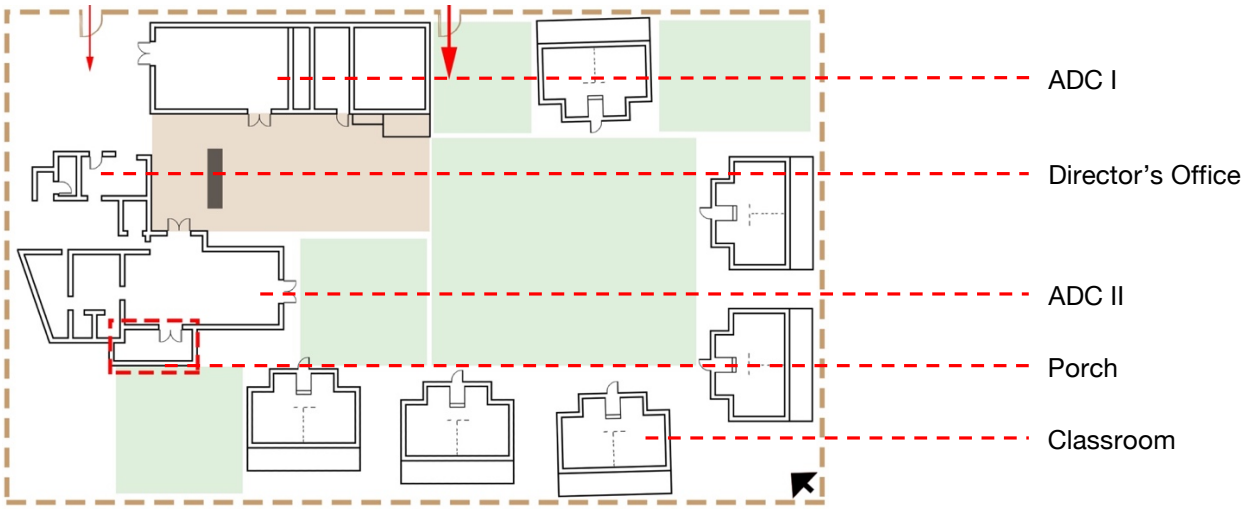

Figure 3.3 Seagull School's site diagram

The school's office was to my right, so I introduced myself, and asked where I could meet Tamara, the ADC director. The receptionist told me to walk out the door, turn right and around the corner, and go through the pavilion (see Figure 3.3 - beige rectangular). I asked myself as I was walking through it, "What exactly is the purpose of this pavilion?" Multiple chairs were randomly placed in the space and there was a stage (see Figure 3.3- gray rectangular) at the north-west end of the pavilion (see Figure 3.4). As I walked further toward Tamara's office, I noticed the two ADC rooms on each side and thought that the pavilion might be a covered outdoor space for elders' use. It wasn't a very attractive space.

Figure 3.4 The Pavilion

After my talk with Tamara, I walked around the center to familiarize myself with its setting. At first glance, everything seemed segregated, but some how connected. It felt as if I had entered a small forest. The individual school buildings, surrounded by different kinds and colors of native plants (see Figure 3.5), the smell of fresh air and the sounds of birds singing took me back to my childhood and spending a summer in Caspian Hyrcanian Forest in Northen Iran. The natural and built environments meshed into one another (see Figure 3.6).

Figure 3.5 Different shade of green

Figure 3.6 Natural vs. built environment

There are six classrooms, each divided into two with a movable wall, I was later told the idea was to support high numbers of children with four teachers or divide the class into two with less children and two teachers on each side. All classroom buildings have gullwing roofs with solar panels (see Figure 3.6). Each classroom also has a back covered porch with large windows and adjustable louvers (see Figure 3.7) and no air-conditioning.

Figure 3.7 Classroom windows

The ADC buildings are separated from one another by the pavilion at the north-west corner of the classrooms. The pavilion is a covered outdoor space with tables and chairs, and is used daily for many different activities from lunch breaks to intergenerational interactions. The children's playground also separates the ADC rooms from the classrooms. However, the landscape and the courtyard of the playground creates a sense of unity throughout the center. As I walked around the campus, I learned that there are four different playgrounds (see Figure 3.3- light green rectangualer) for different age groups in addition to the outdoor courtyard, utilized by both elders and children.

I noticed that both the school and ADC had the traditional architectural boundaries of walls, doors, and windows; however the boundary between the two sections (preschool classes and ADC rooms) had been bridged by the outdoor courtyard that included the children's playgrounds, wide walkways for elders through the children's main playground (see Figure 3.8), a patio between ADC II and the toddler's playground for elders to sit, relax, and watch the children play (see Figure 3.9), and a pavilion as the intergenerational space. This is where the physical boundaries are nothing but the perscriptive requirements of a building and the perceptual boundaries where the person's experience changes by crossing that bridge that connects the two ends.

Figure 3.8 Elders & children share a playground

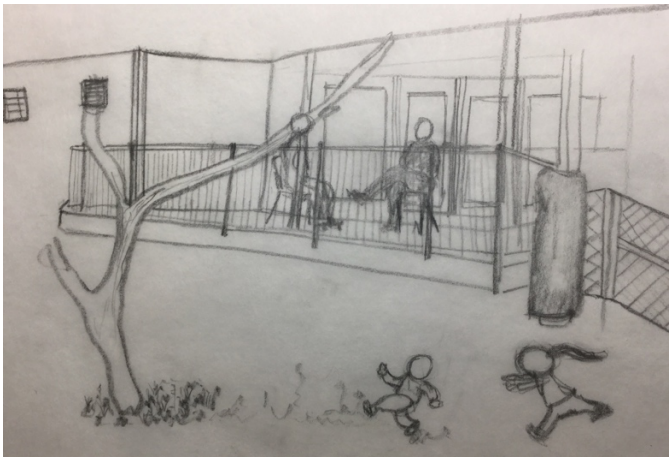

Figure 3.9 View of toddler's playground from ADC II's porch

3.2.2.2 Hesston Intergenerational Community:

Schowalter Villa and Hesston Intergenerational Child Development Center

The Hesston Intergenerational Child Development Center (HICDC) is located south-west of Hesston Kansas, south of Hesston College (a 2-year liberal arts college), and north of the Dyke Arboretum of the Plains, home of a scenic lake and variety of native and adopted wildflower, grasses, and trees.

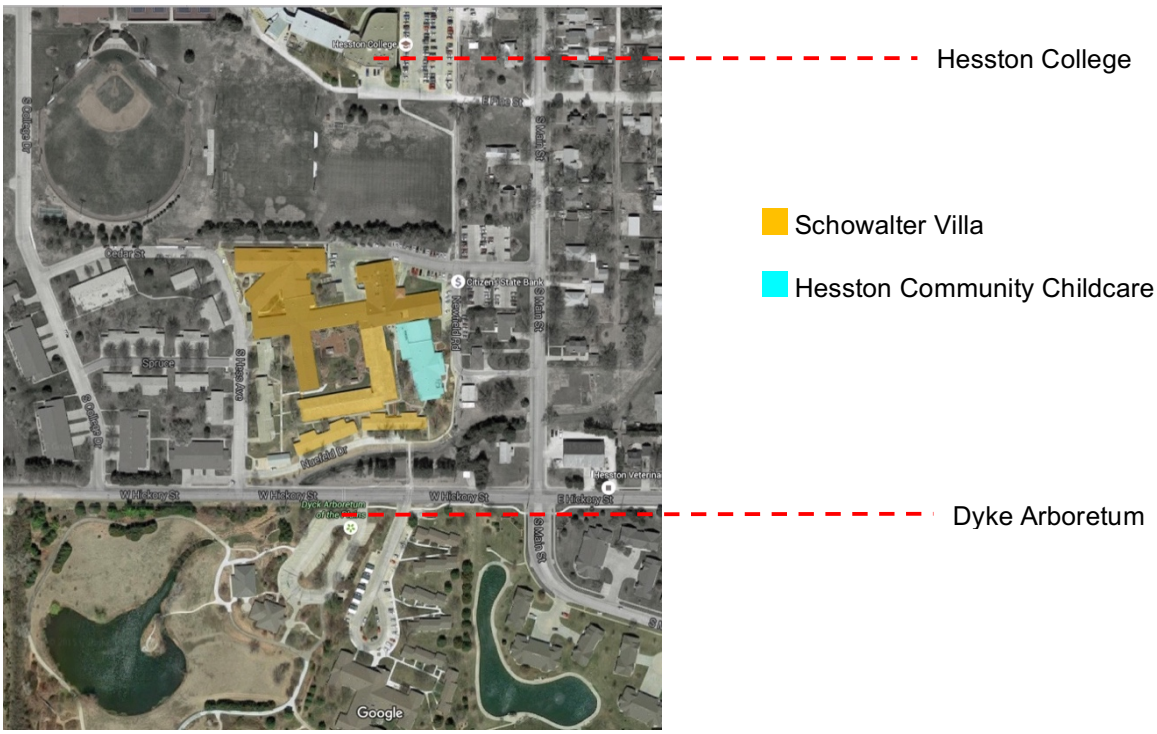

Figure 3.10 North to south: Hesston College, Schowalter Villa, Hesston Community Childcare, Dyke Arboretum

I first visited this center in 2010 when I was working on my M.Arch degree, which provided knowledge and familiarity of the environment for my visit in 2015. I remembered the driveway, the tree trunk in front, and the customized Generations “Hand-N-Hand” art work right through the first set of entrance doors at HICDC’s main entrance. I was also familiar with the welcoming feeling of the lobby. I remember walking through the door expecting four walls, a couple of doors, and a front desk but was pleasantly surprised and excited as I entered the lobby. Standing at the front door looking straight ahead at an open door and five large windows, through the windows, my vision focused from one color to the next—bright red, blue, yellow, orange, and then another set of windows that displayed different shades of green from the outside plants. Beyond the plants, I could see a brick building and this sensory information all arose interest in wanting to skip the greetings and pleasantries and walk straight ahead to the open room (see Figure 3.11).

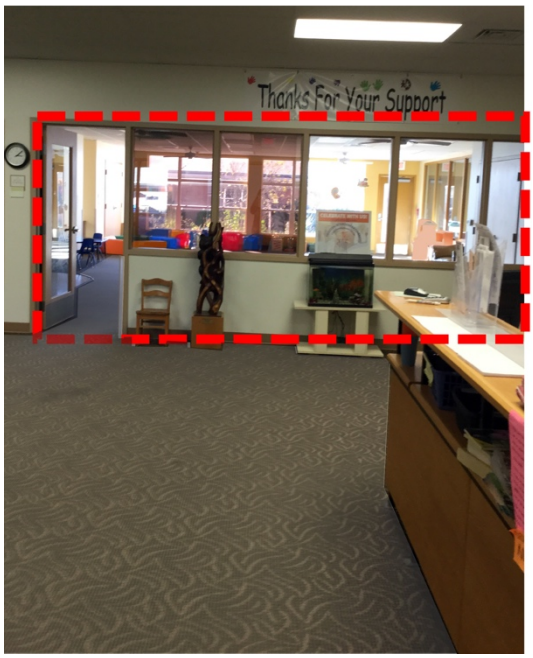

Figure 3.11 Lobby—straight ahead

Later, I learned that the room (colored in beige in Figure 3.12) was designed as the main intergenerational space for elders and children to get together but was also being used as an early morning drop-off or late evening pick-up room for the few parents who might need to have their children at school before 7:30 am or after 5:30 pm. The receptionist's desk was immediately to the right of the entrance where she greeted me and showed me to the HICDC director's office (Jolie), which was to the immediate left of the entrance. Jolie's office had large windows that give her complete visual access to the lobby as well as the east of the building, the same side of the main entrance (see Figure 3.12).

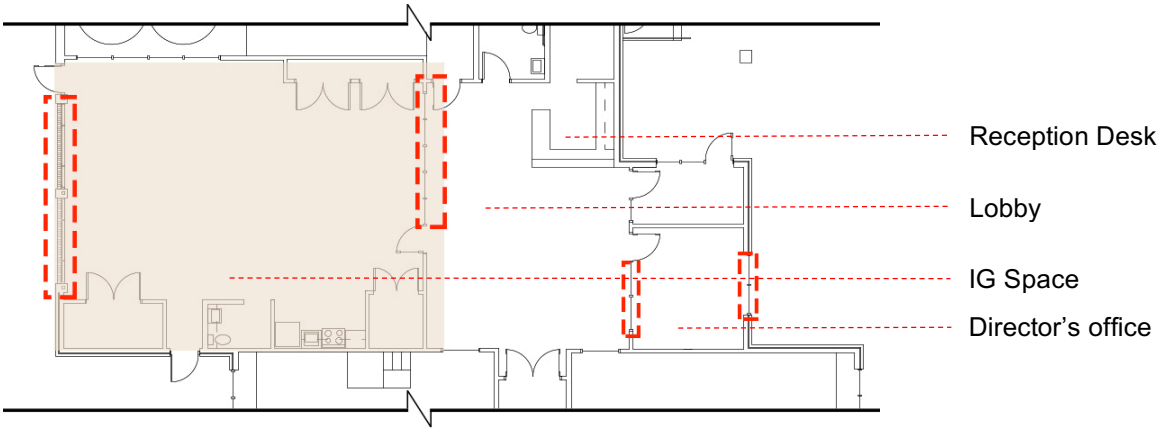

Figure 3.12 Spatial relationship

For my 2015 visit, I already knew what to expect of the building, and was excited to catch up with the staff and residents whom I had met during the last visit, and to meet and talk to new people. I walked into the lobby and to my immediate left there were two elderly individuals sitting in front of the observation window of the toddler room, watching the kids play (see Figure 3.13).

Figure 3.13 Toddler room's observation window

The display of unique pieces of furniture in addition to the use of wood and warm colors created a home-like environment at HICDC. After meeting with Jolie, I exited the lobby to the right through a hallway. This hallway is the bridge between the HICDC and the Main Street, which on its own it doesn't have a meaning; it is just a hallway. It is not beautiful; it does not make the user stop or even pause. It is just a pathway to go through, something that connects point A (HICDC's lobby) to point B (Main Street). However, as Heidegger defines bridges, this hallway is the reason the two ends are able to shine and present themselves. While in the hallway, one sees herself in a confined space, she might get distracted by the pictures of intergenerational interactions on the wall, but is quickly reminded that this is a pathway and she must keep walking. The end of the hallway is a node, a place to stop. It is where the interactive windows to the intergenerational space

(see Figure 3.14), the Main Street with the ice cream shop, and large windows facing the children playground meet.

Figure 3.14 Intergenerational space view from main street through interactive windows

Although there are multiple activities to be involved with on the Main Street, knowing that I had not seen more than half of the building stimulated my curiosity to continue the journey. I went through the Main Street and into the Harvest Dining room. There, I had choices of going through one of the hallways north, west or east. I chose west and walked through a long hallway, Eastborough 200 Hall (see Figure 3.15), until I reached a bright living area.

Figure 3.15 Hesston Intergenerational Community - plan was drawn by PKHLS architectural firm

The sunshine and the sound of the birds made me want to stop and learn more about the place I was standing in. I was in the west living room (outlined in yellow in Figure 3.15) that contains a six-foot tall wooden bird cage. The birds were singing while three elders were conversing and one was taking a nap on a large recliner. Sun rays were pouring into the room through a large glass door that opened to an enclosed outdoor courtyard (colored in green in Figure 3.15). The door was unlocked for elders to walk outside at any time during the day. I stayed inside, turned right, and walked past a few offices and a therapy room at which point the atmosphere of the building started changing. The hallways, although wide and well-lit with both natural and artificial light, did not have a home-like feeling. The use of warm colors and wide wood handrails made a difference in

the space not being institutional, but I could not help wondering what would be a better way for designing such spaces. While drowning in my thoughts, searching for a better design solution, I got to another living room and turned west into another long hallway, North Golden Meadows 600 Hall. The door at the end of the hall had an alarm and was locked. Walking back through 600 Hall, I noticed a laminated paper sign that showed the way to the dining room (see Figure 3.16).

Figure 3.16 Way-finding sign

Way-finding is another major issue that is important in these involuted hallways specially for people with dementia. On the way back, I made a wrong turn at the North Deck living room which took me to 700 Hall where twelve post-hospital rehab rooms are available. I turned back and eventually found my way back to Main Street where I decided to stop and write some notes on my confusing walk through the Villa. While sitting at a table in Main Street, I realized that it portrays a small downtown square offering shopping, entertainment, and a place of worship. Main Street also contains a gift shop, a bank, a conference room, and an ice cream shop (see Figure 3.17).

Figure 3.17 Elders enjoying a sunny afternoon on Main Street

Later, I walked through the childcare center. I entered a code on a keypad lock and walked into a 100' long, 8' wide hallway with a ramp with slope of about 1-20′ down toward the children's playground. There were two classrooms, a kitchen and large teacher work-room on the east-side and three classrooms on the west-side of the hallway. Intergenerational artwork as well as individual projects done by children and elders were displayed in the hallway at both adult and children's eye-level. Each classroom had a wooden door with a full-length interactive glass into the hallway. Toddlers and infants' rooms also had an observation window for parents or elders who like to watch the children without being in the classroom (see Figure 3.18).

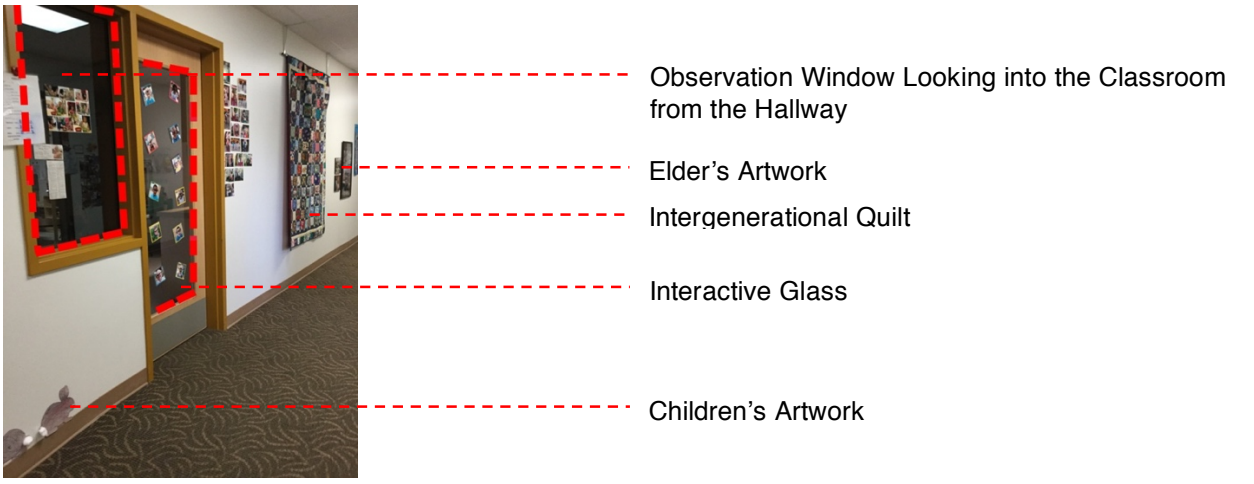

Figure 3.18 Classroom & hallway boundary

I visited each classroom and noticed that each has a custom-made, age-appropriate, wooden climbing structure, a door, and large bay windows to their own playground, as well as different size windows between classrooms (see Figure 3.19).

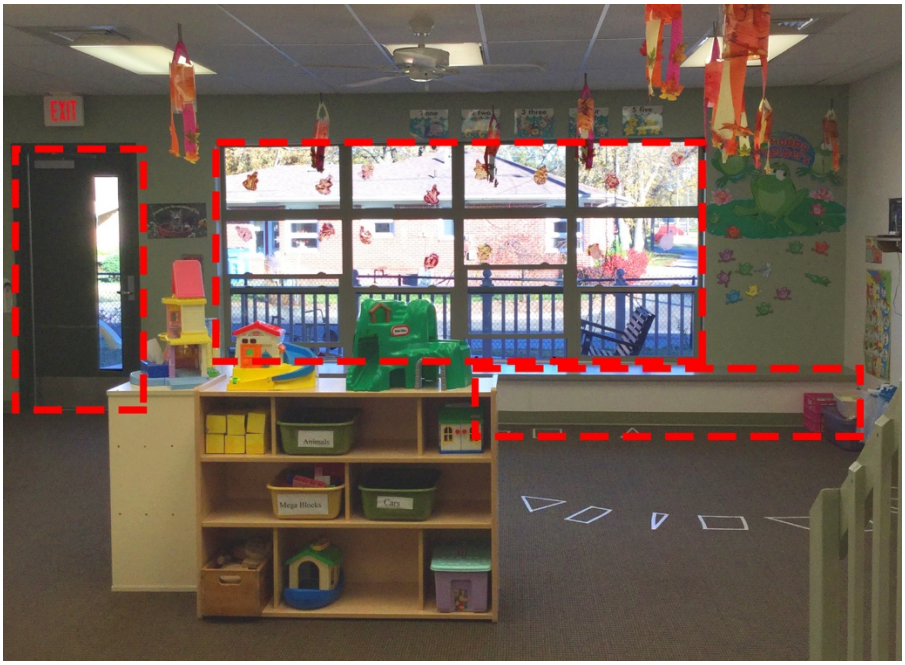

Figure 3.19 Preschool classroom

My last stop of the day was at the children's playgrounds that are on both east and west side of HICDC. These playgrounds contained a custom-made climbing structure for preschool-aged children (see Figure 3.20), a concrete path for tricycle rides, grass areas with planters, and two live bunnies. The toddlers' and preschoolers' playgrounds are place between HICDC on the west side and Eastborough 100 Hall on the east side. This gives the children the opportunity to watch from their classrooms if the elders are out on a walk; it also provides the elders with a choice for watching children play on their playground.

Figure 3.20 Preschoolers' outdoor climbing structure

In the end, two things stayed with me: (1) all different types and kinds of intergenerational interaction offered to elders and children both indoors and outdoors and (2) all the custom-made pieces around the childcare center, whether it was a gate, a changing table, multiple climbing structures, or a large piece of artwork at the entrance.

3.2.2.3 Generations Crossing

Generations Crossing is located to the south-east of Harrisonburg, Virginia. It is surrounded by beautiful green scenery to the north and west and residential areas to the east and south of the center (see Figure 3.21).

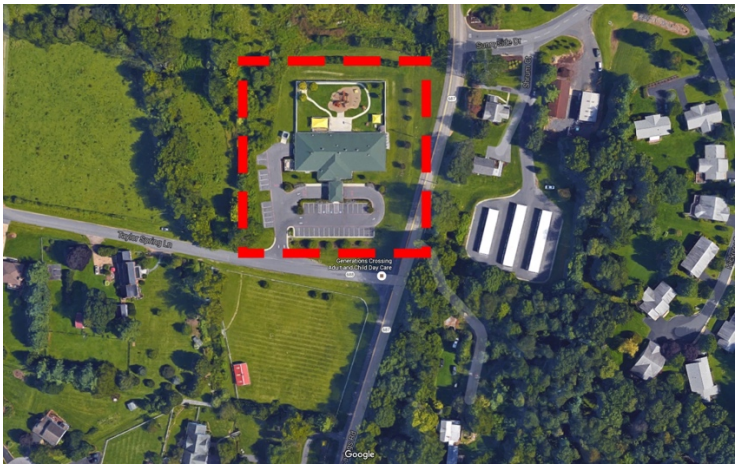

Figure 3.21 Generations Crossing

The building was designed by Mather Architects, a local architectural firm with prior design experience for education as well as healthcare and senior living. The firm was hired to design an environment that offered both adult and childcare on the same site. Generations Crossing is a non-profit corporation, licensed by the Virginia Department of Social Services to offer day care services for children from six weeks through 12 years old and adults ages 18 and above who are unable to be alone at home.

For my visit of the center, I contacted the center's executive director, Lola, and set a time that was most convenient for her to meet. Even though the Generations Crossing building is not adjacent to any other buildings, it was not easy to spot from the road. Following the GPS coordinates, I pulled into the parking lot and immediately spotted the Porte-Cochere as the main entrance where I was buzzed into the building. After entering the building, I had a moment of confusion as there were two doors across from one another, one to my right and another to my left. I could hear voices from both sides. I paused for a few seconds then turned left. Inside the room, I met with Carmen (the office manager) and Lola.

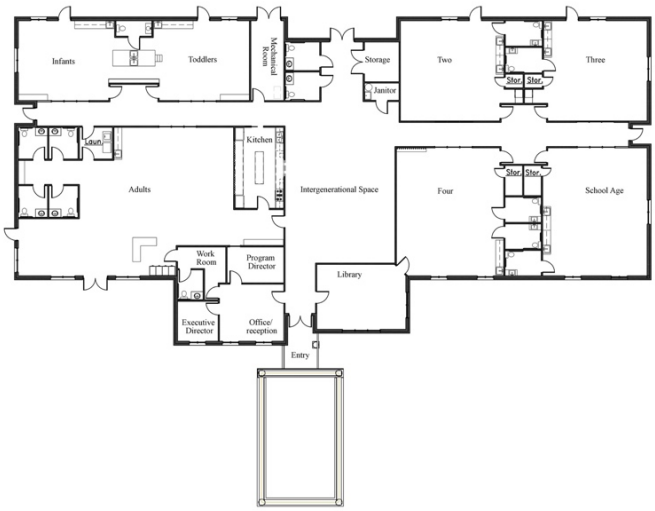

Figure 3.22 Basic floor plan (10717 SQ. FT.) - plan drawn by Mather Architects

After the basic greetings, I walked out the office and into a library/conference room across from the office. Inside was a large conference table in the middle with cabinets and

bookshelves filled with children books on the north and west wall. Out of the room and north of the entrance, there was an unoccupied space with three round tables and twelve chairs in the middle, with a piano, a trash can, and a folded table against the west wall, a television and three recliners against the south wall, a few pieces of art on the walls and a cart full of small toys. The space seemed to be used for open storage (see Figure 3.23).

Figure 3.23 Intergenerational space

The rest of the center seemed to be fairly standard, with six classrooms and a large room for adult daycare. All rooms had a large observation window. One thing that intrigued me was the connection of infants' room and toddlers' room. Each room had its own entrance, but inside they were open to one another with a children's changing area separating them (see Figure 3.24 A and B). Although I was initially curious as to why the rooms were connected to each other, the responses of several teachers showed me a better question to ask would be whether or not the connection was useful. One of the teachers responded, "To make the transition from infants' room to toddlers' room easier but it hasn't worked too well." Susan (a toddler's teacher) said, "Well, you know when they have nap time, ours are screaming and vise-versa, so it doesn't work. I guess they had a good reason at the beginning but it really makes it hard specially at nap time".

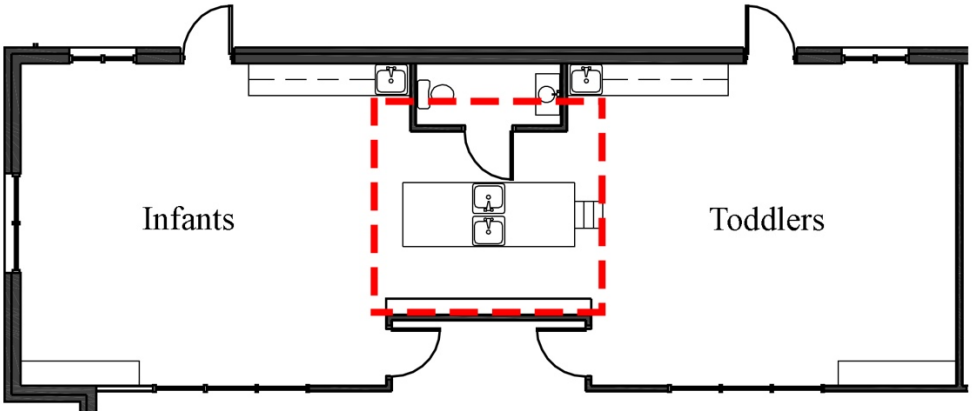

Figure 3.24.A Boundary between infants' room and toddlers' room—Floor plan

Figure 3.24.B Boundary between infants' room and toddlers' room

Generations Crossing has two separate outdoor spaces, one playground to the north of the building for children and a small outdoor patio connected to the west side of the adult's room. Generations Crossing is the smallest center among the three case studies and my walk through the center lasted less than thirty minutes. At this point, I was not sure if I would use the center as a case study, but decided to spend the day and observe the program anyway.

3.2.3 Behavior/Observation Mapping

Observation is ideal for studying nonverbal behavior, gestures, postures, seating arrangement (Sommer & Sommer, 2002). Behavior mapping is an objective method of observing behavior and social interaction within the built environment. It provides data related to physical characteristics of the environment, including the layout of space and key features in the space, the type of activities that take place within the space, and who and at what time of day the activities take place. For this study, I used place-centered mapping to observe activities that took place in the intergenerational space and recorded them on architectural plans of the particular space. The observations were based on categories of different intergenerational behaviors from Intergenerational Observation Scale (Jarrott & Smith, 2011). These categories are defined in Table 3.1.

Table 3.1 Intergenerational Observation Scale behavior category and definition

Category	Definition
Interactive intergenerational	interaction with or acknowledgement of a member of the other generation.
Parallel intergenerational	engaging in a similar activity alongside of a member of the other generation.
Interactive Peer	interaction with or acknowledgement of a participant from the same generation.
Parallel Peer	engaging in a similar activity alongside of a member of the same generation.
Staff	interaction with or acknowledgement of staff from either program but not with any IG or peer participants.
Others	Solitary activities such as sitting inactively, walking, watching, housekeeping, leisure, or activities of daily living.

The early sketches using behavioral mapping were drawn in layers on trace paper documenting the time of each interactive behavior and the layout of the furniture. I transferred the drawings to digital format to highlight the activities with marks representing different types of intergenerational activities based on the Intergenerational Observation

Scale (see Table 3.1) (Jarrott & Smith, 2011). Other activities such as sitting inactively, walking, watching, housekeeping, leisure, or activities of daily living (Milke et al., 2009) were added to the list of activities when observed. Behaviors were annotated on the related floor plan to provide a summary of people and behaviors in different sections of the space. These interactions were marked as follows: Interactive intergenerational with a star (*), parallel intergenerational with a plus sign (+), interactive peer with a purple hollow circle (○), parallel peer a hollow square (□), staff with an X sign (X), watching with a solid blue dot (●), and other solitary activities such as sitting, reading, or eating are shown with a solid red dot (●). The number of intergenerational spaces designed for intergenerational interaction differed at each facility. The intergenerational interaction at Generations Crossing takes place in the adult room and thus, that is where the behavior mapping was conducted. Table 3.2 illustrates number of observations, number of participants (elders and children), and mean of intergenerational interactions, interactive or parallel, that was observed in the time frame of my observations.

Table 3.2 Number of observations - percentage of IG interaction to all interactions in the space

	No. IG Space	No. Elders Observed	No. Children Observed	No. Observations	IG Percentage
Seagull School	1	15	14	12	33
HICDC	3	23	12	11	52
Generations Crossing	0	7	6	7	N/A

3.2.3.1 Examples of Behavior Mapping Applied to Intergenerational Facilities

To illustrate behavior mapping as a method for assessing the built environment's influence on the quality of intergenerational interaction, I present data from the intergenerational spaces of each facility. The areas are similar in square footage, but each have different architectural conditions.

Seagull School. The Seagull School's main intergenerational space is a covered outdoor area, the pavilion (see Figure 3.25).

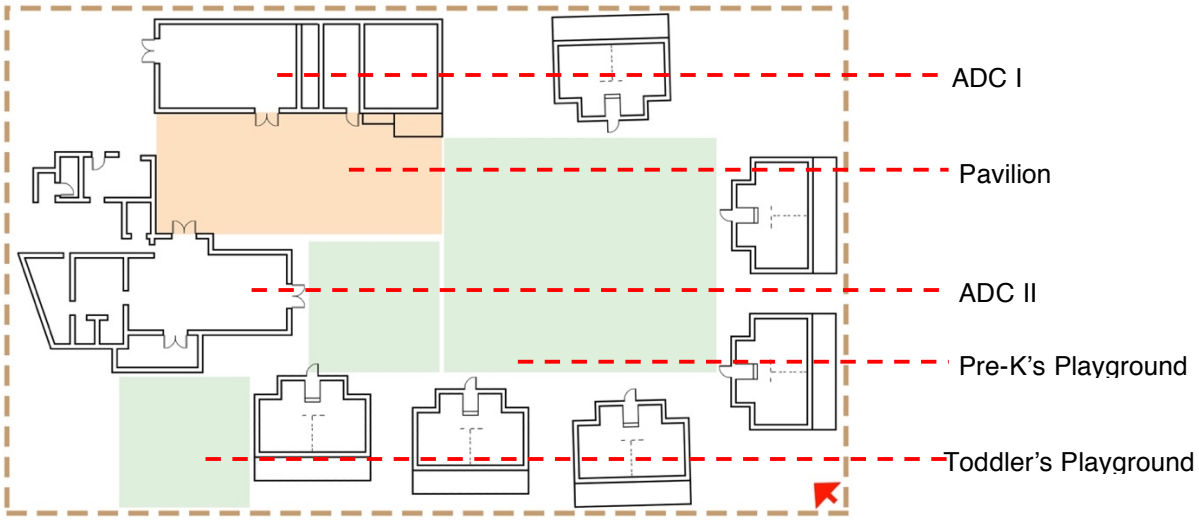

Figure 3.25 Seagull School

During the initial observation of the space, I noticed that many people, elders, children with their parents, as well as the staff used the pavilion as a place to sit down, take a break or talk with others. Also due to the pavilion's placement between the two ADC rooms and adjacent to the children's playground, it provides opportunities for different levels of interactions where elders can sit in the pavilion and watch the children play on the playground; elders can also stay in the ADC II room and observe intergenerational interaction on the pavilion. I also observed children passing through the pavilion, stopping by the ADC II room and interacting with elders spontaneously. I also noticed a mother and a grandfather spending time in the pavilion watching the child play before leaving

school. These activities are mapped on Figure 3.26 A. The planned intergenerational activities are mapped on Figure 3.26 B.

