THE ROLE OF UNIVERSITY EDUCATION IN LINKING AGING BODIES TO HOUSING DESIGN IN THE FIELDS OF ENVIRONMENTAL GERONTOLOGY, ARCHITECTURAL STUDIES, AND INTERIOR DESIGN

by

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ABSTRACT

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This is a case-study investigation that proposes opportunities for researchers and educators in the fields of environmental gerontology, architectural studies, and interior design to promote design for aging education by linking the study aging bodies to the practice of house design. This study involved four universities and colleges in several Midwestern States of America. Research methods included case study and thematic analysis of study data. Research design involved semi-structured interviews and document analysis. Critical case sampling was used for selecting participants for the interviews. Interview data revealed that Gerontology, Architectural Studies, and Interior Design faculty could further leverage their scholarly and professional backgrounds to increase program focus on design for aging topics. Results from document analysis showed that although, the Gerontology program faculty had more opportunities to teach their students about design for aging, there was still a need for more advanced aging-design courses in Interior Design programs. In light of that assessment, the researcher’s recommendations included creation of more required courses that teach design for aging topics in Gerontology, Architectural Studies, and Interior design programs. This could be done through collaboration of educators from these disciplines. Limitations for this study included the study’s small sample size and the lack of interview data from two of the case study universities. Future research opportunities in this arena include larger qualitative, qualitative, and mixed method studies relating to university-level aging-design education.
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TABLE OF CONTENTS

LIST OF TABLES ........................................................................................................ viii

CHAPTER 1: NATURE AND SCOPE OF THE STUDY ................................................1

Introduction .................................................................................................................1

Purpose of Study ..........................................................................................................1

Thesis of Study .............................................................................................................2

Procedural Overview ...................................................................................................3

Definition of Terms .....................................................................................................4

CHAPTER 2: REVIEW OF LITERATURE ................................................................5

Environmental Gerontology: Understanding an Interdisciplinary Field ..................5

Role of Design for Aging in the Field of Environmental Gerontology .................7

Aging in Place versus Institutional Elder Housing: The Ongoing Debate ..........9

U.S. College and University Aging-Design Curricula ............................................14

Chapter Summary ....................................................................................................17

CHAPTER 3: METHODOLOGY .............................................................................19

Research Methods ....................................................................................................19

Research Design .........................................................................................................20

Research Procedures ..................................................................................................21

Chapter Summary ....................................................................................................26

CHAPTER 4: RESULTS .........................................................................................27
Results of Semi-Structured Interview ................................................................. 27
Results of Document Review .............................................................................. 33
Chapter Summary ............................................................................................... 39

CHAPTER 5: DISCUSSION .................................................................................. 41
Semi-Structured Interview Responses .............................................................. 41
Document Analysis ............................................................................................. 45
Chapter Summary ............................................................................................... 51

CHAPTER 6: CONCLUSIONS ............................................................................ 54
Study Conclusions .............................................................................................. 54
Study Limitations ............................................................................................... 55
Study Applications and Opportunities for Future Research ......................... 56

REFERENCES ................................................................................................. 58

APPENDICES

A. Interview Schedule ....................................................................................... 63
B. Thematic Analysis of Interviews ................................................................... 64
C. Thematic Analysis of Documents from University 1 and University 2 ......... 65
D. Thematic Analysis of Documents from University 3 and University .......... 66
E. Combined Thematic Analysis of Interviews and Documents ....................... 67
F. Human Subjects Review Committee Approval ............................................. 68
G. Copy of Participant Informed Consent Form ................................................. 69
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interview Themes: University 1 and University 2 Aging-Design Curricula</td>
<td>32</td>
</tr>
<tr>
<td>2. Document Analysis Themes: University 1 and University 2 Aging-Design Curricula</td>
<td>36</td>
</tr>
</tbody>
</table>
CHAPTER 1
NATURE AND SCOPE OF
THE STUDY

Introduction

In 1999, United States celebrated the “International Year of Older Persons.” This event signified a positive shift in the impression of old age all over the world (Sokolovsky, 2009). Different cultures worldwide are going through a transition in their views of later life; they are moving from viewing old age as a catastrophe to looking at it as a celebration of life (Sokolovsky, 2009). Notwithstanding these changing perceptions, however, our society is not sufficiently prepared to create and maintain living environments in which elders can feel safe. Many homes in which older adults live are not designed to accommodate their declining mobility and physical challenges; only a few of these people can afford to have their homes remodeled to meet these needs fully. A significant number of this aging cohort is simply unaware that this may be a hindrance to their successful aging.

As a student aspiring to be an environmental gerontologist, the researcher discovered a small body of scholarly information that directly linked two concepts: safe housing design and aging bodies. There was even less information about the college-level curricula that addresses these two concepts and how they can prepare future gerontologists and interior designers to meet the safe housing needs of a rapidly growing older adult population. This context has served as a driving force behind the researcher’s proposal and execution of a qualitative case study that examined how gerontology and interior design higher education are—and are not—preparing for the explosive growth in the demand for safe elder housing.

Purpose of the Study

This research study has at least two purposes: First, the study results may serve as a resource on matters concerning housing design and aging bodies for aspiring educators, students,
and practitioners in the fields of gerontology, architectural studies, and interior design. This study is meant to initiate the conversation among educators on matters concerning home design and aging, and thereby inspiring more aging-design classes, research, and better still, entire programs, that directly address these issues.

Second, the results of this study also are designed to provide information for professionals in the environmental gerontology, sociology, architecture, interior design, and other aging-related fields, who have sought to guide older adults and their families as they transition from one dwelling to another during later life. The study raises opportunities for gerontology, architecture, and interior design students apply their understanding of the connections between aging and the physical environment, in solving a myriad of aging-design issues that arise in older adults’ homes and long-term care facilities.

**Thesis of Study**

Today, it is not uncommon for older adults to express the desire to remain in their homes as they age. In fact, that choice—namely, “aging in place”—continues to be appealing to many elders and their families. Many older adults’ homes, however, do not always provide an environment that supports their aging bodies. The burgeoning need for aging-design expertise has created opportunities and challenges for the growing number of gerontologists, architects, and interior designers who serve older adult populations. This conundrum raises an interesting question: How does education attained at the university level prepare professionals to intervene and bridge the gap between aging bodies and housing design in the fields of environmental gerontology, architectural studies, and interior design? This research project aims to answer that question, at least in part.
Procedural Overview

To answer the above questions, the researcher followed two paths of inquiry: First, using a mixed case study and thematic analysis method involving two Midwestern universities, the investigator sought to determine how gerontology, architectural studies and interior design programs offered at the university level are addressing some of the issues related to older adult housing. To address these issues, the researcher conducted semi-structured interviews of professors from the universities’ gerontology, architectural studies, and interior design departments. The questions for this semi-structured interview were designed to reveal details of the current structure of gerontology programs in relation to aging design, facilitation of these classes, information source for the subject matter, and the overall curricular limitations. This was a way to prompt the educators to start a conversation about the significance of an aging design element in the field of gerontology education.

Second, the researcher thematically analyzed documents relating to four Midwestern universities’ aging-design curricula. In particular, the researcher reviewed course catalogs, curriculums and detailed descriptions of relevant courses from all four universities. Although the participants’ thoughts and responses to the interview questions were vital to answering the questions posed by this thesis, document analysis also provided useful data about aging-design programs and curricula. In addition to reviewing documents from the first two universities, the researcher examined the curricula of two other Midwestern universities that offered certificate programs in Gerontology with a concentration in Interior Design. This step produced additional insights about the nature of these aging-design curricula and helped to explain how some universities have attempted to educate their students about these topics.
Definition of Terms

_Aging-design studies_ means the study of aging with a focus on the design of built private and communal settings that support the needs and wants of older adults.

_Long-term care_ encompasses the provision of medical, social, and personal care services on an on-going basis to older and disabled persons with chronic physical and mental disorders and/or the inability to manage their activities of daily living. These services can be delivered in a broad array of settings, including institutions, private residences and assisted-living settings” (Frank, 2012, p. 333)

_Aging in place_ means the ability to live in one’s home and community, with some level of independence, rather than in residential care (Wiles, Leibing, Guberman, Reeve, & Allen, 2011).

_Health care design_ concerns the creation of dynamic and engaging health care environments that support individualized needs of patients while identifying opportunities for staff and administrators to expand treatment options and location for treatment delivery (Weremeychik, 2014).
CHAPTER 2
REVIEW OF LITERATURE

This chapter assesses the literature on and provides the linkage between aging bodies to housing design and the opportunities that university-level educators have to create and deliver course materials that will teach their students about these topics. First, the chapter covers the field of environmental gerontology, with an emphasis on its current and future opportunities and challenges in relating to aging-design education and practice. Second, the chapter explores architectural studies and interior design as disciplines related to environmental gerontology, with the purpose of drawing attention to the role of design in the fields of aging studies and elder housing. Third, the chapter examines aging in place as a viable alternative to long-term care facilities in the context of the design of built environments for older adults. Last, the chapter reviews of the role that university education has played in relation to aging-design studies, along with other issues that concern aging and older adults’ built environments.

**Environmental Gerontology: Understanding an Interdisciplinary Field**

Environmental gerontology is a subfield of aging studies that has focused on how the lives of older adults fit into their physical environment, whether built or natural (Environmental Design Research Association, 2012.). The field of environmental gerontology is an interdisciplinary field in which design professionals, researchers, and educators have examined what older persons have gained from improved environmental planning and design, at all levels of scale (Environmental Design Research Association, 2012.).

Due to changes in attitudes and perceptions about older adults, social, academic, and health care fields related to aging matters are widening their scope of research and innovation. For example, North American and European environmental gerontologists have adopted an interdisciplinary approach to their academic research by advancing and integrating concepts
from gerontology, architectural studies, interior design, psychology, geography, and other disciplines (Kendig, 2003). Further, as noted by Kendig (2003), “research on residential environments by health professions is informing community care that is enhancing the independence and well-being of older people” (p. 611).

Viewing environmental gerontology as an interdisciplinary field has helped researchers to deepen their understanding of the relationship between older adults and their living environments (Wahl & Oswald, 2010). The interdisciplinary environmental gerontological inquiry has helped to expose the layers of connection between the physical-social environment and the person, and how this relationship can affect older adults’ health and well-being (Wahl & Oswald, 2010).

Environmental gerontologists might encounter new challenges, including transitions in older adults’ social environments (e.g., intergenerational family adaptations) and home environments (including changes in residential relocation patterns, and smart technology in residential and long-term care facilities). However, environmental gerontologists also have the opportunity to address the interplay between the natural and built environments and social and policy that affect older adults (Wahl & Oswald, 2010).

Meanwhile, professionals in the architectural studies and interior design fields have continued to influence the field of environmental gerontology through their involvements in related professional organizations. The Environmental Design Research Association (EDRA), for example, is a gathering place for aging-design professionals from a variety of fields and disciplines. Within this association is a network for environmental gerontologists whose main target is on the connection between the physical surroundings (built and natural) and the lives of older adults who dwell in them (EDRA, 2012).

The ERDA has published a variety of literature about environmental gerontology, some of which has analyzed research developments in the field in the wake of an unprecedented aging
demographic shift (Moore, et al., 2011). These developments reveal profound—and often unanswered—questions related to political, economic, geographical, and cultural influences on the environmental gerontology arena arise (Moore, et al., 2011). Moore, et. al. (2011) have suggested three primary considerations for the discussion of designs of environments of the older adults; namely, social interactions, security, and autonomy, viewed from communal and institutional perspectives. The authors also have stated the significance of various characteristics found in a physical environment that have enabled socialization among cognitively impaired older adults (Moore, et al., 2011). Other investigators have suggested that a full understanding of the interdisciplinary aspects of environmental gerontology is essential to the development of private residential and long-term care facilities for older adults (Doyle and Medeiros, 2010).

