PROCEEDINGS OF THE 2014 ANNUAL CONFERENCE OF THE HOUSING EDUCATION AND RESEARCH ASSOCIATION

Kansas City, MO
October 5-8, 2014

Michael Goldschmidt and Rebecca Blocker
Editors

TABLE OF CONTENTS

Refereed Abstracts
Poster Presentations

Refereed Abstracts
Oral Presentations

AAHE/HERA Presidents

1965-1966 Tessie Agan
1966-1967 James Montgomery
1967-1968 Gertrude Esteros
1968-1969 Maie Nygren
1969-1970 Ruth Smith
1970-1971 Avis Woolrich
1971-1972 Robert Rice
1972-1973 Christine Salmon
1973-1974 Glenda Pifer
1974-1975 Walter Moran
1975-1976 Jane Crow
1976-1977 Roberta Null
1977-1978 Vera Ellithorpe
1978-1979 Gertrude Nygren
1979-1980 Kay Stewart
1980-1981 Alice Stubbs
1981-1982 Betty Jo White
1982-1983 Joseph Wysocki
1983-1984 Carol Meeks
1984-1985 Sherman Hanna
1985-1986 Mary Yearns
1986-1987 Glenda Herman
1987-1988 Robert Thee
1988-1989 Anne Coveney
1989-1990 Carolyn Turner
1990-1991 Joye Dillman
1991-1992 Jacquelyn McCray
1992-1993 Kathleen Parrott
1993-1994 Golden Jackson
1994-1995 Sandra Zaslow
1995-1996 Rosemary Goss
1996-1997 John Merrill
1997-1998 Linda Redman
1998-1999 Dana Stewart
1999-2000 Karen Johnson
2000-2001 Joseph Ponessa
2001-2002 Joseph Laquatra
2002-2003 Marilyn Bode – First HERA President
2003-2004 Shirley Niemeyer
2004-2005 Sue Crull
2005-2006 Julia Beamish
2006-2007 Anne Sweaney
2007-2008 Marilyn Bruin
2008-2009 Jorge Atiles
2009-2010 Ann Ziebarth
2010-2011 Ken Tremblay
2011-2012 Christine Cook
2012-2013 Sarah Kirby
2013-2014 Martha Keel

American Association of Housing Educators/AAHE
Housing Education and Research Association/HERA

Conference Locations and Dates

1946 Urbana, Illinois - April 1-4, 1946
1948 West Lafayette, Indiana - October 17-19, 1948
1957 Urbana, Illinois - October 9-12, 1957
1958 Ames, Iowa - October 22-25, 1958
1959 Stillwater, Oklahoma - October 7-10, 1959
1960 Ithaca, New York - October 12-15, 1960
1961 Manhattan, Kansas - October 11-14, 1961
1962 Minneapolis, Minnesota - October 18-20, 1962
1963 University Park, Pennsylvania - Oct. 30- Nov. 2, 1963
1964 East Lansing, Michigan - October 14-17, 1964
1965 Columbia, Missouri - November 3-6, 1965
1966 1st AAHE Conference, Urbana-Champaign, Illinois - October 26-29, 1966
1967 2nd Lafayette, Indiana - October 11-14, 1967
1968 3rd Athens, Georgia - October 27-29, 1968
1969 4th Davis, California - October 15-17, 1969
1970 5th Lincoln, Nebraska - October 14-16, 1970
1971 6th Blacksburg, Virginia - October 17-20, 1971
1972 7th Dallas, Texas - October 10-13, 1972
1973 8th Madison, Wisconsin - October 10-13, 1973
1974 9th Boston, Massachusetts - October 29- November 2, 1974
1975 10th Fort Collins, Colorado - October 7-11, 1975
1976 11th Columbus, Ohio - October 12-16, 1976
1977 12th Tucson, Arizona
1978 13th Minneapolis, Minnesota - October 11, 1978
1979 14th College Station, Texas - October 16-19, 1979
1980 15th University Park, Pennsylvania - October 6-8, 1980
1981 16th San Francisco, California - October 6-10, 1981
1982 17th Knoxville, Tennessee - August 10-12, 1982
1983 18th Lincoln, Nebraska - October 4-7, 1983
1984 19th Washington, D.C. - August 8-10, 1984

1985 20th Ames, Iowa - October 15-18, 1985

1986 21st Santa Fe, New Mexico - October 14-17, 1986

1987 22nd Newport, Rhode Island - November 2-7, 1987

1988 23rd Corvallis, Oregon - October 11-14, 1988

1989 24th Greensboro, North Carolina - October 24-27, 1989

1990 25th Columbia, Missouri - October 16-19, 1990

1991 26th Durham, New Hampshire - October 15-18, 1991

1992 27th Winnipeg, Manitoba Canada - September 16-19, 1992

1993 28th Columbus, Ohio - October 6-9, 1993

1994 29th Atlanta, Georgia - October 18-21, 1994

1995 30th Salt Lake City, Utah - October 11-14, 1995

1996 31st Kansas State University, Manhattan, Kansas - October 16-19, 1996

1997 32nd New Orleans, Louisiana - October 22-25, 1997

1998 33rd International Housing Conference, Seoul South Korea - August 5-8, 1998

1999 34th Orlando, Florida - October 18-23, 1999

2000 35th Stone Mountain Georgia - November 15-18, 2000

2001 35th Big Sky, Montana - July 22-July 25, 2001

2002 36th Minneapolis, Minnesota - October 23-26, 2002

2003 1st HERA Conference - Washington, DC (held in conjunction with AAFCS) -June 28-30, 2003

2004 2nd Chicago, Illinois - October 20-23, 2004

2005 3rd Denver, Colorado - October 4-7, 2005

2006 4th Cornell University, Ithaca, New York - October 8-11, 2006

2007 5th Charlotte, North Carolina - October 23-26, 2007

2008 6th Indianapolis, Indiana - October 7-10, 2008

2009 7th Santa Fe, New Mexico – November 1- 4, 2009

2010 8th Portland, Oregon – November 3 – 6, 2010

2011 9th Baton Rouge, Louisiana - October 12 - 15, 2011

2012 10th Roanoke, Virginia – October 28-31, 2012

2013 11th Tulsa, Oklahoma – October 27-30, 2013

2014 12th Kansas City, Missouri-October 5-8, 2014

Refereed Abstracts
Poster Presentations

Addressing Career Development and the Integrative Nature of Family and Consumer Sciences: An Independent Study

Axton E. Betz-Hamilton, Ph.D., Eastern Illinois University

According to the American Association of Family and Consumer Sciences (2001), "it is essential to integrate professional specializations around the issues and needs of individuals, families, and communities" (p. 3). At the university where this independent study project was designed, students enrolled in a B.S. in Family and Consumer Sciences program can specialize in Consumer Studies, Family Services, Hospitality Management, Apparel Design and Merchandising, and Dietetics. In this independent study, a student specializing in Family Services with a career interest in mental health counseling expressed an interest in completing an independent study focused on housing. Given mental health counselors at times assist clients with housing issues, it was logical to design an independent study focused on the integration of housing and mental health issues.

In consultation with the student, the requirements for the independent study included completion of 10 readings and summaries. Readings focused on topics such as the built environment and mental health, housing issues related to domestic violence, and homelessness. Additional assignments included the completion of a literature review on a topic of interest to the student related to housing and mental health, completion of 10 hours of volunteer service at an agency that assists individuals with housing issues (e.g., homeless shelter, local Habitat for Humanity program), and a written reflection of that service. A previous independent study focused on housing included a requirement of volunteer service (Betz and Gustafson, 2012).

The student was required to submit five of the ten summaries at midterm; the remaining five summaries were due at the end of the term. The student completed the readings and summaries in the order of their choosing. The volunteer experience and reflection were due at the end of the term, as well as the literature review. Writing assignments were graded based on writing mechanics, proper use of APA formatting, and page length. The volunteer service was graded based upon documented completion of all 10 hours of service.

This independent study contributed to the student's career needs by providing a focused educational experience related to housing and their career goals in mental health counseling. Two Family and Consumer Sciences professional specializations were integrated in this independent study to assist them in meeting the needs of individuals, families, and communities.