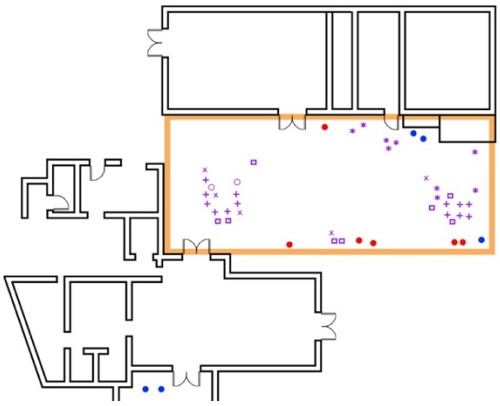

Figure 3.26.A Behavioral mapping—spontaneous interactions

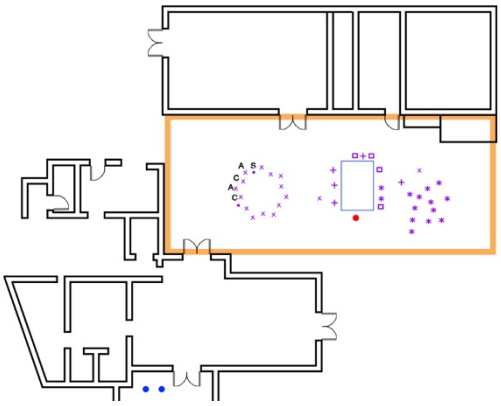

Figure 3.26.B Behavioral mapping—planned intergenerational activities

Some of the planned activities included bowling, elders and children having lunch together, and yoga. During regular days, the staff plan for elders and children to have each of these activities on different days of the week. However, since my visit was during the same week as the Generations United national conference in Honolulu, and many of the conference attendees were scheduled to visit the school and observe its intergenerational program, the administrators decided to have all three activities on the same day and at the time that the conference attendees were visiting, Friday at 11:00 am. I collected twelve maps during this observation session (62 minutes, 5 minute per map). Prior to the arival of the conference attendees, the staff set up the furniture in the pavilion. There were eight chairs set in a circle with about five feet between the chairs, a rectangular table with eight chairs around the table, and six chairs set up in a semi-circle with bowling pins across from them. When intergenerational interaction started, seven elders and one of the yoga instructors sat on the chairs placed in a circle; seven children and another instructor placed their yoga mats inbetween the chairs and started. During this activity, the elders and children were focued on the instructors and the yoga poses without interacting with one another; mapped with (X) on Figure 3.26.B.

At the rectangular table, four elders and four children sat together to have lunch. Two of the elders and one child sat at one edge of the table and quietly ate their lunch together, mapped with (+) for parallel intergenerational interaction; the other two elders sat close to each other and only spoke when the children asked them about the food, mapped with (□) for parallel peer. Two of the children constantly tried to ask questions and interact with their peers as well as the elders, shown with (*) for interactive intergenerational interaction and (+) for parallel intergenerational interaction. The last child was sitting at one end of table and was watching others bowling for the most part of lunch time, shown with a (●) for other activities on Figure 3.26.B. The most intergenerational interaction was during bowling, where both elders and children were excited about the game, cheered each other for a better score, and elders helped children push the ball, presented with (*) on Figure 3.26.B.

The pavilion allowed for different types and levels of both spontaneous and planned intergenerational interaction to happen at the same time or at different times. Whether it was children visiting elders, elders and parents watching children, elders talking to one another, or staff eating lunch and interacting with one another or the elders, the pavilion seemed to serve the need of its users. However, even though the pavilion is a covered outdoor space, I questioned how being exposed to the elements affected the elders and children and added this as a question to ask during the interviews.

Hesston Intergenerational Community. This community has three spaces that were designed to serve different types and levels of intergenerational interaction, the Main Street, a multipurpose room as the main intergenerational space that connects the Main street to HICDC, and an outdoor courtyard. The community also utilizes dining rooms and living rooms of the Schowalter Villa for daily intergenerational interactions. The interaction that I am presenting here took place in the intergenerational space (see Figure 3.15) on Friday at 10:00 am. I created eleven maps during this observation session (56 minutes, 5 minute per map). At 9:45 am, elder caregivers invited elders to walk down toward HICDC. Some of the elders used their walkers, others walked on their own, and many

were pushed on wheelchairs by caregivers or other elders to go down to the intergenerational space (see Figure 3.27).

Figure 3.27 Elders going to the IG space

The process of getting everyone, elders and children, to the intergenerational space took over fifteen minutes. During that time, the staff set up different types of tables and floor activities in the room. This intergenerational space has a bathroom, a diaper changing station, a small kitchenette with a stove, an oven, and a sink. When in the room, elders and children choose one of three activities to participate in, building with large blocks on the ground, coloring and telling a story about it at one table, and playing with play-dough at another. Three elders sat on individual chairs inside the room but did not participate in any activity. A little girl approached one of these elders and asked for help with building a train with blocks. At that point, ten minutes from the start of IG, this elder engaged with the child and continued building with her until the end of the session (see Figure 3.28).

Figure 3.28 Building with blocks

Three of the elders—one in a wheelchair, two who had walked with walkers—sat behind the interactive window at the end of the Main Street and watched, marked with three adjacent (●) on Figure 3.29. Two of the elders stood in the lobby, and watched from the observation windows for the first six minutes, then moved to the comfortable chairs behind the toddler room's observation window and watched the toddlers in their classroom for the remainder of the session, marked with (●) on Figure 3.29. During a break in the activities, most of the children and a few of the elders chose to participate in a different activity. One of the children asked an elder for a ride on a wheelchair; the elder held the child on her lap, while a staff member pushed them both around the room.

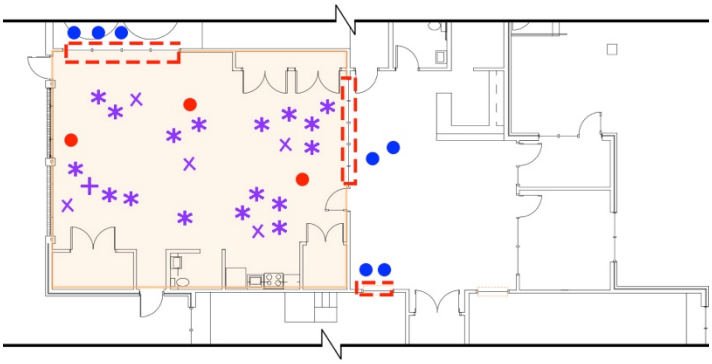

Figure 3.29 Behavioral mapping—different types and levels

The different architectural conditions designed in this room offer multiple opportunities for different types and levels of interaction and gave both elders and children various choices

among activities and with who and for how long they wanted to be engaged. Overall, there were more interactive intergenerational activities than any other category on this day.

Generations Crossing. At this center, the intergenerational space is not being used by elders or children; the daily gatherings of adults and children happen in the adults' room (colored in beige on Figure 3.30), where a group of children visit the adults.

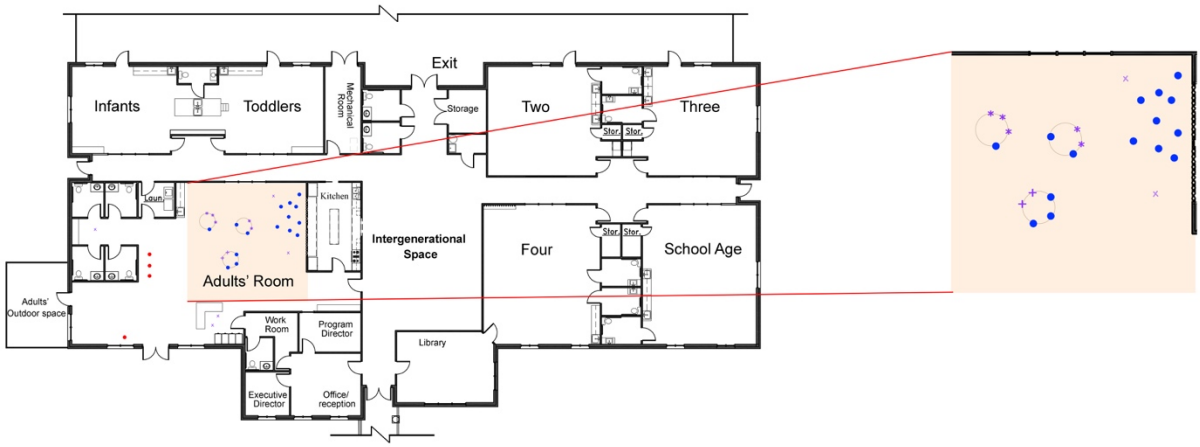

Figure 3.30 Behavioral Mapping- Watching

The interaction that is mapped on Figure 3.30, took place in the adult room on Wednesday at 10:00 am. I collected seven maps during this observation session (33 minutes, 5 minute per map). Six of the four-year-old children took a story book to the adults' room, and their teacher read the story for everyone. Almost everyone in the room showed interest in the story, but there was no interaction between the adults and children. After the teacher read the story, the intergenerational coordinator started telling a similar story while asking questions and trying to engage the adults in the conversation. This story lasted about seven minutes, during which only a few adults interacted with the coordinator. Afterwards, the teacher and the coordinator sang a song related to colors, where the children would stand up and all but two of the adults would raise their hand if they were wearing the color mentioned in the song. The children had made a matching number game that they shared with the adults before saying goodbye for the day.

3.2.4 Interviews

The following section presents procedures related to the interview as a source of information used for theory development. As mentioned in the research design section, the purpose of these interviews were to gain an understanding of the architect's main design idea and obtain the thoughts of the users on the influence of the built environment on the quality of intergenerational interaction. For confidentiality purposes, the names and any information that could identify the participants were removed. Pseudonyms were used within the interview transcripts and descriptions in the study. The identifications of the architects were made through Google and architectural firms. The rest of the interviewees were identified and contacted through the directors of each center. In order to emphasize the integration of human development theories with architectural phenomenology in designing intergenerational facilities, the research participants were selected purposefully (Kolb, 2008) from the intergenerational program coordinators and staff, elders and their caregivers, and children and their teachers.

I emailed the program director for participation; when the program director agreed to participate, I used snowballing techniques to identify and contact other participants. Snowballing techniques, common for qualitative research, involve a key participant identifying and contacting other potential participants regarding the study (Daly, 2007). In regard to the recruitment of elders, defined as individuals age 55 and older in this study, priority was given to the elders who were able to provide consent. For children, the director was asked to identify parents of children between the ages of 4 to 12 years who may be interested in participating. Initial recruitment occurred with the parent. When the parent agreed to allow their child to participate, the child was asked if she or he would like to participate. Typical grounded theory studies have reported sample sizes of ten to sixty persons (Starks & Trinidad, 2007). The total number of participants for this study was sixty (see Table 3.3).

Table 3.3. Participants

Interviewees	Number of Participants	Gender
Elders	16	8 Females & 10 Males
Caregivers	6	All Females
Children	15	9 Females & 6 Males
Teachers	11	All Females
Intergenerational Coordinators	2	All Females
Center Directors	6	All Females
Architects	3	All Males
Chief Executive Officer	1	Male
Total	**60**	

Grounded theory studies usually include questions that would help the investigator understand the process or the situation by learning from the participants (Richards & Morse, 2007). The interviews for this study were semi-structured to allow for impressions and storytelling by the interviewees. This provided an open-ended, in-depth exploration of the aspect of interviewees' life experience, combined with considerable insight (Holstein & Gubrium, 2003). The interviewees' experience of the building provided a different perspective on the architectural phenomenology of different spaces within each building. Certain questions were asked to allow the interviewees to talk about their feelings in specific spaces and the influence of each space and its architectural conditions on the quality of intergenerational connection between elders and children. Examples questions are: "Tell me about some of the activities that take place in this space. Do you enjoy spending time in this space? How does this room make you feel? How often do you use this space? Where would you prefer to meet with the members of other generations and why?" The interviewees' answers about the use of space and the experience of the place were compared with my experience and phenomenological description of the place as well as the behavioral mapping of the intergenerational spaces.

This comparison led to the understanding of the use of place and whether it aligned with the architect's design intentions. Also, it helped elucidate whether there is a difference in the influence of the built environment on the quality of intergenerational interaction when the main design idea was inspired by one or more of human development theories. Further, this comparison allowed for multiple sources of information to answer the research questions of this study on (1) whether or not the the identification and adaptation of human development theories and architectural phenomenology inform the extension of normative design for intergenerational facilities and (2) in what ways do architectural conditions of an intergenerational space meet the needs of multiple age groups and facilitates interaction.

3.2.4.1 Interview with Architects

Following the spatial analysis and behavioral mapping, a series of semi-structured interviews regarding the space and the design process occurred with one designer and two architects responsible for the design. The objectives of interviewing architects were to learn about the architects' main ideas for designing the intergenerational facility and if that idea was based on any human development theory. Knowledge of the architects' design intention for the place allowed for comparison of that idea with my experience and phenomenological description of the place as well as the behavioral mapping of each intergenerational space. Two of three interviewees requested to receive the questions in advance in order to be able to type their answers prior to meeting with me. In these two cases, I sent the questions, but asked the designers not to send their answers to me until after the meeting. This allowed me to remain unbiased and to react to the answers in a similar way to all the other interviews I conducted. I met with each of the three designers/architects at the intergenerational facility they had designed. The two participants who requested the questions also wanted to walk through the building together and talk about their design decisions. All three answered the interview questions at the time of the interview to allow me to ask additional questions and audio record the conversation. Sample questions include: "What was the main design idea? How did it develop?" Each interview took approximately 45-60 minutes to complete. All the

interviews were transcribed and all identifying information was replaced with pseudonyms. The interview guide for architects is presented in Appendix A.

3.2.4.2 Interview with Center Directors and Intergenerational Coordinators

Eight directors, including three child development center directors, three adult care program director, and two intergenerational coordinators were interviewed for this study. A series of semi-structured interviews were conducted with the objective of acquiring the administrators' point of view on the usefulness of the space and its influence on the intergenerational interactions that occur within the space. The goal of the interview was also to learn if the design of the space supports any tenets of personhood or contact theory. A sample question includes: "Describe some of the design features of the space that address both individual and group needs of elders and children." The interview guide for center directors is presented in Appendix B. Each interview took between 30-60 minutes.

3.2.4.3 Interview with Elders' Caregivers and Preschool Educators

Caregivers for this study are employed by elder care programs. Six caregivers, including two registered nurses, were interviewed for this study. The educators were employed by the Child Development Center and taught children between the ages of twelve months and five-years-old. Eleven educators were interviewed for this study. The objective of these interviews were to learn about the interviewees' understanding and expectations of intergenerational program as well as if the design of the building benefits or hinders their responsibility to facilitate intergenerational interaction. Specific questions were asked regarding the human development theories and if the design of the space supports any tenets of personhood or contact theory. A sample question for caregivers and educators is: "Based on your experience at the intergenerational program, how has the program helped different generations of participants to interact and develop relationships?" The interview guide is presented in Appendix C. Each interview took on average 30-45 minutes.

3.2.4.4 Interview with Elders

A total of sixteen elders between the ages of 55 and 96 were interviewed for this study. A series of semi-structured interviews were conducted with the elders who participated in the intergenerational programs at each of the three sites. The objective of the interviews was to learn about the elders' experiences interacting with younger children inside the intergenerational space and their perspective on the design of the space and if it supports any of the theoretical tenets. A series of questions were designed to target personhood related to the elders' comfort, privacy, ability to initiate contact and express a range of emotions, and personal control over which intergenerational activities and for how long they choose to be involved. In addition, the elders were asked questions related to the tenets of contact theory and if the design of the space allowed for equal group status, intergroup cooperation, and friendship opportunities between elders and children. Based on how these questions were answered, follow-up questions were asked in relation to other tenets of personhood and contact theory. A sample question is: "How would you describe your experience with the children in this space?" The interview guide is presented in Appendix D. Each interview took on average between 20 and 40 minutes.

3.2.4.5 Interview with Children

The reason for interviewing children was to give them a voice for their thought and interpretation of their world rather than relying solely on adults' interpretation (Eder & Fngerson, 2003). Interviewing children offered an alternative view to the adults' view of the children's environment "somewhat standardized criteria which do not take into account the particularities of the […children] and their local context" (Dudek, 2005).

I asked the children's parents or guardians to sign a consent form allowing their child to participate in the interview. The parents were also invited to be present during the interview. Before the beginning of each interview, I ensured willingness to participate from each child. Although none of the parents participated, a few of the children asked their teacher to be present at the interview. This only happened at the first center when the children's interview were conducted on the first day of my visit when I did not have a chance to introduce myself and build raport with them prior to the interview.

A total of fifteen children between the ages of four and ten were interviewed for this study. All children were involved with intergenerational programs between three to six years. The objectives of interviewing children were to learn about their experience of intergenerational interaction in different spaces within each facility. In order to learn if the architectural conditions of these spaces support personhood tenets, interview questions were designed to reflect on children's social sensitivity, acceptance of others, creativity and self-expression as well as if the building served the children's individual and group needs. Further questions were asked to reflect on the support of equal group status, common goals, intergroup cooperation and opportunities for friendship of contact theory tenets. The questions were designed to encourage the children to tell stories of their experiences, which increased the level of details and accuracy. They were then asked to draw an image describing their experience in a space within their center that best serves the program. In some cases, the answers given by children differed from the answers of the adults to the same question. For example when asked, "What do you usually do when you are in this room?," the adults described the usaul activities and gave answers such as "this is our multipurpose room so elders and children use it for single generation activities, but we also use it for large gatherings of intergenerational interaction." However, a child at the same facility responded to the same question by saying "we can do all kinds of things, but what I really like to do is run around. But we can't do that because the noise bothers the elders. Cuz they like quiet." Therefore, a room that seems to be doing what it was intended to do from an adult's point of view does not also work as well from the children's point of view. An interview guide is provided in Appendix E. Each interview took on average between 10 and 20 minutes, half of which was used by the children to draw a picture.

3.2.4.6 Childern's Drawing

At the end of each interview, children were asked to draw an image of themselves in their favorite place of the center while interacting with an elder during intergenerational activity. The children were then asked to describe their drawing. These images were used to

examine the children's perception of elders as well as the intergenerational program and facility they are involved with. For example, one of the children drew the elder in a wheelchair sitting at the edge of the room while the children were participating in the activity (Figure 3.31).

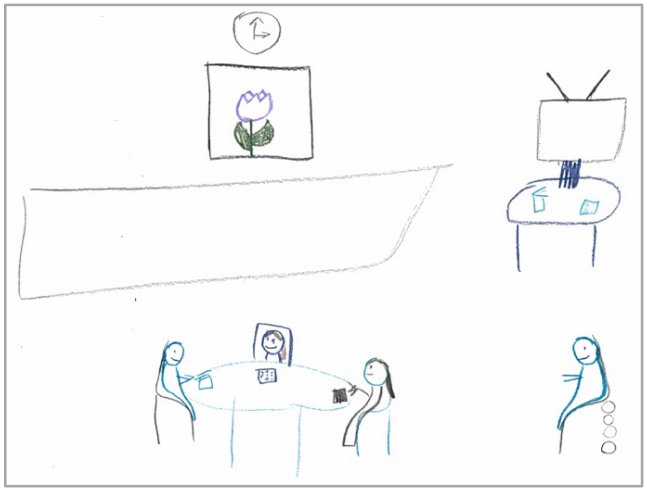

Figure 3.31 Elder watching the IG

When asked why the elders were not participating, the child responded, "they are old and just like to watch." Another child drew the same activity in the same space where elders and children were sitting in circle smiling while waiting their turn for the activity (Figure 3.32). Both children had a positive perception of the intergenerational space as it allowed them to enjoy their favorite activity. However, only one of them had a positive perception of the elders and the other saw the elders as impotent and did not participate in the activity.

Figure 3.32. Elders and children participating in IG

3.2.4.7 Interviewing a Chief Executive Officer

One Chief Executive Officer (CEO) was interviewed for this study. This interview was not part of the scheduled interviews and was initiated by the CEO during my visit of the facility. Therefore, the interview questions were not developed for inquiries of a role that a CEO plays in an intergenerational organization. However, I asked about his personal experience as a father whose daughters went through the program, his view of the importance of intergenerational programs, and the influence of the built environment on the quality of these interactions. I also asked about the community involvement and successful approaches to funding opportunities that can be shared with other facilities. A sample question is: “In your opinion, what are three most important points that architects should focus on when designing an intergenerational facility?” This opportunity presented options for future research on the role and perspective of CEO’s on designing intergenerational facilities, as it relates to support of authorities in incorporating human development theories in designing the building and securing funding for the construction of the building.

3.3 DATA ANALYSIS PROCEDURE

All interviews were recorded and then transcribed. During the transcription process, any identifying information was replaced with pseudonyms. I began the analysis of the data by reading the data multiple times and becoming familiar with its content. I then conducted initial coding by giving each line of my written data a code (Charmaz, 2014; Glaser, 1978). The second phase of the analysis was focused coding. During this process, I concentrated on the initial codes, compared them with one another and highlighted the most relevant codes as categories (Charmaz, 2014). The last step of coding was theoretical coding to specify any possible relationships between the categories and sub-categories emerged from focused coding. Details of my data analysis process and the results are illustrated in Chapter 4 “Describe Types of Coding—Examples—Themes.”

3.3.1 Assessing Trustworthiness

There are many different frameworks to evaluate the trustworthiness of qualitative data. One aspect of trustworthiness is to provide readers the researcher's background and preconceptions prior to presenting the analysis (Guba, 1981). This reflexivity statement permits readers to understand the perspective and point of view of the researcher. As a child, the researcher experienced the transformation of material into a space that became a place where she dwelled with her family. Going through the experience of her parents communicating with each other, architects and construction workers to figure out what is the best way to design the house to fit the needs of and become a home for the family, the researcher learned about the importance of the relationships between the built environment and its effect on its users. Therefore, she believes that architecture is a service qualified to influence and enhance the quality of people's lives.

As an environmental designer who started her career as a pre-school teacher and spent years working with elders, this researcher strongly believes that there needs to be a dialogue between practitioners and researchers in the fields of architecture and human development to foster collaborative projects in research, programming and design of intergenerational facilities. This relationship will keep the architects informed in order to provide children and elders with the best possible environments to support their well-being, provide them with opportunities of friendship, and help them build positive relationships. Address Bias and pre-conceptions

3.3.2 Assessing Credibility

Credibility is a trustworthiness concept related to data. One way to assess the credibility of data is through triangulation. The triangulation process for this study was undertaken by collecting data from different sources of (1) my phenomenological description of the place, (2) behavior/observation mapping, and (3) interviews of seven different groups of people with different perspectives and experiences of intergenerational facilities.

CHAPTER 4
DATA ANALYSIS AND RESULTS

4.1 Theoretical Underpinnings of Intergenerational Spaces

Both personhood and contact theories have criteria to assess the quality of the program implementing each of the theories (see Table 4.1). Personhood theory concentrates on the well-being of a person through a set of criteria that indicates the importance of the person's being and individuality—regardless of age and ability. Contact theory adds a layer to personhood by focusing on the importance of the positive social interaction between individuals of disparate groups.

Table 4.1 Personhood and contact theories' tenets

Kitwood and Bredin's (1992) points that indicate the well-being of a person	conditions for contact theory to promote positive interaction (Allport, 1954; Pettigrew, 1998)
(1) assertion of desire or will, (2) ability to experience and express a range of emotions, (3) initiation of social contact, (4) affectional warmth, (5) social sensitivity, (6) self-respect, (7) acceptance of others […], (8) humor, (9) creativity and self-expression, (10) showing evident pleasure, (11) helpfulness, and (12) relaxation	(1) equal group status: both groups accept and perceive equal status in the situation, (2) common goals of intergroup contact: an active goal-oriented effort for all parties involved, (3) intergroup cooperation: attainment of the common goals needs to be an interdependent effort, (4) support of tradition or authorities: intergroup contact will be more accepted when supported by authorities, and (5) the opportunity for friendship

To examine each center's ability in meeting the theoretical needs of personhood and contact theories, I conducted an analysis of the theoretical foundations used to create the building as well as how the space is played-out in real life and through architectural phenomenology.

4.2 DATA ANALYSIS

In this section, I present my understanding of each of the intergenerational centers based on the tenets of personhood and contact theory through architectural phenomenology. This is achieved through my experience of each center (i.e. a phenomenological description of the place), behavior/observation mapping, and analysis of the stories and experiences of individuals involved with each of the three centers.

4.2.2 Phenomenological Descriptions

As I walked through each center, I observed specific architectural conditions, contemplated if these conditions were connected to any of the tenets of personhood or contact theory, and analyzed how each condition could enhance or reduce the quality of intergenerational connection between elders and children of that facility. The following sections present my experience of each of the facilities

4.2.2.1 Seagull School

The welcoming and pleasant atmosphere of the school district are created by its village-like environment and a courtyard filled with different types and colors of plants; the fact that the only physical boundary between the school and the business is a wooden fence contributes even more to this positive atmosphere. The preschool's large windows, open door, and the louvers that could move in any direction regardless of which way the wind blows allow fresh air in the classroom but also blur the physical boundaries as they create a visual connection between the children and the elders. From their classrooms, the children can see the elders who are walking outside. This condition supports personhood theory's tenet of *initiation of social contact* by offering an opportunity for different levels of interaction. There obviously is a chance for visual connection between elders and children, but also a child could decide to stand in their classroom and say or wave hello to the elders on the playground, and the elders could choose to stop by the classrooms for an informal visit which creates an *opportunity for friendship* suggested by contact theory. Both these points could also be supported by the Adult Day Center (ADC)'s glass doors and large windows facing the pavilion with the difference that the elders are inside

the ADC II and have visual access to children who are outside and on the pavilion (see Figure 4.2). Although the gap between the ADC II's window and the pavilion (shown in red on Figure 4.1 and 4.2) prohibits children from going up to the window and seeing the elders, the door to both ADC rooms from the pavilion gives the children the option of entering the rooms and interacting with elders.

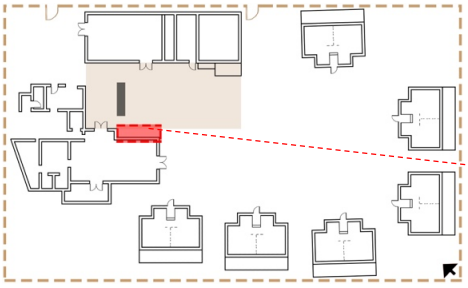

Figure 4.1 Gap between the Pavilion and ADC

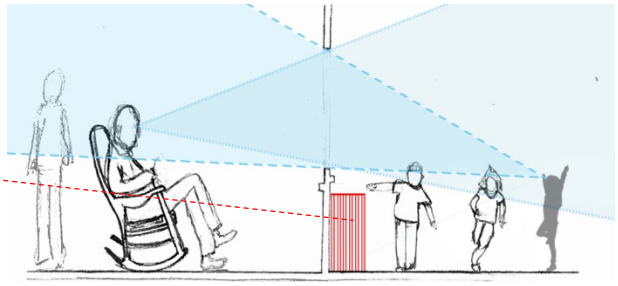

Figure 4.2 Visual connection

Another architectural condition available for different types and levels of intergenerational connection is the porch between ADC II and the toddlers' playground. The porch was designed to offer personal control so the elders and children can choose their level of interaction, where the elders can either sit inside ADC II and have visual contact with children through the glass door to the porch (see Figure 4.3), or sit outside on the porch and have visual as well as audial contact. Once on the porch, both elders and children have the control to change their level of interaction by taking a step forward, to talk to each other (audial), or to shake hands (touch). This architectural condition has the potential to support multiple personhood and contact theory tenets. It offers opportunities for *acceptance of others*, such as when/if the elders choose to go sit on the porch while the children are playing in the playground, they must accept that children might be loud and playful. However, for *intergroup cooperation* to occur (a contact theory tenet), it is not enough for the elders to be on the porch to have more than just visual connection, the children also need to leave their play and walk close to have a different level of interaction. Sitting on the porch could also be a form of *relaxation*, which would support another one of the personhood tenets. However, these visual bridges have limitations that prevent high quality connection between elders and children. The view of the children's

playground from the ADC II is blocked by the door's push bar and the patio's fence (see Figure 4.4).

Figure 4.3.A View of children's playground from ADC II

Figure 4.3.B Door's push bar blocking the view the playground

Also, during the week that I visited the school, I did not witness any of the elders using the porch. This could be due to the metal fence that has created a cage-like atmosphere where elders don't feel comfortable sitting. The porch is raised about two feet above the playground level, which also creates separation and makes it especially hard for toddlers on the playground and elders on the patio to have eye contact (see Figure 4.4).

Figure 4.4 Boundary between elders and children

4.2.2.2 Hesston Intergenerational Community

The brick façade and pitched roof of the building make it blend in with its surrounding buildings. However, once inside there are multiple unexpected surprises to be discovered. The lobby provides a sense of connection and continuity from the child care to adult care sections by offering visual connection from the lobby through the intergenerational space to the elders' rooms. The receptionist's desk and the director's office allow for both groups of people to have a full view of the lobby and the intergenerational space, and monitor the coming and going of everyone—including the elders with memory loss, who might choose to visit the children at the Hesston Intergenerational Child Development Center (HICDC) or join in an intergenerational activity in the intergenerational room. This allows for *support of authority*, which is one of the contact theory tenets.

The boundaries of the intergenerational space allow for different types and levels of interactions. There are both interactive and observation windows between the lobby and the space that provide the elders with a choice of watching the intergenerational interactions either without being seen while standing behind the observations window or watching while being watched through the interactive window. Although these windows offer great opportunities, they seem to be too high from the ground (about 4 feet) (see Figure 4.5).

Figure 4.5 Boundary between the lobby and the IG space

Therefore, the only way an adult can watch through them is while standing (see Figure 4.6), which might not be very comfortable for some of the elders. However, in addition to these windows, there is a door that opens to the intergenerational space from the lobby, which offers the opportunity for supporting the contact theory tents of *intergroup cooperation* and *friendship* between elders and children.

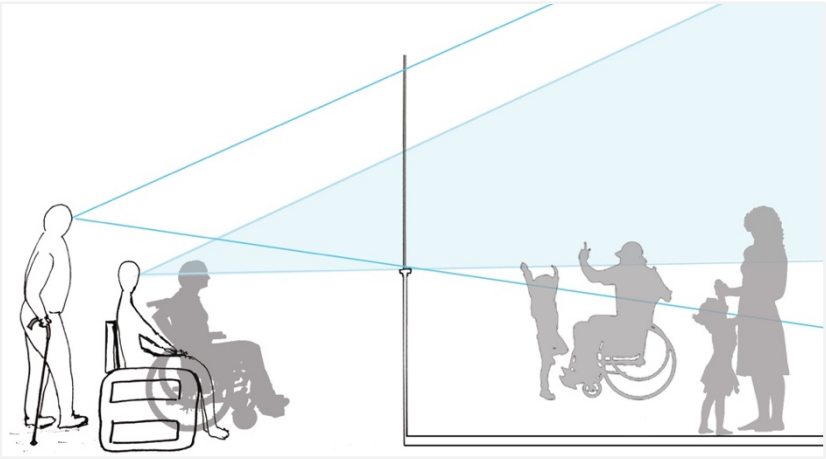

Figure 4.6 Elders' sightline of the IG space from the lobby

On the other hand, the observations windows from the lobby to the infant and toddler rooms are at ground level, which gives the observer the comfort of being able to sit and watch the kids interact in their world (see Figure 4.7).

Figure 4.7 Infants' room observation window

This architectural condition supports personhood tenets of *assertion of desire or will* for the elders who choose to walk over 100 feet from the Villa to get to this point, *affectional warmth* toward infants and toddlers, and *relaxation* as the elders can sit in the lobby quietly and watch the children. The far distance of this condition from the villa also discourages personhood tenets of *assertion of desire or will* for the elders who may wish to go to this space but are unable to travel the distance. The decision to design the windows from the lobby to the intergenerational space, as well as the design of the windows from the lobby to the infants and toddlers' classrooms was specifically made so the director could assist with intergenerational interaction as needed. This presents action reflecting contact theory's *support of authority* of intergenerational connection. Past the lobby, to the left is the narrow hallway with a ramp that connects to the interactive windows from the Main street to the intergenerational space (see Figure 4.8).

Figure 4.8 Boundary between the Main Street and the IG Space

These windows are at the end of the hallway that is on a ramp with the grade of 1:20′. Therefore, the windows are about 2.5 feet above the ground of intergenerational space (see Figures 4.9. and 4.10.A). This offers a different condition than the previously mentioned windows and supports the *equal group status* of contact theory by offering an opportunity for the observer (see Figures 4.9. and 4.10.B) to be observed (see Figures 4.9. and 4.10.C).