Doyle and Medeiros (2010) conducted a study about designing better dementia care environments for older adults, concentrating on the challenges of designing long-term care facilities that will meet the needs of residents, families, and staff alike. As did Moore, et al. (2011), Doyle and Medeiros (2010) also have suggested a future direction for the environmental gerontology and architectural planning fields that include design and improvement of residential and long-term care settings. Notwithstanding these advances, Doyle and Medeiros (2010) have proposed that professionals from both fields should continue to study aging-design needs of older adult cohorts, including those individuals with dementia and other chronic conditions in need of a wide range of elder housing options.

**Role of Design for Aging in the Field of Environmental Gerontology**

The study of aging-design in the field of environmental gerontology has international roots. Research studies from a variety of countries have helped to produce a field of inquiry that is broad in scope and multinational in character.
For example, in South Korea, Kim, Lee, and Ha (2014) have explored perceptions of medical and interior design professionals relating to design elements for an elder-friendly hospital. In the study, 191 professionals received mailed surveys that asked them to rate 33 design elements that were chosen from peer-reviewed journal studies. These elements were rated using seven extracted factors: fall prevention, privacy, familiarity, way finding, social support, nature distraction, and infection prevention (Kim, Lee & Ha, 2014).

Study results showed that the architectural designers were fixated on psychological and social health of the older patients. Their perceptions revolved around elements that indirectly affected health such as nature, lighting, privacy space, color, and way finding (Kim, Lee & Ha, 2014). Medical professionals, on the other hand, fixated on physical health and infection prevention. Both groups considered fall and infection prevention as the essential elements in an elder-friendly hospital (Kim, Lee, & Ha, 2014).

Read together, these results have revealed that the opinions of the architectural designers and medical personnel were equally significant in relation to the establishment of the hospital’s aging-design elements. Further, the combined opinions of both interior designers and medical staff led to the publication of aging-design guidelines for elder-friendly hospitals that provided new information for designers, planners, and facility managers who were charged with meeting the needs of the hospital’s older adult patients (Kim, Lee & Ha, 2014).

American gerontology professionals and researchers have agreed that older adults’ living conditions, and particularly housing design, should be highly prioritized because of their great impact older adult health and well-being (Binstock, George, Cutler, Hendricks, & Schulz, 2011). Chris Phillipson, a professor and researcher of urban planning and aging issues, has stated that interest in matters about older adult environments recently has resurfaced, creating an opportunity for environmental gerontologists to gain greater understanding about elders in their
physical and ecological settings (Phillipson, 2004). He also has noted that, although this work has regained momentum, it has yet to be linked to wider theoretical perspectives about rural and urban social changes that continue to affect older adults (Phillipson, 2004).

As a result of the increasing target on aging design, new organizational guidelines have emerged relating to safety and functionality of built environments that promote the health and well-being of older adults. For example, the Sunrise Senior Living facility in Mclean, Virginia, has used proprietary home design guidelines that have addressed three aging-design elements: 1) design features such as furniture, finishes and fabrics; 2) space planning; and 3) placement of lighting (Sunrise Senior Living, 2015.). These guidelines are typical of many older adult support organizations, and reveal that aging-design professionals and educators must be prepared to adapt their products and services to meet the evolving needs and abilities of older adult users, and not vice versa (Greenhouse, 2012).

With this context in mind, several questions emerge: Are environmental gerontologists, architects, and interior designers prepared to deal with the explosive growth in the need for residential and institutional housing for older adults? Are they envisioning and designing elder housing that meets the health, wellness, and safety needs of this unique population? And, is the knowledge acquired from a college degree in gerontology, architectural studies, or interior design today sufficient enough to enable future aging-design professions to help meet these needs? Examining the tension between many older adults’ desire to age in place and the draw of institutional long-term care may help to answer some of these questions.

**Aging in Place versus Institutional Elder Housing: The Ongoing Debate**

Researchers have engaged in a long-standing debate about the pros and cons of aging in place versus institutional elder housing. This debate is significant in the field of environmental
gerontology, because it has addresses comfort, belonging, and safety in older adult housing and has influenced policy and decision-making about aging-design as a whole.

The literature that has compared aging in place with long-term care facilities has focused primarily on the tension between older adults’ autonomy to choose where they live and the need to assure that older adults who require assistance with their activities of daily living do so in a safe, comfortable, and healthy environment.

Older adults’ perceptions on aging in place have a powerful impact on their decisions about later life housing. Wiles, Leibing, Guberman, Reeve, and Allen (2011) explored older adults’ views about functionality, symbolic and emotional attachments, and meanings of their homes, neighborhoods and communities. The researchers found several perceived advantages of older adults’ use of aging in place as a means of securing later life housing and support. These advantages included:

1. Aging in place may provide older adults with a sense of attachment or connection and feelings of security and familiarity in relation to both homes and communities. For several elders, home was seen as a kind of refuge or base from which to undertake social and other activities.

2. Aging in place may enable older adults to create and sustain a sense of identity both through independence and autonomy and through caring relationships and roles associated with their homes. For some older adults, it was important to stay in their homes as long as possible; for others, it was more about the sense of familiarity that their homes represented.

3. Policymakers and healthcare providers have supported older adults aging in place in their homes and communities for as long as possible because it avoids the higher costs of long-term institutional care (Wiles, Leibing, Guberman, Reeve, & Allen, 2011, pp. 357-366).
Wiles, Leibing, Guberman, Reeve, and Allen (2011) also found that aging in place included a component of a relationship between the older adults and their physical environments. This led the researchers to conclude that the scope of aging in place had extended beyond just the “feel good” and quality aspects of home or community to include transportation, recreational opportunities, and amenities that facilitate physical activity, social interaction, cultural engagement, and ongoing education (Wiles, Leibing, Guberman, Reeve, & Allen, 2011). These additional aspects can be seen as part of the physical-social environments to which Wahl and Oswald (2010) had referred. Improving the above components may lead to the ecological optimization of neighborhoods and communities, and enhance the quality of life of the older adults that inhabit them (Wiles, Leibing, Guberman, Reeve & Allen, 2011).

Additionally, Golant (2011) concluded that many older adults have sought to achieve as much residential normalcy as possible, even when their declining physical and cognitive status has made independent living difficult. This reality has led many policymakers in the aging field, together with governmental and nongovernmental aging advocacy groups for example the American Association of Retired Persons (AARP), to pay attention to optimizing the living environments for the older persons and to challenge communities to be more attentive with the housing needs of financially, physically, and otherwise vulnerable older adults (Golant, 2011). (Golant, 2011). In the same study, however, Golant (2011) acknowledged a major downside to aging in place: A growing number of elders are remaining in their homes well beyond their capacity for independent living (Golant, 2011). Further still, introducing into their homes a combination of physical and structural modifications, assistive devices, and medical monitoring has resulted in older adults being more inclined to live at home with serious chronic illnesses and impairments. As a consequence, many older persons who have chosen to age in place are now
experiencing a myriad of other issues related to their health, safety, and overall well-being (Golant, 2011).

Therefore, because aging in place is about more than remaining in one’s home in later life, inquiries about the efficacy of aging in place should include whether the place, including the surrounding environment and amenities, meet the inhabitant’s needs. Binstock, George, Cutler, Hendricks, and Schulz (2011) concluded that, in the context of elder housing, there are two groups of older adults: those individuals who would rather live in environments with a “homely feel,” and those persons who are more comfortable in long-term residential settings such as assisted living facilities and nursing homes. These preferences were strong determinants of whether an older adult will choose to remain in his or her home or to move into a long-term care facility (Binstock, George, Cutler, Hendricks, & Schulz, 2011). In the past, many older adults accepted institutional or clinical settings in long-term care facilities as the only choice for housing in their later years. Now, an increasing number of older adults are inclined to age in place in their homes or in homelike residential settings that have resources and places for entertainment and other forms of community activity (Binstock, George, Cutler, Hendricks, & Schulz, 2011).

Older adults’ growing preference for private residential living throughout their lives has led many elder housing facilities to adapt their interior and exterior layouts to appear more homelike and welcoming to their residents. A good example of a long-term care facility as mentioned in previous section, that has adapted to this trend is the Sunrise Senior Living facility in Mclean, Virginia. This facility has employed the expertise of both interior designers and elder care professionals to create safe, comfortable elder-living environments that have fused function and form into an inviting homelike communal residence (Sunrise Senior Living, 2015).
In addition to the core topic of design features such as furniture, finishes and fabrics; space planning; and placement of lighting, the Sunrise Senior Living interior design team used their home design guide to address design needs such as planning smooth transitions; residents’ safety and comfort; design solutions for visual and other sensory limitation; and familiar spaces for memory support (Sunrise Senior Living, 2015). Reducing fall risks, creating safer bathrooms, improving access, proper placement of furniture, and increasing visibility were some of the safety precautions highlighted in the guide (Sunrise Senior Living, 2015). Sunset Senior Living has demonstrated that creating a safe institutionalized elder housing setting need not compromise the unique homely feel that one would find in a private home.

Sunrise Senior Living’s design transition shares common ground with Kim, Lee, and Ha’s (2014) study about design elements in a South Korean elder friendly hospital. In that study, the design elements included fall prevention, privacy, familiarity, way finding, social support, and nature distraction (Kim, Lee & Ha, 2014). Most of these elements were addressed, even obliquely, in the Sunrise Senior Living design guide.

In any case, it is the researcher’s stance that both aging in place and institutionalized older adult living environments have important roles to play in the field of environmental gerontology. For this reason, environmental gerontologists, architects, interior designers, and students may benefit from focusing more attention on understanding and influencing the relationship between older persons and their physical surroundings. This focus could enable the principles underlying aging in place and long-term care facilities to co-exist, rather than compete, in the arena of elder housing.

Human-centered design also could support the harmonious coexistence of aging in place and institutional elder housing in the field of environmental gerontology. As noted by Greenhouse (2012):
Human-centered design is not a design style, but is a process for designing and developing buildings, products, and communities that is grounded in information about the people who will be using them—utilizing research findings and data on cognitive abilities, physical abilities and limitations, social needs, and task requirements in order to provide living-environment solutions that enable all users to function at their highest capacity—regardless of age or ability. (p. 1; emphasis in original)

If aging-design professionals used the substance and process of human-centered design, they could have a stronger foundation upon which to build more unique, functional, and safe designs for both private residential and communal elder housing environments for the rapidly growing population of older adults. In turn, the concurrent—rather than binary—focus on residential and communal elder housing could serve as guideposts for current and future aging-design curricula.

**U.S. College and University Aging-Design Curricula**

Notwithstanding the rapidly growing demand for elder housing, few universities around the United States have created in-depth aging-design learning opportunities for their gerontology, architectural studies, and interior design students. As early as 1977, researchers had introduced aging-design topics in architectural studies classes (Osterberg, 1977). At the time, the University of Michigan used a lecture series, experiential field exercises, elective courses about older adults, and design studios, to teach students about environments and aging (Osterberg, 1977).