References

American Association of Family and Consumer Sciences. (2001). *The essence of Family and Consumer Sciences: State of the profession at the dawn of the 21st century.* Retrieved from http://www.aafcs.org/mediakit/res/fcs-bg.pdf

Betz, A. E. & Gustafson, V.M. (2012). Instructional design to facilitate undergraduate career goals: A housing independent study in Family and Consumer Sciences teacher education. *Proceedings of the 2012 Housing Education and Research Association Conference.*

Aging in Place – Housing for a Lifetime

Marsha G. Alexander, University of Missouri Extension
Connie A. Neal, University of Missouri Extension

How a home is designed can make all the difference in how well it can accommodate the needs of all residents and visitors. "Universal design" is an innovative form of problem solving used to make buildings easy to use for all populations. Universal design is smart design – you can use it to create a home that is flexible, adaptable, with efficient space to accommodate everyone's needs and/or requirements, regardless of age or ability. Your home will be welcoming to visitors of all ages and abilities, as well as accommodate your changing needs.

Baby boomers are aging and we are starting to recognize that communities need to progress to meet the new preferences and needs of all ages. Now is the time to plan for these changes. As university Extension educators, we have the opportunity and responsibility to work cooperatively with other organizations to inform our constituents of unbiased, researched information. Research indicates that Kansas City's older adult population ages 65 and older, is expected to almost double within twenty years.

The objective of the abstract is to show communities how Extension and other entities can work cooperatively to inform the aging population how home design can support aging in place.

KC Communities for All Ages and the First Suburbs Coalition organized through the Mid-America Regional Council (MARC), invited University of Missouri Extension housing specialists to serve on the planning committees and contribute to the development of a toolkit and idea book. These resources were specifically focused on information for aging communities, homeowners, and renters. One of the goals for these initiatives was to assist older adults in living independently in their existing homes or communities for as long as possible. *Making Your Community Work for All Ages, A Toolkit for Cities* was developed specifically for city administrators and community leaders. The *2013 Home Communities for All Ages Idea Book* was created, published, and distributed throughout the Kansas City metropolitan area and northwest Missouri. The publication was specifically designed for regional homeowners and renters. It is currently available in both hard copy and online at http://www.kc4aic.org/siteresources/data/files/communityforallagesideabook.pdf

References:

www.design.ncsu.edu/cud
www.kchba.org
www.nahb.org
www.aarp.org

Do-It-Yourself Home Energy Assessments

Cary Weiner, Energy Specialist, Kenneth R. Tremblay, Jr., Housing Specialist, Irene Shonle, Gilpin County Director, Kurt Jones, Chaffee County Director, Chris Crouse, Clear Creek County Director
Colorado State University Extension

There exist a number of energy education opportunities and resources provided to consumers by Colorado State University Extension. Among these are the home energy audit loan program, workshops, fact sheets, and decision tools. One set of resources that are popular are three do-it-yourself home energy assessments. The purpose of this poster is to outline three assessment tools: basic home energy audit, viability of solar power, and potential of wind energy. Each of the three assessments summarizes the costs and savings that consumers could expect from their energy investments.

The do-it-yourself home energy audit helps consumers to locate areas of energy waste in the home. It provides specific suggestions to reduce the energy waste identified. The audit is located at http://diyenergy.colostate.edu/home.php It is recommended that consumers print the entire audit, filling it out as they go through the house and then entering and submitting the completed audit online. Possible ratings (0 = N/A; 1 = Disagree; 2 = Agree/Some; 3 = Strongly Agree/All) and suggested materials (such as a thermal leak detector available on loan from participating County Extension offices, tape measure, and thermometer) are provided. The categories for the audit are building shell—windows, building shell—doors, air leaks—other, insulation—attic/roof, insulation—other, heating and cooling, water heating, lighting, and appliances. Under each category there are possible conditions listed for consumers to rate, followed by recommendations and cost. For example, in the case of a strongly agree rating given to the possible condition of drafts around closed window edges, the recommendation based on the rating is to install or replace weather stripping and the cost is low. An overall score and general statement about the house's energy use are provided at the end of the audit.

In many areas of the country the use of solar energy to provide electricity to housing is possible. Using the do-it-yourself solar assessment can reveal if a consumer is a good candidate for a solar photovoltaic grid-tied system. The tool can be found at http://www.ext.colostate.edu/energy/solar.html. The assessment consists of a calculator that begins with inputting installation costs based on the size of the system, installation price based on dollars per watt, rebates, and expected life of system. Annual benefits (such as amount of electricity produced), annual cash outflows (such as debt payment and insurance cost), and return on investment based on electric rates are then determined. This calculator is not the sole source for deciding the financial and economic benefits (or costs) of purchasing a PVH grid-tied system, as additional information is needed from potential installers and the current status of rebates.

Wind energy is yet another possibility depending on geographic and weather conditions. A do-it-yourself tool is available to provide consumers with a quick assessment of the technical and economic

feasibility of installing a grid-tied wind turbine. Due to the dramatic effect on electrical generation even slight differences in wind speed have, this tool should be simply a first step in assessing turbine feasibility. It is accessible at http://www.ext.colostate.edu/energy/wind.html. Some of the information needed to complete the assessment are open space availability, zoning restrictions, tower height, mean wind speed, net energy output for the selected turbine, and cost of electricity. Costs of installing a wind turbine system are then calculated followed by first year and lifetime savings.

As home energy prices continue to rise consumers may decide to increase the energy efficiency of their homes or tap into solar and/or wind power to generate some of their own energy. The three do-it-yourself assessment tools described are useful first steps in making energy decisions for housing.

Design and Construction Week:
An Opportunity to Learn, Network, and Experience

Kathleen Parrott and Julia Beamish, Virginia Tech

Design and Construction Week, in Las Vegas, Nevada (February 4-6, 2014), was one of the world's largest gatherings of residential design and construction professionals, anchored by the National Kitchen and Bath Association's *Kitchen and Bath Industry Show* (KBIS) and the National Association of Home Builders' *International Builders Show* (IBS). More than 1500 exhibitors and over 600,000 square feet of exhibit space were available to the anticipated 70,000+ industry professional attendees (Design and Construction Week, 2014).

To take advantage of this unprecedented event, the Virginia Tech Housing Program conducted a one-credit study tour, providing students the opportunity to learn, network, and experience a professional trade show and conference. Activities were designed for before, during and after the study tour to maximize student preparation and involvement. This abstract and poster presentation highlights the various student learning activities and summarizes the study tour outcomes.

Pre-Trip Assignments:

- Students presented *Investigative Research Reports* on two companies, one in each trade show, and a product category (such as cabinetry or flooring) represented by multiple companies.
- *Las Vegas: The Inside Story* was a sharing activity of contemporary facts, history and legends about Las Vegas.
- *Tips and Reminders* was used to prepare students for travel, to attend a professional conference, and to network effectively.

Conference Activities and Assignments:

- The *Design and Theme in Las Vegas* assignment evaluated the visual world of a hotel's public spaces as used to create a theme and the illusion of a fantasy space. Students worked in teams, in accordance with tour restrictions to not wander alone in Las Vegas.
- A detailed *Schedule* was provided to students with required events, times and locations for specific activities, reminders about requirements, and suggested activities.
- Several required *Booth Tours*, led by company professionals, were planned specifically for the students.

Post-Tour Assignments:

- Each student completed a *Participation Work Sheet* a week after returning from Las Vegas. The work sheet summarized activities completed, observations of events, industry and design trends noted, use of social media in preparing for the conference, and overall comments about the experience.

Post-Tour Student Observations and Evaluations:

- Student participants reported a high level of enthusiasm for their chosen career, and greater excitement and challenge for the professional opportunities post-graduation.
- The diversity of products and companies related to housing was a key observation. Students were especially excited by innovative products and technological solutions.

Post-Tour Faculty Observations:

- Structure and expectations were important for the tour, but a balance of flexibility and freedom was also needed. Students tended to stay focused on the purpose of the tour and explored and sought out exhibits and events of interest. Students were particularly adept at finding booths and events connected with celebrities!
- A bonus for faculty was the opportunity to gain a more personal relationship with students and to discuss career and professional topics of shared interest.