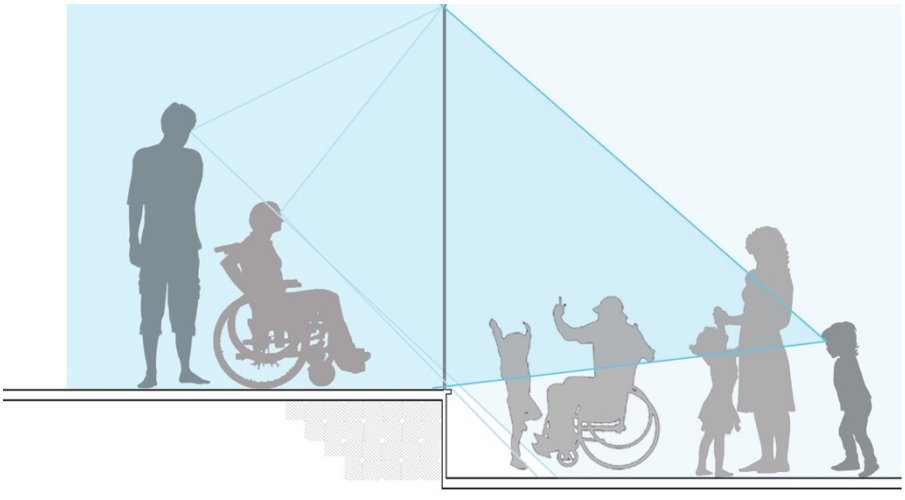

Figure 4.9 Interactive window between the IG space and the end of Main Street

Figure 4.10.A Interactive window above the ground

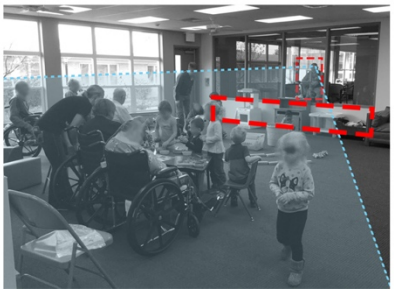

Figure 4.10.B Observing IG activity

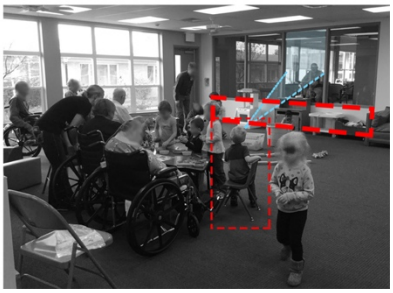

Figure 4.10.C Being Observed from the IG space

4.2.2.3 Generations Crossing

Although being surrounded by greenery creates a beautiful scenery, this building seems to be disconnected from the neighboring community. This theme continues through the interior of the building and in the design of this intergenerational facility. The adult day center and the child development center were designed to function individually and connect in a central shared space, the intergenerational space. Although this space was designed for convenience of the staff and to be easily accessible by elders and children, it is on an axial (dotted line on Figure 4.11) that makes it feel like more of a hallway and a space to walk through than a place to stay and interact.

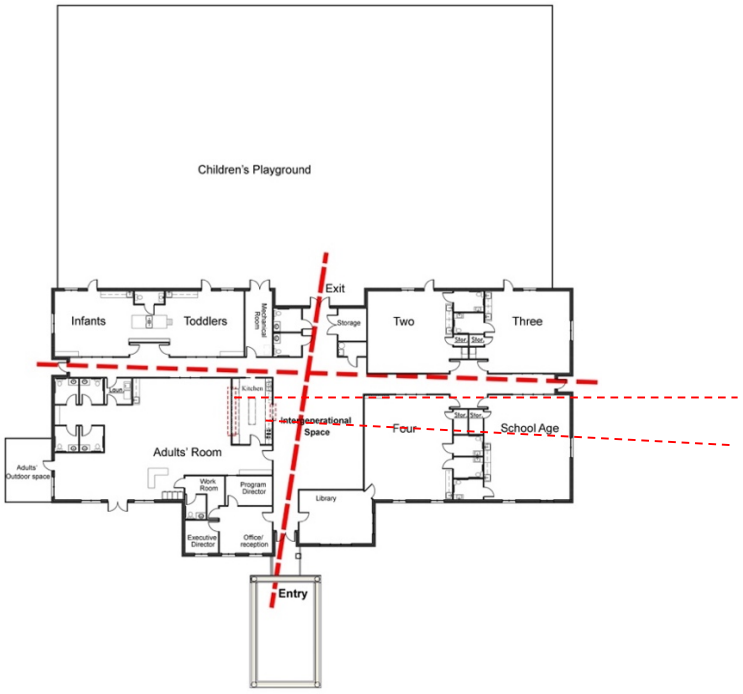

Figure 4.11 Generations Crossing's IG space is on a path

Other architectural conditions at Generations Crossing that can offer visual connection between adults and children are the observations windows. The intergenerational space has an observation window opening into the kitchen (see Figure 4.12.A), and the kitchen has another window to the adult's room (see Figure 4.12.B). This could provide great opportunities for visual connections between children and adults, as well as multisensory intergenerational opportunities. However, since the intergenerational space is not being used, neither of these conditions are useful for the center. Moreover, each room, including the adult's room has an observation window facing the hall way. However most of these windows were almost completely covered by art work during my visit (see Figure 4.13).

Figure 4.12.A Window between the IG Room & the kitchen

Figure 4.12.B Window between the kitchen & the adults' room

Figure 4.13 Observation window—adults' room

I also noticed that the distance between the bottom of these windows and the ground is higher than most of the children are tall (see Figure 4.14.A and 4.14.B). Therefore, these children cannot benefit from the windows and since the adults hardly leave their room, they also do not have an option of watching the children in the classroom.

Figure 4.14.A Children's sightline

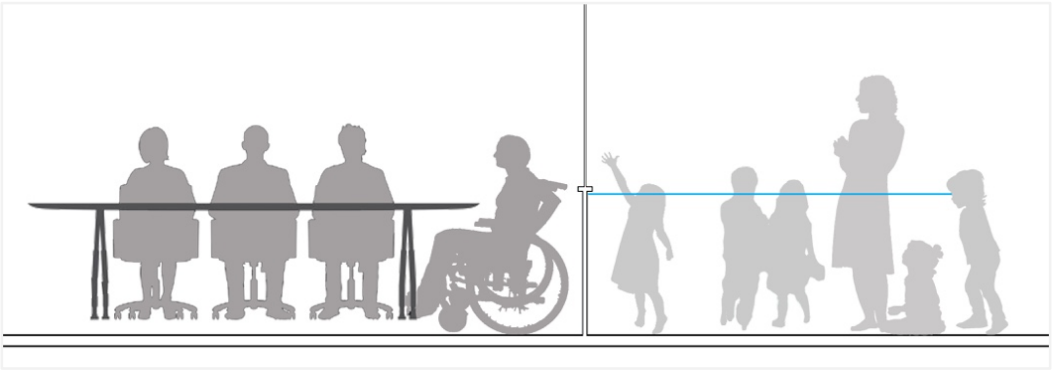

Figure 4.14.B Children's sightline is blocked by the window frame

4.2.3 Behavioral Mapping.

Findings of observations that were made by behavior maps provided information about the type of activities that happen in different spatial environments.

4.2.3.1 Seagull School

The Seagull School has the pavilion as an outdoor intergenerational space. The behavior mapping presented different types and levels of activities happening in the pavilion (see Figure 4.15. in correspondence with Table 4.2) where families, elders, children and staff use the space to sit, relax, and socialize.

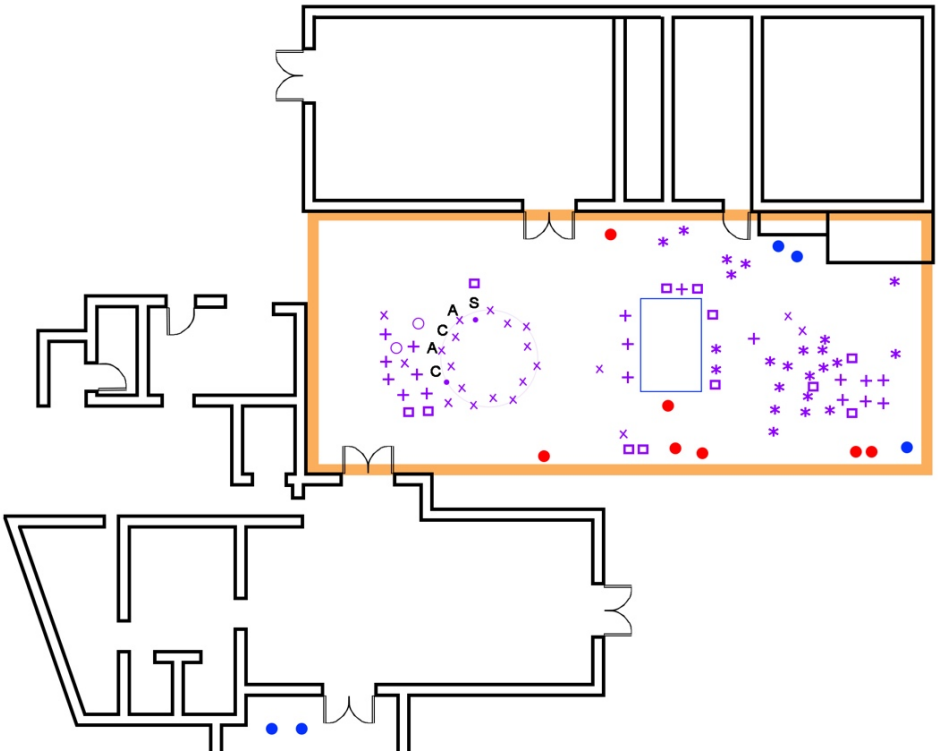

Figure 4.15 Behavioral mapping—planned and spontaneous intergenerational interaction

Table 4.2 Result of behavior/observation mapping at Seagull School

Behavior	Planned/Spontaneous	Type of Interaction	Place	Qualities of the space
Children visiting elders	Spontaneous	*	ADC II	Large interactive windows Adjacent to children's playground Adjacent to IG space
Elders watching children	Spontaneous	●	Pavilion	Adjacent to ADC I & II Adjacent to Children's playground Covered outdoor space- No walls
Elders visiting Children	Spontaneous	*	Classroom	Adjacent to elders' path for daily walk Classroom doors are always open for air circulation—more welcoming to elders
One-on-One (reading)	Spontaneous	*	Pavilion	Adjacent to ADC I & II Adjacent to Children's playground Covered outdoor space- No walls
Small Group	Planned		Pavilion	Big, open space—Allow for simultaneous multiple small group activities Covered outdoor space- No walls Adjacent to ADC I & II—Allows for elders to join or leave the activity as they desire
Large Group	Planned		Pavilion	Big, open space—Allow for simultaneous multiple small group activities Covered outdoor space- No walls Adjacent to ADC I & II—Allows for elders to join or leave the activity as they desire

Key for Table 4.2
Interactive intergenerational *
Parallel intergenerational +
Interactive peer ○
Parallel peer □
Interaction with staff X
Watching ●
Solitary activities such as sitting, reading, or eating ●

4.2.3.2 Hesston Intergenerational Community

The Hesston Intergenerational Community offered multiple spaces of different sizes for intergenerational activities to take place in. The behavior mapping of the same space presented different types of interactions depending on the activity that the elders and children were involved in (see Table 4.3). The intergenerational space that contained large interactive and observations windows, view of the outdoors, and large space for multiple small group interactions offered the most opportunities for different types and levels of interactions.

Table 4.3 Result of behavior/observation mapping at the Hesston Intergenerational Community

Behavior	Planned/Spontaneous	Type of Interaction	Place	Qualities of the space
Elders watching children	Spontaneous	●	IG Space	Large interactive windows Multiple observation windows
Multiple Small group interactions Simultaneously	Planned	○ * ● × □ +	IG Space	Large, flexible, open space Large interactive windows Multiple observation windows View of outdoors Too far away from elders' space
Small group interaction (Baking)	Planned	*	IG Space	Large, flexible, open space Kitchenette
Multiple small group interactions—simultaneously	Planned	● *	Living-room	Home-like setting Adjacent to elders' private rooms
Elders watching children	Spontaneous	●	Main St.	Large interactive interior windows Large interactive windows-Facing children's playground
Elders watching children	Spontaneous	● *	HICDC Lobby	Observation windows to IG space—Standing Interactive windows to the IG space—Standing Observation Windows to infant room—Comfortable chairs Observation windows to toddler room—Comfortable chairs

Key for Table 4.2
Interactive intergenerational *
Parallel intergenerational +
Interactive peer ○
Parallel peer □
Interaction with staff X
Watching ● Solitary activities ●

4.2.3.3 Generations Crossing

The intergenerational space of Generations Crossing does not get utilized and therefore, the daily gathering of elders and children takes place in the adults' room. The behavior mapping of a day activity presented very limited interaction between elders and children (see Table 4.4).

Table 4.4 Result of behavior/observation mapping at the Generations Crossing

Behavior	Planned/Spontaneous	Type of Interaction	Place	Qualities of the space
Children visiting elders—Staff reading for elders and children	planned	* ● X	Adults' room	In elders' space Home-like setting
N/A	N/A	N/A	IG space	In the path

Key for Table 4.4
Interactive intergenerational *
Interaction with staff X
Watching ●

4.2.4 Interviews

I began analyzing the observed and recorded data by reading through all transcripts. Following the initial read through of the transcriptions, I read through the data a second time, and took notes of my interpretation of and reflections on the respondent's responses as suggested by Mason (1996). I then read through the data a third time before starting the coding process. The first step of analysis was line-by-line coding in which I examined the data to identify features such as ideas, thoughts, feelings, and issues mentioned by the respondents and assigned each line of text a code (Charmaz, 2006). An example of this process is presented in Table 4.5.

Table 4.5 Line-by-line coding

Transcription of the Interview	Initial Codes
it had 30 kids and we want to have smaller classes. So we put this movable wall over here	**Neda Norouzi** ~~Movable walls to dived classes~~
(*pointing to the walls in the classroom*), to give the teachers a choice of wanting 4 teachers with	**Neda Norouzi** ~~Movable walls gave the teachers a choice in the size of their classroom~~
40 kids or 2 teachers with 20, and everyone of them wanted 2 teachers with 20. So we never	**Neda Norouzi** ~~Teachers chose smaller class in SQFT and # of children~~
moved the walls. But there are some disadvantage here, the ceilings: we made these ceilings	**Neda Norouzi** ~~Louvers to keep direct sunshine and rain out~~
where the louvers could go to any direction no matter which way the wind was blowing, but the	**Neda Norouzi** Not having eaves, defeated the purpose of having louver
architect didn't put any eaves over the walls where the louvers are and first time it rained, it	**Neda Norouzi** Steal louvers are expensive and they rust
made everything red. They made so many mistakes. They made it out of steel which is very	**Neda Norouzi** Limited budget → build in phases
expensive but it also rusts and that is a big issue. so when we were building, we only had enough	**Neda Norouzi** Only 6 preschool classrooms for 2 years
money to build the classrooms, so for about two years we had 6 classroom building here like this	**Neda Norouzi** second phase, decided to do infant care.
and a few years later, we decided we were going to do infant care. In the second phase, we	**Neda Norouzi** infant care is expensive → bad business plan.
thought infant care is so expensive, it is a bad business plan. One of my board members was into	**Neda Norouzi** Board member suggested ADC
assisted living for older adults and she said why don't we do that. so we built the second phase to	**Neda Norouzi** second phase= adult day center
add the adult day center. Before I built it, I went to the main land the west coast and looked at 21	**Neda Norouzi** Designer/ owner visited 21 shared site facility in the west coast
shared site facilities up and down the west coast. I went to one in west Seattle that was a 800 bed	
geriatric hospital and the guy there who designed it, his name is DT and he is an architect. And	
they were putting an infant care at the bottom floor of this 800 bed geriatric facility for the	

This allowed me to fracture the data and bring it back together in new ways that conceptualized and explained what is happening in the data (Holton, 2007). Code names were taken from the data or similar names that I assigned them when it could help to capture something essential and related to the themes that emerged from the literature review. At the end of this process, I had a total of twenty-three codes: accessibility,

acoustics, architects' statements, atmosphere, boundary, bridge, community, different types and levels of interaction (activities and places), difficulty for elders to reach children, furniture, ideal environment, intergenerational benefits, lighting, multisensory, perception, personal control, privacy, respect of others, self-respect, shared goals, staff collaboration and training, theory and philosophy of the center.

The second phase of coding was focused coding (Charmaz, 2006). Focused coding is the process of synthesizing, analyzing and conceptualizing the line-by-line codes and categorizing them (Charmaz, 2014). In this phase of coding, I developed categories and subcategories through constant comparative techniques. I went through the codes and found the ones that appeared more frequently among the initial codes or had more significance based on the themes that emerged from my literature review and wrote them in the margins of the coded document (see Table 4.6). This process verified some of the categories found in the literature, but also allowed for the emergence of other new categories that I did not find in the literature. The next step was analyzing the relationships between categories.

Table 4.6 Focused coding—comparing initial codes

Categories	Transcription of the Interview	Initial Codes
Perception	**Based on your experience at the intergenerational program, how has the program helped different generations of participants to interact and develop relationships?** Kids are more respectful, and they learn to be together, shake hands and say hi with respect. They learn about other people differences and that it is okay. Kapuna sometimes think kids are loud and disrespectful but when they interact, they see that kids are well-behaved.	Neda Norouzi: Kids learn to be respectful of others Neda Norouzi: Children learn that it's ok to be different Neda Norouzi: Elders learn that children are well-behaved and not loud and disrespectful
Ideal environment	**How and in what ways do you think the physical environmental and design features can influence intergenerational interaction?** Outdoor spaces are helpful. Most people like to be outside.	Neda Norouzi: Outdoor space are helpful for IG
Furniture	**If you could make any changes to this space, what would you change and why?** maybe make it bigger. Sometimes when we have everyone out there, they are excused together. It will be nice to have soft spots for the adults and children to sit together out there. Because right now the elders sit on the big chairs and children are on the floor. So they are separated that way. It would be nice to have a space that they could just come and read when they want to. That's only my opinion	Neda Norouzi: Bigger space for the total number of adults and children Neda Norouzi: Soft spots for elders and children to come together Neda Norouzi: Elders sit on big chairs and children sit on the floor Neda Norouzi: Have a space where elders and children just come out and read when they want to
Ideal environment	**I am interested in learning more about the program. Can you tell me a little about it?** for certain years we have the seniors go down to the preschool, for 30 minutes and spend time in the classroom. Sometimes the seniors do a circle time, sometimes they join an activity at the table activity. If the seniors can read, they sometimes read for the children.	Neda Norouzi: Elders go to preschool classrooms and spend 30 minutes there Neda Norouzi: Elders do circle time for children Neda Norouzi: Elders join the table activity that children are already working on Neda Norouzi: Elders read for children
Different types of IG activities	**Does your center have a space that is designated to intergenerational interactions?** the pavilion, but we pretty much use the whole school as an IG center **Does your outdoor intergenerational programs always happen in the space?** Mostly	Neda Norouzi: The pavilion is the specific IG space Neda Norouzi: The whole school is used as an IG space

For the process of comparing categories with other categories and thinking about tentative categories, I went through the codes and posted the most dominant ones on a white board (see Figure 4.16).

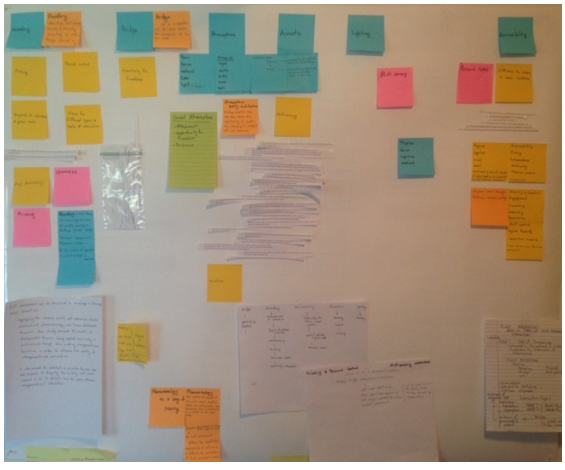

Figure 4.16 Focused coding—tentative categories

I then went through the initial codes one more time and organized them by relationship. For example, accessibility was one of the codes mentioned in twenty-five out of sixty interviews, so I chose accessibility as a major category and placed other related codes such as “larger classrooms for easy wheelchair maneuver” underneath it as subcategories. This process allowed me to be more decisive about which codes would be helpful in answering this study’s research question and trim away the excess codes.

The next phase was theoretical coding to find the relationship between the categories and subcategories in order to form an analytic story (Charmaz, 2014). During this phase, I conducted comparative coding amongst the three facilities and the three sources of information to check for consistencies and differences. I wrote analytical memos to record the relationships among the groups of data and to maintain a link between the empirical data and my interpretation of data. This provided the opportunity to check for patterns, dimensions, and definitions not only within each entity but also as a group. For example, my phenomenological description of Hesston Intergenerational Community included the intergenerational space’s observational and interactive windows as boundaries that offer different levels of intergenerational interaction. This behavior/observation mapping illustrated the use of these windows for intergenerational interactions, how the participants talked about the windows, and how often they are used by the elders to connect with children. These collected data led to the possibility of boundary becoming one of the main categories—which would then need to be confirmed by examining the data of the other two examples. At the Seagull School, boundary was mentioned in regard to providing opportunity for different levels of intergenerational interaction; at Generations Crossing, boundary was used as an indicator to separate the elders and children’s spaces. Therefore, since boundary was pointed out among all facilities and the three different types of data collection boundary became one on the main categories. The same process was repeated for other categories as well.

In order to reach consensus in the coding scheme, I presented categories to human development scholars. Scholars included Ph.D. candidates in human development with

a variety of qualitative experiences including over five years of conducting qualitative field research. Together, we engaged in semi-structured discussion regarding emergent codes. Through this process, we arrived at consensus on the coding categories and definitions.

I then created a codebook consist of all the final categories, their definitions, and subcategories. I shared this codebook with a second human development scholar who is a professor of Social Work with over twenty years of experience studying the elderly and youths, focusing on intergenerational research. We discussed the definitions of each category and their relevance to my research questions. We discussed the relevancy of the categories to the primary research question as well as to the literature and how they related to the definitions of each category. The results were emergent themes that captured the relationships and issues in more detail than the earlier phase of analysis (see Table 4.7). I then reviewed the categories and compared them with the initial codes one last time to find all the sub-codes and concepts that would contribute to building a grounded theory that explains the relationships between the built environment of an intergenerational facility with the quality of intergenerational interaction at that facility.

In the sections that follow, four of categories that emerged after analyzing the collected data in each of the three facilities are explored. Using excerpts from the respondents' interviews, the tenets of personhood theory and contact theory that are satisfied by or possible with each theme are also discussed.

Table 4.7 Definition of categories

Categories	Properties, or definition of the category	Subcategories (examples)
Accessibility	Physical Features of the space that promote or deter direct or indirect access (i.e. unassisted) to a space and its contents.	**Comfort** (less steep ramps)
		Size (larger classrooms, wider doors) [example: when having the room filled to its authorized capacity, it gets chaotic and stressful]
		Distance (elders closer to IG space than children)
		Safety (Fall prevention, level and even walkways)
		Reachability of stimuli or material (e.g. windows/ shelves/ artwork)
Acoustics	Auditory features of the physical space that promote or deter interest in using the space	**Level of Noise**—Age-differentiated sensitivity to noise levels necessitate adequate insulation of spaces so single generation groups can engage in age-appropriate levels of activity and commensurate noise levels. This allows for support of personhood because individual groups' actions aren't dictated by the needs of others.
		Enjoyment of sounds transferred between spaces suggests need for acoustic features that allow transmission or blocking of sound in order to provide privacy or community.
Atmosphere	Physical features that impact the prevailing mood of the place	**Natural Light** Windows that let in natural light and/or allow view to the outside (skylights, windows, glass doors)
		Home Like Warm, homelike features (e.g., wood instead of metal, pleasant smells of food cooking, carpet instead of linoleum, warm colors) as opposed to institutional features
		Multi-purpose, flexible spaces that can support different types of interactions (e.g., one-on-one, small group or larger group [single or multi-generation]
		Access to various locales within the building—Secure access to varied spaces (e.g., outdoors adjacent to IG space, another generation's space, visual access).
Boundary	Physical or social indicators of intended or perceived experience of a space.	**Indicators of elders and children's spaces**—Physical or social indicators of intended or perceived experience or use of a space (e.g., more fluid that welcomes free movement into the other's spaces or clear delineation of spaces that prohibits free movement).
		Different levels of informal interactions—Features that allow different levels of informal interactions (e.g., windows, porches)
		Empower (or don't) participants to access available spaces—Physical features that empower (or don't) participants to access available spaces (e.g., the adults who are supposed to be able to move from the senior spaces to the classrooms, but it involves going past an unsecured door, so staff don't promote such activity; or the resident being able to indicate that they would welcome (or not) an IG visit by opening or shutting the door to their room and the child being empowered to choose to go in and visit the adult).

4.2.4.1 Accessibility Fosters Opportunities

As both boundary and accessibility can be defined as physical features that afford access to different sections of the building, one might indicate accessibility as a subcategory of boundary. However, my conceptualization of accessibility is distinct from the conceptualization of boundary. This is because the features related to accessibility were so frequently identified that guidelines for qualitative research coding of using the most significant and/or frequent codes indicated its merit as its own category. The issues with accessibility were brought up by the respondents were the way that access was provided which had a negative impact on their experience of the place. Although all three buildings that were studied for this dissertation were built up to code, participants did not feel comfortable or safe using certain sections of the buildings in the way that they were intended. Using the three examples of this study, I will show how accessibility that goes beyond the American Disability Act (ADA)'s requirements would also provide extra opportunities for connection.

Seagull School. At the Seagull School, accessibility concerns were primarily about the size of the classrooms and the pavilion, the width of the doorways, the slope of the ramp, and the distance elders and children needed to travel to join the daily intergenerational activity.

Edgar, a four-years-old boy who enjoyed intergenerational bowling drew a picture of the activity (see Figure 4.17), and said:

> Here is me and my buddy […] and the bowling balls and this, and this is the sun, the yellow sun and this is the roof for shade, and also, also I draw the door so we can come inside. […] I like it [the pavilion] because it's big and we can stay far to roll the ball.

Figure 4.17 Bowling in the Pavilion

Edgar enjoyed the open and flexible space of the pavilion that allowed him, his friends and the elders to roll the bowling ball from a distance to hit the pins. Leslie, one of the elders' caregivers, also talked about the benefits of having a large, open space as the main intergenerational space and said:

> I believe that is a bigger space for them [children] to move compared to their classrooms, especially with all the furniture. I notice when I push our friends in with a wheelchair, it's hard for them, I have to move certain things so they can fit where the Kieki [children] are at. So the bigger space is good.

Leslie then continued her conversation by saying that the elders sometimes go down to preschool classrooms to interact with children. However, every elder with a wheelchair or walker needed to always be accompanied with one caregiver and that the ratio of one-to-one makes it really difficult to have the elders visit children on daily basis—so it only happens once a week. In response to my confusion regarding the need for one-to-one ratio even on a short travel distance, Leslie clarified:

> [It's because we don't have] an even walk way. If you noticed our walk way here is a little steep, so when we have our roll and stroll, they walk and they roll around, we have to steer a little to the left, so we don't move the wheelchair in a different direction. But I think we need something that is bigger, like again with maneuvering. It needs to be easy for people in wheelchairs to take themselves down, you know. Something like that.

Leslie also talked about the width of the doors and how it is hard for the elders to go through the classroom door in a wheelchair. She said: "Sometimes the classrooms have

a bigger screen door, I don't think they have like a little thingy for wheelchair, I think that what they should have, just for more convenience and less of hassle, is I would say bigger door spaces."

Naomi, another elders' caregiver who has been working at the school for eleven years also mentioned the width of the classroom doors and how even though they are wide enough for wheelchairs to go through, it is not comfortable for elders to do that on their own (as they would have to be at exactly 90° in front of the door in order to not bump into the door frame). In response to the question of "What do you think are the most important point architects should pay attention to when designing an intergenerational facility?", she said: "Big, open space, wide walkways and doorways, the ground being leveled. Covered outdoor spaces".

Gwen, one of the preschool teachers talked about elders helping children during bowling and golf games and how the size of the pavilion provides the opportunity for these activities. She then made a similar statement as Naomi and added: "The only thing that really comes to my mind, is space, having enough space for them to come in. So if they are in our adult day care, there are tables so we can go in between and move freely, not just sit in their place. So like I said, space is the biggest thing". Gwen's concern about the size of the space was mentioned by other care givers and teachers as well. Natalie, a preschool teacher explained that their adult day rooms are designed for a certain number of people but when furniture is added in the room, it is hard for elders to move around freely. She said: "For what we do, the pavilion works. It's a big space. But if it's indoors, it has to be enough space for comfortable movement for Kupunas [grandparents] to not hit the tables when they move with their walkers and wheelchairs."

Tamara, the adult day center's director said the qualities of the pavilion as their intergenerational space are:

> That it is covered, the concrete floor that is nice and even and it makes it easier for the seniors to walk on it without tripping, it is also great for elders

> who walk with walkers or wheelchairs. So that's really important, otherwise it would limit how many elders could participate. It's covered from the elements, and it is shaded. Also its placement, kind of helps bring the elders and children together and it joins the centers together. It is the heart of the center.

The respondents' anecdotes of their experiences of the place, reflects on how the Seagull School relates to *personal control*, *initiation of social contact*, *acceptance of others*, *helpfulness*, and *relaxation* from the tenets of personhood theory as well as *intergroup cooperation*, *support of authorities*, *equal group status*, and *opportunity for friendship* from the tenets of contact theory. The large, open space allows for activities such as golf and bowling that encourages elders to help children (helpfulness), provides opportunities for multiple small activities at the same time (initiation of social contact, acceptance of others, equal group status, and opportunity for friendship) which gives both elders and children choices and control over which activity to participate in (personal control). However, the ADA accessible walkways and doorways are not comfortable enough for elders to use without help. Although the support of authorities from the tenets of contact theory was mentioned, the ADA accessible walkways and doorways oppose personal control and discourage initiation of social contact by elders and to a certain extent present unequal group status—as the elders who do not use walkers and wheelchairs would be able to visit the children with minimum or no help from the staff, while the elders who do use walkers and wheelchairs do not have the same option.

Hesston Intergenerational Community. Some of the respondents at Hesston Intergenerational Community stated similar concerns as the respondents of the Seagull School. While interviewing Limón, the architect of the HICDC, he alluded to multiple spaces that were designed specifically for intergenerational connections between elders and children. One of these spaces was the lobby of HICDC, where elders can watch the children in the infant and toddler rooms through the observation window of each classroom or watch intergenerational interaction in the intergenerational space through observation or interactive windows (marked on Figure 4.18).