Since then, a few more American colleges and universities have adopted these methods as a framework to expose students to contemporary information about the design of built environments for the older adults. For example, Iowa State University has offered two gerontology courses that emphasize older adult living environments: *Environments for the Aging* course has concentrated on the “independent living within residential including
specialized older adult shelter, supportive services, and housing management” issues (Iowa State University Gerontology Program, 2015-2016). The course is designed to provide students with service learning through creative aging-environment projects (Iowa State University, 2015-2016). The university’s *Gerontechnology in Smart Home Environments* course focused on “assistive technology, pervasive computing, mobile computing and principles of universal and inclusive design for [older adult] end users” (Iowa State University Gerontology Program, 2015-2016). In that course, students “work[ed] in semester-long projects as interdisciplinary teams to apply knowledge obtained from lectures and mutual presentations” (Iowa State University Gerontology Program, 2015-2016).

In this context, Iowa State University’s attention to service learning is analogous to the University of Michigan’s experiential class exercises (Osterberg, 1977); in both instances, students have had the opportunity to apply their knowledge in real-life settings. Furthermore, Iowa State University’s use of applied team-based learning may have been an effective tactic to prepare future gerontologists and other professionals to work effectively on teams to solve real-life aging-design problems (Kim, Lee, & Ha, 2014).

At Seminole State College of Florida, students pursuing an Interior Design Bachelor of Applied Science degree have had the option of taking an elective entitled *Designing for an Aging Population*. This course addressed issues concerning older adults’ loss of sight, hearing, and mobility, and impaired memory and cognitive functions in relation to age-sensitive design solutions for their living environments (Seminole State College of Florida, 2015). Study topics related to universal and barrier-free design were incorporated into class lectures and exercises. In addition, students participated in aging-design-related field trips and learned from guest speakers that augment faculty lectures (Seminole State College of Florida, 2015).
Similar to University of Michigan’s experiential aging-design exercises (Osterberg, 1977) and Iowa State University’s use of service and team-based learning in this context, Seminole State College of Florida has engaged students in real-life aging-design scenarios that enhance faculty lectures and other teaching devices. Seminole State College of Florida’s use of field trips and guest lecturers also may have helped students to experience some of the practical aspects of designing build environments for older adults.

Further, instead of concentrating mainly on elements that indirectly affect health such as nature, lighting, privacy space, color, and way finding (Kim, Lee & Ha, 2014), Seminole State College of Florida students have had the opportunity to learn about common age-related health issues before embarking on the aging-design process. When those students become practicing interior designers, they should be able to make practical health care-related design recommendations, and to contribute to the creation and implementation of effective health care-sensitive aging-design guidelines, for the older adult environments that they support (Kim, Lee & Ha, 2014).

Cornell University is another institution that has offered an extensive aging-design program in its College of Human Ecology. Situated in the university’s Department of Design and Environmental Analysis, Cornell’s Master of Arts in Design (MA in Design) students learn about research, design, and strategic planning of built environments for improving people’s lives (Cornell University College of Human Ecology, 2015a, 2015b). The university’s MA in Design students may pursue an interdisciplinary concentration entitled Design for Special Populations (Cornell University College of Human Ecology, 2015a, 2015b). This concentration has constructed design as both a process and a product for accommodating particular needs of specific cohorts, including older adults and persons with Alzheimer’s disease and other forms of dementia (Cornell University College of Human Ecology, 2015a, 2015b). Students who have
chosen this concentration, with attention to the interior design needs of older adults, have been required to complete three or four aging-design courses. These courses are entitled *Environments for Elders: Housing and Design for an Aging Population, The Environment and Social Behavior, Environments and Health, and Effects of Aging on Sensory and Perceptual Systems* (Cornell University College of Human Ecology, 2015a, 2015b).

Although no American College or University has yet to offer a comprehensive aging-design degree program, Cornell University’s special populations interior design program may reflect the academy’s tentative movement in that direction. Further, the examples outlined above have revealed the prominent role of design for aging in the environmental gerontology field. In particular, these examples have suggested that environmental (and other) gerontologists, architects, interior designers, and other professionals in related fields have a social responsibility to take into account the needs and desires of the older adults who ultimately use the spaces that they have created (Cornell University College of Human Ecology, 2015). These professionals also are accountable for ensuring that their aging-design decisions and outcomes are ethical, sustainable, and informed by the older adults that they serve (Cornell University College of Human Ecology, 2015). This accountability includes grappling with the relative virtues of aging in places and institutional long-term care of older adults.

**Chapter Summary**

The chapter has addressed key concepts about older adults’ living environments. These concepts included: (1) environmental gerontology, the field that is directed to older adults’ built and natural environments; (2) interior designers’ (and architects’) approach towards creating spaces for older adults; (3) the confluence of aging in place and institutional elder housing trends; and (4) the past and current states of aging-design curricula in American universities’ gerontology, architectural studies, and interior design programs. These concepts have served as
the backdrop for the researcher’s study about Midwestern universities’ gerontology, interior design, and architectural studies aging-design curricula.
CHAPTER 3  
METHODOLOGY

Using constructs from environmental gerontology, architectural studies, and interior design, the researcher engaged in a case study about the undergraduate and graduate aging-design curricula relating older adults’ private and communal residences. By applying a qualitative approach for this study, the researcher gained insight about the “meanings, processes, and relationships that are difficult to obtain through other approaches” (Marks, 2004, p. 219).

**Research Methods**

To conduct the study, the researcher used a combination of case study and phenomenological thematic analytical methods to collect, analyze, and interpret the study data. The researcher obtained the study data from semi-structured interviews and a review of key documents (Kohlbacher, 2006).

The researcher chose a case study method because it is a preferred strategy for answering questions about which an investigator seldom has control, including contemporary experiences that happen in a real-life context (Kohlbacher, 2006). This method helped the researcher to provide explanations, descriptions, and explorations of these experiences as they occurred (Crowe, Cresswell, Robertson, Huby, Avens, & Sheikh, 2011). A case study approach also enabled the researcher to engage in an in-depth, multifaceted inquiry into the organizational and managerial processes through which the aging-design curricula were created and delivered (Crowe, Cresswell, Robertson, Huby, Avens, & Sheikh, 2011; Kohlbacher, 2006).

By using thematic analysis to study the data, the researcher was able to achieve four main goals: First, it allowed her to discover and report patterns and themes within the interviews, the documents, and the data as a whole (Braun & Clarke, 2006; Vaismorodi,
Turunen, & Bondas, 2013). Second, this method enabled the researcher to detect and identify variables that influenced the participants’ semi-structured interview responses (Alhojailan, 2012), and that were revealed by the document review. In this regard, the researcher coded and categorized the interview responses into themes that both aligned with, and differed from, the findings and conclusions noted in the literature review. Third, the use of thematic analysis enabled the researcher to concurrently analyze and synthesize data gathered from the participants’ semi-structured interviews and through a review of related aging-design documents (Alhojailan, 2012). Last, because the study involved three participants and four universities, thematic analysis proved to be a valuable and effective research method of evaluating the study data as a whole (Alhojailan, 2012).

**Research Design**

This is a case study-thematic analysis investigation that involved interviews of Gerontology, Architectural Studies, and Interior Design faculty of, and review of aging-design program documents from, two Midwestern doctoral-research universities in the United States. The researcher refers to these institutions as University 1 and University 2. With the aim of gaining a broader perspective about extant American aging-design course offerings, the researcher also examined the gerontology-interior design certificate programs offered by two other Midwestern doctoral-research universities. The researcher refers to these institutions as University 3 and University 4.

To answer the study’s research question, the researcher followed three avenues: First, using Universities 1 and 2 faculty interviews, the researcher examined how university gerontology, architectural studies and interior design programs have addressed issues relating to older adult residential and communal housing. Second, also using Universities 1 and 2 faculty interviews, the researcher determined how gerontology programs have addressed aging-design
issues. Third, by reviewing aging-design curricula from all four universities, the researcher sought to gain a deeper understanding of the directions in which university-level aging-design curricula may be moving.

To explore the aging-design topics more specifically, the researcher conducted one-hour semi-structured telephonic interviews with three professors from Universities 1 and 2. Professor A, from University 1, has taught and researched in the fields of gerontology and aging and environments for the past two decades. Professor B, from University 2, has taught and researched in the field of gerontology during the past several years. And finally Professor C, also from University 2, has taught and researched in the fields of architectural studies, interior design, and gerontology over 20 years. To protect the anonymity of the study participants, the researcher uses pseudonyms and refers to each professor using feminine pronouns.

Next, was a review of the aging-design curricula, course catalogs, and course descriptions from all four universities. Using thematic analytical techniques, the researcher coded and identified themes represented in the interviews and the document review. This process produced refined codes and overarching themes that supported the researcher’s ultimate findings and conclusions.

**Research Procedures**

During this study, the researcher used the following procedures for data collection, storage, and analysis, and generation of a set of useful findings, conclusions, and recommendations for further research.

**Participant Selection**

The researcher used a critical case sampling technique to select the study participants in this study. Critical case sampling occurs when individuals and settings are chosen based on specific characteristics because their involvement provides the investigator with compelling
insight about the phenomenon (Qnwuegbuzie & Collins, 2007). The researcher concluded that, for purposes of this study, the professors were the richest source of this information, because they were in the best position to offer details about the aging-design-related courses they have taught, and how aging-design courses are created and delivered.

In February 2014, the researcher recruited the participants by sending them emails that invited them to participate in the study. By May 2014, the three participants had agreed to be interviewed in accordance to the research guidelines established by the University of Central Missouri’s Institutional Review Board (see Appendix F, p. 68, and Appendix G, p. 69).

The researcher intentionally limited the number of participants in this study to three, because case studies usually are limited to three to five participants (Qnwuegbuzie & Collins, 2007). A small sample size is useful in a case study because a large sample size often creates challenges that impede a deep case-oriented analysis (Qnwuegbuzie & Collins, 2007).

**Document Selection**

The researcher examined all publicly available online aging-design-related materials from all four universities. Most of the documents consisted of program descriptions, program curricula, and course descriptions. An initial study the syllabi for undergraduate, graduate, and certificate gerontology and interior design programs at all four universities was carried out. The researcher then scrutinized course descriptions and syllabi for courses that addressed design elements of older adults’ physical environments. After examining the syllabi for both undergraduate and graduate architectural studies programs at universities 1 and 2, the researcher selected several aging-design-related documents for review. In the case of University 3 and 4, which have offered certificate programs in Gerontology with an emphasis in Interior Design, the researcher reviewed the program descriptions, course descriptions, and course syllabi related to those programs.
Informed Consent and Participant Confidentiality

After confirming each professor’s willingness to participate in this study, the researcher provided the professor with a soft copy of the informed consent document, (see Appendix G, p. 69). The researcher allowed each professor a few days to review and consider the document, ask questions, and determine whether or not to participate in this project. The researcher also sought and obtained each professor’s permission to use excerpts from interview transcripts in the written project report. At this point, the researcher assigned each participant a pseudonym (e.g., Professor A, B, or C). The researcher stored this information on a secure hard drive, along with all other informed consent documentation.

Data Collection

This study required the researcher to collect data through in-depth semi-structured interviews, all of which was completed between the dates of the University of Central Missouri’s IRB approval date (June 9, 2014) and last date of data gathering (July 21, 2014). The researcher conducted one-hour telephonic interviews with each of the three participants, using interview questions were established in advance (see Appendix A, p. 63).