References

Design and Construction Week. (2014). *FAQs*.
Retrieved from: http://designandconstructionweek.com/faqs.html

A Study of Zero-Energy Homes in South Korea

Suk-Kyung Kim, Michigan State University
Sung-Jin Lee, North Carolina A&T State University
Hyun Joo Kwon, Purdue University
Mira Ahn, Texas State University

Background and Purpose

Zero-energy houses, one of the progressive types of energy-efficient homes, theoretically consume no energy for heating, cooling, or other daily activities. Although there have been many attempts to achieve this goal, it has been difficult to design a house that produces and consumes the same amount of energy. In South Korea, the development of energy-efficient housing has advanced since the late 1990s when green homes and environmentally-friendly housing were introduced. This presentation focuses on a progressive example of zero-energy housing, Juk-Dong Zero-Energy House Neighborhood (*zeeHome)* in Daejoen, South Korea (Kim, 2012), and analyzes its design and energy consumption features based on two site visits and interviews with the architectural designer.

Introduction to the Green and Smart Homes, *zeeHome*

One of the contemporary trends in residential design in South Korea is green and smart homes. Green homes began appearing in Korea in the late 1990s with the encouragement of the Ministry of Land and Ocean. Also, the Korea Land and Housing Corporation launched its "Environmentally-Friendly Housing Assessment System" in 2001 (Kim, Abrams, & Seidel, 2004). Smart homes were developed with strong governmental support. The Ministry of Information and Technology also encouraged residential buildings to be built with a variety of home automation systems (Kim, Lee, & Yim, 2009). The two concepts were incorporated into residential building designs such as Juk-Dong Zero-Energy House Neighborhood (*zeeHome*).

zeeHome Design Features and Zero-Energy Consumption

There are six detached and seven attached single-family owner-occupied houses in *zeeHome*. The primary design characteristics include the south-oriented floor plan with larger windows facing south and smaller windows facing north. The design of each house was determined by its occupants' needs (user-participatory design). Each house uses the active solar and geothermal systems for heating and cooling, focusing on zero-energy consumption in which the amount of energy created by on-site renewable energy sources is equivalent to the energy amount used by the building (California Energy Commission, 2011). The house uses both natural and energy-efficient electronic ventilation and uses natural vegetation to conserve water and to maintain gardens efficiently.

The energy consumption reports of the *zeeHome* from June 2011 to June 2014 have shown that the solar and geothermal systems supply enough energy for the houses. By June 2012, the *zeeHome* houses had reached zero-energy consumption. Since July 2012, the houses have returned the surplus energy to the provincial energy company, exceeding the expectation of zero-energy consumption. The designers of these houses emphasized their efforts to incorporate the pre-assessment of heat gain and loss through walls, windows, and air circulation in interior spaces.

Conclusion

According to the designers interviewed, the residents were quite satisfied with their energy-efficient homes. This presentation will highlight the interior and exterior design features that achieved zero-energy consumption and propose future suggestions for zero-energy design and development.

References

California Energy Commission. (2011). *Revised zero net energy (ZNE) Definition.* Retrieved from http://www.energy.ca.gov/2011_energypolicy/documents/2011-07-20_workshop/presentations/Revised_Zero_Net_Energy_Definition.pdf

Kim, S.K., (2012). Housing abroad-Asia. In A. Carswell (Ed.), *The encyclopedia of housing, 2nd edition* (pp. 312-315). Thousand Oaks, CA: SAGE Publications.

Kim, S.K., Abrams, R.F., & Seidel, A.D. (2004). *Post-application of Korean sustainable indicators for multi-family housing with focus on the design of community centers*. Proceedings of the 2004 EAAE ARCC (Architectural Research Centers Consortium) Conference, Dublin, Ireland, 203-211.

Kim, S-K., Lee, Y., & Yim, M. (2009). Hi-tech amenities for the elderly: The technological assistance needs of elderly Koreans aging at home. *Journal of Housing for the Elderly, 23*(3), 204-226.

Revealing the Complexities of Visual Content Analysis in Interior Design

Jaya Rose

The decision to review kitchen images in print advertising developed in response to our research questions and inspired the search for a methodology that would follow the scientific method and lead our team through the research design process. Media analysts use visual content analysis to find meaning in images beyond universally understood representations offering a systematic methodology for documentation; measuring and interpreting messages that may be found within advertising, television programming and motion picture images. (Berger, 2011) These interpretations generally reflect on society, culture, politics and gender issues.

Selected for our inquiry is the longest running publication featuring home design in the United States, The House Beautiful, beginning in December of 1896. A primary component in executing visual content analysis is the identification of categories and variables prior to the start of the research based on the hypothesis or research questions. (Neuendorf, 2002)

Utilizing the methodology of visual content analysis and adapting the focus of study, the categories identify the physical architectural and unfitted elements presented within the selected images. For example, walls, floors, large appliances, accessories and cabinetry were assigned as categories and the variables created reflected on properties within each category, such as material, finish, pattern and color. Borrowing from media studies we collected some similar information with regard to the inclusion of people, their interactions and their activity within each image. (Van Leeuwen & Jewitt, 2001) Initially included were over 500 images and 30 categories with 252 variables. Documenting this information within scientific standards will provide a data base of images and statistics useful beyond this research project supporting other interior design researchers and historians.

Once our categories and variables were in place two researchers were then trained to review the variables and apply a number or a string of numbers as an identifying code(s). These codes will be utilized to provide a statistical overview and allow for comparison once entered into SPSS statistical software. We are seeking a high inter-rater reliability (Kappa, .80 or above) which will statistically support our findings and be within the desirable percentage for this methodology.

Yuri Lotman, a Russian semiotician, spoke to the difficulty of interpretation of a single image as different viewers receive different information based on each one's comprehension. Asa Berger (2004) in his book *Ads, Fads, and Consumer Culture: Advertising's Impact on American Character and Society* reinforces Lotman's observations and reminds us that everything in an image is important and the more you know the more you can see. When we embarked on our project we did not expect any major discrepancies as both coders (interior designers) were trained to code per the assigned definitions and the items identified were not evaluated based on symbolic meaning as found in media research. The

testing and initial pilot statistics were unexpected and revealed challenges that surprised and intrigued us enough to warrant this paper in an effort to aid other interior design researchers who may find this process useful.

References:

Berger, A. A., (2000). *Ads, Fads, and Consumer Culture: Advertising's Impact on American Character and Society*. Lanham, Md: Rowman & Littlefield.

Berger, A. A., (2011). *Media and Communication Research Methods: An Introduction to Qualitative and Quantitative Approaches*. Thousand Oaks, Calif: Sage Publications.

Neuendorf, K. A. (2002). *The Content Analysis Guidebook*. Thousand Oaks, Calif: Sage Publications.

Van Leeuwen, T., & Jewitt, C. (2001). *Handbook of Visual Analysis*. Thousand Oaks, Calif: Sage Publications.

Refereed Abstracts
Oral Presentations

Analyzing Housing Affordability of U.S. Renters During the Great Recession, 2007 TO 2009

Katrin B. Anacker, Yanmei Li[1]

Introduction

While the impact of the Great Recession on the United States and its states, regions, neighborhoods, and households has been discussed extensively, not much recent work has been conducted on the housing affordability of U.S. renters from 2007 to 2009. The literature finds that over the past few years and decades, nominal and real rents have increased while household incomes have lagged behind (Joint Center for Housing Studies of Harvard University, 2012 and 2013). While this finding may be true for some households, we argue that it might not be true for others, i.e., one needs to differentiate by changes in household income vs. the housing cost burden.

Data and Research Methods

In this study we utilize national American Housing Survey (AHS) data sets from 2007 to 2009 to analyze the housing affordability of four groups of renters, based on the housing cost burden defined as having rental housing costs higher than 30 percent of a renter's household income. First, households whose household income increased but whose housing cost burden decreased (n=4,539); second, households whose household income increased and whose housing cost burden increased (n=655); third, households whose household income decreased but whose housing cost burden decreased (n=1,916); fourth, households whose household income decreased but whose housing cost burden increased (n=2,804). We utilize descriptive statistics to analyze select socioeconomic and housing characteristics of the four groups.

Results

Our dataset has 9,914 renter households total. Households whose household income increased but whose housing cost burden decreased are 45.78 percent of our dataset, a surprisingly high proportion, contrary to the finding that nominal and real rents have increased while household incomes have lagged behind. Households whose household income increased and whose housing cost burden increased are 6.61 percent of our dataset, a finding that is consistent with the typical pattern of incomes and rents in the long run. Households whose household income decreased but whose housing cost burden decreased are 19.33 percent of our dataset, a finding that is perhaps contrary to the long-run pattern. Households whose household income decreased but whose housing cost burden increased are 28.28 percent of our dataset, consistent with the finding that nominal and real rents have increased while household incomes have lagged behind.