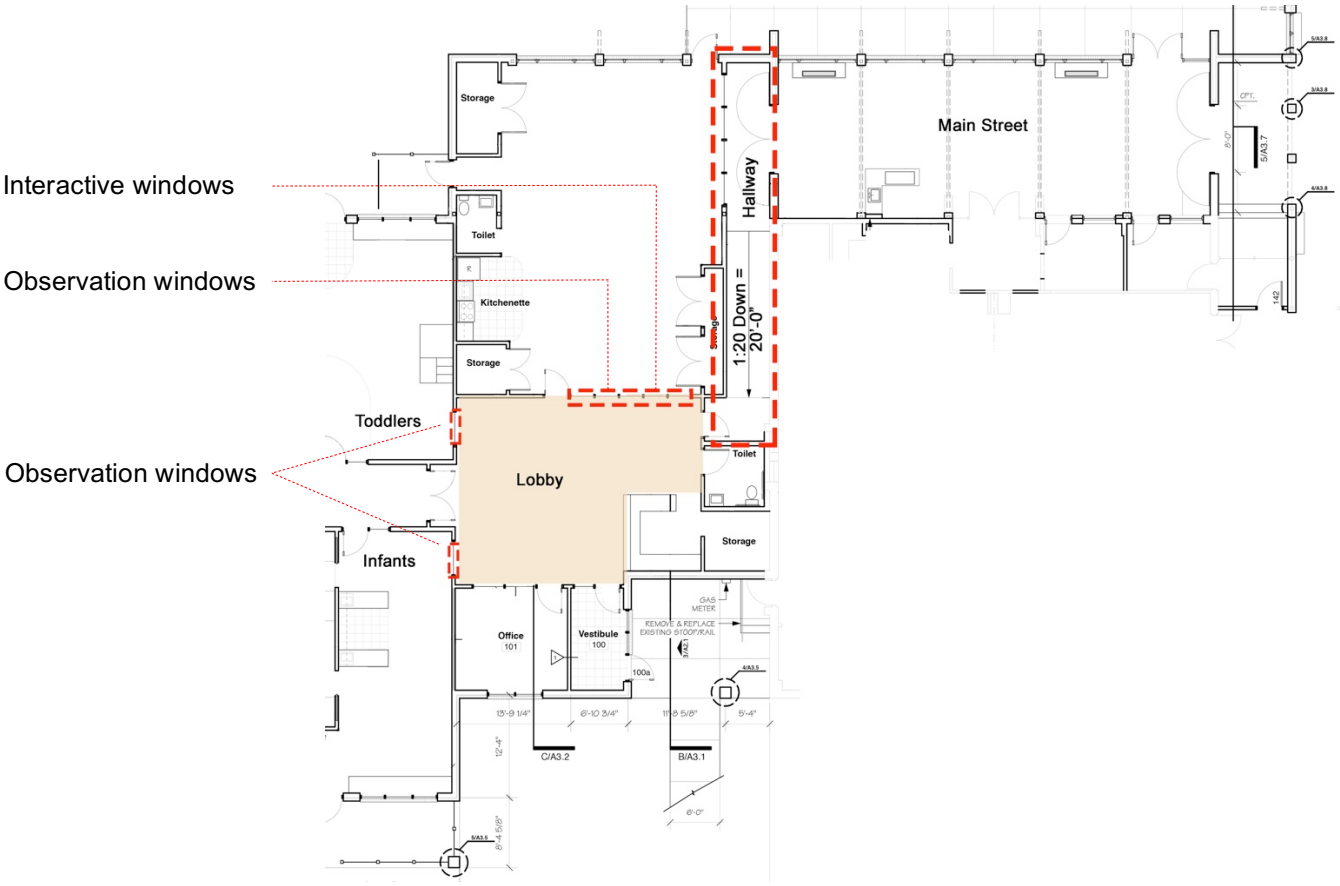

Figure 4.18 Lobby of HICDC

Although the lobby provides multiple secure opportunities for different types and levels of intergenerational interactions, in order for elders to get to the lobby they need to go through the Villa, pass Main Street, and go down the hallway with a ramp of 1:20′. Julia, the intergenerational coordinator, and Jessica, the director of Life Enrichment for Healthcare at Showalter Villa, both mentioned that the slope of the hallway between the Main Street and the HICDC's lobby (marked on Figure 4.18), is too steep for the elders to feel comfortable to go through the hallway in their wheelchairs or with walkers on their own. When I mentioned that the slope complies with ADA's ramp specification code of 1:20′, Julia responded: "Then I would say to definitely make it handicapped-accessible in a way that the elders could take themselves there easily." The lobby also provides access to the preschool classrooms as an option for elders to go in the classroom as volunteers by helping the teachers take care of and teach the children. However, in response to the

question about the frequency of elders using this opportunity and volunteering in the classrooms, Cora, one of the preschool teachers, talked about accessibility as the most important point in designing an intergenerational facility and said:

> Number one is accessibility, for sure. I know I said that earlier. But, to have it accessible for all those things. I mean, bigger room [means] you are going to have big buggies like this, because that's how you are going to get your little ones around. And then wheelchair, and wheelchairs come in every shape and size, we all know that too. And so, you know, accessibility is number one to pay attention to. Even ramp grading, sometimes this does not seem that big, until you've got somebody trying to take themselves around in their wheelchair, and they don't because they cannot. Yeah, and so, that's a big one.

Although the slope of the hallway ramp that connects the HICDC classrooms to the lobby (see Figure 4.19) is also up to code and 1:20′ others confirmed Cora's statement of the ramp being too steep for elders in wheelchairs to go down by themselves. Catlin, a 95 years-old lady said: "Well, it's not easy to go down that long ramp, you could almost slide down."

Figure.4.19 Hallway of HICDC

Others also showed concern about the distance the elders needed to travel in order to get to the lobby and the HICDC's classrooms. Chelsea, one of the elders' cargivers who has been working at the Villa for 20 years, said: "I don't even think about it [taking the elders to HICDC] much, because I just think that it's easier to get the kids over to us rather than getting us over to the children. The majority of my people walk with either walkers, canes or motorized scooters, it's a long way to go for them." Victor, an 86 years-old gentelman who has been residing at the Villa for eight years, said: "It's easier when they [the children] come here**.** […] Well it's harder for us to walk down to their classroom." Diana, one of the preschool teachers said: "It is very difficult to get the elders to come to this room; for a lot of them, there is mobility issues," and then suggested that most elders and children prefer to meet in the Villa. Catlin supported Diana's statement and said: "We have more space here so it's easier when they come here, meeting around the table kind of keeps us together. The tables help the children to stay focus. [paused for a minute as she was thinking] The courtyard [outdoor space] is also nice." Finally, Abby, a five-year-old girl attending HICDC, said she prefers to meet with the elder in the living room or in the outdoor courtyard, explaining:

> […] I like the dining room because I get to sit down and talk to grandmas and grandpas. And I play and I like outside because I like the courtyard because there is a big circle and we get to run around. There are swings that they [the elders] sit on, every time I go past them I say hi and then come back and keep saying hi.

Mia, a four-year old, said that she also prefers to meet with the elders in the dining room, saying: "I like sitting. If we meet them other places, we have to stand." Moreover, Victor, an 86-year old, said: "We have more space here [at the Villa]. Tables and chairs. They [the children] can do whatever they want".

On a positive note regarding this distance, Jessica, the director of Life Enrichment for Healthcare at Hesston Intergenerational Community said:

> Well the big hallways, yeah. I mean that's one of the reasons why the toddler group started coming through, is because they needed to get their children

> out of their room for a walk or a ride. They like a ride, and when the weather was bad then they would come and go up and down our hallways, which a lot of nursing homes are getting away from the long hallways but there's some advantages to them. I see it even with our elders that, you know, the people that really like to walk, it's a safe, level, protected place to walk through, you know, a long way, and it's good for the children too. I think they often instead – you know, when the weather's bad – instead of going outside on the sidewalk, they'll come in and go up and down our hallways. So there are advantages to having long hallways.

Chelsea, one of the caregivers at the Villa said that the majority of elders use wheelchairs, walkers or canes and it would be hard for them to travel long distances without help. So she suggested:

> It would be nice if the IG space was located more central to the residents at the Villa. When I think about where the central courtyard is which is a beautiful area and I would have wanted that in any other place. That is a centrally located place for the residents to come. So a place in an area like that would be great. The residents could more easily get to the children and the children could more easily get to the residents. So, I would just say if there was a place more centrally located.

In addition to size of the space and the grading of the ramps that were voiced at the Seagull School, many of the respondents commented on the long distance between the Villa (where the elders reside) and the HICDC (where the children spend their days). The Main Street, the lobby of HICDC, the intergenerational space, and the preschool classrooms offer the most opportunities for different types and levels of intergenerational interaction at the Hesston Intergenerational Community. However, in addition to not feeling safe and comfortable to go down a ramp with the 1:20′ grading, the elders of this community have a hard time traveling the distance between their rooms and the places designed for intergenerational interaction. Jolie, the director of HICDC, talked about the importance of not only having one intergenerational space and said:

> You know and one of the things I was thinking about is the whole idea that rather than designing a whole building with one space as intergenerational, I think we have got, YOU HAVE GOT TO AS ARCHITECTS, have got to look at both facilities and see how many of these at different locations can we make accessible and inviting for intergenerational activities. […for example,] we have a [preschool] classroom at the end of the hall [of HICDC] and often time we do bring residents down, if the kids are having a party,

> and there is a lot of space for residents to come in with their wheelchairs and we can bring a lot of them and we can be in there among interaction. So that space is available but there are also spaces [in the villa that] we can take our kids there and we can do the same kind of things. So I think the value is not in just having one room and saying this is our intergenerational room. We are living together. We interact on different levels, in different places. You know the garden, the courtyard, is a WONDERFUL place and it has been addition in the last couple of years that opened up another who area for the ages to come together.

This lack of accessible intergenerational spaces is partly related to the fact that this community was designed in different phases with multiple years in between each phase. Although at the time the architect was hired to design HICDC, this section of the land seemed to be the best place for the addition, which made the distance much longer than many of the elders and administrators prefer. As a result, all the opportunities that are placed in the connection between the Villa and the HICDC are only being used by the elders who can walk independently or on Fridays with the *support of authorities* when the staff have scheduled the time to bring a group of elders to the intergenerational space.

The distance, however, does support the personhood tenets of *assertion for desire or will*, *initiation of social contact*, and *affectional warmth* for the elders like Larry, Victor, and his mom Denise, who do travel the distance and visit the children in these spaces. Since being in the lobby also offers access to HICDC for elders who want to volunteer in the preschool classrooms, it also supports the personhood tenets of *helpfulness*, *affectional warmth*, and *acceptance of others* as well as contact theory tenets of *common goals* of taking care of the children by the elders and the teachers, and *opportunity for friendship* between elders and children.

Generations Crossing. As mentioned previously, almost all of the intergenerational activities at Generations Crossing take place in the adults' room. Aside from the faults due to the placement of the intergenerational space, most of the respondents assert that it is easier for children to visit the elders than for elders to go to the

intergenerational space. Micah, a ten-year-old boy who has been attending Generations Crossing since he was three, said:

> We go to their [elders] room because you know how they're older and it's harder for them to move, so they usually stay in their room all day so we go there because we are children and we are more active and everything. […] Some of them are in a wheelchair or are super old, but they do get exercise in the room, they do bean bag tossing or tossing the ball too.

One of the preschool teachers, Kiera, said: "For me, a nice big area that is separate, so like a big intergenerational room that might be attached to the adult room so that it is easier for the adult to come in the room" would be ideal. However, the intergenerational space at the Generations Crossing is in fact already attached to the adults' room (marked in red on Figure 4.20). So for the remainder of the interviews, I asked more detailed questions about the reason for why the intergenerational space is not being used for daily intergenerational activities.

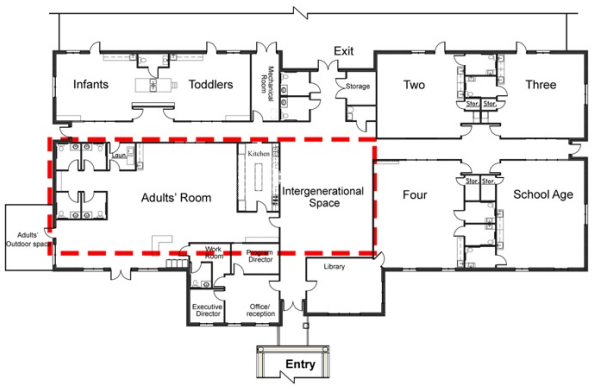

Figure 4.20 Floor plan of Generations Crossing- by Mather Architecture

Josephine, the registered nurse at the center, said:

> It's just more comfortable for them plus it's just more convenient [to stay in the adults' room]. It's hard – some of the people – it's harder to move them to that space […] you know, often somebody needs to use the restroom. There's four restrooms right there [in the adults' room]. So if you're out in this space and somebody needs to use the restroom obviously a CNA had to be out in this space, which meant she couldn't be in the main population and of course we need to keep the ratio. So now, you have to take the person who wants to go to the bathroom and everybody else back in the adults' room.

Esmeralda, the four-year-olds' teacher said they don't use the intergenerational space because it does not have the right equipment. She explained:

> I mean I guess, here if we would have some kind of shelving or storage and just had supplies, it would have been easier for both groups to come together and do things. You know what I mean, instead of always planning something and having to get everything ready before bringing the kids and elders out to the space, then spend more time for just bringing everyone out there. It would be easier, umm, so like we have a completely different storage closet, maybe if that storage closet like some of those shelves were out here accessible to everyone, children and elders, to just go paint with a friend or cut and glue or you know something like that. That would be really cool.

The CDC director, Jade, pointed out the reasons for why having intergenerational interactions in the adults' room is not only easier for the staff and elders in terms of having to transfer elders with wheelchairs or walkers to and from the intergenerational space, but also it provides opportunities for different levels of interaction for all elders. She said:

> You know, it's hard because you have to bring all the adults out and they also have to maintain ratio, and so they have to think about which adults are going to or want to go and then the ones.[…] you know, maybe some don't get to go who might have wanted to go or they might not have wanted to participate but they would have enjoyed at least just watching from afar but they don't even get to watch it because it's in the other room, but I mean it also could just be that they're sleeping at the time. They're tired and so they need to stay in the room or whatnot.

In response to my question of "Why do children always visit the elders in the adults' room, but the elders never visit the children's classroom?", Esmeralda said:

> Mainly because my room is not handicap accessible in the fact that too many wheelchairs could not fit in our room. We have too many obstacles for those things and the adults' room, it's easier for my kids to bring what we need than for them [elders] to bring what they need to come to our room.

Chloe, who teaches three-year-olds verified the lack of space in the classrooms for elders to visit; she also mentioned the need for having both adult and children's bathroom in the intergenerational space. She pointed out other accessibility issues and said:

> The flow, like maybe the flow of it when the adults can see the kids, I mean we do have windows at each room but it's a matter of getting the adults to the children's windows or children to the adults' windows. So I guess the ability to go to different areas is important. Counter space or spaces that have cut-ins that things can go into like art areas, or spaces on the walls for art and creativity. Or bay windows that they can sit into and read books. Or like islands and figuring out a height that works for both adults and children, tables that could have deep things in them that could be used for that kind of stuff. Built-in shelves at both elders and children's level is important.

However, the issue of space at Generations Crossing was not limited to its amount, but also how it was arranged. April, a seven-year-old child who attends the Generations Crossing with two of her younger sisters, suggested a change in the layout of the classrooms and said:

> The infants should be closer to the entrance and the parents can get them quickly because they want to be with their parents faster. And I say move the playground so when your mom and dad come, they can see you so they know you are outside, instead of going all the way to your classroom to find out you're not there.

Although issues related to accessibility at the Generations Crossing caused the underutilization of the intergenerational space, the intergenerational interaction taking place in the adults' room requires *support of authorities* from the tenets of contact theory and supports personhood tenet of *acceptance of others* as the elders accept the children's daily visit.

4.2.4.2 Acoustics Promote Privacy and/or Community

Acoustics emerged as a major category reflected in repeated comments about the need to support privacy by allowing for both quiet and loud activities in adjacent spaces. Elders and children separately require different needs at different times of the day, but children of different ages also have different desires and needs at different times of the day. Below are examples of some of the points made by the respondents during our conversations.

Seagull School. At the Seagull School, all the buildings stand individually and therefore there are less chances of being bothered by unwanted noise. The only possibility would be noise traveling through the glass door and windows of ADC II from the children's playground. However, no one mentioned or complained about any acoustic problems at this center.

Hesston Intergenerational Community. At Hesston Intergenerational Community, a few of the elders mentioned acoustics in relation to their privacy for the times they would like to have private conversations with their loved ones. Alex, who visits his mom at the Schowalter Villa every morning, said:

> It would be nice to have a private space so if she doesn't want to get out, or if the family wants to get together and just kind of sit out in the sun and enjoy and not necessarily go to common areas […] to have some way to screen it in so the next door neighbor wouldn't hear all the conversation.

The concept of acoustics offering privacy and private spaces to elders and their families reflects on personhood tenets of *relaxation, social sensitivity*, and *acceptance of others* by respecting their needs, as well as *affectional warmth* by caring for others.

Other concerns were made about enjoyment of the sounds and being able to connect through the boundaries, whether it is to open a window and hear the birds singing or opening an interior window to talk to the children in the next classroom. However, since these points are more related to the components of boundary, there will be discussed in detail in that section.

Generations Crossing. At Generations Crossing, all the intergenerational activities take place in the adults' room and since the room is a big open space (see Figure 4.21), there are acoustic issues.

Figure 4.21 Adults' room

Molly, a nine-year-old who has been attending the center for six years, said that in the last six years, she has participated in intergenerational interactions both in the adults' room and the intergenerational space. According to her: "[I prefer] the intergenerational space because you can hear them more and in the adult room sometimes people go to sleep and snore or just make noises." Molly also mentioned that when the intergenerational activities happen in the intergenerational space, the elders can choose "if they want to stay in the room and read a book or come out and enjoy and have a good time with kids." Josephine also mentioned that "the noise is an issue […] if somebody just wants to sit quietly and not participate in IG or even watch TV. If somebody, you know, doesn't want to watch what's on; it's like…you can't really…you're not really meeting that individual need because you can't."

One of the main concerns at Generations Crossing was the issue of noise not only in the adults' room but all throughout the center. Jeremey, the architect of the facility, said:

> When we began to design this building […], the folks at Generations Crossing were already operating a program in sort of a church/basement type of space and they already knew what was working and not working pretty well for them [….They] had some pretty good direction in terms of how an ideal space would lay out. […] Budget was always a concern. So

> we tried to build this out of a rectilinear simple fashion using wood which was the cheapest way to do it.

Although building with wood has multiple advantages such as ease of construction, abundance, and of course low price, one of the major disadvantages is noise control. Therefore, the acoustic issues at the Generations Crossing are a concern for single generation activities just as much as it is for attending intergenerational needs. Micah, a ten-year-old child, asked me about the issue of noise at the center and when I explained the reason to him, he drew me a floor plan and said:

> If you are building with wood, you should make a two story building 'cuz older kids are loud and need bigger space. Definitely the separation of the infant and toddlers who are learning how to crawl and learning how to walk and the older kids are just running around but now they have separate times, so all the classes are separated so they can do their own stuff. […] having the younger children's classroom next to each other so it'll be quiet for them when they all are taking a nap. I tried to separate them with the sleepers and the older kids that don't sleep. […] You know maybe kind of thicker walls. Because if we are being kind of loud, the younger kids won't hear it as much.

Other children who mentioned choice in space were aware that some of elders preferred quiet activities, but children preferred to run around and be loud at times. When asked what would she change about the design of the center, April, a seven-year-old child who has been attending the Generations Crossing for five years, rearranged most of the classrooms and said:

> Yep, so like sometimes you can put a door right here to have a library and an office, so instead of an adult room you can put a toddler room and instead of the two's being right by the garbage, you can move them. So the two's can be where the toddlers are and the three's can be over there [showing farther down the hall]. The two's and three's can be loud running around but the adults like to nap during the day.

When asked how she would change the space, Molly said:

> I would probably separate the rooms a little bit, because they are very close and they have a little space between the rooms and they have doors here and we have the school-age room and we can hear from the walls and sometimes it's too loud for them [the elders]. So if you make it that they can't hear through the walls that would be good.

Jade, the child care director, and Lola, the executive director, and one of the elders' caregivers said aside from the comfort of elders, another main reasons that the intergenerational spaces is not being used for daily intergenerational activities is the acoustical problem. Since the intergenerational space is an open space in between the adults' and children's sections, the noise of any activities taking place in that space travels through the building and is especially disturbing to the rooms right next to it. Holly, the infants' teacher, made a similar comment and said:

> One of the adults, TJ, can't separate the child's crying as just crying, TJ sees crying as the child being hurt, so he wants to go rescue that child. So if we are in the IG space playing due to the weather conditions and the children not being able to go outside, if a child starts crying, TJ automatically assumes that the child is being hurt and so he is trying to get out of the room to help the child. So the nurses have to restrain him so he won't leave the room. So that's one of the challenges.

On the same topic, Esmeralda said:

> I would probably want it [the IG space] to have 4 walls, if that makes sense and then also a lot of insulation in those walls so that the fun that's happening in there, stays in that room because I feel like sometimes the biggest issue that we have is, the back wall of the multipurpose area is my circle time wall and so If somebody's out here playing we can hear them. And so I think my biggest thing is if it would have been an actual room, it was very insulated and it had carpeting. I think carpeting doesn't make as much sound.

Other acoustic concerns mentioned in the interviews were related to observation windows. Two of the teachers and the CDC director said that the logic for the observation windows was so that the parents and family members could come and check on their loved ones without disturbing their routine. Jade, the CDC director continued by saying:

> It would be nice if you could hear when you're outside – what's going on on the inside. […], you can see but you can't hear, and so sometimes we have people come in and observe for clinical reasons, you know, like they're a speech pathologist or a school psychologist or somebody who wants to observe and if they go into the classroom the child will act differently because there's somebody different in the classroom that they don't know. So you want them to be able to watch from outside but then they can't hear what's going in the classroom.

Another point worth mentioning here was Susan and Holly's concern with the connection of the infant's and toddler's room (see Figure 4.22). They both talked about the benefits and the disadvantages of this condition.

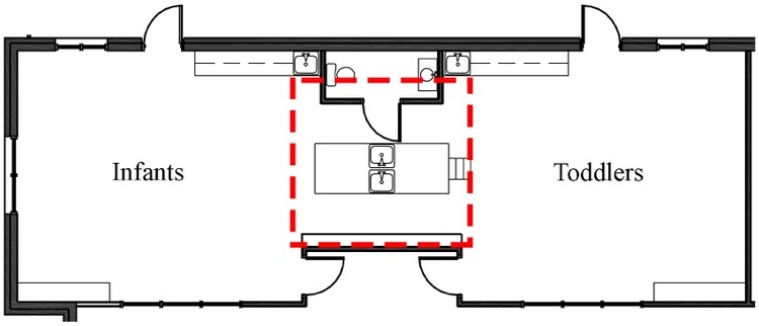

Figure 4.22 Connection between infants and toddlers' rooms

Holly said:

> I don't like it. Reason being is when it's nap time and my children are going down and we want them to take a good nap. It seems like inevitably that's when the infants start screaming. So then it's like a constant or if their children are napping our children are playing or screaming. So there is no sound barrier to help that situation. We often say, come nap time we wish we had this door that come down you know like they have at the ice cream shop, and kind of block out the extra noise. Even though we play music and try to create a relaxing environment but we can still hear crying and screaming and the noise is just very frustrating. Something we can close or open. Maybe a window.

The acoustical issues mentioned by the respondents at the Generations Crossing were mostly in relation to privacy and choice. These points reflect on personhood tenets of *social sensitivity*, *self respect*, *acceptance of others*, *relaxation*, and *affectional warmth* by caring for others who might be participating in other activities such as elders and younger children taking a nap while older children wanting to play.

4.2.4.3 Atmosphere Welcomes or Deters Interaction

Atmosphere defines the feeling or mood of the space (Zumthor, 2010). Different architectural conditions can help create different atmospheres. One of the points mentioned by over 50% of the respondents was the importance of large windows, skylights, and the view of outdoors instead of fluorescent lamps and it influence on the mood and behavior of not only elders and children but also caregivers, educators, and staff. The second point mentioned was about having flexible spaces that supported different types and levels of interaction. For example, a big empty space allows for a large group activity as well as multiple small group interactions where each group could be involved with a different activity. The third point was the feeling of the space; respondents used words such as home-like, inviting, or institutionalized to describe the feeling of a space. A few examples of these concepts as mentioned by respondents in all three facilities are included below.

Seagull School. Caleb, the designer of the Seagull School said the school in Kapolei "was the first school we ever designed and it was kind of like a village, we didn't want it to look institutional so we really experimented with its architecture […] and this arrangement gives natural places for elders and children to stop and interact." Caleb also talked about the benefits of having their intergenerational space as an outdoor space, he believes "it is healthier for all people to be outside in nature's environment and Hawaii is blessed with a comfortable year round temperature […] also having the pavilion between the two ADC rooms gave us the chance to bring more natural light to both rooms."

The elders and caregivers that I spoke to, all verified Caleb's comments. Naomi, a caregiver who has been involved with intergenerational programs for eleven years, said: "since we are in Hawaii, it is nice to be outdoors. Feel the breeze, hear the nature." Kayla, a caregiver at the Seagull School said: "The outdoor [quality] is good, because they get the fresh air, feel the breeze, see the plants and the trees, and they can use their outside voices, and use their hands to do bowling, golfing, and paint with hands, and do gardening". As for the atmosphere of the adults' rooms, Caroline, an 82-year-old lady said

that she likes being in the ADC II room "because it's spacious and bright." In describing ADC II, Leslie, one of the caregivers said: "I would say it's really bright, it's the weather too […] looking at the outside, it's very inviting, I feel." Gwen, one of the pre-K teachers emphasized the importance of comfort and offering multisensory activities in an outdoor environment and said: "If we could have a building with what is necessary to do artwork, drama, like everything that we have in the classrooms, to have it in the IG space. So the Kapuna can go and be comfortable […]. I think they would be more involved in things if they were comfortable."

Another important point that was discussed during the interviews was the frequency of the use of the patio between the ADC II and the toddlers' playground. Walter, an 86-year-old elder that I spoke to said that he has not been on the porch because he likes to go where the children "feel safe and can be playful and have fun." Tamara, the directed of ADC said:

> I think even though the layout is good, but I feel like it doesn't allow for maximum control and ownership of their own action and their interaction with the kids. […] I feel like for our setting, we need to provide comfortable opportunities for elders to sit outside, while children play, would provide opportunities for more spontaneous interaction. Elders, some of them grew up in plantations […] so it was always, 'don't rock the boat, don't make demands' but maybe if there is an inviting place outdoors that would encourage them to go out, maybe they would say that they would want to sit outside.

Points mentioned about the atmosphere of the Seagull School were mostly focused on the place being inviting and comfortable and offering multisensory interaction. Inviting and comfortable places support the personhood tenets of *assertion of desire or will*, and *initiation of contact* as these places might make it easier for spontaneous intergenerational interaction. Further, multisensory experiences stimulate different senses, which might connect a person to old memories or create new memories that support *ability to experience and express range of emotions* and *creativity and self expression* of personhood theory. Further comments were made about the flexibility of the pavilion and inflexibility of the porch. The pavilion is spacious and therefore it provides

the opportunity for a large number elders and children to get together as well as multiple small group interactions. It's an outdoor, covered space where elders, staff, and families could sit and relax. However, one of the comments about the porch was that the "elders don't want to just go out there and sit," which raises a question about the difference between the pavilion and the porch. In comparison to the pavilion (which is a large and flexible space), the porch is a much smaller and confined space, which might be the reason that it is not being used as frequently as the pavilion.

Hesston Intergenerational Community. The intergenerational spaces at the HICDC is one of the most appealing spaces that I have studied in the past few years. It is a large, open, and flexible space with a bathroom, a changing area, a kitchenette and two large storage closets—plus multiple observation and interactive windows in addition to the windows facing the outdoors. All these components create a great environment for different levels and types of intergenerational interaction. The interactive windows at the end of the hallway that connects the HICDC's lobby to Main Street could be considered a boundary that was designed to bridge and create a connection between the two generations. However, these windows are placed in an atmosphere of hesitation where elders do not feel comfortable just sitting there and observing children or intergenerational interactions happening in the room. This space was intended to be flexible, but lacks sufficient flexibility for observing as it is also used as a passage from the HICDC to access other parts of the building (see Figure 4.23).

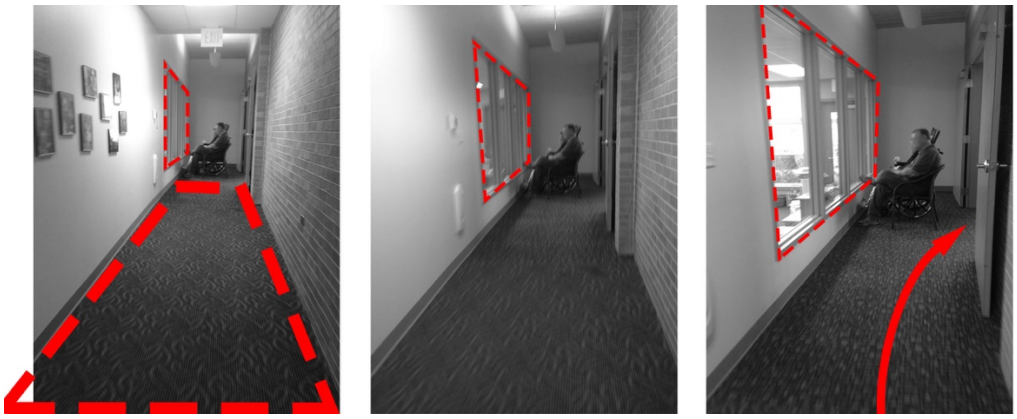

Figure 4.23 Long hallway leading to interactive windows of the intergenerational space

Alex, a 65-year-old gentleman who visits and spends every morning with his mother, Denise, residing at the Villa, said:

> You know when we are here [sitting in front of the interactive window], we always feel like we are in the way of people. Because this is kind of an access point for workers moving carts. And that might be why some people don't use it as much, or thinking since it kind of looks like a hallway, maybe they shouldn't come here. But we like watching the kids so much, that we don't care we come here anyway.

Later during my conversation with Alex and Denise, a staff member walked through and said hello as she was walking from the HICDC through the hallway and to Main Street. The space was a bit tight for her to walk through with three of us, Alex, Denise, and I sitting at the window. At that point, Alex said: "And this is why many people don't use this window. And if the person passing through has a cart, then somebody needs to back out and I think they think that's what this is for. So if there was something that looked more like a place that invites them to say let's go sit and watch the kids play".

In general, observation windows create a one-way connection for elders to be able to see the children without having to interact with them. Aside from the observation and interactive windows that create connections to the intergenerational space, there are classroom observation windows placed in the lobby which is a large, well-lit, open space. There are two comfortable, padded, chairs with handles placed in front of the windows welcoming elders to sit and watch the children in the classroom. Alex also said that:

> Sometimes children don't know what to do when elders are watching them, so one-way window allows the elders to watch the children without bothering them, with no pressure feeling like they got to interact or worry about whether the kids would like them or not.

In addition to the presence of the one-way window, the furniture made a difference in how the elders took advantage of this opportunity. The importance of comfortable furniture was mentioned by the director, elder caregivers, and elders. For example, while talking about using the intergenerational space on daily basis, Chelsea said:

> If we are able to get over there, then there would be the matter of getting chairs, to have arms for them to be seated in, when they are watching or playing with the kids. Sometimes we drove chairs over there. So, seating is the main deterrent. There is not enough seating for us. […] So, seating would be the main thing. Our folks in the wheelchair can only be pushed down there and they can stay in their chair. But for our folks with walkers or canes, it's harder.

Diana, the preschool teacher, talked about the observation windows as an important way to encourage intergenerational connection for the elders who might not be sure about interacting with the children and said: "Jolie [CDC director] always encourages that. She even come and turns the light out in the lobby so the elders can see better in the classroom. And once in a while we have regulars you know." Larry, a 56-year old adult who has been residing at the Villa for eighteen years, said: "These soft chairs with handles make it easier for some of the older adults to get out of the chair on their own." Besides focusing on the issue of comfort, his response reflects his own ability to decide when he wants to end participation.

Moreover, after talking about comfort and his interest and involvement with HICDC, Larry continued by saying:

> I think it is important for the architect to ask the families and the employees what they want, because they'll be working in the place as one with the daycare. They forget that and they need to know that when people use this place, they're here together as a family so they need to design it for a family so everybody old and young can be together as a family does in their home.

With this response in mind, I adjusted my interview question to find out how the design of this facility empower elders to make their own decisions, Limón said: "We designed levels

of interactions that all fall under the same electronic, Wanderguard, system so that residents, even those that have movement restrictions, would be allowed to make some decisions about their level of interactions. Julia, the intergenerational coordinator, said that the elders "have a bracelet and an ankle band that sets off the alarm and it tells, umm buzzes the nurses way back here, and they know which person has gone out the door. They would know which door and which person." After learning about this system and its accuracy, I was comfortable following Victor around the building while he was showing me the building additions that took place since I last visited the Hesston Community five years ago. Victor is an 86-years-old elder who I met the first time I visited Hesston. I needed to remind him of our meeting and conversations, but once he remembered he asked to give me tour. On our tour, Victor initiated a conversation about the facility's garden.

> Victor: We [elders] go to the garden and they come and play. It's beautiful. Have you seen the garden?
> Me: No not yet.
> Victor: I'll show you. It'll blow your mind. You must see it.
> Me: it sounds amazing. Can you tell me about it?
> Victor: oh! It has a waterfall, and swings for us, and grass for children to run on. There is a place to sit and a place to walk. You'll love it.

Victor and I walked around the building with no supervision for almost two hours. He was right, I loved the garden. There was a sense of serenity to it. Alex was also a fan of the garden. He said:

> My mom and I use that courtyard a lot. And part of it is we just go out there to enjoy the flowers. We enjoy the water fall. I mean that is one of the most peaceful things to just kind of sit there. Even if for some reason her or I just want to snooze for some reason that waterfall and the flowers, I mean they have flowers all seasons for this area. We don't go to participate in activities with kids out there, and I think it is because for her and I that is our time to go visit, be outside, get sunshine. […] For us, we just go out there and go around but we don't stay long. [paused for a few second and then said] And it just dawned on me that if it was some way to get out the wheelchair into another chair that is more comfortable for her to sit on, maybe we stay longer.

The natural daylight provided by the windows and skylights at the Villa create a more comfortable environment and provides mental and visual stimulation, improved mood, lower fatigue, and reduced eye strain (Edwards and Torcellini, 2008) that are beneficial for elders as well as the staff and administrators of the Villa. Jessica talked about the use light in their long hallway in comparison to outdoor spaces, saying:

> Some of the halls have skylights. So that natural light makes a difference in how they feel too. Yeah, I think an ideal setup would be, you know, like a big square or something [laughter] with, you know, public spaces in each corner because it's good to have kind of a circular…right now, we're kind of spokes of a wheel and we have residents that walk to the end, turn around, and come back, you know, walk to another end and turn around and come back, which is how our courtyard was originally too but then they replaced that spoke, with, you know, hub with a circular pathway and to me that's just so much more, I don't know, human friendly or something, to be able to go in a circle instead of […] yeah I really advocate for some easily accessed outdoor space. So they're planning on closing off…fencing off enough…a little courtyard right in here for this wing…for folks with primary diagnosis of dementia.