During the interview introduction, the researcher reminded each participant about the purpose of study; namely, to explore the programmatic and curricular links between the study of aging bodies and the practice of age-sensitive home design in undergraduate and graduate gerontology, architectural studies, and interior design education. The researcher also informed the participants that interviews would be audio-recorded, transcribed, and stored in a secure location. The researcher created secure data storage and a retrieval system for all study data was created; she labeled and stored all interview audio files, and transcripts, document-review memoranda, and all other study data on a hard drive, which she backed up through a secure online storage service.
The researcher also collected data by creating memoranda outlining the relevant information contained in each of the documents reviewed during this study. A search of curricula and relevant classes was done on the websites for Gerontology, Architectural Studies, and Interior Design programs at University 1 and University 2, and the gerontology-interior design certificate programs at University 3 and 4. These materials consisted of program and course descriptions that included elements of both aging and home (or environmental) design.

**Data Analysis, Synthesis, and Interpretation**

By applying a thematic coding procedure to identify, analyze, and synthesize the data elements that emerged from the study interviews and documents, a basic coding framework for that data was created. Using the following procedures to analyze, synthesize and interpret the above data as it became available, the researcher:

1. Listened to taped interviews to make corrections to typewritten interview transcriptions, and to correlate participant responses with interview questions.
2. Analyzed and interpreted memoranda relating to the documents reviewed during this study.
3. Established initial codes that arose during the researcher’s review of the interview transcripts and documents.
4. Established refined codes based on the initial codes. At this stage, the researcher reorganized the dissected data to help with the identification of main themes that arose from the initial and refined codes (Benaquisto, 2008).
5. Established overarching themes that arose from the main themes and the underlying codes (Benaquisto, 2008).
6. Completed a secondary literature review based on the emerging codes and themes.
7. Continued to adjust codes and themes in light of secondary literature review, until no further themes emerged from the data.

Data Credibility

The researcher used the following strategies to assure the credibility of study data: First, the researcher used methodological triangulation to assure study data credibility. Methodological triangulation involves applying multiple qualitative methods to carry out a study and if the results from each of the methods are the same or similar then validity is established (Guion, 2002). The researcher’s use of participant interviews, document review, and case study-based thematic analysis constitutes methodological triangulation.

The second strategy was to obtain participant permission for use of verbatim excerpts from interview transcripts in the written study report. This strategy is designed to assure the accuracy of data during and after data collection (Wadembere, 2012). The researcher also complied with the participants’ written informed consent throughout the data collection, analysis, and reporting phases of this study.

The third data credibility strategy involved peer review of draft project reports by at other qualified reviewers. In most cases, researchers’ proximity to their research studies prevents them from viewing the data without bias (Wadembere, 2012). The literature has suggested that a fresh perspective from a third party is necessary to allow the reviewers to challenge any of the assumptions that the researcher might have made (Wadembere, 2012). Here, the researcher sought and obtained review of this study report by three qualified reviewers.
Chapter Summary

In conclusion, chapter 3 has outlined the methods, design, and procedures that underlie this qualitative study. This construct has set the stage for the remainder of this thesis; namely, the study results, discussion, and conclusions.
CHAPTER 4
RESULTS

As previously mentioned, the two methods of data collection in this study were semi-structured interviews and document analysis. The chapter presents data and findings that the researcher gleaned from these sources. First is an outline of the results of the participants’ semi-structured interviews, with an emphasis on each university’s gerontology, architectural studies, and interior design curricula. Second is a summary of the results of the researcher’s review of documents that pertain to each university’s gerontology, architectural studies, and interior design curricula and faculty. Last, this chapter addresses a potential framework for the development of more robust aging-design programs by showcasing the course descriptions of University 3 and 4’s gerontology-interior design certificate programs.

Results of Semi-Structured Interviews

The researcher organized the responses to the semi-structure interviews into two categories: the main themes underlying the participants’ responses relating to universities 1 and 2’s gerontology curricula and the main themes relating to the universities’ architectural studies and interior design curricula. A summary of these responses is set forth below.

Gerontology Program Curricula

In terms of how University 1’s gerontology program addressed housing design for older adults, Professor A noted that University 1’s program faculty provided the following to students: dynamic backgrounds in the fields of gerontology, architectural studies, and interior design; connection with associations such as the Gerontological Society of America and the Environments for Aging professional association, both of which have continued to sponsor and publish current work in the aging-design field; and professional contacts in the field of aging and elder housing design. Professor A emphasized that gerontology curricula must include a history
of elder housing design, and must be grounded in aging and design theory, and applied to
contemporary elder housing problems.

University 1 has offered one undergraduate elective gerontology course about designing
living spaces for older adults. Course material for this class was grounded in Professor A’s
seminal aging-design research, education and work in gerontology, architectural studies, and
interior design, association memberships in all three fields, and professional contacts. Professor
A has used this background to teach students about aging-design theory and practice.

University 2 did not offer any gerontology classes that related directly to residential
design for older adults; instead, gerontology faculty have taught classes that have covered the
bigger picture of how older adults have existed in a variety of broader community environments.
Course content was derived from leading scholars in the field of gerontology and interior design.
Professor B opined that, although University 2’s Gerontology program has not emphasized elder
housing design, there is a growing need for an applied course on this topic. In Professor B’s
view, the key challenge was where to fit this course in the program’s overall curriculum, and
how to create the content for such course offerings.

Both professors acknowledged the need for gerontology courses related to elder housing
design. Professor A commented that she would incorporate materials about these topics into her
classes, even if University 2 did not have a gerontology program.

Architectural Studies and Interior Design Program Curricula

The Interior Design faculty provided the following responses to inquiries about elder
housing design curricula: University 1’s interior design program cross-listed gerontology courses
about designing living spaces that support older adults. In addition, other required interior design
courses included topics related to elder housing. University 1 also provided interior design
students with elective advanced-level design studio projects that have included elder housing,
universal design, and aging in place components. Professor A reiterated that the importance of elder housing design as a component of University 1’s interior design program.

Similarly, University 2’s architectural studies and interior design programs included two classes that addressed elder housing design: one related to the human elements of this design, which focused on sensitizing students to persons of all ages; and the other related to legal compliance and building codes and regulations. University 2 also held periodic seminars about aging, which often addressed elder housing design topics, but did not require its students to complete any elder housing-related design studio projects. Professor C emphasized that, with the rapidly growing national older adult population, elder housing design “deserves a special place” within University 2’s architectural studies and interior design curricula (Professor C, personal communication, 2014).

Professor B also noted that it is important to have an applied course in elder housing design in an interior design program, although, because “there are so many layers and services needed for [older adults] that it would be challenging to fit all that information into one class” (Professor B, personal communication, 2014). Curiously, Professor C opined that University 2 did not offer enough classes to teach architectural studies and interior design students about older adult housing needs. She acknowledged that, as an expert in the field of elder housing design, she had the opportunity to teach about these topics, although the University “rarely did a good job of it” (Professor C, personal communication, 2014).

**Confluence of Gerontology, Architectural Studies, and Interior Design Curricula**

The intersection of gerontology, architectural studies, and interior design studies has created some interesting opportunities regarding the education of future gerontologists, architects, interior designers, and other professionals about a growing array of aging-design issues.
Based on the researcher’s interviews of University 1 and 2’s gerontology, architectural studies, and interior design faculty, the following main themes emerged.

**Main Theme 1: Aging-design studies have become a growing interdisciplinary field of study** that is grounded from the fields of gerontology, architectural studies, and interior design. This field has focused on older adults’ built and natural environments, including private and communal residences and spaces. Table 1 below addresses the main themes and recurring codes that related to this confluence in the context of elder housing and the age-related environmental issues.

**Main Theme 2: Universities have begun to link their traditional gerontology, architectural studies, and interior design curricula to enrich the study and application of aging-design principles.** The participants in this study are expert practitioners and educators in the fields of gerontology, architectural studies, and/or interior design. With their leadership, universities have begun to recognize the need for focused aging-design curricula and programs. Notwithstanding this increased target gerontology students are at a disadvantage because they have received little (if any) exposure to aging-design concepts. In contrast, although architectural studies and interior design students have opportunities to study aging-design principles, they still need more advanced design studios that address these topics. One way to fill this gap could be for gerontology, architectural studies, and interior design faculty to partner closely on aging-design matters that relate to their respective disciplines.

**Main Theme 3: Universities currently offer some electives, but few (if any) required aging-design courses in their gerontology, architectural studies, and interior design programs.** This may be a manifestation of the universities’ general interest in, but lack of full commitment to, aging-design studies.
Main Theme 4: Aging-design studies needs to address theoretical and applied topics to prepare future practitioners and educators to meet the growing needs of the older adult population. No graduate program fully addressed theoretical and applied aging-design concepts. Architectural studies and interior design programs addressed practical aging-design issues in lower level design studios. Gerontology courses did not address theoretical or applied aging-design concepts.

Read together, these themes and codes support an overarching theme. This theme states that university faculty members have an opportunity, if not an obligation, to advance the study of aging-design concepts by partnering together to offer more theoretical and applied required and elective aging-related design courses within and across their disciplines. Of course, fulfilling the promise of this overarching theme will require that faculty members have the full support of their universities and administrators.

Table 1 below outlines the overarching theme, the main themes, and their associated recurring codes that arose from the study participants’ interviews (see also Appendix B, p. 64).
### Table 1

**Interview Themes: University 1 and 2’s Aging-Design Curricula**

<table>
<thead>
<tr>
<th>Overarching Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>University faculty members have an opportunity to advance the study of aging-design concepts by partnering together to offer more theoretical and applied required and elective aging-related design courses within and across their disciplines.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aging-Design Studies is a Growing Interdisciplinary Field</strong></td>
</tr>
<tr>
<td>Universities have begun to link Gerontology, Architectural Studies, Interior Design Studies, Especially in Relation to Aging-Design Topics</td>
</tr>
<tr>
<td>Universities Have Offered Some Elective Aging-Design Courses, and Few (if Any) Required Aging-Design Courses</td>
</tr>
<tr>
<td>Aging-Design Curricula Need to Address both Theoretical and Applied Topics to prepare Future Practitioners and Educators to Meet the Growing Needs of the Older Adult Population</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recurring Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aging-Design studies is:</td>
</tr>
<tr>
<td>• a growing interdisciplinary field</td>
</tr>
<tr>
<td>• rooted in gerontology, architectural studies, and interior design disciplines</td>
</tr>
<tr>
<td>• focused on older adults’ built environments</td>
</tr>
<tr>
<td>• focused on elder housing and communal built and natural environments.</td>
</tr>
<tr>
<td>• Aging-design faculty have been expert practitioners and educators in the fields of gerontology, architectural studies, and/or interior design</td>
</tr>
<tr>
<td>• Universities increasingly are recognizing the need for focused aging-design curricula and programs</td>
</tr>
<tr>
<td>• Gerontology students need more exposure to aging-design concepts</td>
</tr>
<tr>
<td>• Architectural studies and Interior design students need more advanced courses that address aging-design issues</td>
</tr>
<tr>
<td>• Gerontology, architectural studies, and interior design faculty could benefit from partnering about aging-design topics</td>
</tr>
<tr>
<td>• Universities have required few, if any, aging-design courses in their gerontology, architectural studies, or interior design programs</td>
</tr>
<tr>
<td>• Universities have offered some aging-design electives in their gerontology, architectural studies, or interior design programs</td>
</tr>
<tr>
<td>• Undergraduate aging-design courses addressed theoretical and practical issues</td>
</tr>
<tr>
<td>• Architectural Studies and Interior Design programs relied solely on elective lower-level design studio classes to address elder housing and design issues</td>
</tr>
<tr>
<td>• Gerontology courses did not address theoretical or applied aging-design issues</td>
</tr>
</tbody>
</table>
Results of Document Review

The documents that the researcher reviewed during this study were retrieved from the each university’s website. The main sources were each university’s online catalogs, curricula, course descriptions, and faculty biographies. The following is a summary of the recurring codes, main themes, and overarching themes that arose during the review of these documents. The first set of documents relates to University 1 and 2’s gerontology programs. The second set of documents related to University 3 and 4’s gerontology-interior design certificate programs.