[1] Katrin B. Anacker, Ph.D., Associate Professor, George Mason University; Yanmei Li, Ph.D., Associate Professor, Florida Atlantic University

Table 1. Descriptive Statistics for Subgroups

Variable Mean (Standard Deviation) Pr> |t| of T-test 2007 vs. 2009 (5% level)	Subgroup #1 (Household Income Increased, Housing Cost Burden Decreased; n=4,539)	Subgroup #2 (Household Income Increased, Housing Cost Burden Increased; n=655)	Subgroup #3 (Household Income Decreased, Housing Cost Burden Decreased; n=1,916)	Subgroup #4 (Household Income Decreased, Housing Cost Burden Increased; n=2,804)
Monthly Housing Costs				
Monthly Housing Costs (2007; % of Households)	40.31% (19.85%)	26.04% (14.20%)	36.07% (21.02%)	23.29% (12.40%)
Monthly Housing Costs (2009; % of Households)	28.30% (17.34%)	34.81% (18.88%)	28.89% (17.41%)	42.85% (20.69%)
Change in Monthly Housing Costs (2007-2009; % of Households)	-16.00% (15.78%) <.0001	8.77% (11.82%) <.0001	-13.07% (14.73%) <.0001	19.56% (16.94%) <.0001
Household (HH) Characteristics				
Average Household Income (2007; in $)	$25,279 ($24,745)	$34,026 ($27,456)	$36,343 ($40,576)	$56,442 ($48,885)
Average Household Income (2009; in $)	$47,627 ($44,946)	$44,114 ($37,867)	$11,411 ($18,550)	$31,961 ($25,819)
Change in Average Household Income (2007-2009; in $)[2]	$23,736 ($32,439) <.0001	$10,087 ($18,369) <.0001	-$21,928 ($35,983) <.0001	-$24,481 ($36,314) <.0001
Change in Average Household Income (2007-2009; %)	6,416% (166,991%)	37.82% (70.33%)	-64.69% (34.52%)	-37.86% (23.14%)
Number of HHs Non-Hispanic Black/African American (2007)	692	105	328	451
Number of HHs Non-Hispanic	822	103	419	492

[2] The variable Change in Average Household Income (2007 – 2009; in $) is not based on the mathematical difference between the variables Change in Average Household Income (2009) and Change in Average Household Income (2007); it is based on responses to the income question in both survey years. The average in each year only reflects the responses provided in that particular year. As not every respondent answered the income question in both years, there is a difference that does not reflect the mathematical difference. The same explanation holds for each variable that reflects changes from 2007 to 2009 in this study.

Black/African American (2009)				
Change in Number of HHs Non-Hispanic Black/African American (2007-2009)	130	-2	91	41
Number of HHs Non-Hispanic Asian (2007)	178	32	99	126
Number of HHs Non-Hispanic Asian (2009)	224	26	58	126
Change in Number of HHs Non-Hispanic Asian (2007-2009)	46	-6	-41	0
Number of HHs Hispanic/Latino (2007)	839	110	265	576
Number of HHs Hispanic/Latino (2009)	839	110	265	576
Change in Number of HHs Hispanic/Latino (2007-2009)	0	0	0	0
Number of HHs That Stayed Married (2007-2009)	702	147	175	618
Number of HHs That Became Married (2007-2009)	277	35	138	379
Number of HHs That Became Single (2007-2009)	376	55	73	238

Conclusion

Based on results from Table 1, we conclude that researchers and policy makers should differentiate between changes in household income and the housing cost burden.

References

Joint Center for Housing Studies (2013). *America's Rental Housing: Evolving Markets and Needs.* Cambridge, MA: Joint Center for Housing Studies.

Joint Center for Housing Studies (2012). *The State of the Nation's Housing 2012.* Cambridge, MA: Joint Center for Housing Studies.

Exploring the effectiveness of a state level Low-Income Housing Tax Credit (LIHTC)

Gina Peek Ph.D.
Jorge Atiles, Ph.D.
Sissy Osteen, Ph.D.
Dave Shideler, Ph.D.
Brian Whitacre, Ph.D.

Introduction

The purpose of this abstract is to discuss efforts used to explore the need and creation of a state Low-Income Housing Tax Credit (LIHTC) program in a south central state. Prior to the research, there had been a federal level LIHTC. After a state level LIHTC was implemented. Specifically, this abstract examines the factors that led to the development of a state level LIHTC. The research team was multidisciplinary and consisted of faculty with Cooperative Extension appointments at the state's land grant university.

Why do we care?

Families spending 30 percent or more of their income on rent/mortgage and utilities are considered housing cost burdened. Families spending 50 percent or more of their income on housing are considered severely housing cost burdened (Cook, Steggell, Suarez, & Yust, 2006). Spending too much on housing means less money for other necessities, including food, transportation, and medical care. Lack of affordable housing essentially forces housing cost burden on some families. High-risk populations, including older adults and rural households, pay too much for deficient housing (Cook et al., 2006). The Low Income Housing Tax Credit (LIHTC), established by the Tax Reform Act of 1986, created affordable rental housing opportunities for low-income households (US Department of Housing and Urban Development, n.d.). LIHTC is a tool that incentivizes the private market to invest in affordable housing.

Methods

Researchers used a mixed methods approach to determine feasibility. Two sources of data were used. First, quantitative data from secondary sources were used to establish an understanding of the state economic indicators and Federal LIHTC performance in the state. HUD LIHTC, Census, and the American Community Survey were used. Statistical matching techniques were used to compare communities that received a federal LIHTC development with otherwise similar communities that did not receive the credit. Second, qualitative data were collected via electronic survey from developers that had taken advantage of the Federal LIHTC in the state. These data were used to develop an impression of the program based on developer experience. Both the quantitative (secondary) and qualitative (primary)

data were used to draw conclusions. Finally, results from another state that had implemented a state level LIHTC were examined.

Results

Based on the results of this study and the experiences of LIHTC in and other states, the research team determined that a state LIHTC would enhance and multiply the benefits to industry and people of the state. For example, the LIHTC would provide housing opportunity to low-resource consumers, stimulate construction, and align investments in high need areas.

Implications

This abstract addresses important and interesting issues in our field. As noted by Carswell, Merrill, Sweaney, and Tremblay (2006), one of the most critical housing challenges of the twenty-first century is affordability. The need for affordable housing supply is not unique to the state used for this abstract. Other states may benefit from stabilized housing markets, reduction in severe poverty, and stimulation of local economies, and other benefits derived from implementing a state-level LIHTC.

Impacts

Findings from the study led to a report that was used by state legislators to debate and analyze a proposed bill to create an LIHTC in the state. This culminated with the successful passing and signing the bill in May 2014.

References

Carswell, A. T., Merrill, J. L., Sweaney, A. L., & Tremblay, K. R. (2006). Housing challenges for the twenty-first century. In J. L. Merrill, S. R. Crull, K. R. Tremblay, L. L. Tyler & A. T. Carswell (Eds.), *Introduction to housing*. Upper Saddle River, NJ: Pearson Education, Inc.

Cook, C.C., Steggell, C. D., Suarez, A., & Yust, A. (2006). Housing affordability. In J. L. Merrill, S. R. Crull, K. R. Tremblay, L. L. Tyler & A. T. Carswell (Eds.), *Introduction to housing*. Upper Saddle River, NJ: Pearson Education, Inc.

US Department of Housing and Urban Development. (n.d.). Low income housing tax credits. Retrieved March 1, 2014, from http://www.huduser.org/portal/datasets/lihtc.html

A Geographic Perspective to Homeownership: Barriers and Resources for a Low Income County in the US Rural South

Leslie Green-Pimentel, Delta State University
Paulette Meikle, Delta State University
Vicki Tinnon, University of Southern Mississippi

Introduction

The study county is characterized by persistent poverty, low-income, education, and homeownership, and high unemployment. These characteristics contribute to the wealth gap and limit the economic progress of residents. One strategy for improving residents' economic well-being is to acquire assets, such as a home or small business. Low-income households have demonstrated they can save and acquire assets such as a home (Bentzinger & Cook, 2012; Boshara, 2011; Grinstein-Weiss et al., 2008; Joint Center for Housing Studies, 2013). However, low-income households often face barriers to homeownership such as inadequate finances and information, discrimination, affordability, and predatory lending (Grinstein-Weiss et al., 2008). Related to the barrier of inadequate finances and predatory lending is access to traditional financial institutions, which when lacking, promotes the use of non-traditional financial institutions. Such use can have negative consequences as loan terms and conditions may have high interest rates and short repayment periods, thus promoting delinquency and possibly damaging one's credit (Mississippi Economic Policy Center, 2007).