Other respondents had opinions regarding the arrangement of the space to create a better atmosphere. At the end of my conversation with Alex, he wanted to make some suggestions about future designs for intergenerational facilities and said:

> I think it would be nice if each room has a patio so if she doesn't want to get out, or if the family wants to get together and just kind of sit out in the sun and enjoy and not necessarily go to a common courtyard.
>
> I think in indoors, specially during the winter-time like this, it's really hard on her. So it will be nice to figure out how you can do a winter activity where you can hear bird sounds and be in touch with nature.
>
> There is a wellness center nearby and they have a wood shop, clay workshop, a sewing room and a pool room. I understand there are some limitations here, but some of these could be incorporated in the future buildings. So I'm thinking maybe there are rooms for both adults and children where they can do their coloring, their painting, they can do all kinds of arts and crafts. My mom used to play with clay, and she would very much enjoy doing that. So maybe that could also create opportunities for college and high school students to use the spaces.

> I know that sounds crazy, but some of these people really miss driving. So if you have a go-kart facility, they can just get into a go-kart and drive until their heart's content. I don't know how cost prohibitive that is, but I keep hearing over and over, 'I miss driving, I miss driving' and I'm sitting here thinking that someday I'm gonna miss driving, but maybe they'll have a facility where I can hop into a little car and go. There were two gentlemen here, where they went on a motorcycle ride, and they talked about it for two days. Of course they couldn't drive, they were just in the side-car but they kept saying I went on a motorcycle today. But that is one of the losses that the elderly people don't talk about, because it hurts too much.

Respondents at the Hesston Intergenerational Community described atmosphere by using words such as hesitate, welcoming, family oriented design, indoor and outdoor multisensory environment, and comfort in terms of physical environment as well as emotional feelings. These points reflect on the personhood tenets of *assertion of desire or will*, *ability to experience and express range of emotions*, *affectional warmth*, *initiation of contact*, *acceptance of others*, and *relaxation* as well as contact theory tenets of *Intergroup cooperation*, *support of authorities*, and *opportunity for friendship*.

Generations Crossing. In regard to the atmosphere of the space, many of the respondents at Generations Crossing talked about the feeling of the adults' room in comparison to the intergenerational space and some suggested changes. Chloe, one of the preschool teachers, said:

> I feel like it is a big open area so if we were to use it just for our class and a few adults to do IG, the other classes would be walking by to go outside and that could be disrupting. […] I also think we use the adult room because it's more homey, it is more closed in, intimate kind of area where as the multipurpose room is almost like you're going into a nursing home. So we do large group activities for the entire center at the IG space, but then it feels a little crazy when we get in there for large group activities, it is chaotic and stressful because there is barely enough space for everyone. But during the break, it's nice to talk to teachers who are on their break.

Josephine, one of the elders' caregivers, said that they prefer for the intergenerational activities to take place in the adult room, because compared to the multipurpose room, which was designed to serve intergenerational interactions, the adults' room is "more

warm, and homey"—that it is "a nice, big open room […] and we like that because the nurses' station…you can see everything, but a couple areas for some more privacy would be nice."

April, a seven-years-old child, said "You should put some windows around the school for lots of light and like if you're designing it, the adult room has a lot of windows and the IG room only has a window on the door." Also, on designing a new facility, Kiera, another preschool teacher, said: "You know big and bright, lots of space, accessible for all abilities are very important." Ana, who teaches two-year-olds said:

> I think it is important to make sure the number that you have in mind is the right number for the square footage you are designing for. So there is enough room for breathing with people and stuff. Because a lot of time when the room is empty, it might look like it has enough space but then you add furniture, toys, then you add people and it looks like there is no room. So it is important to visualize how it's going to feel when everything is in the room. So I think when they first built this building six years ago, there was enough space, but it has grown since then and now it doesn't fit right.
>
> I think floor to ceiling windows are good because it gives you more light and view of outside and makes the room feel better.

Holly, the toddlers' teacher, talked about the intergenerational space and said that "it is kind of bare right now and it doesn't feel homey at all. […] I mean I would choose a warmer paint color and not so many sharp corners, just kind of rounded off. Because the way it is now, you walk in and it is kind of BLAH. It is boring, it doesn't give you that happy feeling that invites you into the center." She suggested a few changes to make the intergenerational space "feel homey and warm." She said: "lighting is important. The lights we have now are just kind of institutional lights, I don't know what is available as far as softer lighting and possible closer day light. Maybe more playful art work all throughout the center." She also mentioned that there is a need for other comfortable homey spaces in the facility. She said:

> Also when there is an issue with one of the children and we need to tell the parents about it, it would be nice to have a meeting room, granted they come here in the library and talk but if we had a room with a nice environment, cozy and soft furniture it might take the edge off of a hard

> conversation of telling parents there is something wrong with their child, a little bit, maybe.

Description of atmosphere at Generations Crossing was in response to two separate sections of the building, the intergenerational space and the adults' room. Although the intergenerational space has the potential of supporting some theoretical tenets, the space is not being used and its atmosphere was described using terms such as institutionalized, disruptive, chaotic, and stressful. The atmosphere of the adults' room, where the daily intergenerational interaction takes place, was described as homey and intimate, which could correspond with personhood tenet of *relaxation* and contact theory tenet of *opportunity for friendship*.

4.2.4.4 Boundaries Facilitate Options

Boundaries are either physical boundaries (e.g. a wall or a window that is covered with artwork) that in a way work as barriers in the traditional sense of being where things stop. Physical boundaries could be designed with a social layer added to them, which results in experiential boundaries that create a connection through a bridge that facilitates change in the user experience—or an experiential boundary. In relation to intergenerational facilities, experiential boundaries are designed with the purpose of connecting the two generations (such as observation or interactive windows or a porch that connects elders to children's playground). Each boundary is also effected by its surrounding that could change its quality (an observation window that is at the end of a hall way does not gets used as often or the glass door that has its handle on the sightline of elders siting, which prevents the elders in the room from watching the children playing in the playground).

In the following section, I discuss how physical and experiential boundaries are implemented in the intergenerational facilities that were studied for this research and if and how these boundaries influence intergenerational interaction.

Saegull School. The Segull School in Kapolei provides different opportunities for visual connections between elders and children. The boundaries that I will discuss here are of the outdoor courtyard (shown with green on Figure 4.24), the pavilion (beige rectangular on Figure 4.24), and the porch (marked in red on , Figure 4.24).

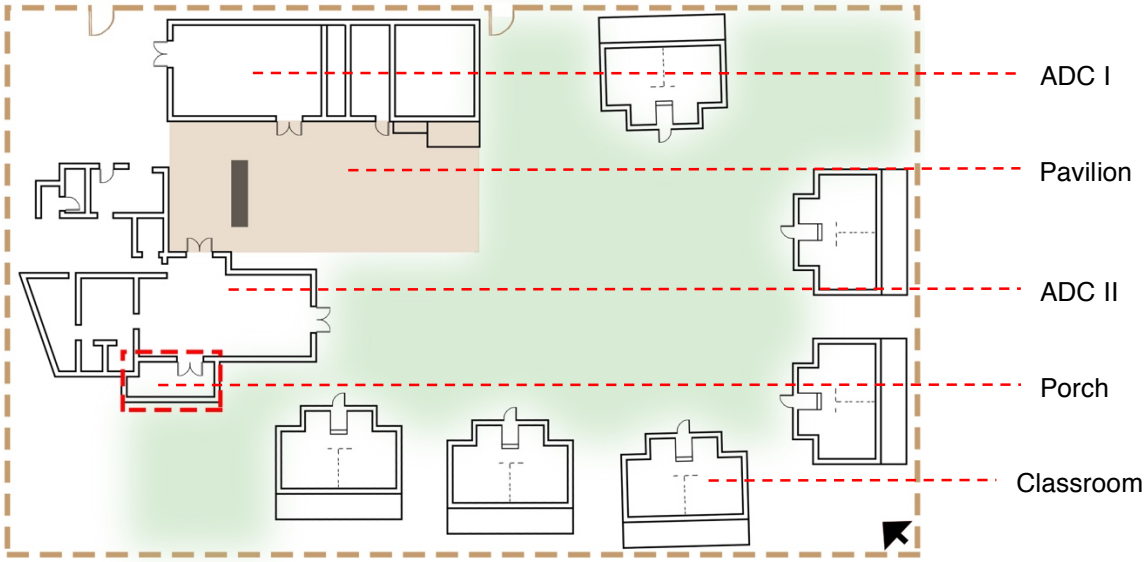

Figure 4.24 The Seagull School in Kapolei

Caleb, the designer of the school, said that they used the outdoor courtyard as a separating boundary between the children's classrooms and ADC rooms but the porch between the two-year-olds' playground and ADC II bridges the two generations by providing visual connection as well as opportunity for higher level of interactions. One of the most important interaction that the courtyard encouraged was play. In addition to referring to the porch as a bridge connecting the two generations, Caleb mentioned that the goal of this space was "providing opportunities for elders to sit out there and watch the children play." Joy, the CDC director, said: "If you noticed, the Adult Day room number II has a nice balcony, so the seniors can sit and observe the children." Tamara, the ADC's director agreed with the statement of the porch offering an opportunity for elders to watch the children play and said:

> Our setting is good for Kapunas to sit outside and just watch Keiki or have spontaneous interaction with them so what I like to do is to put some comfortable chairs there so the Kupunas can come and sit in the shade and be able to watch the kids play more than they do now. The way Caleb designed the center, is for the elders to always have at least visual interaction with the kids. Because for us, a lot of the older seniors, they won't ask. They just wait to be told what to do. So if we make it nice and relaxing, they might be more interested in going out there. But the younger older generation, the boomer, who are used to asking for what they want and getting what they want and they'll tell us when they don't want to just sit in

> the center. The metal bars as the fence is not good though, it's kind of like a cage. We often say when Keiki and Kapuna interact through the bars, it's hard to say which one is in a cage.

Kiara, a five-year-old child who attends the school with her grandfather, also talked about the courtyard and said: "I see the Kapuna where ever they are. Because when I walk, I see them because they come and go to the other classes and rooms." Leslie, one of the elders' caregivers, talked about how visual connection is provided through the courtyard and the pavilion's large windows and glass door and said:

> Kupunas when they see the children, they say, 'oh look at that adorable child'. Sometimes, the Keiki too, they see the Kapuna and they come to the door […] ask if they can come in. We could be doing an activity but we do pause that, so they can come in, and sing with us, sometimes they dance, sometimes they just shake hands. It makes them happy. Because sometimes, like they all know you are my sunshine, they sing the alphabet too. Something that they all know. And that is unexpected and we welcome it. Because we want them to intergenerate as much as they can, because that is what this facility is based on. So I think they just maybe this open environment, just open, helps […] the Keiki like to say hi and the Kupunas say hi back so that is good to start the interaction.

In answering my question of "Do you think the spatial layout of this building provides opportunities for elders and children to have spontaneous interaction and be in control of how much and for how long they like to be involved in an activity?", Naomi, one of the elders' caregivers, made a similar statement as Leslie and said:

> One thing that I can think of is when the seniors see the kids in the playground, they wanna go to them. Specially with the two-year-old playground, the seniors see the kids out there and want to go tell stories with them. I guess they have control. Some of the seniors don't want to go outside for an activity. They say it's too windy or too cold, and they want to stay inside. So they say I don't want to play bowling today. If they want to leave in the middle of an activity, they can. We just have a staff member go with them. We have had seniors who wanted to stop playing bowling and go do an IG art work, so we allow them to do that. Or if one of the seniors say, oh what are they doing out there, can I go? And we say of course and we take them.

Tamara made a clear statement about different types of boundaries at the Seagull School and said:

> Our environment here, well the pavilion is certainly encouraging and helps us to facilitate those encounters, I think it's pretty well set up in the village setting and big open windows. Our older dayroom [ADC I] for elders has more of a smaller traditional windows, but that worked out well for those elders who don't necessarily want to interact with children. But I think having the large windows, the wide doorways, the wide, open, connecting pathways through the kids' playground has helped a lot with intergenerational interaction.

Whether to separate or connect, the boundaries of the Seagull school were designed with one specific goal—of providing visual connections between elders and children. Therefore, the design of these boundaries target the personhood theory tenets of *assertion of desire or will*, *ability to experience and express emotions*, *initiation of contact*, and *acceptance of others* as the visual connection creates the opportunity for elders and children to be aware of the other generation being in the building, as well as a choice for them to interact with the other generation and participate in intergenerational activities. Furthermore, these boundaries support the contact theory tenets of *equal group status* as both groups have their individual space and *opportunities for friendship*, as well as *cooperation and common goal* as elders and children may see what the other is trying to do and want to initiate coming together to support achievement of the goal.

Hesston Intergenerational Community. The Hesston Intergenerational Community provides many opportunities for different types and levels of intergenerational interactions. Limón's, the architect, main design idea was to "allow many different interactions to occur while keeping the facility running smoothly from both the perspective of the HICDC and the Villa," so he designed spaces for different types of interactions where "the observed could be the observer by choice." In explaining the creation of different environments for different types of intergenerational interaction, Limón articulated that there are the physical boundaries of glass, doors, windows, Wanderguard system, but there are also experiential boundaries that indicate at what point the experience of the user changes. According to Limón, this point should be intentional by

the architect based on to the program and that change should benefit the quality of IG interaction.

Because of this intentional design, there are sections of the building that offer opportunities for elders to watch the children be in their environment without being aware of being watched (see Figure 4.25). There are also opportunities for children to watch children of other classrooms, or children to watch the elders. Limón said:

> In our project, there are a number of subtle boundaries that define a new experience. The first is the streetscape scene that we designed that physically links the Villa to the center. This experience draws the residents into a physical space that is reminiscent of life in town. While it is not a direct representation of a streetscape, it is meant to change the user perspective and provide a mindset that is "outside" and transitional in nature. The next experience is the large window at the end of the streetscape that looks, from slightly above, into the large indoor play space used by the center. It is elevated because of the physical difference between finished floor elevations, but it also allows the resident to peer into the lives of the children from the perspective of pure observer rather than participant. The glass is there as a practical sound barrier to the Villa, but is otherwise unnecessary as a physical boundary.

Figure 4.25 Elders watching intergenerational interaction

As a physical boundary, the large interactive windows at the end of Main Street were designed to bridge and create a connection between the two generations, where elders could sit and observe children play with their peers or participate in intergenerational

interactions. Cora, the toddlers' teacher, would like the opportunity to take the experience one step farther by having the choice of opening these windows. She said:

> Our big room window, the big window that connects to the Main Street, that's our most spontaneous interaction. We have residents that will wander down that way and they will see us in there, so pull up a chair and sit, and watch a while, but again it's a big glass window. So we can't, you know, say 'Good morning. How are you? Come play with us' […] and they respond so much more to touch, the kids and the adults. […] When you extend your hand and you say 'Hi, how are you?', it is a whole different interaction, a whole different connection. You are connecting your brain with what's going on. We have a lady over there, she's a 107. My kids know, Margaret is in her room, and we go in her room. And she can't see very well, she knows them by touch. 'Oh! Here is my little boy, he has the warmest hands. Here is the little girl with her cold hands'. Everyday! But she knows. She can't really see them. She can see outlines and things, but that touch. She knows. They are here to tell me good morning. They give her a big hug, and do their thing... And so it just connects even more. I wish sometimes, because that's the most spontaneous when they feel like coming to us, but then they can't even come to us. You know, they have to come all the way down and around, so you know...that hug makes a big difference.

After discussing the qualities of the observation window as an experiential boundary, Limón continued the conversation by saying:

> The next experience is a narrow hallway with a ramp that leads down to the lobby. This transition is again a practical experience due to the desire not to waste square footage on a hallway, but experientially, it gives the user the experience of changing from one environment to another with being immediately immersed in either. Think of it as cleansing one's palate between meal courses. Inside the lobby, the finishes change and the space opens up to be more inviting. Here, the experience is one of arrival. The environment is different, as are the sights and sounds. There are physical boundaries to stop further movement into the center without permission, but connection is still allowed through windows into classrooms. These windows are presented at the same floor elevation rather than raised. Places to sit close to the windows are provided, inviting residents to come close and see the babies being rocked or fed, and the small toddlers as they explore their environments in a more mobile fashion. Being close to children but with a physical barrier [the glass] allows the interaction without direct contact which may be more inviting that being 'in the fray'.

In considering the windows as experiential boundaries, Jolie, the HICDC director, said that “the elders, by themselves or with a family member, sometimes sit in front of the observation windows of the toddler or infant rooms and watch the kids for a little while.” However, Cora, the teacher of the toddlers’ classroom supported Limón’s design decision of having the opportunity available for elders to view children while maintaining a physical boundary and said: “The observation windows allow the elders to see into our world without the toddlers knowing they’re being watched. It’s different interaction because sometimes toddlers stop what they’re doing if someone is watching them.” Limón asserted that the next and final level of interaction in this section of the building is its capacity to function as a bridge when the elders decided to enter the classrooms of HICDC. He said:

> Finally, with invitation, residents may move into the classroom environment of their choice interacting directly with the teachers and children. Here, there are no physical barriers to restrict their actions. The experience changes from observer to interactionist. In fact, they become the observed themselves as other residents that are outside peering in now see how interaction between children and residents may happen.

In regard to joining the classrooms, Alex said: “For us, we interact with them. But it’s not enough sometimes, so we found ourselves asking for permission to go inside the rooms and we got the permission.” Larry, one of the elders who resides at the Villa also said: “Not everyone is as devoted as I am with the children. I work with the life enrichment group, so I like meeting the kids in different places so I can be involved, you know. I go to the classrooms and help the teachers sometimes.” Cora also talked about the elders who like to volunteer and help in the classroom, and continued by saying:

> Some of the elders come to the door and watch for a while. I think that for me over here, I like our glass doors, but I like those barn doors, you know, that you can open the top and see in and also interact. Sometimes I wish we had those.

In changing focus from the elders to the children Limón also talked about the function of the windows as presenting opportunities for children to watch other children or elders at HICDC (see Figure 4.27 and 4.28). On the subject of the windows, he said:

> For children, in all our facilities we make sure and provide low windows to adjacent classrooms so that each set of children have the opportunity to see what the next development group is engaged in. Younger, non-walking toddlers, for example, have the opportunity to see the walking toddler group in their classroom. This gives this the idea that walking is the next step in their world engagement. Also, young children engage the adults in their life through visual clues. So, by providing windows into the adults' world, they have the opportunity to engage and draw themselves and those adults into their world.

Figure 4.26 Windows between classrooms

Similar to her appeal about other boundaries, Cora also mentioned the windows between the rooms (see Figure 4.26) and said:

> For room to room, we have windows as well. And I wish there was some way that we could have... you know...because the kids can see... They want to talk to you, to each other, or whoever, or whatever. And it's...you know... through the fish bowl [chuckles] you had some way that you could open it without opening, because my kids, you open the door, will spill out like marbles.

Figure 4.27 Windows into the adults' world from children's classroom

As illustrated in Figure 4.27, the preschool classroom windows that connect the children to the elders' world are operational windows, which allows for more than just visual interaction. Children can open the window and talk to the elders, they can also open the classroom backdoor and invite the elders into the classroom.

Although the boundaries at Hesston Intergenerational Community offer opportunities for different types and levels of interactions between elders and children as well as between children of different ages, the architectural conditions of these boundaries limit the interactions to predescribed connections. Nevertheless, these boundaries support personhood tenets of *ability to experience and express emotions*, *initiation of social contact*, *social sensitivity*, *acceptance of others*, *helpfulness*, and *relaxation* as well as contact theory tenets of *support of authorities*, and *the opportunity for friendship*.

Generations Crossing. At Generations Crossing, boundaries are mostly physical boundaries that were made with the intention of separation. Jeremey, the architect of the building, told me that he designed the intergenerational space with the purpose of connecting the elders and children's sections. However, as mentioned previously in this chapter, the intergenerational space is not being used by either group and as a result, there are very few unplanned interactions between elders and children. All classrooms, including the adults' room have observation windows to the hallway. Susan, one of the preschool teachers indicated that the windows are not very useful because:

> If you want to use the window and actually look in the room, you need to come out to the hallway and the adults never leave their room and the children walk by the windows when we're on our way to the playground and back, but most of our kids are not tall enough to see through the windows.

Ana, the teacher of the two-year-olds, made a similar statement and said:

> I guess the windows are good for watching, but the kids won't be outside [in the hallway] looking inside [the classroom]. But I guess the kids are walking by and the windows were a little lower at the children's eye-level or floor to ceiling and they [the children] could look in and wave and say hello.

Holly, the toddlers' teacher, mentioned the window between the intergenerational room and the adult room as an observation opportunity, however the intergenerational room is not being used for any interaction between elders and children. She said:

> This room is where we get our meals together when our meals are delivered; the window between the kitchen and the IG room gives them a place to put the meals together in the IG room and then serve them to the adult room. But basically right now the IG room is just a room, a really really large room with tables. So the only difference between that room and other rooms is that it is large and it has a TV, so there is really nothing to observe.

Lola, the executive director, talked about the reason for having the kitchen next to the adults' room and said:

> You know, you come across a smell and it reminds you of your childhood and you're like '[gasp] Where did that go?' You know, it takes you back to that place. So…and a lot of our adults because they have cognitive issues, they remember their childhood and they remember, you know, a lot of their time growing up. It's what happened yesterday they don't remember. So

> being able to take them back there is a great thing and I think I see a lot of benefit in that.

The placement of the kitchen next to the adults' room offers multisensory experiences as it presents convenient opportunities for adults to be involved in cooking projects. On a similar note, other multisensory interactions could happen on outdoor playgrounds. Although there are two separate outdoor spaces for elders and children, Generations Crossing offers opportunities for elders to spend time in the children's playground. There are multiple benches set around the children's playground for elders to sit and watch the children's play (see Figure 4.28 A and B). About the outdoor play space, Lola said:

> there are times that the adults – on a nice day – will go sit out back and watch the kids play and to me, I mean, that's…that's seeing maybe, you know, maybe it would take them back to their own children playing outside.

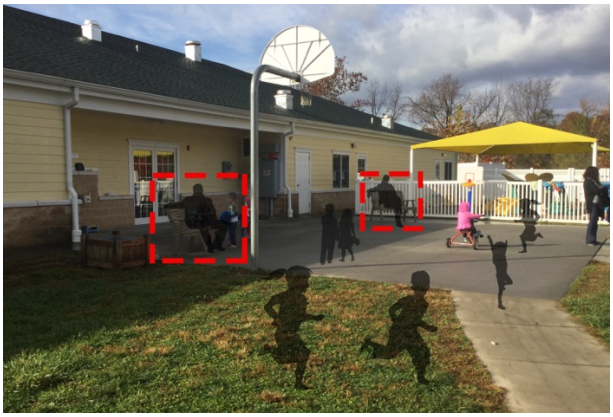

Figure 4.28.A Benches close to the building for elders watching children on the playground

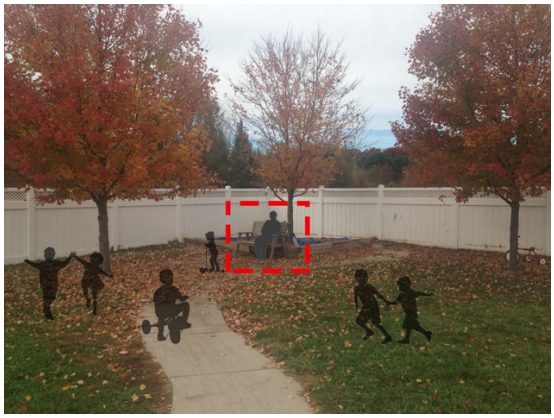

Figure 4.28.B Bench on the North side of the playground

Whilst the boundaries mentioned above were designed to connect elders and children of the Generations Crossing, other contributing factors such as the way the spaces are used do not abnegate the intended effect of these boundaries. As a result, there are almost no indications of connection to personhood or contact theory.

In this chapter, I analyzed specific architectural conditions of each facility in relation to tenets of personhood and/or contact theory, if there are any limitations to these conditions, and if the limitations are due to a design flaw or other shortcomings.

I used phenomenological description to present my experience of each place while I walked through the building and analyzed the architectural conditions that did or did not support the tents of personhood and/or contact theory. The behavior/observation mapping illustrated the type of interaction and social behavior taking place within the built environment of each facility. While observing and mapping the social behavior of each place, I also noted the qualities of each space that contributed to and allowed for different types of intergenerational interaction. The interviews' transcription, coding and categorizing resulted in four main categories: accessibility, acoustics, atmosphere, and boundaries.

The analysis of the my experience of each facility, the behavior and social interactions that took place in each facility, and the emergent categories of interviews presented a connection to the tenets of personhood and contact theory that led to a construct that I present in chapter 5.

CHAPTER 5
INTERPRETATION AND DISCUSSION

The consideration of personhood and contact theory tenets, while collecting data through phenomenological description, behavior/observation mapping and the interviews, are presented as a construct in Figure 5.1. Following this construct, I reviewed the data to highlight the quality of the spaces that support the highest number of theoretical tenets. I first created a list of the theoretical tenets that could be supported by the spaces I observed while conducting a phenomenological description of the place. Then, I followed the same process and reviewed the results on behavior/observation maps and interviews.

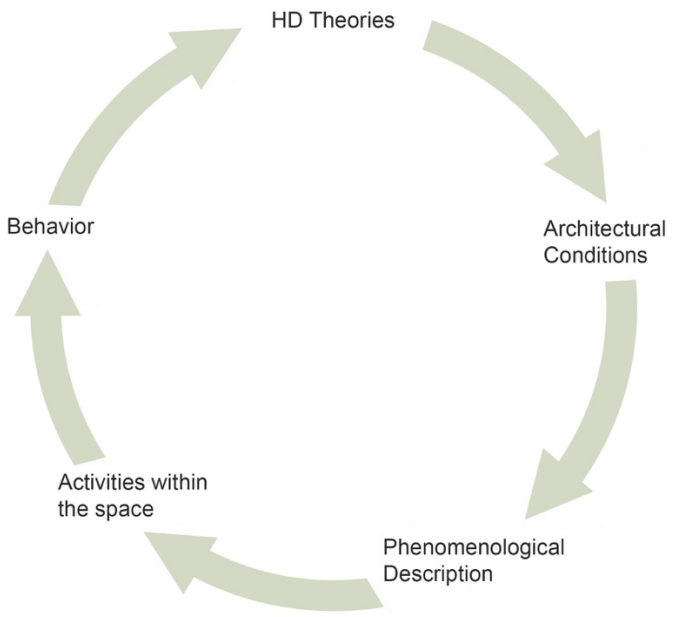

Figure 5.1 Model based on data collection process

5.1 THEORETICAL TENETS SUPPORTED BY ARCHITECTURAL DESIGN

5.1.1 Phenomenological Description and Theoretical Tenets

First, I began by summarizing the qualities of each facility that supported the greatest number of theoretical tenets—either of personhood theory or contact theory (see also Chapter 4, Section 4.2.4).

Seagull School

- Preschool classrooms have view of elders walking paths
    - Personhood tenet: Initiation of contact
    - Contact theory tenet: Opportunity for friendship
- ADC view of the pavilion
    - Personhood tenet: Initiation of contact
    - Contact theory tenet: Opportunity for friendship
- ADC view of the toddler playground
    - Personhood tenet: Acceptance of others
    - Contact theory tenet: Intergroup cooperation

Hesston Intergenerational Community

- Director's office and receptionist's desk in the lobby
    - Contact theory tenet: Support of authorities
- Observation windows from the lobby to infant and toddler rooms
    - Personhood tenet: Assertion of desire or will
    - Personhood tenet: Affectional warmth
    - Personhood tenet: Relaxation
    - Contact theory tenet: Support of authorities
- Interactive windows from Main Street to intergenerational space
    - Contact theory tenet: Equal group status

Generations Crossing

- Intergenerational space is on the path (negative point)
- Kitchen placement between adults' room and intergenerational space
    - Personhood tenet: Helpfulness
    - Personhood tenet: Initiation of contact
    - Personhood tenet: Relaxation
    - Personhood tenet: Acceptance of others
    - Contact theory tenet: Intergroup cooperation

    - Contact theory tenet: Opportunity for friendship
- Every room has an observation window to the hallway, but the windows are too high up from the ground for children to see through them.

5.1.2 Behavior/Observation Mapping and Theoretical Tenets

Following the phenomenological description, I then created a set of tables, one for each of the facilities studied for this dissertation, to illustrate the connection between the behavior/observation mapping and theoretical tenets. These tables (see Tables 5.1., 5.2, and 5.3) are presented in the next three pages. Below is the key related to Tables 5.1., 5.2, and 5.3.

Key for Table 5.1-5.3
Interactive intergenerational *
Parallel intergenerational +
Interactive peer ○
Parallel peer □
Interaction with staff X
Watching ●
Solitary activities such as sitting, reading, or eating ●

Table 5.1 The Seagull School's behavioral mapping and theoretical tenets' relationships

Seagull School					
Behavior	Planned/ Spontaneous	Interaction	Place	Architectural Conditions	Theoretical Tenets
Children visiting elders	Spontaneous	*	ADC I	Large Interactive Windows Adjacent to Children's Playground Adjacent to the IG space	**Personhood Theory:** Assertion of desire or will acceptance of others Affectional Warmth **Contact Theory:** Equal group status Support of authorities The opportunity for friendship
Elders watching children	Spontaneous	●	Pavilion	Adjacent to ADC I & II Adjacent to Children's Playground Covered Outdoor space—No Walls	**Personhood Theory**: Assertion of desire or will Acceptance of others **Contact Theory:** Support of authorities
Elders Visiting Children	Spontaneous	*	Classroom	Adjacent to Elders' path for daily walks Classroom doors are always open for air circulation	**Personhood Theory:** Assertion of desire or will Acceptance of others Affectional Warmth **Contact Theory:** Support of authorities The opportunity for friendship
One-on-One (Reading)	Spontaneous	*	Pavilion	Adjacent to ADC I & II Adjacent to Children's Playground Covered Outdoor space—No Walls (Elders on the pavilion and children in the playground can see one another and decide to interact)	**Personhood Theory:** Helpfulness Acceptance of others Affectional Warmth **Contact Theory:** Support of authorities The opportunity for friendship Intergroup cooperation
Small group interaction	Planned		Pavilion	Big, Open Space—Allow for multiple small group activities at the same time Covered Outdoor space—No Walls Adjacent to ADC I & II—Allows for elder to join or leave the activity as they desire	**Personhood Theory:** Acceptance of others Creativity and self-expression Helpfulness Acceptance of others **Contact Theory:** Support of authorities The opportunity for friendship
Large group interaction	Planned		Pavilion	Big, Open Space—Allow for multiple small group activities at the same time Covered Outdoor space—No Walls Adjacent to ADC I & II—Allows for elder to join or leave the activity as they desire	**Personhood Theory:** Assertion of desire or will Acceptance of others **Contact Theory:** Support of authorities Equal group status The opportunity for friendship Common goals of intergroup contact

Table 5.2 The Hesston Intergenerational Community's behavioral mapping and theoretical tenets' relationships

Hesston Intergenerational Community					
Behavior	Planned/ Spontaneous	Interaction	Place	Architectural Conditions	Theoretical Tenets
Elders watching children	Spontaneous		IG Space	Large Interactive Windows Multiple Observation Windows	**Personhood Theory:** Assertion of desire or will acceptance of others **Contact Theory:** Support of authorities
Multiple Small group interactions Simultaneously	Planned		IG Space	Large, Flexible, Open space Large Interactive Windows Multiple Observation Windows View of Outdoors *Too far away from Elders' space*	**Personhood Theory**: Acceptance of others Creativity and self-expression, Showing evident pleasure Helpfulness **Contact Theory:** Support of authorities Equal group status The opportunity for friendship Common goals of intergroup contact
Small group interaction (Baking)	Planned		IG Space	Large, Flexible, Open space Kitchenette	**Personhood Theory:** Helpfulness Acceptance of others **Contact Theory:** Support of authorities Equal group status The opportunity for friendship Common goals of intergroup contact
Multiple Small group interactions Simultaneously	Planned		Living Room	Home-like setting Adjacent to Elders' private rooms	**Personhood Theory:** Helpfulness Assertion of desire or will Social Sensitivity Self Respect Affectional Warmth Acceptance of others **Contact Theory:** Support of authorities The opportunity for friendship
Elders watching children	Spontaneous		Main Street	*Large Interactive Interior Windows (In a Circulation Path)* Large Interactive Windows- Facing children's playground	**Personhood Theory:** Assertion of desire or will Initiation of social contact Self expression Relaxation **Contact Theory:** Support of authorities
Elders watching children	Spontaneous		HICDC Lobby	*Observation Windows to IG Space—Standing* *Interactive Windows to IG Space —Standing* *Past a ramp that connects Main Street to HICDC* Observation Windows to Infant Room—Comfortable chair Observation Windows to Toddler Room—Comfortable chair	**Personhood Theory:** Assertion of desire or will Initiation of social contact Self expression Relaxation **Contact Theory:** Support of authorities The opportunity for friendship

Table 5.3 The Generations Crossing's behavioral mapping and theoretical tenets' relationships

Generations Crossing					
Behavior	Planned/ Spontaneous	Interaction	Place	Architectural Conditions	Theoretical Tenets
Staff Reading for Elders and Children	Planned	* X ●	Adults' room	In Elder's space Home-like setting	**Personhood Theory:** Assertion of desire or will acceptance of others Affectional Warmth **Contact Theory:** Equal group status Support of authorities The opportunity for friendship
N/A	N/A		IG Space	In the path Loud	N/A

5.1.3 Interviews and Theoretical Tenets

After comparing the relationship between theoretical tenets and behavior mapping, I reviewed all the codes that emerged from the interviews. This was done in order to finalize the categories and their definitions to connect respondents' comments to theoretical tenets of personhood and contact theory. I made a list of the points that were mentioned by more than two people under each category and at each facility. Based on the stories told by the respondents, I then went through each statement and connected that statement to theoretical tenets.