University 1 and 2: Gerontology Curricula and Faculty

University 1 has offered undergraduate secondary majors in Gerontology, a graduate certificate in Gerontology, and a Master’s of Science degree in Gerontology. Undergraduate students who have declared secondary majors in Gerontology may take a cross-listed interior Design elective that has explored the environmental living and working needs of persons of all ages and abilities. In addition to the undergraduate course in designing living spaces for older adults, University 1 also has offered undergraduate and graduate gerontology students an elective course that has addressed environmental structure and design issues in long-term care settings, including how to create homelike places in those settings. University 1 also has offered an undergraduate-graduate elective environmental aging course that has covered micro-environmental, residential, workplace, and communal design for aging adults.

University 1 has required that its gerontology program students complete a course that addressed the physical environments in which older adults live, work, and recreate. The university’s Master of Science in Gerontology program has required students to complete coursework in eight core areas, including environment and aging.
University 1 students who have pursued a graduate Certificate in Gerontology were not required to take any environmental gerontology courses. They may, however, take as an elective the environment and aging course mentioned above.

University 1’s aging-design courses have included universal design, a philosophy of design for the all built environments that aims to support all persons, regardless of age and ability while. Students explored the principles of universal design in the context of home, work, and communal environments in relation to aging. This shows a concerted effort to address the environmental aspects of older adults’ lives, particularly in their homes and other residential and communal settings.

To support the University’s focus on environmental gerontological issues, one tenured faculty member, with an architectural design and gerontology background, has continued to teach the required and elective aging-design classes. That faculty member has had specific training in, and research interests in aging in place, aging-environment issues, and environmental gerontology. Another interior design faculty member has had specific training in gerontology. In contrast, although University 1’s gerontology program has not required any aging-design courses, the program has offered a broader array of aging-design electives.

University 2 has offered students a Master of Science degree in Gerontology or a Graduate Certificate in Gerontology. As did University 1, University 2 also has offered an environmental aging elective that examined the specific age-related design needs that older adults have in all home, neighborhood, and communal settings in which they live, work, and play.

University 2’s Gerontology program faculty members have backgrounds in gerontology and have worked in the field for several decades. As mentioned earlier, these faculty members
have relayed on their own and other researchers’ seminal studies to teach students about current aging-design trends and practices.

University 1 and 2’s document review data have revealed two themes regarding the evolution of university-level aging-design curricula: First, gerontology faculty have realized the importance of teaching about relationship between older adults and their built and natural environments. Second, there are significant opportunities to leverage further the professional and scholarly experience of the universities’ gerontology faculty. Last, there may be opportunities to emphasize the growing importance of aging-design studies by adopting more rigorous required aging and environments courses in the universities’ gerontology degree and certificate programs.

**Universities 1 and 2: Architectural Studies and Interior Design Program Curricula and Faculty**

University 1 has offered an undergraduate degree in interior design; it has not offered a graduate degree in this discipline. The undergraduate program has included the interior design course described above, and which addresses the environmental living and working needs of persons of all ages and abilities. Although University 1 did not offer any other course related to elder housing design (or universal design), Professor A explained that at least two advanced Interior Design studios later in the students’ undergraduate programs could have provided them with the opportunity to complete aging-related design projects.

At University 2, the students in the Architectural Studies and Interior Design programs may take elective design studio classes. In these classes, faculty members may choose to (but they are not required to) engage students in projects that involve elder housing. Another elective relating to environments and behavior gives faculty another opportunity to address a wide range of theoretical and applied aging-design topics. These classes are designed to help students to
learn how to translate foundational environmental and behavioral theory into practical aging-design solutions.

In toto, these data support three main themes and one overarching theme. The three main theme have reflected that faculty at the participant universities have recognized the need for aging-design studies curricula. In particular, the gerontology faculty have acknowledged the opportunity to significantly increase their focus on aging-design topics, while the architectural studies and interior design faculty have expressed a need for more advanced aging-design course offerings within their respective program. These findings support the overarching theme related to the participant universities’ increasing focus on interdisciplinary aging-design curricula.

Table 2 below summarizes the overarching theme, main themes and recurring codes that related to University 1 and 2’s aging design curricula (see also Appendix C, p. 65).

<table>
<thead>
<tr>
<th>Overarching Theme</th>
<th>Main Themes</th>
<th>Recurring Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The participant universities are increasing their focus on interdisciplinary aging-design curricula</strong></td>
<td><strong>Participant Universities Have Recognized the Importance of Teaching about the Relationship between Older Adults’ Lives and Their Built and Natural Environments</strong></td>
<td>• Student learning objectives included understanding linkages between aging and older adults’ home, office, and community environments</td>
</tr>
<tr>
<td></td>
<td><strong>Participant University Gerontology Departments Have Significant Opportunities to Increase Their Focus on Aging-Design Issues</strong></td>
<td>• Course content included Universal Design and other aging-design concepts</td>
</tr>
<tr>
<td></td>
<td><strong>Participant Universities Have Recognized the Need for More Advanced Aging-Design Courses in their Architectural Studies and Interior Design Programs</strong></td>
<td>• Graduate, certificate, and undergraduate course offerings did not fully address current and emerging aging-design issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Gerontology students no more advanced courses that address current and emerging aging-design issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Aging-design courses were available at undergraduate level only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Architectural Studies and Interior Design programs relied solely on elective studio classes to address elder housing and design issues</td>
</tr>
</tbody>
</table>
These data appear to suggest that the universities’ gerontology programs would benefit from more focus—required or elective—on aging-design topics. In turn, the data appear to support the assertion that the universities’ architectural studies and interior design programs would benefit from more required aging-design classroom and design-studio courses. These courses could be offered undergrad, graduate and certificate levels.

**Universities 3 and 4: Gerontology-Interior Design Certificate Program Curricula**

University 3 and University 4 are two Midwestern universities that have offered a gerontology certificate program with a concentration in interior design. These programs represent the official, programmatic linkage of the fields of gerontology and interior design in ways that closely mirror the MA in Design with a concentration in Design for Special Populations (Cornell University College of Human Ecology, 2015), which the researcher addressed in chapter 2 of this thesis.

Three main themes manifested themselves during the researcher’s review and analysis of University 3 and 4’s gerontology-interior design certificate program documents; namely, students’ are taught about housing options for older adults; students are instructed about the aging process and the aging populations; and students are taught about aspects of elder housing and healthcare design. These main themes have produced an overarching theme; namely, that the universities’ gerontology-interior design certificate students appear to be likely to gain a deeper understanding of a broad range of aging-design concepts, as compared to their counterparts elsewhere.

Under the first main theme, which relates to housing options for older adults, there were two recurring codes relating to long-term care facilities, aging in place, and communal elder housing. These codes emerged from program course descriptions including *Issues in Aging:*
The second main theme regarding the students’ exploration of the aging process and aging populations was supported by two recurring codes. First, students learned about the human aging process from psychological and social perspectives by taking courses such as *Human Behavior and Way Finding; Mid-life, Career Change and Pre-Retirement; Baby Boomers and the 21st Century;* and *Applied Social Gerontology.* Students learned about the aging process in terms of aging bodies by completing classes entitled, *Health Aspects of Aging* and *Human Behavior and Way Finding.*

The last main theme in this context related to students’ examining the interplay between elder housing design and healthcare design. The recurring codes that supported this theme included housing and healthcare design. Courses that addressed these topics included *Issues in Aging: Senior Housing; Suburban Housing;* and *Theories in Healthcare Design: Evidence based design, Evolving issues in Design and Advanced Color Theory.*

Table 3 below summarizes the overarching theme, main themes and recurring codes that related to University 3 and 4’s gerontology-interior design certificate program curricula (see also Appendix D, p. 66).
## Table 3

Document Analysis Themes: University 3 and University 4 Gerontology-Interior Design Certificate Program Curricula

<table>
<thead>
<tr>
<th>Overarching Theme</th>
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<tbody>
<tr>
<td>Gerontology-interior design certificate program students are likely to gain a deep understanding of a broad range of aging-design concepts</td>
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</table>

<table>
<thead>
<tr>
<th>Main Themes</th>
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</thead>
<tbody>
<tr>
<td>Students are Taught about Private Residential and Communal Housing Options for Older Adults</td>
</tr>
<tr>
<td>Students Explore the Processes of Individual and Population Aging</td>
</tr>
<tr>
<td>Students are Taught about the Interplay between Elder Housing Design and Health Care Design</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recurring Codes</th>
</tr>
</thead>
</table>

- **Students are Taught about Private Residential and Communal Housing Options for Older Adults**
  - Student learning objectives include understanding basic aspects of long-term care facility management and administration
  - Course subject matter includes aging in place and communal elder housing topics

- **Students Explore the Processes of Individual and Population Aging**
  - Student learning objectives include understanding aging as a process with physical, psychological, and sociological components
  - Course content includes an examination of the demographic and epidemiological aspects of aging populations

- **Students are Taught about the Interplay between Elder Housing Design and Health Care Design**
  - Student learning objectives include understanding elder housing design elements in private residential, urban, suburban, rural, communal, and long-term care built environments
  - Course content includes theoretical and practical underpinnings of health care design

### Chapter Summary

The study data have revealed three overarching themes; namely, University 1 and 2’s faculty members have an opportunity to advance the study of aging-design concepts by partnering together to offer more theoretical and applied required and elective aging-related design courses within and across their disciplines; University 1 and 2 have increased their focus on interdisciplinary aging-design curricula; and University 3 and 4’s gerontology-interior design
certificate students are likely to gain a deep understanding about a broad range of aging-design concepts. These overarching themes are supported by a variety of main and recurring themes, all of which will serve as the basis of the following discussion and conclusions.
CHAPTER 5
DISCUSSION

This chapter critically examines the study findings in light of the four topics addressed in the literature review; namely, environmental gerontology as an interdisciplinary field; the role of design for aging in the field of environmental gerontology; the ongoing debate about the relative merits of aging in place and institutionalized elder housing; and last, the influence of these lines of inquiry on the undergraduate and graduate level aging-design curricula in the universities that are the subject of this study. In this chapter, the researcher also examines the study findings in view of the sources, programs, and curricula set forth in the literature review.

As noted in chapter 4, three overarching themes emerged from the data: the opportunity to teach and learn about aging-design concepts; acting upon that opportunity; and creating learning environments with which student may gain a deep understanding about a broad range of aging-design concepts (see also Appendix E, p. 67). The following discussion elaborates on these themes and the underlying main and recurring themes.

Semi-Structured Interview Responses

Discussion of the interview responses began with the themes outlined in chapter 4. In summary, the main themes underlying the participants’ responses relating to universities 1 and 2’s gerontology curricula and the main themes relating to the University’ architectural studies and interior design curricula support an overarching theme that asserts that university faculty members have an opportunity to advance the study of aging-design concepts by partnering together to offer more theoretical and applied required and elective aging-related design courses within and across their disciplines.

It is evident from the study results that, through their gerontology, architectural studies, and interior design departments, the case-study universities have made an effort include in their
programs and curricula topics related to design for aging, and ultimately, the field of environmental gerontology. Wahl and Oswald’s (2010) definition of environmental gerontology as an interdisciplinary field is apropos of the participants’ interview responses. In line with the definition, each professor has sought to help her students to understand the connections between older adults and their habitats.