Purpose/Objectives

The purpose of this research is to examine the barrier of access to financial institutions (traditional and non-traditional) in the study county, using a geographical approach. The objectives of the research are:

1. Identify census tracts in the study county that are majority traditional financial institutions and majority non-traditional financial institutions.
2. Examine the number and location of these institutions in each census tract before and after the economic crisis.
3. Compare the census tracts that are majority traditional financial institutions to the census tracts that are majority non-traditional financial institutions by income, race, education, and housing status.
4. Examine the locations of each type of institution by organizations in the county offering resources to improve economic well-being of residents.

Methods

Financial institution data were obtained from the FDIC, the National Credit Union Administration, the Department of Consumer Finance and Banking and Yellow Pages online. The data include address and date established (some institutions did not report a date established). Data for county resource organizations were obtained through prior programmatic work conducted in the county by the researchers. Data for income, race, education, and homeownership status for the study county were obtained from the US Census and measured at the census tract level.

The first two objectives are addressed by mapping each institution using Geographic Information Systems (GIS) software. The third objective is addressed using GIS software to map and compare the census tracts that are majority traditional financial institutions to the census tracts that are majority non-traditional financial institutions by income, race, education and homeownership status. The data for these variables are overlaid onto each census tract. Significant differences among these census tracts by the above variables are examined. The fourth objective is addressed by mapping each resource organization and comparing those locations to the locations of the financial institutions.

Results/Discussion

The results are primarily in map format and will be shown and discussed in the presentation. Implications for asset building, including homeownership, and the barrier presented by access to financial institutions (traditional and non) will be shared.

References

Bentzinger, A. L. & Cook, C. C. (2012). On the path to homeownership: Low-income owners and renters in rural communities. *Housing and Society 39(1*), 77-98.

Boshara, R. (2011). Seven surprising findings from the asset-building field. *Bridges*. Retrieved from http://www.stlouisfed.org/publications/br/articles/?id=2058.

Grinstein-Weiss, M., Lee, J. S., Greeson, J. K. P., Han, C.K., Yeo, Y. H., Irish, K. (2008). Fostering low-income homeownership through individual development accounts: A longitudinal, randomized experiment. *Housing Policy Debate, 19(*4), 711-739.

Joint Center for Housing Studies (2013, September). Is homeownership still an effective means for building wealth for low-income and minority households? (Working Paper HBTL-06). Harvard University: Author.

Mississippi Economic Policy Center (2007). Mississippi payday lending fact sheet. Retrieved from http://mepconline.org/fact-sheet-Mississippi-payday-lending.

Decision-Ade™: Using Predictive Analytics to Segment U.S. Homeowners by Utility-bill "Botheredness" and Budget Constraints

Randall A. Cantrell, PhD, and Charles B. Sewell, University of Florida

Background

Decision-Ade (DA) is a discriminant analysis segmentation tool that uses six highly reliable segmentation questions to assign respondents to 1 of 16 distinct profiles (it does so at an alpha level of .01) based on their responses to the six segmentation questions. After respondents answer the six segmentation questions, their composite score is calculated, and then they are assigned to their corresponding profile, using an algorithm developed as part of DA. The profile assignment enables users to determine how a respondent aligns with the two constructs underlying the DA research: 1) utility bill "botheredness" and 2) household budget constraints.

Research Rationale

The vast majority of homeowners are concerned about heating and cooling costs (Wardlaw, 2013). Thus, this study measured homeowners' utility-bill botheredness and household budgetary constraints to determine whether homeowners could be segmented into unique groups or perception types. Utility-bill botheredness is most easily understood by thinking of how you feel when reviewing your monthly utility bill (e.g., proud, hopeful, helpless), Household budgetary constraints are most easily understood by thinking of a household's balance sheet (i.e., how it manages the revenue generated after paying expenses). The rationale for testing the first construct (utility bill botheredness) was based on findings from Wardlaw (2013), which showed that many home upgrades were instigated by homeowners' reactions to increases in their home energy costs. The rationale for testing the second construct (household budgetary constraints) was based on findings from the Alliance to Save Energy (2013), which showed that based on the 1970 per-capita energy-use levels in the U.S., total residential energy consumption and cost were on course to roughly doubled within the proceeding 40 years. The following six statements representing those two constructs served as dependent measures against 76 independent measures in this study.

Utility-Bill Botheredness segmentation statements (1=highly disagree, 10=highly agree):

- When thinking of PAST utility bills, I am bothered.
- My CURRENT utility bill bothers me.
- My utility bill is too expensive.

Household Budget Constraints segmentation statements (1=highly disagree, 10=highly agree):

- By the end of the month, my bank account is mostly depleted.

- My household budget is tight most months.
- I frequently have problems making ends meet.

After subjecting all measures to Tukey's HSD test, the authors we were able to determine which of the 76 independent measures most highly represented each of the 16 distinct profiles. Thus, after homeowners' profile scores were calculated, the researchers were able to reliably assign them to one of 16 distinctly different profiles.

Research Objectives

The objectives of this study were to determine whether 1) utility-bill botheredness, and 2) household budget constraints could be used as measures for segmenting homeowners according to their conservation needs and desires.

Methodology

A sampling company was paid to randomly invite 2,340 U.S. homeowners from its proprietary survey panel to participate because this is how many invitations were required to achieve the minimal acceptable number of usable survey responses: 1,019. Renters were excluded because they have limitations governing what they can alter about their residence. The age range, set at 25 to 75 years of age, was chosen based on owner-occupied housing numbers from the U.S. Census (American FactFinder, 2013). The response rate was 69.2 percent.

The electronic, web-based questionnaire comprised five distinct sections. The first section explained that responses would be anonymous to the researchers, established a projected time commitment, and described what types of questions to expect. The main body of the survey contained four thematic sections composed of multi-item scales. The themes and number of items measured, respectively, in each section were: Other Motivations (19), Financial (21), Innovativeness (20), and Utility Bill/Conservation Behaviors and Devices (22).

Results

Individual responses (i.e., items) were segmented into their respective perception types. After all segmentation was complete, principal component factor analysis, using Varimax (i.e., maximum variance) rotation was performed on the items in each of the four dimensions. This resulted in four multi-item factors along each of the three dimensions: Motivations (4 factors), Financial (4 factors), and Innovativeness (4 factors); and three multi-item factors along the dimension of Utility Bill/Conservation Devices (3 factors). Using all 15 of these factors to test the segmentation hypotheses (i.e., utility-bill botheredness and budgetary constraints), multiple regression analysis was used in a stepwise fashion in order to estimate an optimal model. This resulted in reducing 76 items (i.e., the original 82 less six items used for the two segmentation variables: botheredness (3 items) and budget constraints (3 items)) into nine statistically significant factors (from the 15 factors identified), which were made up of 42 individual items. The optimal model) explained more than half (56.7%) the "story" regarding why U.S. homeowners, ages 25 to 75 years, vary in their receptivity to conserving energy and water. Further, more than 45 percent of the U.S.

homeowners in this study were classified as fitting into four of the 16 profiles generated. This allows residential contractors to learn a considerable amount of information about nearly one out of every two homeowners they visit to discuss preparations for a bid and estimate for the scope of work when conducting home energy upgrades. The result of that information is that the buyer-seller relationship can be substantially improved upon because of a greater understanding on behalf of both parties.

Conclusions

There has been, and continues to be, research performed in the U.S. by conservation groups, utility companies and even local, state and national governments to determine an effective way to achieve better efficiencies and decreased use of energy and water in homes. The use of Utility-Bill Botheredness and Budget Constraints as components allowed the authors to learn more about how receptive the 16 different perception types were to the concepts of energy and water conservation.

References

Alliance to Save Energy. (2013). The history of energy efficiency. Washington, D.C.: Alliance Commission on National Energy Efficiency Policy.

American FactFinder. (2013, November 6). *2012 American Community Survey 1-year Estimates*. Retrieved from Census.gov: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_1YR_DP04&prodType=table

Wardlaw, M. 2013. Home buyers value environmentally friendly features. Retrieved from National Association of Realtors: http://www.realtor.org/news-releases/2013/10/home-buyers-value-environmentally-friendly-features.