Seagull School

- Accessibility
    - The size of the classrooms and intergenerational space
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Initiation of contact
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Equal group status
        - Contact theory tenet: Opportunity for friendship
    - The width of the doorways
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Initiation of contact
        - Contact theory tenet: Equal group status
        - Contact theory tenet: Opportunity for friendship
    - The slope of the ramp
        - Personhood tenet: Initiation of social contact
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Ability to experience and express emotion
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship
- Acoustics
    - Individual buildings
        - Personhood tenet: Social sensitivity
    - Open and flexible outdoor space
        - Personhood tenet: Social sensitivity
- Atmosphere

    - Village setting: natural places to stop and interact
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Creativity and self expression
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Ability to experience and express emotion
        - Contact theory tenet: Opportunity for friendship
    - Inviting and comfortable
        - Personhood tenet: Relaxation
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Creativity and self expression
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Ability to experience and express emotion
        - Contact theory tenet: Intergroup cooperation
        - Contact theory tenet: Opportunity for friendship
        - Contact theory tenet: Support of authorities
    - Bright and spacious
        - Personhood tenet: Ability to experience and express emotion
        - Personhood tenet: Relaxation
        - Personhood tenet: Self respect
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Creativity and self expression
        - Personhood tenet: Helpfulness
        - Personhood tenet: Relaxation
        - Contact theory tenet: Opportunity for friendship
    - Safe and playful
        - Personhood tenet: Relaxation
        - Personhood tenet: Creativity and self expression
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Ability to experience and express emotion
        - Contact theory tenet: Intergroup cooperation
        - Contact theory tenet: Opportunity for friendship
        - Contact theory tenet: Support of authorities
- Boundary
    - Courtyard for separation
        - Personhood tenet: Relaxation
        - Personhood tenet: Self respect
    - Porch for connection
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Acceptance of others

        - Personhood tenet: Social sensitivity
        - Personhood tenet: Relaxation
        - Contact theory tenet: Intergroup cooperation
        - Contact theory tenet: Opportunity for friendship
    - Pavilion: heart of the center
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Ability to experience and express emotion
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Relaxation
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship
        - Contact theory tenet: Equal group status

Hesston Intergenerational Community

- Accessibility
    - The size of the classrooms and intergenerational space should be large enough for multiple wheelchairs and walkers
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Acceptance of others
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship
    - More than one intergenerational space
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship
    - The slope of the ramps
        - Personhood tenet: Initiation of social contact
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Acceptance of others
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship
    - Minimum distance traveled by elders to reach the intergenerational space
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Acceptance of others
        - Contact theory tenet: Support of authorities
    - Centrally located intergenerational space
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship

        - Contact theory tenet: Equal group status
    - Most people prefer to meet at the Villa for intergenerational activities
- Acoustics
    - Privacy for elders to have a private conversation with their loved ones
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Relaxation
        - Personhood tenet: Self-respect
- Atmosphere
    - Comfortable furniture
    - Inviting places for observation windows
        - Personhood tenet: Initiation of social contact
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Relaxation
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship
    - Secured outdoor and indoor spaces for elders
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Ability to experience and express emotion
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship
    - Natural light through skylight
    - Design the intergenerational facility as if designing for a family
        - Personhood tenet: Relaxation
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Affectional warmth
        - Personhood tenet: Creativity and self expression
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Ability to experience and express emotion
        - Contact theory tenet: Intergroup cooperation
        - Contact theory tenet: Opportunity for friendship
        - Contact theory tenet: Support of authorities
- Boundary
    - Main Street/Intergenerational Space: interactive windows at the end of Main Street
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Initiation of social contact
        - Personhood tenet: Relaxation
        - Contact theory tenet: Support of authorities

    - Lobby
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Initiation of social contact
        - Personhood tenet: Affectional warmth
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Relaxation
        - Contact theory tenet: Equal group status
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship

Generations Crossing

- Accessibility
    - Easier for elders to stay in their room
    - The size of the classrooms
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Acceptance of others
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship
    - The need for both children's and adult's bathrooms
    - Shelves and cabinets at the right height for elders and children
- Acoustics
    - Wood Structure
    - In the adults' room: TV, people snoring,
    - Single generation issues: younger children napping while older children need to play and be loud
        - Personhood tenet: Relaxation
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Acceptance of others
        - Contact theory tenet: Equal group status
    - Intergenerational space needs to be sound-proofed
        - Personhood tenet: Acceptance of others
    - Multi-generation issues: elders might be bothered by the sound of children crying; elders might be taking a nap while children are being playful and loud
    - Observation windows should have a way of audio connection
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Affectional warmth

        - Personhood tenet: Creativity and self expression
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Ability to experience and express emotion
        - Contact theory tenet: Support of authorities
        - Contact theory tenet: Opportunity for friendship
    - All the classrooms should have a way of separating for quiet time
- Atmosphere
    - More home-like and warm spaces, warmer paint
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Affectional warmth
        - Personhood tenet: Relaxation
        - Personhood tenet: Initiation of contact
    - Floor to ceiling windows
        - Personhood tenet: Acceptance of others
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Social sensitivity
        - Personhood tenet: Ability to experience and express emotion
    - Artificial lighting that is closer to daylight
    - Private spaces for elders
        - Personhood tenet: Relaxation
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Self expression
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Ability to experience and express emotion
- Boundary
    - Observation windows
        - Personhood tenet: Relaxation
        - Personhood tenet: Acceptance of others
    - Kitchen adjacent to the adults' room
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Self expression
        - Personhood tenet: Ability to experience and express emotion
    - Outside benches for elders in the children's playground
        - Personhood tenet: Relaxation
        - Personhood tenet: Assertion of desire or will
        - Personhood tenet: Self expression
        - Personhood tenet: Initiation of contact
        - Personhood tenet: Ability to experience and express emotion

This process underlined spaces that support the highest number of tenets by offering opportunities for personal control, privacy, and at times multisensory experiences through supporting phenomenological topology of accessibility, acoustic, atmosphere, and boundary.

5.2 PHENOMENOLOGICAL TOPOLOGY

5.2.1 Accessibility.

The main architectural conditions related to accessibility were *ease of use* so the elders could move around the building with minimum help, *spacious* rooms used by both elders and children as well as the width of doors to allow elders with walkers and wheelchairs to use different spaces within the building, and *adjacency* so the intergenerational space is centrally located between the elders and children's space. These conditions and their connection to the space and theories are presented in Table 5.4. Based on the data collected for this study, the architectural conditions of the spaces that offer accessibility to people of all ages and abilities should be safe, flexible, receptive, and large with close proximity to both elders and children's sections of the building. Despite a building meeting ADA requirements, individuals felt the comfort level of elders being able to move in the spaces did not allow for personal control. It is important for this space to offer personal control and a place off of a main path for the users to stop and engage in the intended activity. This type of accessibility allows for elders' and possibly children's choice and personal control over the places they want to be within the facility which lines up with personhood theory and its instruction on the awareness of not only the ability and capabilities of each person, but also the importance of their individuality and quality of interaction.

These condition, to a certain extent, are covered in Universal Design as it focuses on user-aware design by pushing the boundaries of ADA accessible environments to include as many people as possible, and create customizable design to minimize the difficulties of adaptation for particular users such as elders and children (National Disability Authority, 2012). Universal Design suggests for (1) equitable use to provide the same means of use for all users, avoid segregation, and provide privacy, security, and safety to all; (2) flexibility in use to provide choice in method of use, and adaptability to the user's pace and ability; and (3) size and space for approach and use to provide a clear line of sight to important elements and reach to all components comfortable for any seated or

standing user, and to afford adequate space for all users with assistive devices or personal assistance (National Disability Authority, 2012).

Table 5.4 The tenets of personhood and contact theory supported by accessibility

Phenomenological Topology	Architectural Condition	IG Opportunities	Theoretical Tenets	Personhood Tenets Related to	
				Elder	Children
ACCESSIBILITY	**Ease of use** (Grading of a ramp)	Personal Control—ability to move around the facility without depending on staff which could lead to intergenerational connections such as: spontaneous interaction with children, volunteering in preschool classrooms	**Personhood Theory:** Relaxation Initiation of social contact Helpfulness Acceptance of others **Contact Theory:** Intergroup cooperation Support of authorities Opportunity for friendship	Relaxation Initiation of social contact Helpfulness	Relaxation Initiation of social contact Helpfulness *Acceptance of others*
	Spacious (larger classrooms & IG space; Wider doorways)		**Personhood Theory:** Initiation of social contact Helpfulness Acceptance of others **Contact Theory:** Equal group status Opportunity for friendship	Initiation of social contact Helpfulness	Initiation of social contact Helpfulness *Acceptance of others*
	Adjacency (Adjacency of IG space to elders' space and children's space—easy access)		**Personhood Theory:** Assertion of desire or will Initiation of contact Affectional warmth Helpfulness **Contact Theory:** Support of authorities Common goals Opportunity for friendship	Initiation of social contact Helpfulness	Initiation of social contact Helpfulness *Acceptance of others*

In an attempt to define which personhood tenets are specifically related to elders and which to children, I created the last column of table 5.4. However, I believe these tenets are often really the need for both generations. The only distinction that I might be able to point out is *acceptance of others* as a developmental need for children, hoping that adults have already achieved this tenet.

5.2.2 Acoustics

There are three main architectural conditions related to acoustics (shown in Table 5.5). The first one is *privacy* to provide opportunities for single generation activities such as younger children napping while older children playing or some elders watching television while others read a book. The second one is *passive* conditions that offer personal control over auditory connections to the surrounding environment such as the ability to open a window to hear the birds, feel the breath, or interact with children playing in the playground. The third condition is active that provide opportunities for different group size of intergenerational interaction.

Architectural acoustics was mentioned by the respondents as creating both positive and negative conditions. Elders, teachers, and caregivers talked about desirable sounds (e.g. birds singing, sound of the waterfall, or children playing in the playground) as positive conditions. However, they like to have control over when and for how long to hear these sounds. Negative conditions were mentioned in regard to providing privacy for single generation activities. One example of an acoustical problem was mentioned in regard to the intersection of the infants' and toddlers' rooms at Generations Crossing. Although the porosity of a boundary might encourage intergenerational connections, it was problematic between these two classrooms. These issues are examples that suggest architectural acoustics should influence the division of interior space and when addressed early in the design process, as they could result in spaces free of unwanted sounds.

Ermann (2015) suggests massive, airtight, and structurally discontinuous building elements for the best performance in providing higher acoustical privacy. Architectural acoustics is a three dimensional study of loudness, frequency and time that must be evaluated simultaneously. Ermann advocates to consider sound movement in a "Cartesian space, in real rooms, and through planes that typically don't precisely align with section and plan cuts" (2015, p. xiii). In regard to this study, architectural conditions whether permeable or impervious should be flexible in order to offer privacy, control over the use of space for quiet or loud activities, and choice of enjoying different sounds

Table 5.5. The tenets of personhood and contact theory supported by acoustics

Phenomenological Topology	Architectural Condition	IG Opportunities	Theoretical Tenets	Personhood Tenets Related to	
				Elders	Children
ACOUSTICS	**Privacy**	Privacy—for single generation activities	**Personhood Theory:** Relaxation Social Sensitivity Acceptance of others Assertion of desire or will **Contact Theory:** Equal group status	Relaxation Social Sensitivity Acceptance of others *Assertion of desire or will*	Relaxation Social Sensitivity Acceptance of others
	Passive	Personal Control over auditory connection to the surrounding environment	**Personhood Theory:** Relaxation Social Sensitivity Acceptance of others Initiation of social contact Assertion of desire or will Showing evident pleasure **Contact Theory:** Equal group status Opportunity for friendship	Relaxation Social Sensitivity Acceptance of others Initiation of social contact *Assertion of desire or will* Showing evident pleasure	Relaxation Social Sensitivity Acceptance of others Initiation of social contact Showing evident pleasure
	Active	Interaction in different sizes of IG groups	**Personhood Theory:** Relaxation Social Sensitivity Acceptance of others Assertion of desire or will **Contact Theory:** Equal group status Opportunity for friendship Support of Authorities	Relaxation Social Sensitivity *Assertion of desire or will*	Relaxation Social Sensitivity *Acceptance of others*

Similar to personhood tenets that support accessibility, the personhood tenets supportive of acoustics are mostly shared between children and elders. The only distinction that I might be able to point out is *assertion of desire or will* as some of the older elderly might not be very comfortable to state their needs or desires.

5.2.3 Atmosphere

The main architectural condition related to atmosphere is *home-like* (shown in Table 5.6). A home-like environment offers different sized spaces with various lighting conditions, use of warm colors and comfortable furniture settings that would make the users and occupants feel at ease to get involved with different levels and types of intergenerational interaction. The word 'institutionalized' was used to describe spaces with fluorescent lighting and laminate flooring, where tables and chairs were set similar to a cafeteria or a diner not a home.

Although architectural atmosphere might not have a concrete definition (Havik, et al., 2013), it can be recognized. Buildings shape human experiences and impact their innate sense of place by offering opportunities to make new memories or connect with the old ones (Zumthor, 2006). The collected data of this study highlighted the idea of atmosphere in relation to how its unique characteristics can create meaning for the occupants by providing multiple sources of natural light, connection to various secure indoor and outdoor spaces, and offer multipurpose, comfortable spaces for different types of interactions. Although the recognition of atmosphere can be influenced by a person's perception and past experiences, certain criteria of a space can be identified by everyone. For example, most respondents suggested that built-in flexibility that enables elders and children different opportunities for choice, decision-making, and personalization in their spaces as well as access to daylight contributes to positive intergenerational interaction as well as connection between the users and the designed space. In regard to this study, the architectural conditions that support the requirements presented in the data are comfortable, secure, engaging spaces that connect to other spaces (indoor and outdoor) of the place, that offer secure access to various locales within the building, and that allow for different types and levels of intergenerational interactions.

Table 5.6 The tenets of personhood and contact theory supported by atmosphere

Phenomenological Topology	Architectural Condition	IG Opportunities	Theoretical Tenets	Personhood Tenets Related to	
				Elders	Children
ATMOSPHERE	**Home-like** (Design for a family)	Home like environment support different levels and types of intergenerational interactions. None-home like environments might limit or discourage contact.	**Personhood Theory:** Relaxation Initiation of social contact Acceptance of others Assertion of desire or will Ability to experience and express range of emotions Affectional warmth **Contact Theory:** Intergroup cooperation Support of authorities Opportunity for friendship	Relaxation Initiation of social contact Assertion of desire or will Ability to experience and express range of emotions Affectional warmth	Relaxation Initiation of social contact Acceptance of others Ability to experience and express range of emotions Affectional warmth

Similar to the last two phenomenological topologies, the tenets of personhood that are supportive of *Atmosphere* are shared between elders and children. The only distinctions are (1) *acceptance of others* as a developmental need for children, and (2) *assertion of desire or will* as some of the older elderly might not be very comfortable to state their needs or desire due to their culture and /or upbringing.

5.2.4 Boundary

The definition of boundary throughout this study has been both physical (traditional architectural conditions) and experiential (traditional architectural conditions that support social intergenerational connections). The main architectural conditions related to boundary are *transparent*, *semi-transparent*, *permeable*, and *impermeable* (shown in Table 5.7). While the dictionary indicates that impermeable is the opposite of permeable and semi-transparent is the absence of transparency, implying that one condition is desirable and the other undesirable, I describe each of these architectural conditions as having their place within the intergenerational environment. Impermeable boundaries separate the building from its surrounding environment and separate the interior spaces from one another to offer privacy and personal control by offering individual spaces for different age groups. Transparent boundaries offer opportunities for elders and children to observe and be observed so they only offer visual connections. Semi-transparent boundaries offer multisensory connections of visual, audial, and touch. Permeable boundaries (similar to semi-transparent) boundaries offer multisensory connections with the difference that permeable boundaries allow for personal control of the individuals in what level of interaction they choose to have.

The data collected for this study presented boundary as a means to offer privacy as well as personal control of changing the condition of that boundary (e.g. opening the window between children's classrooms or dividing a space with movable walls). It also presented boundary in terms of providing different types and levels of intergenerational interactions such as watching, listening, and touching through one-one-one, small groups and large group activities. Boundary was also mentioned in providing multisensory experiences not only in connecting elders and children but also by creating opportunities that empower elders and children to access outdoor spaces and connect with nature and/or connecting elders and children through activities such as cooking and making pottery. The architectural conditions of these boundaries are porous but flexible to promote privacy and personal control and offer different types and levels of multisensory, single generation as well as intergenerational interactions.

Table 5.7 The tenets of personhood and contact theory supported by boundary

Phenomenological Topology	Architectural Condition	IG Opportunities	Theoretical Tenets	Personhood Tenets Related to	
				Elders	Children
BOUNDARY	**Impermeable**	Privacy & Personal Control—Promote safety and empower elders and children to access available spaces within the building	**Personhood Theory:** Relaxation Initiation of Contact Self expression Assertion of desire or will **Contact Theory:** Support of authorities Opportunity for friendship	Relaxation *Initiation of Contact* Self expression *Assertion of desire or will*	Relaxation Self expression
	Transparent	Observe and be observed	**Personhood Theory:** Affectional warmth Relaxation **Contact Theory:** Support of authorities Equal group status	Affectional warmth Relaxation	Affectional warmth Relaxation
	Semi-transparent	Multisensory (visual, audial, and touch)	**Personhood Theory:** Acceptance of others Relaxation **Contact Theory:** Intergroup cooperation	Relaxation	*Acceptance of others* Relaxation
	Permeable	Visual connection with the choice of higher level of interaction (audial, touch)	**Personhood Theory:** Initiation of contact Affectional warmth Acceptance of others Assertion of desire or will **Contact Theory:** Opportunity for friendship Support of authorities Equal group status	Initiation of contact Affectional warmth *Assertion of desire or will*	Initiation of contact Affectional warmth *Acceptance of others*

In relation to to impermeable boundaries, in addition to *assertion of desire or will, initiation of contact* could be more specific to elders as children will most likely not be able to leave their environment without the support of authorities. The other tenets are related to both elders and children.

Through the review of the findings connected to the theoretical tenets, four phenomenological topologies emerged. The above descriptions of the four phenomenological topologies of accessibility, acoustics, atmosphere, and boundary are based on the outcome of the data collected for this study and the overlap of human development theories and architectural phenomenology's literature review, presented in Chapter 2. Findings related to each topology included the architectural conditions of whether rooms are accessible because of ease of use, spacious size, or adjacency to other spaces; whether the acoustics are undesirable or desirable; whether the atmosphere is home-like or institutionalized; and whether the boundaries are impermeable, transparent, semi-transparent, or permeable.

In Chapter 6, I present how these architectural conditions have the potential to influence the design on intergenerational spaces in a way to positively impact intergenerational interactions.

CHAPTER 6
CONTRIBUTIONS AND FUTURE RESEARCH

6.1 SUMMARY OF RESEARCH RESULTS

This chapter presents this study's contribution to the architectural design process, in particular, the design of intergenerational facilities. Presented first is the development and explanation of a novel design model emerging from architecture and human development, *a linear model of architectural design process for intergenerational spaces*. This is followed by an application of the model to a hypothetical scenario. Finally, the limitations, strengths, and future implications of this research are discussed.

6.2 DEVELOPMENT OF A NEW MODEL

Utilizing phenomenological topologies (atmosphere, accessibility, acoustics, and boundary), their architectural conditions, and their influence on design, I propose a new model for architectural design of intergenerational facilities (see Figure 6.1). This model enables architects to design higher quality intergenerational spaces that afford more opportunities for positive intergenerational interaction. The premise of the model rests on the acquisition of knowledge of the tenets of personhood theory and contact theory before proposing architectural conditions to allow for certain types of behavior and interaction between elders and children.

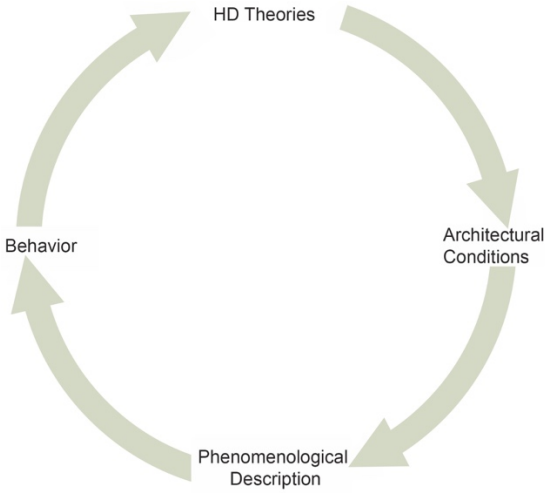

Figure 6.1 Model for architectural design of IG facilities

I shared this model with three practicing architects and asked: “I have created a model to guide the design of intergenerational facilities. If you were hired to design an intergenerational facility, would you find this model useful to inform your design process?” The first participant, an architect with over two decades of experience in the design field and interested in human-centered design, suggested a side-by-side presentation of the usual design process model and my model in order for the architects to know where to plug in each recommended step. Going through the two models with her resulted in the modification of my model.

The American Institute of Architects has documented the different phases of design under the section of quality management for best practices. These phases are (1) pre-design that includes project feasibility, project presentation, pre-contract, project administration, and project programming, (2) site analysis that includes site evaluation, environmental impact report, and permits (3) schematic design, design development, and construction document, (4) bidding or negotiation, (5) construction contract administration, and (6) post-construction services that includes post occupancy evaluations (POE). However, not all of these steps are followed through each design process as different architectural firms adopt these steps based on the philosophy of their firm and mold them to fit different design projects. For example, the architect I was interviewing said that at her firm, the usual physical design processes are project programming, site evaluation, schematic design, design development, construction documents, building construction and POE (see Figure 6.2). Post occupancy evaluation (POE) is in a dotted gray box as this process does not always take place.

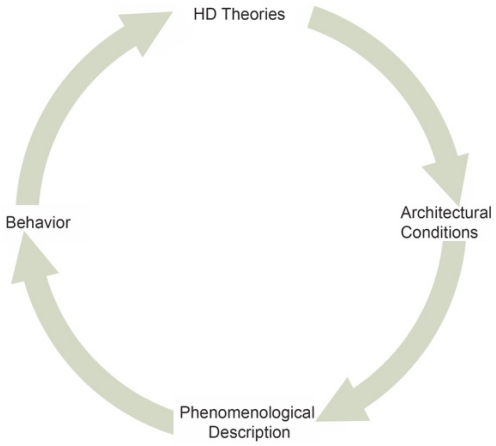

Figure 6.1. Model for architectural design of IG facilities

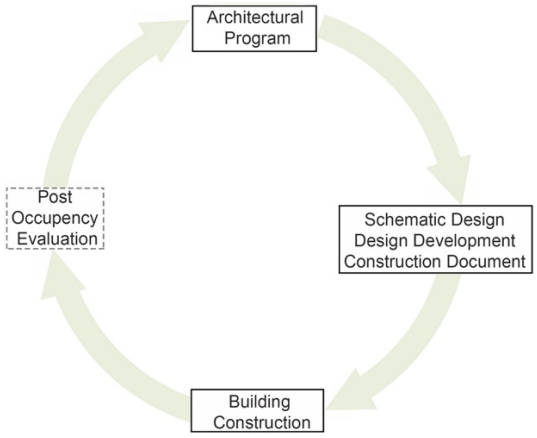

Figure 6.2. Model of original architectural design process

I overlaid the two models (Figures 6.1 and 6.2) and generated a new version of the model presented in Figure 6.3. In this model, the tenets of personhood and contact theory inform the architect of the activities that should take place within the designed spaces (i.e. architectural program), which then inform decisions on the types and levels of intergenerational interaction that would be encouraged in each space. The next step is deciding on architectural phenomenology, through the topologies of accessibility, acoustics, atmosphere, and boundary in this study. The four topologies then lead to design of the architectural conditions, the resulting building construction, and post occupancy evaluation. The circular representation stops at POE as connecting it back to human development theories would suggest that the process leads to redefining the tenets of personhood and contact theory where these tenets are set and should not be influenced by the design process. However, the architects can choose specific tenets to influence the design of their building.

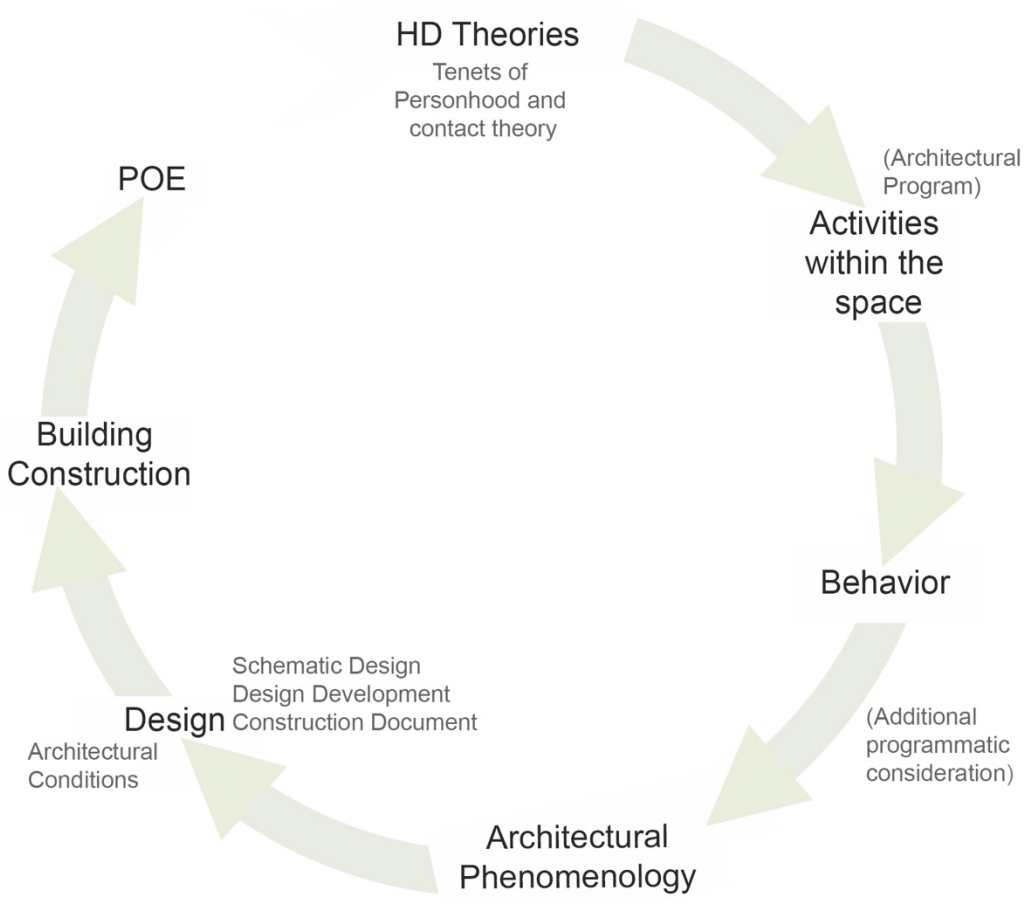

Figure 6.3 Model of architectural design process of IG facilities

I presented the last model, in addition to an example, to the second participant. The second interviewee is a licensed architect in the state of Virginia and works with an architectural firm that specializes in design of senior housing. He found the model very useful and said:

> Based on the architects' design skills and intuition, these steps may or may not be included in the design process but if they are laid out in a model, as you have it here, it will make it easier to include in the design process and it will become as fundamental as including engineers in the preliminary design decisions in order to make sure the design is rich and strong.

He then suggested to make the model linear in the three phases of pre-design, design, and construction. Figure 6.4. illustrates the linear model of the existing architectural design process for design, bid, build.

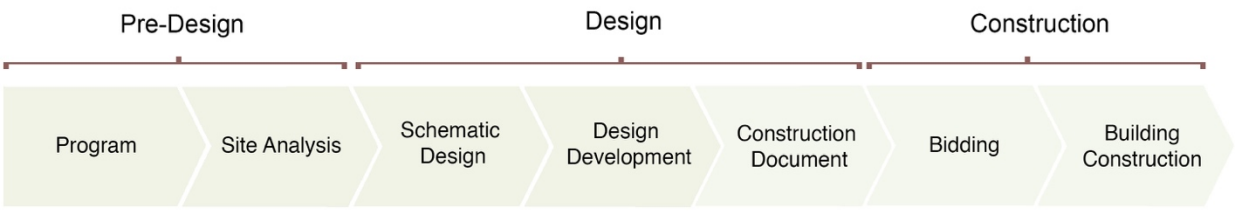

Figure 6.4 Linear model of original architectural design process

I used this model and added the steps that were developed from my data. Figure 6.5 presents *a linear model of architectural design process for intergenerational spaces*. The yellow color in this figure indicate the programmatic and design levels added to the architectural design process that emerged from my study.

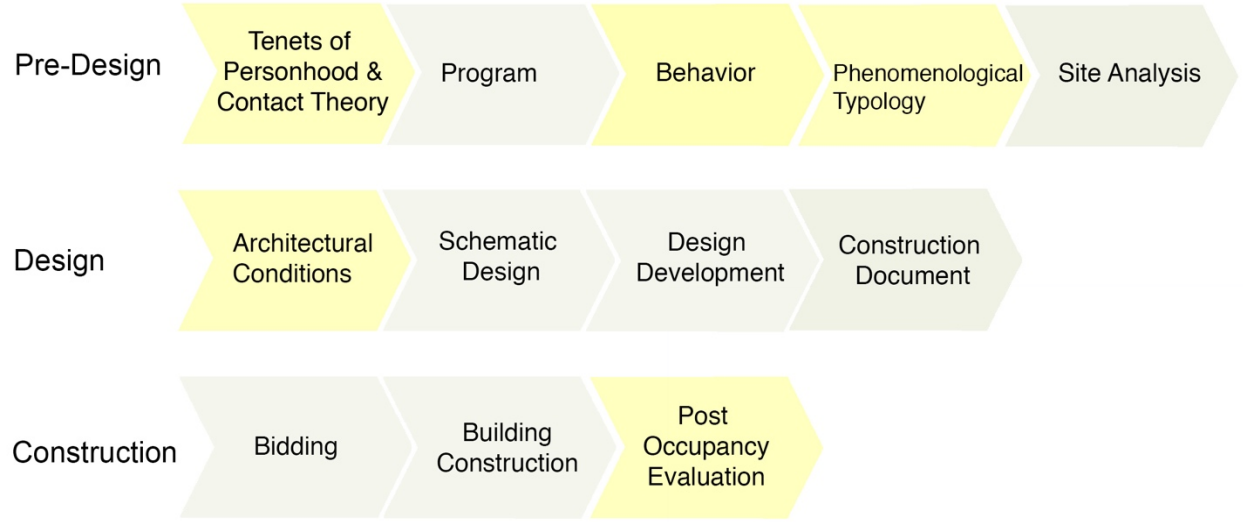

Figure 6.5 A linear model of architectural design process for intergenerational spaces

After creating the general linear model for designing an intergenerational facility, I made the appropriate changes and examined all potential layers and underlying tenets proposed by the research study. After critical examination, I shared the model with the third participant. In addition, I presented the model with the example of the boundary as a phenomenological topology. Figure 6.6 illustrates this application of the linear model of architectural design process of intergenerational facilities to the condition of boundaries.

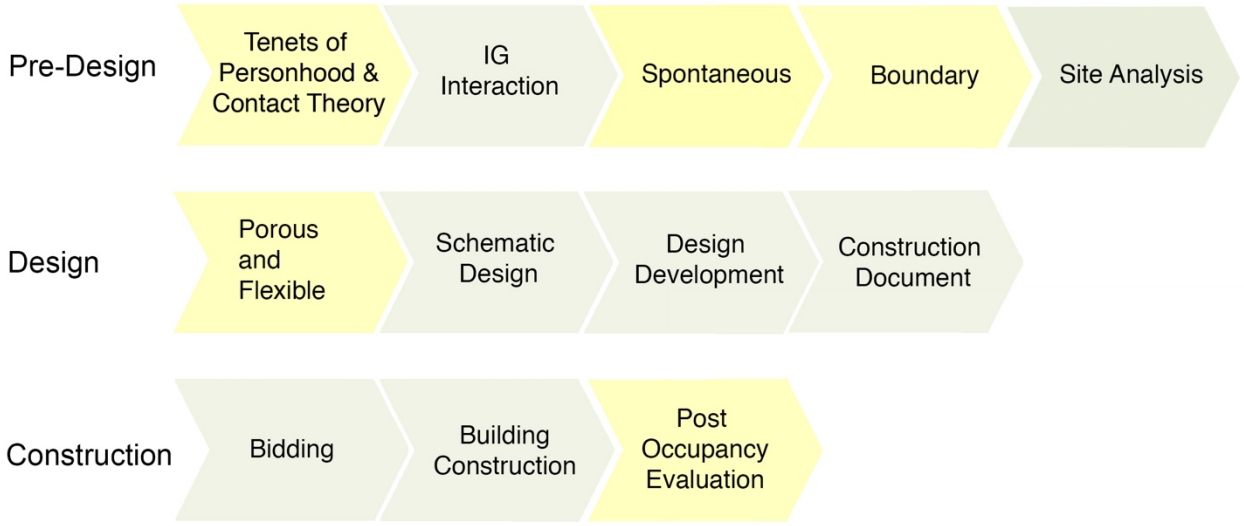

Figure 6.6. Linear model of architectural design process of IG facilities to the condition of boundaries

The third participant was a recent graduate with her master's degree in architectural design and three years of design experience as an architectural intern. Prior to presenting the models to her, I spoke with her over the phone and explained the process of my study up to the development of the linear model. During our meeting, I presented both circular and linear models to her and asked for her thoughts. She appreciated the circular model and said:

> We always hope that the design process would be a circular system and we would go back and check our results with the theories that informed our idea, but unfortunately that hardly happens in the real world. So I think I would vote for the linear model as well. It is more tangible for me. […] I especially appreciate the architectural phenomenology addition. It makes complete sense. Imagine if someone just asks you to design them a living room and you do; but if someone say I want a living room with a cozy spot that I can sit in every morning and look out a window. I also want a fire place close by but I don't want to be too hot. Then you have all these factors that drive your design. You design for those specific experiences not just a room that contains a couch and a TV.