University 1’s gerontology and architectural studies departments both offered an undergraduate elective course about designing living spaces that support older adults. Material for this course was well grounded in Professor A’s well-regarded interdisciplinary aging-design fieldwork and scholarship. She used her professional and academic background in architectural studies and gerontology to enrich her aging-design research and teaching at University 1.

This approach aligns with that of other North American and European environmental gerontologists who have taken an interdisciplinary approach to their aging-design research and teaching by advancing and integrating into their work concepts from gerontology, architecture, interior design, psychology, geography, and other disciplines (Kendig, 2003).

Environmental gerontology topics go well beyond the study of elder’s home settings. In trying to understand the aging in place phenomenon, aging-design researchers have discovered that it is not only about housing quality, but also about transportation, recreational opportunities, and amenities that facilitate physical activity, social interaction, cultural engagement, and ongoing education (Wiles, Leibing, Guberman, Reeve & Allen, 2011). Similarly, professors B and C, respectively architectural studies and gerontology professors from University 2, have taught aging-design classes that have mainly covered the big picture of how older adults have existed in a variety of communal environments.

Although University 2’s gerontology program did not offer classes that related directly to residential design for older adults, the faculty noted the importance of an applied course in elder
housing design in the university’s interior design program. A stated reason for the lack of an aging-design course offering in the gerontology curriculum was breadth and complexity of the subject matter. Some scholars have suggested three primary considerations for the discussion of aging-design curricula; namely, older adults’ social interactions, security, and autonomy, viewed through community and institutional lenses (Moore, et al., 2011). Therefore, strengthening the partnership between University 2’s gerontology, architectural studies, and interior design programs concentrating on the above named considerations (Moore, et al., 2011) may solve this problem.

The scholarly literature and the study data have revealed another area for consideration in the formation and delivery of aging-design curricula: balancing instructional focal points between theoretical and practical applications of evolving aging-design topics. While only one participant emphasized the importance of addressing grounding aging-design studies in both history and theory, two participants’ research centralizes the theoretical and applied aspects of aging-design studies. All three participants were active in professional aging-design-related associations, and two of them had had rich professional and research experience in the aging-design field.

These factors suggest that students, especially at University 1 and in University 2’s architectural studies and interior design programs, would receive well-grounded theoretical and practical aging-design-related instruction. The gerontology programs appear to have the opportunity enhance the theoretical and practical aspects of their aging-design curricula. Furthermore, the availability of aging-related design studios for the universities’ architectural studies and interior design students gives them an opportunity to apply their knowledge in a real life setting (Osterberg, 1977).
Another way of incorporating the theoretical and practical aspects of aging-design studies is by following University 1’s approach of providing interior design students with advanced level design studio projects. These projects have enabled students to explore current issues found in elder housing, universal design, and aging in place components. Similar creative projects have been given to interior design students at other universities (Iowa State University Gerontology Program, 2015-2016).

The study data also has revealed areas for further expansion in the case-study universities’ aging-design curricula. University 2’s Interior Design program offered two classes that addressed elder housing design: one that taught students human elements of this design, concentrating on sensitizing students to the design needs to persons of all ages; and the other related to legal compliance and building codes and regulations. As recommended by Professor A, there appears to be an opportunity to expand the curricula in all of the university’ aging-design-related programs to include the aging and design theory and history, as applied to contemporary elder housing problems. With these additional components in place, University 1’s aging-design curricula may be viewed as both a process and a product for accommodating specialized needs of special populations such as older adults (Cornell University College of Human Ecology, 2015).

Other opportunities for expansion of the universities’ aging-design curricula involve the inclusion of a specific aging-design course or module in University 2’s gerontology program. This suggestion is supported by Professor B’s comments that, despite the growing need for an applied aging-design course, University 2 had not yet prioritized elder housing design within its gerontology curriculum. Again, inviting the gerontology program faculty to partner even more closely with the university’s architectural studies and interior design faculty might help to bridge this gap.
In the same context, although Professor C is an expert in the field of elder housing design, she had not had the opportunity to teach aging-design these topics at University 2’s architectural studies program. She also noted that, although students were not required to complete any elder housing-related design studio projects elder housing design “deserve[d] a special place” within University 2’s architectural studies, interior design, and gerontology curricula. Partnerships among the programs most likely to deliver aging-design studies—architectural studies, interior design, and gerontology—may be the most effective way of addressing this situation.

**Document Analysis**

This section addresses the aging-design-related courses within University 1 and 2’s gerontology, architectural studies, and interior design curricula. This section also examines the results in light of the key topics addressed in the literature review. Additionally, this section addresses the aging-design studies implications of University 3 and 4’s gerontology-interior design certificate programs. As elaborated below, the data supports the conclusions that the participant universities have begun to address the aging-design knowledge gap, and that University 3 and 4’s overtly interdisciplinary gerontology-interior design program may be a model for other universities to consider as they align with the growing demand for age-sensitive residential, facility, and communal environments.

**University 1’s Aging-Design Studies Curricula**

At University 1, undergraduate students declaring secondary majors in gerontology can take a cross-listed interior design elective that has addressed the environmental living and working needs of persons of all ages and abilities. In addition, students may take an elective undergraduate-graduate elective environmental aging course that has focused on micro environmental, residential, workplace, and communal design for aging adults, while another
elective that focuses on long-term care environments is also available to students interested in aging-design topics. University 2’s gerontology program also included a required course that addresses the physical environments in which adults live.

These courses support the notion that aging in place concerns housing quality as well as transportation, recreational opportunities, and amenities that facilitate older adults’ physical activity, social interaction, cultural engagement, and ongoing education (Wahl & Oswald, 2010; Wiles, Leibing, Guberman, Reeve & Allen, 2011). They also advance ideas related to the improvement of older adults’ physical-social environments (Wiles, Leibing, Guberman, Reeve & Allen, 2011). In particular, University 1’s architectural studies and interior design course descriptions have pursued sociophysical aging-design topics such as universal design, and the home, office, and community in relation to design for aging.

University 1 has also offered undergraduate and graduate gerontology students an elective course that has addressed environmental structure and design issues in long-term care settings, including how to create homelike places in those settings. This course reflects older adults’ preference is environments that have a “homely feel”, whether those environments are private, communal, or long-term care environments (Binstock, George, Cutler, Hendricks, & Schulz, 2011). This focus on aging in place and long-term care is appropriate because older adults in the 21st century are more open to aging in place in their own homes or are attracted to residential settings that have resources and places for entertainment and other forms of community activity (Binstock, George, Cutler, Hendricks, and Schulz, 2011).

To support the universities’ focus on environmental gerontological issues, two tenured faculty members with architectural design and gerontology backgrounds have continued to teach the elective and required aging-design classes. These faculty members have had specific training in, and research interests that include, aging in place, aging-environment issues, and
environmental gerontology. Another interior design faculty member has had specific training in gerontology.

In summary, University 1’s focus on aging-design curricula supported by faculty members that are deeply knowledgeable in a variety of aging-design fields reflects the university’s focus on the environmental aspects of older adults’ lives, particularly in their homes and other residential and communal settings.

**University 2’s Aging-Design Studies Curricula**

University 2 has offered an environmental aging course that examined the specific age-related design needs of older adults in the residential, neighborhood, and communal settings in which they live, work, and play. This is elective course is relevant to the university’s gerontology and interior design students because it prepares them to provide the practical solutions for older adults’ aging-design problems.

While studying older adults’ perceptions of aging place, researchers found that the idea was being looked at in terms of functionality, symbolic and emotional attachments and meanings of homes, neighborhoods and communities (Wiles, Leibing, Guberman, Reeve & Allen, 2011). Many elders view their homes as a post from which to go out on different ventures, because it provides them a sense of attachment or connection and feelings of security and familiarity in relation to both homes and communities (Wiles, Leibing, Guberman, Reeve & Allen, 2011). This viewpoint aligns with Professor B emphasis on understanding older adult environments in terms of the design of homes and communal spaces. Through her own expertise in the aging field, she acknowledged that need aging-design studies in terms of a broad picture that teaches students the meanings of neighborhoods and communities (Wiles, Leibing, Guberman, Reeve & Allen, 2011) to older adults.
University 2’s gerontology, architectural studies, and interior design faculty are also experts in their fields, both professionally and academically. The architectural studies professors used their own and others’ seminal aging-design research to address age-related environmental design issues with their students. In contrast, the university’s gerontology faculty relied primarily on other authors’ aging-design research related to about home and community design that supports older adults. As the need for age-specific housing and community design increases, it may be appropriate for universities to search for faculty with professional and academic backgrounds in a full range of aging-design topics (Wiles, Leibing, Guberman, Reeve & Allen, 2011). Indeed, these broad professional perspectives appear to be increasingly vital in creating well-rounded aging-design courses and programs.

At University 2, interior design students have an opportunity to learn about the physical aspects of elder housing and communities, including how these environments influence the behavior of older adults. Interior design faculty may choose to (but are not required to) engage students in projects that involve elder housing, which has exposed students to design-theory and aging-theory concepts and how those concepts translate into real life situations. This course content and structure is important, because of its emphasis on creating elder-friendly living environments and because students have the opportunity to work on teams (Kim, Lee, & Ha, 2014). With this knowledge, students are prepared to go out in the field as designers, planners, and facility managers to advocate savvy aging-design choices (Kim, Lee, & Ha, 2014).

**University 3 and 4: Gerontology-Interior Design Certificate Program Curricula**

University 1 and 2 are good examples of loosely connected aging-design curricula within well-established gerontology, architectural studies, and interior design programs. What appears to be missing from the picture are strong partnerships between these highly related disciplines.
University 3 and 4’s gerontology-interior design certificate programs are good examples of such partnerships. These programs have approached the design for aging subject matter from two angles. First, students are taught about the aging process and older adult cohorts in the context of housing options and design. Courses that reflected this process included *Mid-life, Career Change & Pre-Retirement* and *Baby boomers and the 21st Century*. Second, from the physiological perspective, topics relating to aging bodies were addressed in courses such as *Health Aspects of Aging* and *Human Behavior & Way finding*. With this background, students appear to have received a well-rounded general education in the aging-design aspects of gerontology, architectural studies, and interior design; so armed, they should be prepared to view design for aging as both a process and a product for accommodating the particular needs of older adults (Connell University College of Human Ecology, 2015).

As far as elder housing options are concerned, gerontology-interior design certificate program students who have taken courses such as *Suburban Housing* and *Issues in Aging Senior Housing* were exposed to the continuum of aging in place and long-term care facilities. The range of elder housing options was further addressed in courses that include *Issues in Aging: Senior Housing, Issues in Aging: Management and Administration of Aging Programs*, and *Long-Term Care Administration*. University 3 and 4’s specific intensive focus on elder housing design options should prepare its graduates to be applied experts in the field of design for aging.

Finally, regarding elder housing design, University 3 and 4 have offered courses that address healthcare design, including *Theories in Healthcare Design: Evidence Based Design* and *Evolving Issues in Design*. This spotlight on aging-design from a health care perspective aligns with some of the colleges and universities that the researcher addressed in the literature review; namely, Seminole State College of Florida and Connell University. Because older adults’ health status can create new aging-design challenges and opportunities (Wahl & Oswald,
2010), the gerontology-interior design certificate program students should be equipped to create interior design solutions within built settings, whether in private homes, communal residences, or public spaces. Further still, they should be ably prepared to address the interplay between the natural, built, and social environments and social environments that older persons inhabit (Wahl & Oswald, 2010).