Acknowledgements

This research was made possible by an Early-Career Scientist Seed Funding Award through the University of Florida's Institute of Food & Agricultural Sciences' Office of the Dean for Research, Florida Agricultural Experiment Station, Ordway-Swisher Biological Station
Gainesville, Florida 32611-0200. Thus, the know-how developed by this research, and the name *Decision-Ade*©, is protected by the University of Florida.

The authors wish to thank AdSAM's® Dr. Jon Morris and Ms. Cathy Gwynn for their support.

Assessment of the Energy Transformation Curriculum: Changes in Knowledge and Practice for Participating Youth

Sarah D. Kirby, North Carolina State University
Autumn G. Guin, North Carolina State University
Amy G. Chilcote, North Carolina State University

The Department of Energy (DOE) developed seven essential energy literacy principles and fundamental concepts that all citizens should understand. DOE feels that,

> *"without a basic understanding of energy, energy sources, generation, use and conservation strategies, individuals and communities cannot make informed decisions on topics ranging from smart energy use at home and consumer choices to national and international energy policy" (DOE, 2012, p. 3).*

The Energy Transformation school enrichment curriculum addresses energy literacy by teaching middle school students about energy conservation and efficiency while addressing important essential standards in science and math (Chilcote & Kirby, 2012; Kirby & Chilcote, 2014). This practical, experiential curriculum teaches students about renewable and non-renewable energy sources, energy consumption patterns, principles of heat transfer, characteristics of air leakage, weather stripping, insulation and energy efficient lighting. The curriculum is designed to encourage critical thinking and application related to energy efficiency and conservation, in the hopes of producing the next generation of environmental stewards. The curriculum includes six modules focusing on energy efficiency in the home. The modules are:

Energy Makes the World Go Round focusing on renewable and nonrenewable energy sources; *It Just Makes Cents* concentrating on energy efficient light bulbs and energy costs; *Control the Flow* exploring electrical switches and phantom energy use; *The Heat is On* addressing heat flow including convection, conduction, and radiation; *Don't Lose Your Cool* emphasizing stack effect, air leakage, and weather stripping; and *It's a Wrap* exploring home insulation.

To help with learning the concepts associated with each module, students build a model home out of cardboard that they insulate, weather strip, wire for lighting and fans, and test for air leakage. This experiential component helps students to both visualize and test the principles of air movement; thereby learning ways energy is lost and gained in a home. Additionally, modules address a variety of student skills by incorporating math problems, science experiments, and writing assignments into each unit.

Following a pilot effort and revision, Cooperative Extension agents in 18 counties were trained in the use of the curriculum. Implementation and evaluation of the program is on going. Thus far, results have been received from 8 counties. This abstract focuses on preliminary data gathered from student evaluations of the curriculum.

Students were given either an online or written evaluation instrument. Educators were given a choice about their preferred method of delivering the evaluation instrument to their students. On the instrument, students were asked to indicate their level of agreement with specific statements, with 1= strongly disagree, 2 = disagree, 3= neutral, 4= agree, and 5= strongly agree. Preliminary data gathered from student evaluations indicate that youth increased their energy literacy knowledge in all categories on which they were questioned:

Table 1

Knowledge and Behavioral Changes n=205

Knowledge and Behavior(s)	Before Mean Scores	After Mean Scores
I understand the difference between renewable and non-renewable energy sources	3.40	4.17
I regularly turn off energy using devices when I am done using them	3.60	4.12
I can point out examples of phantom energy use	3.10	2.16
The majority of lights in my home are energy-efficient LED or CFL	3.27	3.74
Saving energy is important to me	3.80	4.21
I like to teach others about saving energy	2.62	3.09
Saving energy is important to my family	3.59	3.96
I can explain the purpose of weather stripping in a house	2.42	3.49
I often talk with my friends about ways to save energy	2.08	2.48
I often talk with my family about ways to save energy	2.37	2.93

Impacts

When asked what they like most about the curriculum, students indicated they like the hands on building and testing the model home with a smoke stick for air leakage. What they like least about the

curriculum included the difficulty in making the box, the length of time given for the project, and that they already knew much of the information presented.

In addition to the behavioral and knowledge change captured above, students also reported installing a total of 164 compact fluorescent bulbs in their homes. Using the Energy Star CFL calculator (Energy Star, n.d.), this behavior change has the potential to result in annual savings: $1,204 of electricity savings, 11,134 kWh savings, and 17,146 pounds of CO2 reduction. Over the life cycle of the bulbs impacts may result in $7,497 electricity costs and 81,344 kWh saved.

Thus far, results indicate that students are learning important energy efficient principles. Of interest, though, are the statements from students indicating that they are already aware of many of the principles in the curriculum. An implication for this finding is the need for project directors to enhance the curriculum with more complex experiments or expanded subject matter to further the existing education of those students who already possess energy literacy knowledge. The project continues and additional evaluation will be gathered from additional students regarding knowledge increases and behavioral changes. Additionally, data collection from teachers who implemented the curriculum is underway.

References:

Kirby, S.D. & Chilcote, A.G. (2014). Energy transformation: Teaching youth about energy efficiency while meeting science essential standards. *Journal of Extension* [On-line], 52(1) Article 1IAW2. Available at: http://www.joe.org/joe/2014february/iw2.php

Chilcote, A., & Kirby, S.D. (2012). *Energy transformation 4-H school enrichment curriculum*. Raleigh, NC: North Carolina Cooperative Extension.

Chilcote, A. **Kirby, S**., Helton, J., Silliman, B., Guin, A., and Maxa, E. (2009). Energy our history, energy our future*. 2009 Housing Education and Research Association Annual Proceedings,* 152-158.

Energy Star. (n.d.) Calculate your savings. Retrieved June 26, 2014 from http://www.energystar.gov/?c=cfls.pr_cfls_savings

This project was sponsored by the Piedmont Natural Gas Foundation.

Extension Guides Community Redevelopment

Katherine Allen*, County Extension Director/ Family & Consumer Sciences Agent IV, University of Florida IFAS Extension in Suwannee Co.; Randall Cantrell*, PhD, Housing and Community Development Faculty, University of Florida IFAS, Mike Spranger, PhD., Professor and Extension Specialist, University of Florida IFAS

In June 2012, Tropical Storm Debby dumped more than 30 inches of rain in less than 24 hours on this small rural community. Following the storm, 80 percent of the community was under water and more than 30 sink holes formed throughout the county displacing families. The already economically depressed downtown business district was flooded and a large sink hole approximately 180 feet deep and 200 feet wide formed between the courthouse and various businesses. The city's infrastructure and community residents were put to a major test as a result of this storm. The city was devastated as more than $5 million in damages were incurred as a result of this storm. The resulting demolished buildings on the main street through town was a constant reminder of the sense of futility felt throughout the community in both its residents and businesses.

In the following 18 months the Extension team (two State Specialists and County Agent) worked with elected officials, business owners and affected residents to provide technical assistance and educational resources to help the community recover from this natural disaster. They coordinated community visioning meetings, arranged field tours, provided contacts for city staff to obtain technical training, assisted in procuring grants, and brought in national renown experts in rural redevelopment efforts to address housing, marketing, downtown development, community walkability and redesign focused on the natural and cultural assets of the area. The results of which are now being applied in the Community Redevelopment Agency's activities.

In addition to a new business retention and expansion program, a Small Business Development Center consultant has been hired, sidewalks and welcome signs erected, and the CRA has adopted a suggested housing portfolio to engage developers and has listed new and affordable housing as one of its top three priorities for 2015. Elected officials stated this Extension team provided the community with new direction, purpose, and hope. They stated they had significant funds and technical assistance from federal and state agencies, but this team helped bring the community together and put them on the road to recovery.

New development projects such as a clock tower with the brick façade being installed by the local Vocational-Technical school have been funded through the Community Redevelopment Agency. The community is now more engaged in local decisions and civic engagement through email notifications of city and county meetings. A recent effort to provide fireworks for the first time in over a decade was met with approval by the over 3,000 citizens who attended. Community development has been an untapped

area of focus for Extension in the state and can assist those involved in housing programming to have a seat at the table to help the county to connect to resources to better the lives of the citizens.