This new model, developed through architectural conditions of phenomenological typologies that support the tenets of personhood and contact theory, is the contribution of this study to the body of knowledge. Not only does this model inform the design of a new facility to serve intergenerational programs, but it also works for remodeling a space,

or help choose between two donated spaces by analyzing existing conditions of each space. The model can also be used to inform the design of environments that serve single generation programs such as preschool, K-12 schools, assisted living facilities, and senior housing. This model is a novel and nuanced method to connect human development theories and architectural design. The next section presents an example application of the model for designing a hypothetical intergenerational facility.

6.3 IMPLEMENTATION OF THE MODEL

An architect is hired to design an intergenerational facility. The architect considers the basic tenets of personhood and contact theory, and decides the tenets of (a) *assertion of desire or will*, *affectional warmth*, and (b) *acceptance of others* from personhood theory, as well as (c) *equal group status*, *support of authorities*, and (d) *opportunity for friendship* from contact theory, as the most influential on the quality of intergenerational interaction (presented in Tables 5.1 through 5.7). These tenets are to provide privacy, personal control, and multisensory spontaneous intergenerational interactive connection as behaviors.

Based on the model, the next step is architectural programming, which should influence the participants' behavior and be developed through phenomenological topology. Following the results of Tables 5.1 and 5.2, the program for the intergenerational facility of this scenario should include (a) spacious, secure, and flexible indoor and outdoor home-like environments with impermeable, soundproof boundaries to support privacy and personal control for elders and possibly children to access different sections of the building; (b) permeable and translucent boundaries to encourage different levels of spontaneous intergenerational interaction; (c) large classrooms so elders with walkers and wheelchairs can easily maneuver around the room; and (d) a centrally located intergenerational space that is easily accessible by the elders. The next and final step before starting the design process (see Figure 6.5) is recommending the architectural conditions that support the tenets for spontaneous intergenerational interactive connection. These architectural conditions are: (a) solid boundaries for privacy, safety

and security; (b) permeable, semi-translucent, and translucent boundaries for multisensory interaction that allow personal control over being the observer or observed; (c) centrally located intergenerational spaces; (d) spacious classrooms and intergenerational space; (e) low-grading ramps; and (f) a connection and secure access to outdoor spaces. At this point, the architect would start the design development and the process will move forward as similar to the original architectural design process.

More specific to this study, it is important to consider a scenario where the theoretical tenets chosen for the project are the tenets presented in the first row of Table 5.1 (shown here as Table 6.1).

Table 6.1 top row of Table 5.1

Behavior	Planned/ Spontaneous	Interaction	Place	Architectural Conditions	Theoretical Tenets
Children visiting elders	Spontaneous	*	ADC I	Large interactive windows Adjacent to children's playground Adjacent to IG space	**Personhood Theory:** Assertion of desire or will Acceptance of others Affectional Warmth **Contact Theory:** Equal group status Support of authorities The opportunity for friendship

These tenets are *assertion of desire or will*, *affectional warmth*, and *acceptance of others* from personhood theory, and *equal group status*, *support of authorities*, and *opportunity for friendship* from contact theory. Following the new model (see Figure 6.6), the next steps are defining the program and behavior.

Table 6.1 presents the program of intergenerational interaction and behavior as spontaneous visits between children and elders. The next step in the new model is identifying the phenomenological description. Spontaneous visits between elders and children requires opportunities for them to access different spaces of the building. In table 4.7 (shown here as Table 6.2). defines boundary as physical indicators that do or do not empower participants to access available spaces. The next step is identifying the architectural condition of boundary.

Table 6.2 Boundary only- from Table 4.7

Categories	Properties, or definition of the category	Subcategories
Boundary	Physical or social indicators of intended or perceived experience of a space.	**Empower (or don't) participants to access available spaces**—Physical features that empower (or don't) participants to access available spaces

Table 5.7 in chapter 5, presents permeability as an architectural condition that affords visual, audial, and touch connection between elders and children (Shown here on Table 6.3). Permeable boundaries allow for intergenerational connection while offering choices of different levels of interaction.

Table 6.3 Boundary, permeable only- from Table 5.7

Phenomenological Typology	Architectural Condition	IG Opportunities	Theoretical Tenets
Boundary	**Permeable**	Visual connection with the choice of higher level of interaction (audial, touch)	**Personhood Theory:** Initiation of contact Affectional warmth Acceptance of others Assertion of desire or will **Contact Theory:** Opportunity for friendship Support of authorities Equal group status

Boundary → **Permeable** →
- Access to available spaces
- Visual Connection
- Audial Connection
- Touch

6.4 LIMITATIONS AND STRENGTHS

One of the main strengths of this study is that I was able to travel and observe the intentional intergenerational facilities, which helped make the data richer in that I was able to utilize observational and interview data. Also each of these facilities are geographically and climatically diverse, which contributed to the diversity of type of spaces serving intergenerational programs. My background as a preschool teacher, senior housing volunteer, as well as my training in architecture made me particularly suited for this project.

One of the limits to this study is the small number of case studies. However, the depth and quality of information from each case was vast and supports rigorous qualitative research. Evidence of this was the ability to reach data saturation using the three case studies. However, more facilities might have led to more architectural conditions based on the monetary budget and a physical site and space restrictions that the buildings must conform to.

This study did not assess demographic characteristics of individual respondents. Demographic characteristics such as race, class, and gender may influence the experience and perceptions of individual within the space. In addition, who I am as an interviewer may have influenced the responses that individuals provided. Moreover, the fact that I was the only person who collected and analyzed the data means that there could be some personal bias in the interpretation of the data. My past experience of 10 years as a preschool teacher, the time I spent volunteering and working with elders in adult day services and senior housing, and my training and knowledge in architecture influencing the way I interpreted and coded the data.

Another limitation was my ability to confirm findings and the theory with the individuals who participated in the study. This was due to funding limitation as I would have need to travel back to each of the facilities and confirm the findings with participants face-to-face.

The fourth limitation is in regard to the Seagull School in Hawaii where I observed the planned intergenerational interaction and created the behavior/observation map on a non-representative day. Generations United international conference was being held in Honolulu during the same week I visited the Seagull School and many of the conference attendees visited the school to observe the intergenerational program. Having a large number of audience might have influenced the behavior of elders, children, and staff.

6.5 CONTRIBUTION TO THE BODY OF KNOWLEDGE

The main contribution of this study to the existing body of knowledge is the development of a model which will evolve through future research. An emergent model that is qualitatively distinct from architecture and human development theories was developed as a result of this study and can be used to inform future research and design practices. Having a distinct model of design for individuals involved in programming, whether architects, program directors, leaders, or participants, to use and reference while planning will lead to a better experience for all involved. This includes intergenerational programing, but expands to any space and program which promote human interaction.

To my knowledge, no other study, empirical or knowledge based, has examined the quality of using human development theories in architectural design. This study contributes to the existing architectural knowledge by presenting the benefit of using human development theories as the foundation of architectural design of intergenerational facilities. The results suggest a change in the design process where the architect designing the intergenerational facility would start by considering the tenets of personhood and contact theory and their influence on the program. By using these theoretical tenets as the guide for architectural program of the intergenerational facilities, the architects create environments that respect the individuality and personhood of the participants and offer them opportunities to connect with one another. This suggests for the architects to have a certain knowledge base in order to be to start the whole process. At this point of time, I suggest for the architects to use this study as a background and to learn about social science theories and literature, such as personhood and contact theory.

In the near future, I will share this information through professional workshops, continuing education courses for practitioners, professional conference presentations for academic or practitioner based conferences, publications for architecture and human development journals, as well as trade publications, and online webinars.

6.1.4.1 Education of an architect.

Another way that I will be sharing this study, is through architectural studio. I will be using this study in teaching studio, to teach the next generation of architects the importance of human development theories. To accomplish teaching this topic, a collaboration between human development professionals and architects needs to occur. With this collaboration, a common language and a common knowledge base in which both sides work from can be developed. The contribution of this study lies in the emergence of a novel method of design, with a different language and a different approach to architecture. The new approach to the design process will automatically affect the programming phase as it offers a different lens for looking at this phase. This new group of architects with different perspective on the design process and architecture could lead to evolution of architecture.

6.6 Future Study

Future steps include using the data to condense the tenets of personhood and contact theory that are essential for interpersonal interaction within a designed space. The incorporation of other developmental theories, such as Ecological Theory (Bronfenbrenner, 1977) could be added to further enrich the data and design model presented in the study. In addition, the concepts and model presented will need to be empirically tested and examined. Included in this I will examine the connections between architectural conditions and theoretical tenets. For example, I will analyze the architectural conditions under boundary, such as permeable and impermeable, and their level of association with the different theoretical tenets. This create a more comprehensive conceptual framework that can be built upon what is presented here.

Another avenue for future research is to understand how the model operates in retrofitting intergenerational spaces or donated facilities. Will the model be applicable for improving

spaces that already exist in addition to building new ones is an important question to consider.

6.7 CONCLUSION

In order to respect the personhood of individuals based on Kitwood's criteria (1997), a building that is designed to serve an intergenerational program needs to offer places for privacy, creativity and self expression, relaxation, different types of social connections where an individual can be approached or approach others for interaction, as well as offering personal control over the time, place, and level of social interactions. For the built environment to support the tenets of contact theory, it needs to provide private and separate spaces for each group, one or multiple shared places that supports positive intergroup interaction between the two groups of elders and children, and spaces that offer opportunities for cooperation and achievement of common goals. This research successfully answered the research questions proposed, in that: (1) the identification and adaptation of human development theories and architectural phenomenology is useful for informing for the extension of normative design for intergenerational facilities and (2) multiple architectural conditions influence an intergenerational space's ability to meet the needs of multiple age groups and facilitates interaction.

REFERENCES

Alexander, C. (1979). *The timeless way of building*. New York: Oxford University Press.

Alexander, C. (1975). *The Oregon experiment*. New York: Oxford University Press.

Alexander, C., Ishikawa, S., & Silverstein, M. (1977). *A pattern language: Towns, buildings, construction*. New York: Oxford University Press.

Allport, G. W. (1954). *The nature of prejudice*. Cambridge, Mass: Addison-Wesley Pub.

Alzheimer Europe. (2013). Personhood. Retrieved from http://www.alzheimer-europe.org/Ethics/Definitions-and-approaches/Other-ethical-principles/Personhood.

Angelis, J. (1992). The genesis of an intergenerational program. *Educational Gerontology*, 18, 317–327.

Arcury, T. A., Quandt, S. A., & Bell, R. A. (2001). Staying healthy: The salience and meaning of health maintenance behaviors among rural older adults in North Carolina. *Social Science & Medicine, 53*(11), 1541-1556. doi:10.1016/S0277-9536(00)00442-1

Arnold-Cathalifaud, M., Thumala, D., Urquiza, A. & Ojeda, A. (2008) Young people's images of old age in Chile: Exploratory research. *Educational Gerontology, 34*(2), 105-123. doi:10.1080/03601270701700359

Ayala, J., Hewson, J., Jones, G., Hartley, D. & Bray, D. (2007). Intergenerational programs: Perspective of service providers in one Canadian city. *Journal of Intergenerational Relationships, 5*(2), 45-60. doi:10.1300/J194v05n02_04

Balchin, P. N., & Rhoden, M. (1998). *Housing: The essential foundations*. New York; London: Routledge.

Bales, S. S, Eklund, S. J, & Siffin, C. F. (2002). Children's perceptions of elders before and after a school-based intergenerational program. *Journal of Educational Gerontology, 26*(7), 677-689. doi: 10.1080/03601270050200662

Bales, S. N, McEwen, B. S, Rolnick, A. J. (2007). *The timing and quality of early experiences combine to shape brain architecture.* Cambridge: Harvard University.

Baltes, P.B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology, 23,* 611-626.

Barker, R. & Gump, P. (1964). *Big school, small school: High school size and student behavior*. Stanford, CA: Stanford University Press.

Barnes, S. (2002). *The design of caring environments and the quality of life of older people*. Cambridge: Cambridge University Press.

Bassuk, S. S., Glass, T. A., & Berkman, L. F. (1999) Social disengagement and incident cognitive decline in community-dwelling elderly persons. *Annuals of Internal Medicine, 131*(3), 165–173.

Bath, J., Schneider, S., & Von Kanel, R. (2010). Lack of social support in the etiology and the prognosis of coronary heart disease: A systematic review and meta-analysis. *Psychosomatic Medicine, 72*(3), 229–238.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *Qualitative Report, 13*(4), 544-559.

Berkman, F. L. (1995). The role of social relations in health promotion. *Psychosomatic Medicine, 57*(3), 245-254.

Bianchi, S., & Milkie, M. (2010). Work and family research in the first decade of the 21st century. *Journal of Marriage and Family, 72*(3), 705-725. doi:10.1111/j.1741-3737.2010.00726.x.

Bloomer, K. C., Moore, C. W. (1977). *Body, memory, and architecture*. New Haven, NY: Yale University

Bradford, H. (2012). *Appropriate environments for children under three*. London: Routledge. doi:10.4324/9780203804957.

Brawley, E. C. (1997). *Designing for Alzheimer's disease: Strategies for creating better care environments*. New York: Wiley.

Brock, D. W. (1993). *Life and death: Philosophical essays in biomedical ethics*. Cambridge; New York: Cambridge University Press.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, Mass: Harvard University Press.

Brooke, L. & Taylor, P. (2005) Older workers and employment: Managing age relations. *Ageing & Society, 25*(3), 415-429. doi:10.1017/S0144686X05003466.

Brooker, D. (2004). What is person-centered care in dementia? *Reviews in Clinical Gerontology, 13,* 215-222. doi: 10.1017/S095925980400108X.

Butts, D., & Chana, K. (2007). Intergenerational programs promote active aging. *The Journal on Active Aging, 34*, 34-39.

Calkins, P.M. (2003). Powell Lawton's contributions to long- term care settings. *Journal of Housing for the Elderly, 17*(1-2), 67-84. doi: http://dx.doi.org/10.1300/J081v17n01_06.

Campbell, J. (2011, January 2). Grounded Theory Video 34. Introduction to Methods of Qualitative Research. Ft. Lauderdale, Florida, United States of America: Nova Southeastern University. Retrieved April 22, 2015, from http://www.youtube.com/watch?v=fZYlXMStdlo

Carmona, M. (2001). *Housing design quality: Through policy, guidance, and review*. New York; London: Spon Press.

Caspi, A. (1984). Contact hypothesis and inter-age attitudes: A field study of cross-age contact. *Social Psychology Quarterly, 47*(1), 74-80.

Chapman, N. J., & Neal, M. B. (1990). The effects of intergenerational experiences on adolescents and older adults. *The Gerontologist, 30*(6), 825-832. doi:10.1093/geront/30.6.825.

Charmaz, K. (2000). Grounded theory: Objectivist and constructivist methods. In N.K. Denzin & Y.S. Lincoln (Eds.) *Handbook of a qualitative research* (2nd ed.). (pp 509-533). Thousand Oaks, CA: Sage.

Charmaz, K. (2008). Constructionism and the Grounded Theory. In J.A. Holstein & J. F. Gubrium (Eds.), *Handbook of constructionist research*. (pp.397-412). New York: The Guiltord Press.

Charmaz, K. (2014). *Constructing grounded theory*. Second Edition. London: Sage Publication.

Charmaz, K. (2015, 02). *A discussion with prof. Kathy Charmaz on grounded theory.* Retrieved from https://www.youtube.com/watch?v=D5AHmHQS6WQ.

Chaudhury, H., Hung, L., & Badger, M. (2013). The role of physical environment in supporting person-centered dining in long-term care: A review of the literature. *American Journal of Alzheimer's Disease and Other Dementias, 28l*(5), 491-500.

Chawla, L. (1992). Childhood place attachment. In I. Altman & S. M. Low (Eds.), *Place attachment* (Human Behavior and Environment: Advances in Research and Theory, Vol. 12, pp.63–86). New York: Plenum.

Chawla, L. (2002). Cities for human development. In L. Chawla (Ed.), *Growing up in an Urbanising World* (pp.15–34). London: Earthscan Publications.

Chawla, L., Cushing, D. F., Malinin, L. H., Pevec, I., Vliet, W. v., & Zuniga, K. (2012). *Children and the environment*. Oxford: Oxford University Press. doi:10.1093/obo/9780199791231-0034.

Clark, N. M., & Rakowski, W. (1983). Family caregivers of older adults: Improving helping skills. *The Gerontologist, 23*(6), 637-642. doi:10.1093/geront/23.6.637.

Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine, 38*(5), 300-314.

Colby, S. L., & Ortman, J. M. (2015). New census bureau report analyzes U.S. population projections. PR Newswire.

Cook, G., & Bailey, C. (2013). Older care home residents' views of intergenerational practice. *Journal of Intergenerational Relationships*, *11*(4), 410–424. doi:10.1080/15350770.2013.837802.

Cooley, D. R. (2007). A Kantian moral duty for the soon-to-be demented to commit suicide. *The American Journal of Bioethics, 7*(6), 37-44. doi:10.1080/15265160701347478.

Corbin, J. M., & Strauss, A. L. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Los Angeles, California: Sage Publications.

Crnic, K. A., Greenberg, M. T. (2008). Minor parenting stresses with young children. *Child Development. 61*(5). 1628-1637. doi:10.1111/j.1467-8624.1990.tb02889.x.

Corsaro, W. A. (1981). Entering the child's world: Research strategies for field entry and data collection in a preschool setting. In J. Green & C. Wallet. *Ethnography and language in educational settings* (pp.117-146). Norwood, NJ: Ablex.

Crews, D. E., & Zavotka, S. (2006). Aging, disability, and frailty: Implications for universal design. *Journal of Physiological Anthropology, 25*(1), 113-118. doi:10.2114/jpa2.25.113.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: Harper and Row, Publishers.

Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York, NY: Basic Books.

Csikszentmihalyi, M. and D. A. Kleiber (1991). Leisure and self-actualization. *Benefits of leisure*. Edited by B. L. Driver, P.J. Brown and G. L. Peterson. State College, PA: Venture Publishing.

Dabelko-Schoeny, H., Anderson, K., & Spinks, K. (2010). Civic engagement for older adults with functional limitations: Piloting an intervention for adult day health participants. *Gerontologist, 50*(5), 694-701. doi:10.1093/geront/gnq019.

Daly, K. (2007). *Qualitative methods for family studies and human development*. Thousand Oaks: Sage Publication Inc.

Davidson, D., Fulton, B. R., & Luo, Z. (2007). Children's impression and memory of older adults in the People's Republic of China and in the United States. *Journal of Intergenerational Relationships*, *4*(3), 63–72.

Davis, B. (1989). *Frogs and snails and feminist tails: Preschool children and gender*. Boston: Allen & Unwin.

Day, C., & Roaf, S. (2002). *Spirit & place: Healing our environment, healing environment*. Boston, Oxford: Architectural Press.

Department of Health & Human Services (2013, 05,08). Administration on aging: Aging statistics. Retrieved October 14, 2013 from: http://www.aoa.gov/Aging_Statistics/

De Souza, E. M., & Grundy, E. (2007). Intergenerational interaction through reminiscence processes: A theoretical framework to explain attitude changes. *Journal of Intergenerational Relationships, 5*(1), 39–56.

Donohoe, J. (2014). *Remembering places: A phenomenological study of the relationship between memory and place*. Lanham: Lexington Books.

Dorfman, L., Murty, S., & Ingram, J., Li, H. (2007). Evaluating the outcomes of gerontological curriculum enrichment: A multi-method approach. *Gerontology & Geriatrics Education, 27*(4), 1-21. doi:10.1300/J021v27n04_01.

Dudek, M. (2005). *Children's spaces.* Amsterdam; London: Architectural Press.

Duffy, F. (1991). *The changing workplace*. London: Phaidon Press.

Duffy, F. (1997). *The new office*. London: Conran Octopus.

Duffy, M., Bailey, S., Beck, B., & Barker, D. G. (1986). Preferences in nursing home design: A comparison of residents, administrators, and designers. *Environment and Behavior, 18*(2), 246-257. doi:10.1177/0013916586182006.

Duggar, M. L. (1993). *Intergenerational programs: Weaving hearts and minds*. Tallahassee, FL: Florida Council on Aging, Florida State Department of Education.

Eder, D. & Fingerson, L. (2003). Interviewing children and adolescents. In J. A. Holstein, & J. F. Gubrium (Eds.), *Inside interviewing: New lenses, new concerns*. (pp.33-53). Thousand Oaks, California: Sage Publications.

Edwards, L., & Torcellini, P. (2008). *Literature review of the effects of natural light on building occupants.* U.S. Oak Ridge, TN: Department of Energy

Ehrle, J., Adams, G., & Tout, K. (2001). *Who's caring for our youngest children: Child care patterns of infants and toddlers.* Washington, DC: The Urban Institute.

Ekman, P. (1994). Strong evidence for universals in facial expressions: A reply to Russell's mistaken critique. *American Psychological Association, 115*(2), 268-287.

Ekman, P. & Friesen, W.V. (1978). *The facial action coding system: Investigator's guide.* Palo Alto. Consulting Psychologists Press.

Emerson, M. O., Kimbro, R. T., & Yancey, G. (2002). Contact theory extended: The effects of prior racial contact on current social ties. *Social Science Quarterly, 83*(3), 745-761.

Epstein, A., & Boisvert, C. (2006). Let's do something together: Identifying the effective components of intergenerational programs. *Journal of Intergenerational Relationships, 4*(3), 87-109. doi:10.1300/J194v04n03_07.

Ermann, M. (2105). *Architectural acoustics illustrated.* New Jersey: John Wiley & Sons, Inc.

Evans, G., W. (2006). Child development and the physical environment. *Annual Review of Psychology, 57*(1), 423-451. doi:10.1146/annurev.psych.57.102904.190057.

Fasel, B., & Luettin, J. (2003). Automatic facial expression analysis: a survey. *Pattern Recognition, 36*(1), 259 – 275. doi:10.1016/S0031-3203(02)00052-3.

Fazio, S. (2008). Person-centered care in residential settings: Taking a look back while continuing to move forward. *Alzheimer's Care Today, 9*(2), 155-161. doi:10.1097/01.ALCAT.0000317200.58816.a3.

Featherman, D. L. (1981). *The life-span perspective in social science research.* Paper commissioned by Social Science Research Council for the National Science Foundation's Second Five-year Outlook on Science and Technology.

Femia, E. E., Zarit, S. H., Blair, C., Jarrott, S. E., & Bruno, K. (2007). Impact of intergenerational programming on child outcomes. *Early Childhood Research Quarterly, 23*, 272-287. doi:10.1016/j.ecresq.2007.05.001.

Fisk, A. D., & Ebrary, I. (2004). *Designing for older adults: Principles and creative human factors approaches*. Boca Raton: CRC Press.

Frederick, M. (2007). *101 things I learned in architecture school*. Cambridge, Massachusetts, London: MIT Press.

Galbraith, B., Larkin, H., Moorhouse, A., & Oomen, T. (2015). Intergenerational programs for persons with dementia: A scoping review. *Journal of Gerontological Social Work, 58*(4), 357.

Galvez, M. P., Pearl, M., & Yen, I. H. (2010). Childhood Obesity and the Built Environment: A Review of the Literature from 2008-2009. *Curr Opin Pediatr*. *22*(2): 202–207. doi:10.1097/MOP.0b013e328336eb6f.

Gamliel, T., Reichental, Y,. & Ayal, N. (2007). Intergenerational educational encounters: Part 1: A model of knowledge. *Educational Gerontology, 33*(1), 1-22. doi: 10.1080/03601270600995878.

Gans, D., Putney, N. M., Bengtson, V. L., & Silverstein, M. (2009). The future of theories of aging. In V. L. Bengtson, M. Silverstein, N. M. Putney, & D. Gans (Eds.), *Handbook of theories of aging* (2nd Ed., pp.723–737). New York, NY: Springer.

Garin, N., Olaya, B., Miret, M., Ayuso-Mateos, J. L., Power, M., Bucciarelli, P., & Haro, J. M. (2014). Built environment and elderly population health: A comprehensive literature review. *Clinical Practice and Epidemiology in Mental Health: CP & EMH, 10*(1), 103-115. doi:10.2174/1745017901410010103.

Garms-Homolová, V., Hoerning, E. M., & Schaeffer, D. (1984). *Intergenerational relationships*. Lewiston, N.Y: C.J. Hogrefe.

Galbraith, B., Larkin, H., Moorhouse, A., & Oomen, T. (2015). Intergenerational programs for persons with dementia: A scoping review. *Journal of Gerontological Social Work, 58*(4), 357.

Generations United. (2015). Generations united. Retrieved from http://www.gu.org/OURWORK/Programs/Directory.aspx

George, D. R. (2011). Intergenerational volunteering and quality of life: Mixed methods evaluation of a randomized control trial involving persons with mild to moderate dementia. *Quality of Life Research, 20*(7), 987-995. doi:10.1007/s11136-010-9837-8.

George, D., Whitehouse, C., & Whitehouse, P. (2011). A model of intergenerativity: How the intergenerational school is bringing the generations together to foster collective wisdom and community health. *Journal of Intergenerational Relationships*, *9*(4), 389–404. doi:10.1080/15350770.2011.619922.

Gibbs, G. (2010, June 19). Core Emlements Part 2. Grounded Theory. United Kingdom: University of Huddersfield. Retrieved April 19, 2015, from http://www.youtube.com/watch?v=dbntk_xeLHA&feature=related.

Gigliotti, C., Morris, M., Smock, S., Jarrott, S. E., & Graham, B. (2005). An intergenerational summer program involving persons with dementia and preschool children. *Educational Gerontology*, *31*(6), 425–441. doi:10.1080/03601270590928161.

Giglio, L. L. (2006). Effect of a music therapy intergenerational program on cued and spontaneous behaviors of older adults with dementia (Master's Thesis, University of Kansas). Retrieved from http://search.proquest.com.ezproxy.lib.vt.edu/docview/305319969?pq-origsite=summon&accountid=14826. (UMI number:1434771).

Glass, T. A. (2003). *Successful aging. Brocklehurst's textbook of geriatric medicine and gerontology* (6th ed.). London: Harcourt Health Sciences.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine Pub. Co.

Gorelik, Y., Damron-Rodriguez, J., Funderburk, B., & Solomon, D. H. (2000). Undergraduate interest in aging: Is it affected by contact with older adults? *Educational Gerontology, 26*, 623-638.

Goyer, A. (2001). Intergenerational shared site and shared resource programs: Current models. (Available from Generations United, 122 C Street, NW, Suite 820, Washington, DC 20001-2109) .

Grant, P.T., Henry, J.M. & McNaughton, G.W. (2000) The management of elderly blunt trauma victims in Scotland: Evidence of ageism? *Injury- International Journal of the Care of the Injured, 31*(7), 519-528. doi:10.1016/S0020-1383(00)00038-3.

Gringart, E., Helmes, E., & Speelman, C. (2008). Harnessing cognitive dissonance to promote positive attitudes toward older workers in australia. *Journal of Applied Social Psychology, 38*(3), 751-778. doi:10.1111/j.1559-1816.2007.00325.x.

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology, 29*(2), 75-91.

Gubrium, J. F. (1997). *Living and dying at Murray Manor.* Charlottesville, VA: University Press of Virginia .

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, *18*(1), 59-82.

Habib, F. & Shahaf, M. K. (2012). Christian Norberg-Schulz and the existential space. *International Journal of Architecture and Urban Development, 1*(3), 45-50.

Haider, J., & Kaplan, M. (2004). Reclaiming open space for the young: An intergenerational perspective on design. In *Proceedings of the open space-people space—International Conference on Inclusive Outdoor Environments* (pp.171–176). Edinburgh, Scotland: Edinburgh College of Art, OPENspace.

Hall, E. T. (1966). *The hidden dimension*. Garden City, N.Y: Doubleday.

Handy, S., Boarnet, M., Ewing, R., & Killingsworth, R. (2002). How the built environment affects physical activity - views from urban planning. *American Journal of Preventive Medicine, 23*(2), 64-73. doi:10.1016/S0749-3797(02)00475-0.

Hanks, R. S., & Ponzetti, J. J. (2004). Family studies and intergenerational studies: Intersections and opportunities. *Journal of Intergenerational Relationships, 2*(3/4), 5-22.

Hargrave, A. C., & Sénéchal, M. (2000). A book reading intervention with preschool children who have limited vocabularies: The benefits of regular reading and dialogic reading. *Early Childhood Research Quarterly, 15*(1), 75-90. doi:10.1016/S0885-2006(99)00038-1.

Havik, K., Tielens, G., Teerds, H. (2013). Building atmosphere. *OASE, 91,* 3-15. Retrieved from http://www.oasejournal.nl/en/Issues/91.

Hayes, C. L. (2003). An observational study in developing an intergenerational shared site program: Challenges and insights. *Journal of Intergenerational Relationships, 1*(1), 113-132. doi:10.1300/J194v01n01_10.

Health Service Executive (HSE) (2009) 'Open your eyes' HSE elder abuse service developments 2008. Health Service Executive, Dublin.

Heidegger, M. (2008). *Being and time.* (S.U. Zeit, Trans.). New York: HarperCollines Publisher. (1962).

Heidegger, M. (1971). *Poetry, language and thought.* (A. Hofstadter, H. Colophon, Trans.). New York: HarperCollines Publisher. (1971).

Hendricks, J., Applebaum, R., & Kunkel, S. (2010). A world apart? Bridging the gap between theory and applied social gerontology. *The Gerontologist*, *50* (3), 284-293. doi: 10.1093/geront/gnp167.

Henry, M. (1958). The architectural theory of Francesco di Giorgio. *The Art Bulletin, 40*(3), 257-261.

Heschong, L. (1979). *Thermal delight in architecture*. Cambridge, Mass: MIT Press.

Hewstone, M., & Brown, R. (1986). Contact is not enough: An intergroup perspective on the "contact hypothesis." In M. Hewstone & R. Brown (Eds.), *Intergroup contact* (pp.1–44). Oxford, UK: Blackwell.

Heydon, R. (2013). *Learning at the ends of life: Children, elders, and literacies in intergenerational curricula*. Toronto: University of Toronto Press.

Hillier, B., & Hanson, J. (1984). *The social logic of space*. Cambridge; New York: Cambridge University Press.

Hillier, W. R. G., Hanson, J. & Peponis, J. (1987). Syntactic analysis of settlements: Architecture and comportment. *Architecture and Behavior, 3*(3), 217-231.

Hoffmann, J. M., Giorgi, L. D., & Grawert, O. H. (2013). What is architecture? Retrieved from http://www.whatisarchitecture.cc/statement/.

Holl, S., 1996. *Intertwining*. NY: Princeton Architectural Press.

Holloway, S. L., & Valentine, G. (2000). Children's geographies and the new social studies of childhood. In S. L. Holloway & G. Valentine (Eds.), *Children's geographies: Playing, living, learning* (pp.1–26). New York: Routledge.

Holmes, C. L. (2009). An intergenerational program with benefits. *Early Childhood Education Journal, 37*(2), 113-119. doi:10.1007/s10643-009-0329-9

Holstein, J. A., & Gubrium, J. F. (2003). *Inside interviewing: New lenses, new concerns*. Thousand Oaks, California: Sage Publications.

Howes, C. & Aikins, J. W. (2002). Peer relations in the transition to adolescence. *Advances in Child Development and Behavior, 29*, 195-230.

Hughes, J. C. (2001). Views of the person with dementia. *Journal of Medical Ethics, 27*(2), 86-91. doi:10.1136/jme.27.2.86.

Humble, A. (2012). Qualitative data analysis software: A call for understanding, details, intentionality, and thoughtfulness. *Journal of Family Theory & Review, 4*(2), 122-137.

Husserl, E. (1970). *The crisis of European sciences and transcendental phenomenology: An introduction to phenomenological philosophy.* Evanston, IL: Northwestern University Press.

Ittelson, W. H. (1974). *An introduction to environmental psychology*. New York: Holt, Rinehart and Winston.

Jackson, S. J., Antonucci, C. T., & Biggs, S. (2007). Intergenerational relations: Theory, research, and policy. *Journal of Social Issues, 63* (4), 679-693.

Jacobs, J. (1961). *The death and life of great American cities*. New York: Random House.

James, P., & Noakes, T. (1994). *Hospital architecture*. New York: Longman.