In summary, after the process of analyzing documents and synthesizing the interview data, the researcher’s knowledge base was expanded from the small body of scholarly information that she initially discovered when she first set out to link the two concepts of safe housing design and aging bodies. These documents revealed less information about university-level aging-design curricula that addressed the confluence of safe housing and aging bodies than the researcher initially expected. This gap appears to suggest that there is a growing opportunity for universities to prepare future gerontologists, architects, and interior designers to meet the physical needs of a rapidly growing older adult population. Further, although the range of literature about aging-design education is still narrow, the convergence of aging-design topics drawn from the fields of gerontology, architectural studies, and interior design—along with the growing demand for innovative private and communal elder housing solutions—suggests that this area is ripe for further scholarly and professional inquiry.

During this study, the researcher learned that the study of home design includes older adults’ homes as well as the communities, services, and activities in which they engage, with their homes being their main sources of comfort, security, and identity (Wiles, Leibing, Guberman, Reeve & Allen, 2011). Future aging-design practitioners and researchers should therefore take into consideration older adults’ feelings of attachment, connection, security, and familiarity when addressing issues associated with their homes and communities (Wiles, Leibing, Guberman, Reeve, & Allen, 2011).
Educators could make this possible through collaboration among gerontology, architectural studies, and interior design faculty members who have in-depth aging-design scholarship and expertise. In turn, these faculty members could develop and deliver aging-design curricula with required advanced courses that address both theoretical and applied topics concerning older adults’ relationships with their natural and built environments. These courses then could be cross-listed in each of the faculty members’ respective departments.

**Chapter Summary**

This discourse discussed the themes that arose from the semi-structured interviews of three professors from two Midwestern universities’ gerontology, architectural studies, and interior design programs, all within the context of the viewpoints expressed in the literature review. These themes included: 1) aging-design studies has become a growing interdisciplinary field; 2) some universities have begun to link their gerontology, architectural studies, and interior design curricula to produce courses and programs that address aging-sensitive environmental design issues; 3) the participant universities have offered some elective, and few required, aging-design courses; 4) there is a growing need for aging-design curricula to address both theoretical and applied topics to prepare future practitioners, and educators who will advise older adults about a variety of home and community design matters; and 5) there are opportunities for aging-design faculty to apply their scholarly and professional backgrounds to enhance their universities’ aging-design curricula and programs.

Next, the researcher synthesized the themes that arose from the document analysis of the gerontology, architectural studies, and interior design curricula for University 1 and University 2. Themes and connections between the courses offered and opinions of participants were discussed in light of literature review. Main themes from this section included: 1) the participant universities have recognized that they need to teach the relationship between the physical
environment and older adults; 2) the universities’ gerontology programs have more opportunities to teach their students about design for aging topics; and 3) there is a need for more advanced aging-design courses in the universities’ architectural studies and interior design programs. Based on these themes, the researcher concluded that there is a significant need for more required aging-design courses that teach design for aging topics in gerontology, architectural studies, and interior design programs.

The researcher then compared the themes that arose from the document review of the gerontology-interior design certificate programs at the University 3 and University 4. Main theme of this analysis included: 1) students are taught about housing options for older adults; 2) they explore the aging process and study aging populations; and 3) they study housing and healthcare design topics. Read together, these main themes support the conclusion that students who are exposed to both gerontology and interior design concepts are likely to gain a deep understanding of a broad range of aging-design topics. University 3 and 4’s gerontology-interior design course content, along with that of Cornell University and Seminole State College of Florida, could be used as a framework for advancing interdisciplinary aging-design studies courses and programs in colleges and universities across the country.

The last section of this chapter synthesized the findings regarding all three participant professors and all four participant universities. A comparison of course content universities 1 through 4 with that of other American universities and colleges could be used as a inform current and future aging-design curricula in gerontology, architectural studies, and interior design programs across the country. This curricula should successfully enable students achieve two key objectives: to understand the aging process in terms of social, physical, emotional, and psychological well-being of older adults, and to apply that understanding to help older adults
and their families to plan for and design their homes and communities to meet their evolving needs.

Read together, the study results highlight the opportunity for gerontology, architectural studies, and interior design programs to teach students more about theoretical and applied aging-design concepts. The data further reveals that, although some American universities have begun to act upon that opportunity by offering (mostly elective) aging-design courses, there is a compelling case for taking an interdisciplinary approach to designing and delivering comprehensive aging-design courses and programs that will train future aging-design practitioners, educators, and leaders.
CHAPTER 6
CONCLUSIONS

Design for aging plays a significant role in the fields of environmental gerontology, architectural studies, and interior design. Aging-design concepts are especially important when older adults and their face a choice between aging in place and moving to a long-term care facility. Researchers, educators and professionals, in the field have the opportunity to promote design for aging through research and education. This study proposes the institution of university courses and programs in which the main objective is to link aging bodies to housing design, with an emphasis on the social responsibility bestowed upon designers to ensure the ethical, sustainable and informed role of design with every creative choice they make regarding the spaces they create for the end users (Connell University College of Human Ecology, 2015)

Study Conclusions

The study have revealed three overarching themes; namely, that universities are increasingly recognizing the importance of aging-design curricula and making place for these curricula in their gerontology, architectural studies, and interior design programs. Further, and perhaps most important, building strong interdisciplinary partnerships among related aging-design-related disciplines appears to have created the best environment in which students may explore and master important theoretical and applied aspects of aging-design studies.

The study data also have revealed limited partnerships between University 1 and 2’s gerontology, architectural studies, and interior design departments was an observation made after close analysis of the participant responses. The participants acknowledged their ability to connect aging and interior design through their research, while acknowledging that they are not required to transfer it to classes they teach. The participants’ comments about the need for improvement in aging-design studies education appeared to suggest a real opportunities for the
participants—and their departments and programs—to partner to meet the growing need for aging-design expertise.

The lack of enough design for aging required courses for the universities’ gerontology, architectural studies, is the second limitation. Gerontology and interior design programs from University 1 and University 2 only had elective courses while the interior design programs had studio classes in which students have a chance to work on projects addressing aging issues at an instructor’s discretion.

One question still remains, could the reason for these results that there is a shortage of educators with expertise in interdisciplinary aging-design studies? The two participant professors who were knowledgeable in both fields were open to the exploring the idea of more aging design courses because their backgrounds let them see the need for this knowledge in relation to the changing demographics of older adult populations.

**Study Limitations**

There are four limiting factors underlying this study. First, it had a narrow geographical scope. Second, the study had a small sample size, in relation to the number of interview participants (n=3) and the number of participant universities (n=4). Although these numbers fall within the accepted range of participants in case-study research (Qnwuegbuzie & Collins, 2007), conducting aging-design research with a larger number of aging-design faculty and universities could help strengthen study reliability and credibility. Further, in future aging-design-related case studies, conducting interviews with the faculty (and perhaps students) of all universities that will be subject to document analysis could help enrich and strengthen study data overall.

The third limitation had to do with time constraints on the collection of data process. The researcher only had three months to complete the interviews and to collect all of the study
documentation. In the future, setting aside more time for data gathering and analysis would be helpful.

Last, this study is limited by its qualitative research design. Future research in the field could mitigate this limitation by using a mix-methods design that would inquire about faculty, program, and student experiences with classroom and design salon courses that address key aging-design issues. In this context, mixed-methods could include quantitative analysis of student aging-design course and career outcomes. Focus groups and other modes of qualitative inquiry could be used to inquire about older adult, family, student, and faculty experiences in the aging-design field.

The researcher believes that, notwithstanding these limitations, this study has generated useful findings and conclusions that may enrich future research, drive curricular innovations, and inform program development, in the growing interdisciplinary field of aging-design studies.

**Study Applications and Opportunities for Future Research**

The investigation has presented practical evidence about the opportunity for universities and faculty in the aging-design field to form an alliance across disciplinary lines. In particular, gerontology, architectural studies, and interior design faculty and program managers could enrich their students’ aging-design experiences through a joint effort to develop and deliver courses and programs that are designed to meet the growing need for elder-friendly private and communal living spaces. The gerontology-interior design certificate programs at University 3 and University 4 appear to be good examples of cross-disciplinary partnership in this context.

There also may be need for more required and elective theoretical and applied aging-design courses in gerontology, architectural studies, and interior design programs. This study may have some utility in helping universities to address this issue.
Last, this study may provide aging-design faculty with some insights about how better to leverage their expansive aging-design professional work and research, in aid of sharpening the focus on elder housing, facility, and community design within the faculty members’ universities, departments, and programs.

Through this study, the researcher identified at least two opportunities for further aging-design education research: First, there are opportunities for larger qualitative, quantitative, or mixed-method studies about emerging topics in aging-design-related higher education. These topics could be studied by examining their relevance and application to the fields of gerontology, architectural studies, and interior design. The emerging impacts of the aging of human populations across the globe suggest that the time for these inquiries is now.

Second, there is an opportunity to examine how aging-design faculty members have incorporated their professional work and academic research into graduate and undergraduate classroom settings. This could be achieved by inviting elder care experts, research scholars, and educators with backgrounds is in gerontology, architectural studies, and interior design to elaborate on best practices for the formation and delivery of aging-design content to the rising generations of professionals and educators who will support the growing populations of older adults in the United States and beyond.
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doi:10.1093/gerant/gnr098
APPENDIX A
INTERVIEW SCHEDULE

Semi-structured interview questions were in two categories corresponding to the two main purposes of the study. The first set of questions inquired how the selected gerontology programs have addressed, or are planning to address, housing design for older adults. Below is a list of these questions:

1. Do the program courses have sections, presentations, or readings that address the well-being of older adults in their environments, especially relating to the design of their homes?
2. If the answer to question 1 is “yes,” how did faculty select, design, and delivery, aging-design components of their courses?
3. If the answer to question 1 is “no,” how does gerontology program faculty plan to address aging-design issues in the future?

The second category of questions sought answers about how the selected architectural studies and interior design programs have addressed, or are planning to address, housing design for older adults. Below is a list of these questions:

1. Do the program courses have sections, presentations, or readings that address the well-being of older adults in their environments, especially relating to the design of their homes?
2. If the answer to question 1 is “yes,” how did faculty select, design, and delivery, aging-design components of their courses?
3. If the answer to question 1 is “no,” how does architectural studies and interior design program faculty plan to address aging-design issues in the future?
###APPENDIX B