A Decade After: Post occupancy evaluation of houses in tsunami affected areas in the Southern Region of Sri Lanka

Tilanka Chandrasekera, Assistant Professor, Oklahoma State University-Stillwater
Noriel Jacobs Gray, Oklahoma State University-Stillwater

The world's fifth-largest quake in a century hit Southern Asia on 26th December 2004 unleashing tsunamis that swept across the Indian Ocean, spawned by a magnitude 9.0 earthquake off the coast of Sumatra. Aside from Indonesia, Sri Lanka likely suffered the most casualties. Thousands of people were displaced and disappeared or killed within a very short time.

It has been 10 years since this ravaging tsunami hit the south east Asian region. A number of housing solutions have been provided for the victims affected by the tsunami during these 10 years. The purpose of the study is to document perspectives of the residents of these houses through post occupancy evaluations. Periodic evaluations of user expectations and user satisfaction are the basis for post occupancy evaluations and provide insight into how improvements can be made in such future development projects. For this purpose this study focuses on a village developed for victims of the tsunami in the southern region of Sri Lanka.

A village that was established to house people who were displaced due to the tsunami was selected as a preliminary location to conduct an initial survey on post occupancy evaluation of these residences. Thirty households in the village located on the southern cost of Sri Lanka were initially randomly recruited, and the survey was answered by the head of the household. The questionnaire contained questions under four main sections: User perception of the dwelling, User perception of the immediate neighborhood, Future expectations, and Demographic information.

This study will provide a background and a base for a large scale national level study on similar developments. While this study provides user perception about the current situation in this tsunami village, the study will also provide insight into how improvements can be made in future developments of similar nature especially in terms of disaster mitigation efforts.

Identity Theft and the Potential Impact on the Housing Industry

Axton Betz-Hamilton, Ph.D., Assistant Professor of Consumer Studies, Eastern Illinois University

There were 12.1 million victims of identity theft in 2012 (Javelin Strategy and Research, 2013) and identity theft was the top category in number of complaints received by the Consumer Sentinel Network in 2013 (Federal Trade Commission, 2014). The Consumer Sentinel Network is a U.S.-based national database for consumer complaints. Identity theft complaints in 2013 primarily focused on the theft of one's personal information by another for tax benefits, establishing credit card accounts, and establishing new utility accounts. While these were the top reported forms of identity theft in 2013, there are a variety of other ways identity theft can be committed. Identity thieves can obtain real estate loans and rental housing. In 2013, 1.3% of identity theft complaints involved a victim's identity being used to obtain housing. While this might not seem like a large number, the economic impact for the victim, their family, as well as individual rental property managers and mortgage lenders can be significant, with the median monthly rent in the U.S. at $871 (Flanagan & Schwartz, 2013) and the average price of a home in the U.S. at $272,900 (U.S. Census Bureau, n.d.). Given the complex nature of identity theft, along with the costs associated with this crime, the housing industry should consider supporting policy initiatives to support identity theft victims in the expedient recovery of their identities.

The more recent foci of identity theft in the available literature are medical identity theft (Walters & Betz, 2012) and child identity theft (Chappell, 2012, Power, 2011), with limited attention to the connections between identity theft and the housing industry. A recent article by Sullivan (2014) highlights less obvious ways identity theft victims can be impacted, including diminished job prospects as some employers take a potential candidate's creditworthiness into consideration as part of the screening process as well as a criminal record, depending on the identity thief's activities. A criminal record can also hinder a victim's employability. Another potential impact of identity theft is an inability to obtain student loans, which delays or stops a victim from attending college, which in turn can affect their ability to secure a career. These less obvious impacts of identity theft should be of interest to the housing industry, as one's ability to obtain employment as a direct impact on their ability to participate in the housing market.

Remedying the effects of identity theft generally falls upon the victim, as they are charged with the task of proving it was not them who ruined their creditworthiness, engaged in criminal activities, and so forth. The process typically involves contacting law enforcement, original creditors, collection agencies, and credit reporting agencies, and the victim waiting for notification from each that their record has been cleared of fraudulent activity. This process, in some cases, takes years. The longer the process takes, the more time it is likely a victim is not participating or not fully participating in the housing market. Public policies that limit a collection agency's ability to place an account on a victim's credit

report when the account is known to be associated with identity theft and increasing crime victims' compensation services for identity theft victims, and creating alternative financing sources for college students who cannot obtain student loans as a result of identity theft are ways identity theft victims' recovery could be further supported.

References

Chappell, R. (2012). *Child identity theft: What every parent needs to know.* Lanham, MD: Rowman & Littlefield.

Federal Trade Commission. (2014, February). *Consumer Sentinel Network Data Book for January-December 2013.* Retrieved from http://www.ftc.gov/system/files/documents/reports/consumer-sentinel-network-data-book-january-december-2013/sentinel-cy2013.pdf

Flanagan, C. & Schwartz, M. (2013, April). *Rental housing market condition measures: A comparison of U.S. metropolitan areas from 2009-2011.* Retrieved from http://www.census.gov/prod/2013pubs/acsbr11-07.pdf

Javelin Strategy and Research. (2013). *More than 12 million identity fraud victims in 2012 according to latest Javelin Strategy and Research Report.* Retrieved from https://www.javelinstrategy.com/news/1387/92/More-Than-12-Million-Identity-Fraud-Victims-in-2012-According-to-Latest-Javelin-Strategy-Research-Report/d,pressRoomDetail

Power, R. (2011). *Child identity theft: New evidence indicates identity thieves are targeting children for unused Social Security numbers.* Retrieved from https://www.cylab.cmu.edu/files/pdfs/reports/2011/child-identity-theft.pdf

Sullivan, B. (2014). *Nine surprising ways identity theft can hurt you.* Retrieved from https://bobsullivan.net/privacy/nine-surprising-ways-identity-theft-can-hurt-you/

U.S. Census Bureau. (n.d.). *Median and average sales prices of new homes sold in the United States.* Retrieved from http://www.census.gov/const/uspriceann.pdf

Walters, W. & Betz, A.E. (2012). Medical identity theft. *Journal of Consumer Education, 29*, 75-79.

U.S. Baby Boomers' wants in Sustainable Housing

Hyun Joo Kwon, Purdue University
Sung-Jin Lee, North Carolina Agricultural and Technical State University
Mira Ahn, Texas State University
Suk-Kyung Kim, Michigan State University

Rationale and Research Purpose

Sustainable housing contains concepts of energy efficiency and healthy indoor environments, which contributes to enhanced quality of life of residents (Edwards & Turrent, 2013; US Green Building Council, 2009). Generally, sustainable housing can give greater benefits to aging populations who are likely to experience a decline in health and to have higher risks in residential environment (Pillemer, Wells, Wagenet, Meador, & Parise, 2011). In the U.S., aging populations have been growing including Boomer retirees. This demographic trend leads to attention to the concept of sustainable housing in conjunction to older adults' well-being within their home environment (Wells & Laquatra, 2009; Wright, Caserta, & Lund, 2003). The study purpose is to examine Baby Boomers' wants in sustainable housing, focusing on their socio-demographic and housing characteristics.

Methodology

A sample was drawn from those who were born between 1946 and 1964 (i.e., Baby Boomers, *N*=403). Data was collected using convenience sampling by an online survey company in 2011. A self-administered questionnaire was developed. Socio-demographic characteristics included age, gender, marital status, health status, number of household members, education level, employment status, and family income. Housing characteristics included housing type, tenure type, number of bedrooms, and geographical location. Items related to sustainable housing includes: general wants on well-being (1 item), energy efficiency (3), indoor air quality (2), and accessible design (1) in housing environment. The seven items were measured using the five point Likert-scale (1=strongly disagree to 5=strongly agree). Descriptive statistics, exploratory factor analysis, t-test, one-way analysis of variance, and Pearson's correlation were used for data analyses.

Findings

Baby boomers reported strong wants on sustainable housing (*M*=4.17 on a 5.0 scale). The highest mean score was found in the items of accessible housing *(M* = 4.38, SD = 0.76), followed by indoor air quality (*M* = 4.34, SD = 0.72), general sense of well-being (*M* = 4.23, SD = 0.77), and energy efficiency (*M* = 4.04, SD = 0.85). From the exploratory factor analysis, one factor was extracted for sustainable housing, indicating unidimensionality of the sustainable housing construct. The construct of sustainable housing had significant associations with gender, marital status, health status and educational level. That

implies, the Boomers who were female, and widowed, divorced or separated, had very bad or bad health status, and higher than a master's degree were more likely to express wants on sustainable housing. Additional analysis revealed a relationship between marital status and health status in that those who were widowed, divorced or separated had worse health status. There were no significant associations between housing characteristics and wants on sustainable housing.