Jarrott, S. (2011). Where have we been and where are we going? Content analysis of evaluation research of intergenerational programs. *Journal of Intergenerational Relationships, 9*(1), 37-52. doi:10.1080/15350770.2011.544594.

Jarrott, S. E., & Bruno, K. A. (2003). Intergenerational activities involving persons with dementia: An observational assessment. *American Journal of Alzheimer's and Related Diseases, 18*(1), 31-38.

Jarrott, E. S., Bruno, K. (2007). Shared site intergenerational program: A case study. *Journal of Applied Gerontology, 26*(3), 239-257. doi: 10.1177/0733464807300225.

Jarrott, S. E., Gigliotti, C. M., & Smock, S. A. (2006). Where do we stand? Testing the foundation of a shared site intergenerational programs. *Journal of Intergenerational Relationships*, *4*(2), 73–92. doi:10.1080/15350770.2011.544594.

Jarrott, S. E., & McCann, B. R. (2013). Analysis of intergenerational relationships in adolescent fiction using a contact theory framework. *Gerontology & Geriatrics Education, 34*(3), 292-308.

Jarrott, E. S., Morris, M. M., Burnett, A. J., Stauffer, D., Stremmel, A. S., & Gigliotti, C. M. (2011). Creating community capacity at a shared site intergenerational program: "Like a barefoot climb up a mountain." *Journal of Intergenerational Relations, 9*(4). 418-434. doi: 10.1080/15350770.2011.619925.

Jarrott, E. S., Smith, L. C. (2011). The complement of research and theory in practice: Contact theory at work in nonfamilial intergenerational programs. *The Gerontologist, 51*(1), 112-121.

Kaplan, M. (1998). *Intergenerational programs: Support for children, youth, and elders in Japan*. Albany: State University of New York Press.

Kahn, P. H., & Kellert, S. R. (2002). *Children and nature: Psychological, sociocultural, and evolutionary investigations*. Cambridge, Mass: MIT Press.

Kaplan, M. (2008). *Ideas for intergenerational living: Talking about work across generations.* (Unpublished manuscript). Department of Ag & Extension Education, Penn State University, University Park, PA. Retrieved from http://intergenerational.cas.psu.edu/Docs/Article3.pdf.

Kaplan, M., U. Cohen, J. Haider, and D. Turner (2005). *Intergenerational perspectives on environmental design*. Handout distributed at workshop.American Society on Aging/National Council on Aging conference, March 13, 2005. Philadelphia, PA.

Kaplan, M., Haider, J., Cohen, U., & Turner, D. (2007). Environmental design perspectives on intergenerational programs and practices. *Journal of Intergenerational Relationships, 5*(2), 81-110, doi: 10.1300/J194v05n02_06.

Kaplan, M. S., Henkin, Z. N., & Kusano, A. (2002). *Linking lifetimes: A global view of intergenerational exchange.* Lanham, MD: University Press of America.

Kaplan, M., & Larkin, E. (2004). Launching intergenerational programs in early childhood settings: A comparison of explicit intervention with an emergent approach. *Early Childhood Education Journal, 31*(3), 157-163.

Keen, J. (1989). Interiors: architecture in the lives of people with dementia. *International Journal of Geriatric Psychiatry, 4*(5), 255-272. doi:10.1002/gps.930040504

Kessler, E., & Staudinger, U. (2007). Intergenerational potential: Effects of social interaction between older adults and adolescents. *Psychology of Aging, 22*(4), 690-704.

Kinnevy, S., & Morrow-Howell, N. (1999). Perceived benefits of inter-generational tutoring. *Gerontology and Geriatrics Education, 20,* 3-17.

Kitwood, T. (1998). Toward a theory of dementia care: Ethics and interaction. *Journal of Clinical Ethics, 9*(1), 23–34.

Kitwood, T. (1997). *Dementia reconsidered: The person comes first*. Berkshire UK: Open University Press.

Kitwood, T., & Bredin, K. (1992). Towards a theory of dementia care: Personhood and well-being. *Aging and Society, 12*(3), 269-287.

Kuehne, V. S. (2012). *Intergenerational programs: Understanding what we have created*. Bringhamton, NY: The Haworth Press.

Kuehne, V. S., & Melville, J. (2014). The state of our art: A review of theories used in intergenerational program research (2003-2014) and ways forward. *Journal of Intergenerational Relationships, 12*(4), 317-346. doi:10.1080/15350770.2014.958969.

Larkin, E., & Kaplan, M. S., Rushton, S. (2010). Designing brain healthy environments for intergenerational programs. *Journal of Intergenerational Relationships, 8*(2), 161-176, doi: 10.1080/15350771003741956.

Larkin, E., & Newman, S. (2001). Benefits of intergenerational staffing in preschools. Educational Gerontology, 27, 373-385.

Larkin, E., & Newman, S. (1997). Intergenerational studies: A multi-disciplinary field. *Journal of Gerontological Social Work, 28*(1-2), 5-16. doi:10.1300/J083v28n01_03#.Um5QRRaLdUQ.

Laughlin, L. (2013). Who's minding the kids? Child care arrangements: Spring 2011: Current population reports (pp.70-135): Household economic studies; 2013 ASI 2546-20.134; census P-70, no. 135.

Lawler, E. J. (1992). Affective attachment to nested groups: A choice-process theory. *American Sociological Review, 57*, 327-339.

Lawton, M. P. (1977). An ecological theory of aging applied to elderly housing. *Journal of Architectural Education, 31*(1), 8-10.

Lawton, M. P. (1980). *Environment and aging*. Albany, NY: Center for the Study of Aging.

Lawton, M. P. (1982). Competence, environmental press, and the adaptation of older people. In M. P. Lawton, P.G. Windley & T.O Byerts (Eds.), *Aging and the environment: Theoretical approaches* (pp.33-59). New York, NY: Springer Publishing Company.

Lawton, M. P. (1990). An environmental psychologist ages. In I. Altman & K. Christensen (Eds.), *Environment and behavior studies: Emergence of intellectual traditions* (pp.339–363). New York, NY: Plenum Press.

Layne, M. R. (2009). Supporting intergenerational interaction: Affordance of urban public space. (Doctoral Dissertation, North Carolina State University). Retrieved from http://repository.lib.ncsu.edu/ir/handle/1840.16/4834.

Leach, N. (2006). *Forget Heidegger.* Bucharest: Paideia.

Lee, R. M., & Fielding, N. (1996). Qualitative data analysis: Representations of a technology: A comment on Coffey, Holbrook and Atkinson. *Sociological Research Online, 1*(4), retrieved from http://www.socresonline.org.uk/1/1/4.html.

Levy, B. R. (2003). Mind matters: Cognitive and physical effects of aging self-stereotypes. *Journal of Gerontology, 58B*, 203-211. doi:10.1093/geronb/58.4.P203.

Levy, B. R., Slade, M. D., & Kasl, S. V. (2002). Longitudinal benefit of positive self-perceptions of aging on functional health. *Journal of Gerontology, 57B*, 409-417. doi:10.1093/geronb/57.5.P409.

Levy, B. R., Slade, M. D., Kunkel, S. R., & Kasl, S. V. (2002). Increased longevity by positive self-perceptions of aging. *Journal of Personality and Social Psychology*, *83*, 261-270. doi:10.1037//0022-3514.83.2.261.

Leydon, G. M., Boulton, M., Moynihan, C., Jones, A., Mossman, J., Boudioni, M., & McPherson, K. (2000). Cancer patients' information needs and information seeking behavior: In depth interview study. *British Medical Journal*, 320(7239), 909-913. doi:10.1136/bmj.320.7239.909.

Marquardt, G. (2014). Dementia-Friendly architecture: Integrating evidence in architectural design. In E. Edgerton, O. Romice, & K. Thwaites (Eds.), *Bridging the boundaries: Human experience in the natural and built environment and implications for research, policy, and practice* (pp.33-45). Toronto, Ontario: Hogrefe.

Mason, J. (1996). *Qualitative researching*. Thousand Oaks, California; London: Sage.

Mason, M. (2010). Sample Size and Saturation in PhD Studies Using Qualitative Interviews [63 paragraphs]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *11*(3), Art. 8, http://nbn-resolving.de/urn:nbn:de:0114-fqs100387.

Menin, S. (2003). *Constructing place: Mind and matter*. NewYork: Routledge.

McGuire, S. L., Klein, D. A., & Chen, S. (2008). Ageism revisited: A study measuring ageism in east Tennessee, USA. *Nursing & Health Sciences, 10*(1), 11-16. doi:10.1111/j.1442-2018.2007.00336.x.

McHugh, K. E. (2009). Movement, memory, landscape: An excursion in non-representational thought. *Geo Journal, 74*(3), 209-218. doi: 10.1007/s10708-008-92220.

McKenzie, J. D. (2007). *A profile of the world's young developing migrants.* Washington DC: Population Council, 115-135.

Merleau-Ponty, M. (1962). *Phenomenology of perception.* London and New York: Routledge.

Meshel, D., & McGlynn, R. P.(2004). Intergenerational contact, attitudes, and stereotypes of adolescents and older people. *Educational Gerontology*, *30*(6), 457-479. doi:10.1080/03601270490445078.

Milke, D., Beck, C., Danes, S., & Leask, J. (2009). Behavioral mapping of residents' activity in five residential style care centers for elderly persons diagnosed with dementia: Small differences in sites can affect behaviors. *Journal of Housing for the Elderly, 23*(4), 335-367. doi:10.1080/02763890903327135.

Miller, D. (2008). *The comfort of things.* Cambridge: Polity Press.

Miyasaka, T. (2014). *Seeing and making in architecture*. New York and London: Routledge.

Meshel, D. S., & McGlynn, R. P. (2004). Intergenerational contact, attitudes, and stereotypes of adolescents and older people. *Educational Gerontology, 30,* 457–479.
doi: 10.1080/03601270490445078

Moffatt, S., & Kohler, N. (2008). Conceptualizing the built environment as a social-ecological system. *Building Research & Information, 36*(3), 248-268. doi:10.1080/09613210801928131.

Morgan, D. G. and Stewart, N. J. (1998). Multiple occupancy versus private rooms on dementia care units. *Environment and Behaviour, 30*(4), 487-503.

Mostaedi, A. (2003). *Homes for senior citizens.* Barcelona, Spain: Carlos Broto & Josep Ma Minguet.

Mostaedi, A. (2006). *Preschool & kindergarten architecture*. Barcelona: Carles Broto.

Murphy, M. B. (1984). *A guide to intergenerational programs.* Washington, DC: National Association of State Units on Aging.

Narayan, C. (2008) Is there a double standard of aging?: Older men and women and ageism. *Educational Gerontology, 34*(9), 782-787. doi:10.1080/03601270802042123.

Nash, B. E. (1968). Foster grandparents in child-care settings. *Public Welfare*, 26, 272-280.

National Center for the Protection of Older People. (2009). *Public perception of older people and aging: A literature review*. Dublin: Imogen Lyons.

National Disability Authority. (2012). *Center for excellence in Universal Design*. Retrieved from http://universaldesign.ie/Home/

Naylor, M. D., Brooten, D. A., Campbell, R. L., Maislin, G., McCauley, K. M., & Schwartz, J. S. (2004). Transitional care of older adults hospitalized with heart failure: A randomized, controlled trial. *Journal of the American Geriatrics Society, 52*(5), 675-684. doi:10.1111/j.1532-5415.2004.52202.x.

Netten, A. (1989). The effect of design of residential homes in creating dependency among confused elderly residents: a study of elderly demented residents and

their ability to find their way around homes for the elderly. *International Journal of Geriatric Psychiatry, 4*(3), 143-153. doi:10.1002/gps.930040305.

Newell, R., Allore, S., Dowd, O., Netinho, S., & Asselin, M. (2012). Stress among caregivers of chronically ill older adults: Implications for nursing practice. *Journal of Gerontological Nursing, 38*(9), 18-29. doi:10.3928/00989134-20120807-06.

Newman, S. (1997). *Intergenerational programs: Past, present, and future.* Washington, DC: Taylor & Francis.

Newman, S. Hatton-Yeo, A. (2008). Intergenerational learning and the contributions of older people. *Ageing Horizons,* (8), 31-39.

Newman, S., & Ward, C. (1993). An observational study of intergenerational activities and behavior-change in dementing elders at adult day-care-centers. *International Journal of Aging & Human Development, 36*(4), 321-333.

Newman, S. (1989). A history of intergenerational programs. *Journal of Children in Contemporary Society*, 20(3-4), 1-16.

Norberg-Schulz, C. (2000). *Architecture: Presence, language, place.* Milan: Akira.

Norberg-Schulz, C. (1980). *Genius loci: Towards a phenomenology of architecture*. New York: Rizzoli.

Norouzi, N. (2013,11). Spatial requirements for designing an intergenerational facility. In *Environment, transportation and technology studies.* Poster presented at the Gerontological Society of America, New Orleans, LA.

Norouzi, N. (2013, 11). Applying lifespan principles into architecture: A student perspective. In K. Sykes (Chair), *Advancing age-friendly and livable communities: an overview of models, outcomes, and research.* Symposium will be conducted at the Gerontological Society of America, New Orleans, LA.

Norouzi, N. (2015, 07). Seeing and making: Spatial requirements for designing an intergenerational facility. Workshop presented at the international meeting of Generations United, Honolulu, HI.

Norouzi, N., Chen, J., & Jarrott, S. E. (2015). Intergenerational explorations: Where everyone has a purpose. *Journal of Intergenerational Relationships, 13*(3), 260-265. doi:10.1080/15350770.2015.1058282.

Norouzi, N., & Henkin, S. (2015, 07). Building intergenerational community through the arts. Workshop presented at the international meeting of Generations United, Honolulu, HI.

Norouzi, N. Lyon-Hill, S. (2014, 11). “All the world’s a stage” – bridging the generational gap through theatre. Poster presented at the Gerontological Society of America, Washington DC.

Morris, M., Jarrott, S., Smock, S., Gigliotti, C., & Graham, B. (2005). An intergenerational summer program involving persons with dementia and preschool children. *Educational Gerontology, 31*(6), 425-441. doi:10.1080/03601270590928161.

O'Rourke, K. (1997). *Bridging two generations: An intergenerational programming initiative linking adults with alzheimer’s disease and preschool children.* National Council on Family Relations, Arlington, VA.

Ory, M., Hoffman, M., Hawkins, M., Sanner, B., & Mockenhaupt, R. (2003). Challenging aging stereotypes - strategies for creating a more active society. *American Journal of Preventive Medicine, 25*(3), 164-171. doi:10.1016/S0749-3797(03)00181-8.

Osmond, H. (1959). The relationship between architect and psychiatrist. In Goshen, C. (Ed.), *Psychiatric architecture* (pp.16-20*)*. Washington DC: American Psychiatric Association.

Pallasmaa, J. (1996). The geometry of feeling: A look at the phenomenology of architecture. In Nesbitt, K. (Ed.), *Theorizing a new agenda for architecture: An anthology of architectural theory.* (pp.1965-1995), New York: The Museum of Modern Art.

Pallasmaa, J. (2012). *The eyes of the skin, architecture and the senses.* Chichester, West Sussex, UK: Wiley.

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*(1), 65-85. doi:10.1146/annurev.psych.49.1.65.

Pettigrew, T, & Tropp, L. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*, 751-783.

Pradhan, Uma (2007). The child-to-child approach to community and health development in South Asia. *Children Youth and Environments, 17*(1), 257-268.

Proshansky, H. M, & Fabian, A. K. (1987). The Development of Place Identity in the Child. In C. S. Weinstein, & T. G. David (Eds.), *Spaces for children: The built environment and child development.* (pp.23-40). New York: Plenum Press.

Public Agenda Foundation. (1999). Kids these days: What Americans really think about the next generation. Retrieved from http://www.publicagenda.org/files/kids_these_days_99.pdf.

Rebok, G. W, Rasmussen, M. D, Carlson, M. C, Glass, T. A, McGill, S. Hill, J, Wasik, B. A, Ialongo, N. F, Kevin, D, Fried, Linda P. (2004). Short-term impact of experience corps® participation on children and schools: Results from a pilot randomized trial. *Journal of Urban Health, 81*(1), 79-93.

Regnier, V. (2002). *Design for assisted living: Guidelines for housing the physically and mentally frail*. New York: J. Wiley.

Rhodes, J. E. (2002). *Stand by me: The risk and rewards of mentoring today's youth*. Cambridge, MA: Harvard University Press.

Richards, L., & Morse, J.M. (2007.) *Readme first for a user's guide to qualitative methods*. Second Edition. Thousand Oaks, London, New Delhi: Sage Publication.

Robinson, T., Gustafson, B., & Popovich, M. (2008). Perceptions of negative stereotypes of older people in magazine advertisements: Comparing the perceptions of older adults and college students. *Ageing and Society, 28*(2), 233-251. doi:10.1017/S0144686X07006605.

Rogers, A., & Taylor, A. (1997). Intergenerational mentoring: A viable strategy for meeting the needs of vulnerable youth. *Journal of Gerontological Social Work, 28*(1-2), 125-140.

Rose, M. (2012). Dwelling as marking and claiming. *Environment and Planning D: Society and Space, 30*, 757-771. doi:10.1068/d6809.

Sadick, B. (2014, 7, 23). Now relying on a wheelchair, Architect Michael Graves Creates Buildings for Survivors. *Washington Post*, Retrieved from http://www.washingtonpost.com/national/health-science/famed-architect-michael-graves-in-a-wheelchair-widens-his-design-focus/2014/07/14/72ad8430-af82-11e3-a49e-76adc9210f19_story.html.

Said, I. (2007). Architecture for children: Understanding children perception towards built environment. *International Conference Challenges and Experiences in*

Developing Architectural education in Asia, Islamic University of Indonesia. Retrieved from http://eprints.utm.my/3575/1/Architectural_EDU2.pdf.

Satariano, W. (2006). *Epidemiology of aging: An ecological approach*. Sudbury, MA: Jones and Bartlett Publishers.

Satterthwaite, D. (1996). The environment for children: Understanding and acting on the environmental hazards that threaten children and their parents. New York; London: Earthscan Publications.

Scheidt, R, & Schwarz, B, (Eds.). (2013). *Environmental gerontology: What now?* Abingdon: Routledge.

Schindler, D. L. (1992). Intergenerational programming: A confluence of interests between the frail elderly and urban youth (Doctoral Dissertation, Portland State University).

Schwarz, B. (2012). Environmental gerontology: What now? *Journal of Housing for the Elderly, 26*(1-3), 4-19, doi: http://dx.doi.org/10.1080/02763893.2012.673374.

Scruton, R. (1979). *The aesthetics of architecture.* Princeton, NJ: Princeton University Press.

Sebba, R. (1994). Girls and boys and the physical environment: Historical perspective, In Altman, A. & Churchman, A. (Eds.), *Women and the Environment* (pp.42-69). New York: Plenum Press.

Sebe, N., Huang, T. S., Sun, Y., Cohen, I., & Lew, M. S. (2007). Authentic facial expression analysis. *Image and Vision Computing, 25*(12), 1856-1863. doi:10.1016/j.imavis.2005.12.021.

Seedsman, T.A. (2006). Keynote 2. Viewing participants as resources for one another, communities and societies: intergenerational solidarity toward a better world. *Journal of Intergenerational Relationships, 4*(1), 23-39. doi:10.1300/J194v04n01_04.

Sener, T. (2006). The Children and Architecture Project in Turkey. *Children, Youth and Environments, 16*(2), 191-206.

Sharr, A, & Unwin, S. (2001). Heidegger's Hut*. Architectural Research Quarterly, 5*(1), 53-61. doi: 10.1017/S1359135501001063.

Sharr, A. (2007). *Heidegger for Architects.* London ; New York : Routledge.

Sheridan Elder Research Centre. (2005). *Enhancing social interaction between preschoolers and older adults with dementia*. Oakville, ON: Lenartowicz, M.

Shirazi, R.M. (2014). *Toward an articulated phenomenological interpretation of architecture.* New York: Routledge.

Smith, K. E., & U.S. Census Bureau. (2002). Who's minding the kids?: Child care arrangements, spring 1997. Washington, D.C.: U.S. Dept. of Commerce, Economics and Statistics Administration, U.S. Census Bureau.

Sommer, R. (1969). *Personal space: the behavioral basis of design*. Englewood Cliffs, N.J: Prentice-Hall.

Spiegelberg, H. (1965). *The phenomenological movement* (2nd ed.). Boston, M.A.: Martinus Nijhoff.

Starks, H., & Trinidad, S. (2007). Choose your method: A comparison of phenomenology, discourse analysis, and grounded theory. *Qualitative Health Research, 17*(10), 1372-1380. doi:10.1177/1049732307307031.

Strauss, A. L., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, California: Sage Publications.

Stren, P.N. (1994). Eroding grounded theory. In J. M. Morse (Ed.), Critical issues in qualitative research methods (pp.212-223). Thousand Oaks, CA: Sage.

Stron-Wilson, T., & Ellis, J. (2007). Children and place: Reggio Emilia's environment as third teacher. *Theory into Practice, 46*(1), 40-47. doi:10.1080/00405840709336547.

Tan, P.P., Zhang, N.H. & Fan, L. (2004) Students' attitudes toward the elderly in the People's Republic of China. *Educational Gerontology, 30*(4), 305-314. doi:10.1080/03601270490278830.

Taylor, A. S., LoSciuto, L., Fox, M., Hilbert, S. M., & Sonkowsky, M. (1999). The mentoring factor: Evaluation of the Across Ages' intergenerational approach to drug abuse prevention. Child & Youth Services, 20, 77–99.

Teale, W.H. (2003). Reading Aloud to Children as a Classroom Instructional Activity: Insights from Research and Practice. In A. van Kleeck, S.A. Stahl, & E. Bauer (Eds.), On reading books to children: Parents and teachers (pp.114-139). Mahwah, NJ: Lawrence Erlbaum.

Tierney, J.P., Grossman, J.B., & Resch, N. (2000). *Making a difference: An impact study of Big Bothers Big Sisters*. Philadelphia, PA: Public/Private Ventures.

Todres, L. (2007). *Embodied enquiry: Phenomenological touchstones for research, psychotherapy and spirituality*. New York; Basingstoke, England: Palgrave Macmillan.

North Carolina State University. (2008). The center for universal design: Environments and products for all ages. Retrieved from https://www.ncsu.edu/ncsu/design/cud/.

Todres, L. (2008). Being with that: The relevance of embodied understanding for practice. *Qualitative Health Research, 18*(11), 1566-1573. doi:10.1177/1049732308324249.

Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science, 224*, 420- 421.

Ulrich, R., Xiaobo, Q., Zimring, C., Anjali J., and Choudhary, R. (2004). *The role of the physical environment in the hospital of the 21st century: A once-in-a-lifetime opportunity. Research Report.* Concord, CA: The Center for Health Design.

U.S. Department of Commerce. (2011). United States Census Bureau. Retrieved from http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_1YR_S1810&prodType=table.

Verderber, S. (2010). *Innovations in hospital architecture*. New York: Routledge.

Van Nes, A. (2012). Between heaven & earth: Christian Norberg-Schulz's contribution to the phenomenology of place & architecture. *Environmental & Architectural Phenomenology Newsletter.* Retrieved from http://www.arch.ksu.edu/seamon/van_Nes.htm.

Wahl, H. W., Iwarsson, S., & Oswald, F. (2012). Aging well and the environment: Toward an integrative model and research agenda for the future. *The Gerontologist, 52*(3), 306-316. doi: 10.1093/geront/gnr154.

Wang, D., & Groat, L. N. (2013). *Architectural research methods*. Hoboken: Wiley.

Ward, C., Kamp, L., & Newman, S. (1996). The effects of participation in an intergenerational program on the behavior of residents with dementia. Activities, *Adaptation & Aging, 20*(4), 61-76. doi:10.1300/J016v20n04_05.

Ward, C. R. (1999). The intergenerational field needs more ethno- graphic research. In V. S. Kuehne (Ed.), *Intergenerational programs: Understanding what we have created* (pp.7–24). New York: Haworth Press.

Weinstein, C. S. (1987). Designing preschool classrooms to support development: Research and reflection. In Weinstein, C. S. & David, T.G. (Eds.), *Spaces for children: The built environment and child development*. New York: Plenum Press.

Wenger, C.G. (2003). Interviewing older people. In J. A. Holstein, & J. F. Gubrium (Eds.), *Inside interviewing: New lenses, new concerns*. (111-130). Thousand Oaks, California: Sage Publications.

Wertz, M., Nosek, M., McNiesh, S., & Marlow, E. (2011). The composite first person narrative: Texture, structure, and meaning in writing phenomenological descriptions. *International Journal of Qualitative Studies on Health and Well-being, 6*(2), 1-10. doi:10.3402/qhw.v6i2.5882.

Willcocks, D., Peace, S. and Kellaher, L. (1987). *Private lives in public places: A research-based critique of residential life in local authority old people's homes.* London: Tavistock.

Williams, A., & Nussbaum, J. F. (2001). *Intergenerational communication across the life span*. Mahwah, NJ: Lawrence Erlbaum Assoc., Publishers.

Williams, S. (2009). *Tom Kitwood on dementia: A reader and critical commentary*. New York: Cambridge University Press. doi:10.1017/S0144686X08008210.

Willis, A. (1992). De re aedificatoria. *Architronic: The Electronic Journal of Architecture, 1*(1).

Wilson, J. O. (1994). *Connecting the Generations: A guide to Intergenerational Resources*. An over view of intergenerational programming and selected listing of books, manuals, and medial resources compiled by J.O. Wilson. Pittsburgh, PA: University Center for Social and Urban Research, University of Pittsburgh.

Wilson, L. B., & Simson, S. (2006). *Civic engagement and the baby boomer generation: Research, policy, and practice perspectives*. New York: Haworth Press.

WHO. (2015). World Health Organization: Health statistics and information systems. Retrieved from http://www.who.int/healthinfo/survey/ageingdefnolder/en/

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.

Zumthor, P. (2006). *Atmospheres: Architectural environments, surrounding objects*. Basel; Boston: Birkhäuser.

Zumthor, P. (2010). *Thinking architecture*. Basel: Birkhäuser.

Zumthor, P. (2013, 03 30). *Royal Gold Medal 2013 lecture – Peter Zumthor*. Retrieved from https://vimeo.com/60017470.

Zumthor, P. (2014). *Peter Zumthor: Buildings and projects, 1985-2013*. Zurich: Verlag Scheidegger & Spiess AG.

Appendix A. Interview Schedule for Architects.

Architects

1. What is the mission of your firm?
2. What is architecture?
3. How do you define place vs. space?
4. How do you think architecture is related to human experience?
5. What is your definition of intergenerational programs?
6. What is your opinion on intergenerational programs?
7. How would an intergenerational space develop into a place?
8. Were you personally involved with the design of this facility?
9. Were you personally involved with the design of this space?
10. What was the main design idea? How did it develop?
11. How do you think this space serves intergenerational interactions?
12. How, if at all, does this space or any other spaces in this facility empowers elders to make their own decisions? (for example: to be able to move from one area to another without a caregiver or be able to decide if they want to just watch children play or join them in the play)
13. How, if at all, does this space or any other spaces in this facility empower children in their daily activities? (for example: to be able to choose between joining a large intergenerational activity or a more intimate, one-on-one, activity with an elder).
14. Are there boundaries between private and public spaces in this facility?
15. How do you define these boundaries?

16. What made you choose these type of boundaries?
17. What kinds of boundaries are needed and how should they be defined?
18. Should boundaries be where things stop or would they be where things start presenting themselves (as Heidegger defines them to be)?
19. What do you think is the best way to celebrate the relation of social and spatial boundaries of intergenerational programs?
20. Based on your definition of architecture, what are some of the points that architects should focus on while creating spaces for intergenerational interactions?
21. Have you done a post occupancy evaluation of the space?
    a. If yes, what did you learn?
    b. If no, why not?
22. What is needed to help the occupants of the building to create a place they need after they occupy the building?
23. If you could change anything in the design of this space, what would it be?
24. Have you or your firm designed any other intergenerational facilities?
    a. If yes, what are some of the 'lesson learned' points that you could share with me?

Appendix B. Interview Schedule for Center Directors

Center Directors

1. What is your position at the center?
2. How long have you been involved with intergeneration programs?
3. Tell me about the primary goals of your organization.
4. How long has your organization been involved with intergenerational program?
5. How did you happen to start this intergenerational program?
6. What is the mission of your organization in relation to intergenerational programs?
7. What philosophy or frameworks inform your practice?
8. Is this mission connected to any human development theories? If yes, which ones and why?
9. I am interested in learning more about the program. Can you tell me a little about it?
10. How often do you have intergenerational programs? (e.g. planned or spontaneous)
11. How do you choose the participants?
12. Do you have an age limit for your participants?
13. How do you connect the elders with children?
14. Do your indoor intergenerational programs always happen in this space?
15. What do you think are the advantages of this space?
16. Any additional information you would like to share?
17. Does this space serve both individual and group needs of elders and children? (for example: allow for opportunities of various interaction levels, protects against social isolation while at the same time consider the sense of privacy for participants)

a. If yes, how?
b. If no, what could have been designed differently in order for the space to serves both individual and group needs of elders and children?

18. How does this intergenerational program help different generations of participants to interact and develop relationships?
19. How do you think the built environment influences intergenerational experience?
20. Do you see participant's perceptions of other generations changing due to their involvement in intergenerational program? If so, how? Could you provide examples?
21. Do you think the spatial layout of this building provides opportunities for elders and children to:
    a. Have spontaneous interactions with one another?
    b. Be in control of how much and for how long they like to be involved in an activity.
    c. Have access to space and control over where they go?
22. What types of multi-sensory activities are offered as intergenerational activities?
23. Does the building offer any opportunities for multi-sensory experiences?
    a. If yes, can you provide examples?
    b. If no, how could that be changed?

24. In what ways has this experience helped participants to reflect on their own views of other generations?
25. What do you think is the most important way that architects can help to improve intergenerational experience?
26. Do you have anything else you would like to add or address?

Appendix C. Interview Schedule for Facilitators, Educators, And Caregivers

Intergenerational Facilitators, Educators, and Caregivers

1. What is your position at the center?
2. What age group do you normally work with?
3. How long have you been involved with intergeneration programs?
4. How did you happen to start this intergenerational program?
5. I am interested in learning more about the program. Can you tell me a little about it?
6. How often do you have intergenerational programs? (e.g. planned or spontaneous)
7. Do your indoor intergenerational programs always happen in this space?
8. What do you think are the advantages of this space?
9. Any additional information you would like to share?
10. Tell me about some of the design features in this space that addresses both individual and group needs of both elders and children? (for example: allow for opportunities of various interaction levels, protects against social isolation while at the same time consider the sense of privacy for participants)
11. Based on your experience at the intergenerational program, how has the program helped different generations of participants to interact and develop relationships?
12. How and in what ways do you think the physical environmental and design features can influence intergenerational interaction?
13. If you could make any changes to this space, what would you change and why?

14. Do you see participant's perceptions of other generations changing due to their involvement in intergenerational program? If so, how? Could you provide examples?
15. Do you think the spatial layout of this building provides opportunities for elders and children to:
    a. Have spontaneous interactions with one another?
    b. Be in control of how much and for how long they like to be involved in an activity?
    c. Have access to space and control over where they go?
16. What types of multisensory activities are offered as intergenerational activities?
17. In what ways has this experience helped participants to reflect on their own views of other generations?
18. Do you know if any of the intergenerational participants have been encouraged by this program to become involved in other intergenerational programming?
19. What do you think is the most important way that architects can help to improve intergenerational experience?
20. Do you have anything else you would like to add or address?

Appendix D. Interviews with Elders

Elders

1. How old are you?
2. How long have you been coming together with the children here?
3. Can you tell me what your typical visit is like?
4. How do you meet and get to know the children?
5. What are your favorite activities involving children?
6. Where do you usually meet with children?
7. What do you like about this room?
8. Does this room influence your relationship with children?
9. If you could change anything in this area, what would it be?
10. Does this building have an effect on your feelings?
11. Where is your favorite place in this building? Why?
12. Do you have anything else you would like to ask or address?

Appendix E. Interviews with Children

Children

1. How old are you?
2. How many days a week do you come to school here?
3. Do you have a brother or a sister who also comes to this center?
4. How do you like this room?
5. What kind of games do you play in this room?
6. I heard this is where you meet with elders, how do you like visiting with the elders?
7. What are your favorite activity to do with the elders?
8. Can you draw a picture of yourself doing your favorite activity in this room?
9. Can you describe what you have drawn?
10. Who is in the picture with you? (if the child has drawn another person in the picture)
11. What do you like most about this space?

Appendix F. IRB Approval Letter

Office of Research Compliance
Institutional Review Board
North End Center, Suite 4120, Virginia Tech
300 Turner Street NW
Blacksburg, Virginia 24061
540/231-4606 Fax 540/231-0959
email irb@vt.edu
website http://www.irb.vt.edu

MEMORANDUM

DATE: July 6, 2015

TO: James R Jones, Neda Norouzi

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires April 25, 2018)

PROTOCOL TITLE: Intergenerational Facilities: Designing Intergenerational Space through a Human Development Lens

IRB NUMBER: **15-555**

Effective July 6, 2015, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

http://www.irb.vt.edu/pages/responsibilities.htm

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As:	**Expedited, under 45 CFR 46.110 category(ies) 6,7**
Protocol Approval Date:	**July 6, 2015**
Protocol Expiration Date:	**July 5, 2016**
Continuing Review Due Date*:	**June 21, 2016**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.