THEMATIC ANALYSIS OF INTERVIEWS

<table>
<thead>
<tr>
<th>Main Themes</th>
<th>University aging-design courses need to link aging theory, design theory and application to contemporary aging-housing design problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aging-Design Studies is a Growing Interdisciplinary Field</td>
<td>Universities have begun to Link Gerontology, Architectural Studies, and Interior Design Studies</td>
</tr>
<tr>
<td>Universities have offered Few Required and Some Elective Aging-Design Courses</td>
<td></td>
</tr>
<tr>
<td>Aging-Design Curricula Need to Address both Theoretical and Applied Topics to Prepare Future Practitioners and Educators</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Codes</th>
<th>Refined Codes</th>
<th>Main Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aging Design Studies is a dynamic and growing field</td>
<td>Faculty being experts in gerontology and architectural studies</td>
<td></td>
</tr>
<tr>
<td>Participants affiliated with both gerontology and Architectural associations</td>
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<tr>
<td>One participant has a background in gerontology and architectural studies</td>
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<tr>
<td>Aging-design studies includes broad and diverse subject matter</td>
<td></td>
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<tr>
<td>Participants recognize challenges of teaching about such a broad set of topics</td>
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<tr>
<td>Aging-design includes private and communal living environments</td>
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<tr>
<td>Some aging-design curricula have focused more on the broad aging-related community environment, not elder housing</td>
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<tr>
<td>One participant has focused aging-design on broader built environmental issues, not private elder housing</td>
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</tr>
<tr>
<td>University aging-design faculty being experts in gerontology and architectural studies, and interior design programs</td>
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<tr>
<td>Professor A has a background in both fields. Participants affiliated with both gerontology and Architectural associations.</td>
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<tr>
<td>Professor C has had opportunity to work on and write about aging-design concepts</td>
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<tr>
<td>Professor C is an aging-design studies expert, both in terms of professional aging-design work and in terms of scholarship</td>
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<tr>
<td>Universities recognizing the need for focus on aging-design studies</td>
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<td>Professor A has recognized aging-design studies is important</td>
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<tr>
<td>Professor B recognizes the need for aging-design courses in the field of gerontology, but wonders how to prioritize this focus given all the other demands on the gerontology program</td>
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<tr>
<td>Few aging-design courses are offered in gerontology, architectural studies, or interior design programs</td>
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<tr>
<td>Professor A teaches a cross-listed aging-design course for gerontology and architectural studies students</td>
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<tr>
<td>Universities generally have not required aging-design courses for any of their degree programs</td>
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<tr>
<td>With some exceptions, faculty may, but are not required to, focus any attention on aging-design topics</td>
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<tr>
<td>Two professors have had the opportunity to teach aging-design topics; the their professors has not had this opportunity, because of competition from higher priority topics</td>
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<tr>
<td>Aging-design courses need applied and/or studio assignments to address elder housing, universal design and aging-in-place issues</td>
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<tr>
<td>Students can benefit from having applied projects that address aging-design issues for specific older adults</td>
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<tr>
<td>Architectural studies and interior design studies can benefit from advanced-level aging-design studio projects</td>
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APPENDIX C
THEMATIC ANALYSIS OF DOCUMENTS FROM UNIVERSITY 1 AND UNIVERSITY 2

<table>
<thead>
<tr>
<th>Main Themes</th>
<th>Refined Codes</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant universities have recognized the importance of teaching about</td>
<td>Gerontology department has a more opportunities to teach their students about</td>
<td>There is a need for more advanced-level aging-design courses in the participant universities’ programs</td>
</tr>
<tr>
<td>the relationship between the physical environment and older adults</td>
<td>design for aging concepts</td>
<td></td>
</tr>
<tr>
<td>Aging-design courses address universal design elements</td>
<td>University 1 offers more advanced aging-design courses</td>
<td>Some aging-design courses available only to undergraduate students</td>
</tr>
<tr>
<td>University 1 offers an undergraduate gerontology course that is a cross-</td>
<td>University 1 offers an undergraduate and graduate elective environmental</td>
<td>University 1 offers an undergraduate interior design course that addresses the living and working environments and needs of persons</td>
</tr>
<tr>
<td>listed design elective teaching environmental living and working aspects of</td>
<td>gerontology aging course that addresses micro environmental, residential,</td>
<td>of all ages and abilities</td>
</tr>
<tr>
<td>persons of all ages</td>
<td>work, play, and communal design</td>
<td>University 2 offers an undergraduate interior design undergrad course that evaluates relationships between human behavior and</td>
</tr>
<tr>
<td>University 1 offers an undergraduate interior design course that</td>
<td>University 1 offers an undergraduate and graduate gerontology elective</td>
<td>environmental design, and surveys environmental and behavioral theoretical concepts</td>
</tr>
<tr>
<td>addresses living and working environments and needs of persons of all ages</td>
<td>course that addresses environmental structure and design issues long-term</td>
<td>University 2 offers elective interior design aging-related studio classes</td>
</tr>
<tr>
<td>University 1 offers an elective environmental gerontology course</td>
<td>care facilities</td>
<td>University 2 offers interior design studio classes in which students can (but are not required to) work on projects within the</td>
</tr>
<tr>
<td>that addresses micro environmental, residential, work, play, and communal</td>
<td>University 1 offers an undergraduate graduate, and certificate environmental</td>
<td>aging field</td>
</tr>
<tr>
<td>design</td>
<td>gerontology elective course that addresses micro environmental, residential,</td>
<td></td>
</tr>
<tr>
<td>University 1 offers a required gerontology course that addresses the</td>
<td>work, play, and communal design topics</td>
<td></td>
</tr>
<tr>
<td>physical environments in which adults live</td>
<td>University 1 offers a required gerontology course that addresses the physical</td>
<td></td>
</tr>
<tr>
<td>University 2 offers an undergraduate interior design undergrad course</td>
<td>University 1 offers an undergraduate and graduate gerontology elective</td>
<td></td>
</tr>
<tr>
<td>that evaluates relationships between human behavior and environmental</td>
<td>course that addresses environmental structure and design issues long-term</td>
<td></td>
</tr>
<tr>
<td>design, and surveys environmental and behavioral theoretical concepts</td>
<td>care facilities</td>
<td></td>
</tr>
<tr>
<td>University 1 offers an undergraduate graduate, and certificate environmental</td>
<td>University 2 offers elective interior design aging-related studio classes</td>
<td></td>
</tr>
<tr>
<td>gerontology course that addresses micro environmental, residential, work,</td>
<td>University 2 offers interior design studio classes in which students can</td>
<td></td>
</tr>
<tr>
<td>play, and communal design topics</td>
<td>(but are not required to) work on projects within the aging field</td>
<td></td>
</tr>
</tbody>
</table>
### APPENDIX D
THEMATIC ANALYSIS OF DOCUMENTS FROM UNIVERSITY 3 AND UNIVERSITY 4

<table>
<thead>
<tr>
<th>Overarching Codes</th>
<th>Refined Codes</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are Taught about Housing Options for Older Adults</td>
<td>Students Explore the Processes of Individual and Population Aging</td>
<td>Students are Taught about the Interplay between Elder Housing Design and Healthcare Design</td>
</tr>
<tr>
<td><strong>Aging in place and the community</strong></td>
<td></td>
<td></td>
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<tr>
<td>Suburban Housing</td>
<td></td>
<td></td>
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<tr>
<td>The Changing work place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issues in Aging: Senior Housing (required)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Long-term care facilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issues in Aging: Management and Administration of Aging Programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Term Care Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning about the aging process from the psychological and social perspective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Behavior &amp; way finding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid-life, career change &amp; pre-retirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baby boomers and the 21st century</td>
<td></td>
<td></td>
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<tr>
<td>Applied Social Gerontology</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning about the aging process in terms of the physical bodies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Aspects of Aging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Behavior &amp; Way finding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elder housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issues in Aging: Senior Housing (required)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburban Housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Healthcare design</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theories in Healthcare Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence based design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evolving issues in Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Color theory</td>
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</tr>
</tbody>
</table>
## APPENDIX E
COMBINED THEMATIC ANALYSIS OF INTERVIEWS AND DOCUMENTS

<table>
<thead>
<tr>
<th>Themes from Interview Analysis:</th>
<th>Overarching Theme from Interview Analysis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The confluence of gerontology, architectural studies and interior design (aging-design) is a growing interdisciplinary field</td>
<td>Aging-design faculty could further leverage their scholarly and professional backgrounds and writing to increase program focus on design for aging topics</td>
</tr>
<tr>
<td>Universities have begun to link gerontology, architectural studies and interior design studies</td>
<td></td>
</tr>
<tr>
<td>Universities offer a few elective aging-design courses</td>
<td></td>
</tr>
<tr>
<td>Aging-design curricula need to address both theoretical and applied topics to prepare future practitioners and educators</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Themes from Document Analysis:</th>
<th>Overarching Theme from Document Analysis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant universities recognize that they need to teach students more about the relationships between old adults and their physical environments</td>
<td>It is advisable to create more required aging-design courses that teach design for aging topics in gerontology, architectural studies, and Interior design programs</td>
</tr>
<tr>
<td>Gerontology departments have more opportunities to add curricula about design for aging</td>
<td></td>
</tr>
<tr>
<td>Faculty recognize a need for more advanced aging-design courses in their architectural studies and interior design programs</td>
<td></td>
</tr>
</tbody>
</table>

### Study – Overarching Theme:
There is a need for collaboration between gerontology, architectural studies, and interior design departments to develop and teach required, advanced-level theoretical and applied courses that teach students about the relationships between older adults and their built and natural environments.
APPENDIX F
HUMAN SUBJECTS REVIEW COMMITTEE APPROVAL

6/9/2014

Hannah Najjemba
hsn94440@ucmo.edu

Dear Hannah Najjemba,

Your research project, 'Aging Bodies, Housing Designs, and Successful Aging', was approved by the Human Subjects Review Committee on 6/9/2014. This approval is valid through 6/9/2015. Your informed consent is also approved until 6/9/2015.

Please note that you are required to notify the committee in writing of any changes in your research project and that you may not implement changes without prior approval of the committee. You must also notify the committee in writing of any change in the nature or the status of the risks of participating in this research project.

Should any adverse events occur in the course of your research (such as harm to a research participant), you must notify the committee in writing immediately. In the case of any adverse event, you are required to stop the research immediately unless stopping the research would cause more harm to the participants than continuing with it.

At the conclusion of your project, you will need to submit a completed Project Status Form to this office. You must also submit the Project Status Form if you wish to continue your research project beyond its initial expiration date.

If you have any questions, please feel free to contact me at the number above.

Sincerely,

Janice Putnam Ph.D., RN
Associate Dean of The Graduate School
putnam@ucmo.edu

cc: Dr. Masa Higo
CONSENT FORM FOR THESIS RESEARCH

Identification of Researchers: This research is being done by Hannah Najjemba; a graduate student for Masters in Social Gerontology with the Department of Communication and Sociology at University of Central Missouri.

Title: Aging Bodies, Housing Designs, and Successful Aging

Purpose of the Study: The purpose of this research is twofold, first to determine what influence social gerontology programs offered at university level have had on housing design especially the environment in which older adults live. Secondly, to know how interior design programs offered at university level are addressing some of the issues found in older adult housing. In both cases, two universities from the Midwest will be the case studies.

Request for Participation: You are invited to participate in a semi-structured interview and your responses will be used as data for the research. It is up to you whether you would like to participate. If you decide not to participate, you will not be penalized in any way. You can also decide to stop at any time without penalty. If you do not wish to answer any of the questions, you may simply skip them. You may withdraw your data at the end of the study. If you wish to do this, please tell me before you turn in your materials. All interview responses will be confidential.

Exclusions: You must be at least 18 years of age to participate in this study.

Description of Research Method: This study involves a set of open-ended questions. Research questions will be in two categories in correspondence to the two main purposes of the study. The first set of questions will be about the influence of gerontology programs on housing design for older adults. The second category of questions will be about how design programs at university level are addressing issues found in housing provided for older adults today. You will only be asked questions that pertain to your program. You will also have a chance to ask questions.

Privacy: All of the information we collect will be anonymous. We will not record your name, student number, or any information that could be used to identify you.

Explanation of Risks: The risks associated with participating in this study are similar to the risks of everyday life. Any medical treatments provided if an injury occurs will be at the expense of the participant.

Questions: If you have any questions about this study, please contact my advisor Dr. Masa Higo. He can be reached at higo@ucmo.edu or at 660-543-4226. If you have any questions about your rights as a research participant, please contact the Human Subjects Protection Program at (660) 543-4621.
If you would like to participate, please sign a copy of this letter and return it to me. The other copy is for you to keep.

I have read this letter and agree to participate.

Signature: ________________________________

Print name: ______________________________

Date: _________________________________

Reviewed 10/2010 JP