Conclusions

Health status was the most influential factor associated with Boomer's wants in sustainable housing. In the future, a qualitative approach study (i.e., in-depth personal interview) will be considered to explore the meaning of sustainable housing to elderly populations. Also, 'single' elderly householders will be examined in the context of their wants on sustainable housing. Further examination is still necessary regarding insignificant associations between housing characteristics and sustainable housing construct. This study recommends educational programs or policies regarding benefits from sustainable housing (e.g., reducing energy costs and improving indoor air quality). Since this study employed convenience sampling, the study results cannot be generalized to the entire Baby Boomers in the U.S.

References

Edwards, B., & Turrent, D. (2013). *Sustainable housing: Principles and practice*: Taylor & Francis. Philadelphia, PA.

Pillemer, K., Wells, N. M., Wagenet, L. P., Meador, R. H., & Parise, J. T. (2011). Environmental sustainability in an aging society: A research agenda. *Journal of Aging and Health, 23*(3), 433-453.

US Green Building Council. (2009). *Green building and LEED core concepts guide*. Washington, DC: US Green Building Council.

Wells, N. M, & Laquatra, J. (2009). Why green housing and green neighborhoods are important to the health and well-being of older adults. *Generations, 33*(4), 50-57.

Wright, S. D., Caserta, M., & Lund, D. A. (2003). Older adults' attitudes, concerns, and support for environmental issues in the "New West." *The International Journal of Aging and Human Development, 57*(2), 151-179.

Livable Community Policies and Aging in Place

Eunju Hwang, Virginia Tech
Anne Ziebarth, University of Minnesota

Purpose of the Study and Research Objectives

The purpose of this study was to investigate livable community policies in two metropolitan areas in North America, the Twin Cities Metropolitan Area, Minnesota, the United States, and the Greater Vancouver Metropolitan Region, British Columbia, Canada. We compare the legislation enacted in the two regions and examine the impacts of these policies using case studies.

Livability has been used to promote the quality of life and wellbeing of people and communities. The comprehensive livable community agenda encourages residents' involvement in planning and policy formation. In planning a livable community, smart growth is encouraged, transportation efficiency is established, local assets are developed, and affordable and accessible housing is provided (Geller, 2003). The mission of livable communities is to empower diverse families and encourage community involvement among all citizens (National Council on Disability, 2006).

Our research objectives are 1) to identify specific state/provincial legislation regarding livable communities and 2) to review overall community strategic plans and scope of the local community involvement.

Minnesota Policies

The Minnesota Metropolitan Livable Communities Act (LCA) provides an example of the measurement dilemma in policy impact analysis. The LCA, passed in 1995, provided three specific voluntary, grant-based programs funded by tax levies. The programs were open to local governments, private developers, and housing agencies within the seven-country Twin Cities Minneapolis and St. Paul Metropolitan area. The Metropolitan Council, a regional governing body serving the area, administered the programs. The three programs included: the Livable Communities Demonstration Account (LCDA) promoting transit and pedestrian oriented neighborhoods; the Local Housing Initiatives Account (LHIA) promoting affording housing; and the Tax Base Revitalization Account (TBRA) promoting clean-up and redevelopment of polluted land.

British Columbia Policies

The Livable Region Strategic Plan (LRSP) of the Greater Vancouver Regional District (GVRD) in Vancouver, BC, Canada is a mandatory group strategy for the 21 municipalities, including four specific directives: (1) protect the Green Zone of natural assets including parks, watersheds, and farmland, (2) build completed communities, (3) achieve a compact metropolitan region targeting specific areas for higher density, and (4) increase transportation choice to promote public transportation and discourage single-occupant vehicle use. Each local unit of government must have a Regional Context Statement in

their Official Community Plan that is approved by the GVRD. The GVRD publishes an annual report measuring the success of 29 indicators for four specific programs. Similar to the Minnesota legislation, the LRSP, sets up parameters that support the objectives of an age-friendly city.

Impacts & Policy Gaps

In the GVRD, age friendly community grants were established to encourage aging in place based on the WHO's Age-Friendly Cities Guidelines. The Livable Community polices in the Twin Cities Metropolitan Area have continued to establish priorities regarding transit-oriented development. These include expansion of a light rail system with associated multifamily rental housing development incentives. The new housing is marketed to a younger population especially the 'creative class' interested in upscale rentals and live/work spaces.

References

Geller, A. L. (2003).Smart growth: A perception for livable cities. *American Journal of Public Health, 93*, 1410- 1415.

National Council on Disability. (2006).*Creating livable communities*. Washington, DC: Author.

North Carolina Elderly Homeowners with Limited Resources: aging-in-Place (preliminary analysis)

Sung-Jin Lee, Valerie L. Giddings, & Sheryl Renee Robinson
Department of Family and Consumer Sciences, North Carolina A&T State University

Rational and Research Purpose

In North Carolina, the number of those aged 65 years and older increased almost 26% between 2000 and 2010 (Institute on Aging, 2010); 82% of those aged 65 and older are homeowners (North Carolina Division of Aging and Adult Services, 2012). The Center for Housing Policy (2012) indicates that most 65+ households desire to age in the familiarity of their homes and communities (Center for Housing Policy, 2012). Generally, as homeowners age in place, the quality of life in their homes is a concern if the home was not built to accommodate physical challenges faced by elders and to provide access to transportation. Currently, little if any research exists related to the identification and application of aging-in-place strategies of NC elderly homeowners. This study explores the challenges faced by NC elderly homeowners who pursue aging-in-place but have limited incomes.

Methodology

This study employs a qualitative approach, personal interviews with a mixture of closed and open-ended questions. The sample included 29 homeowners aged 55 and over, who have completed home modifications, have limited resources, and live in a central NC city. The closed-ended questions on demographic and housing characteristics are quantified with descriptive statistics. The open-ended questions were designed to determine the experiences and challenges of elderly homeowners. Since data analysis of the open-ended questions is ongoing, a brief summation based on the interviewer's observation is provided.

Findings

The majority of participants were women (*n*=28 out of 29) and unmarried (*n*=27), and average age was 73 years old. Four elders lived with grandchildren. Their income is relatively low (i.e., only one interviewee reports their income as greater than $25,000). Limited government supports were found: Eleven participants (38%) received food stamps, one received Supplemental Security Income, and two received public assistance from the state or local welfare office. The majority lived in one story, single detached housing *(n*=28) with three bedrooms (*n*=21). Analysis of the participants' narratives indicated that all plan to remain in their homes [age in place] until health or life no longer allows them to. They all expressed a major concern about their future financial security. Most have little to no means for a financially secure future or even financial resources to handle emergencies.

Conclusions and Implications

In this study, all homeowners completed at least one home modification that is considered an aging-in-place strategy. According to the Center for Housing Policy (2012), home modifications incorporating universal design features may become necessary to increase access, prevent the likelihood of falls, and improve energy efficiency for affordability. Aging-in-place of elderly homeowners can provide two distinct benefits: (a) the aging cohort can avoid the costs associated with assisted living, nursing homes or other long term care facilities and (b) their community can maintain/improve neighborhood stability by keeping the elderly cohorts, who can be more engaged in community activities and contribute financially to the economic growth of their local community. This study can be beneficial for housing educators, cooperative extension specialists, community leaders, governmental agencies and non-profits which provide services and/or resources for elderly homeowners.

References

Center for Housing Policy (2012). *Housing an aging population: Are we prepared?* Retrieved from www.nhc.org/media/files/AgingReport2012.pdf

Institute on Aging (2010). *Quick facts about aging in NC.* Retrieved May 11, 2011, from http://www.aging.unc.edu/infocenter/data/quickfacts.html

North Carolina Division of Aging and Adult Services. (2012). *A profile of people age 60 and over, North Carolina.* Retrieved from http://www.ncdhhs.gov/aging/demo.htm

Beyond Codes – A Universal Design Success Story

Debra Eilering, Southern Illinois University, Arlena Hines, Professor Emeritus, Lansing Community College, Roberta Null, Common Place Design, Joy Potthoff, Associate Professor, Bowling Green State University, Ohio

The 6 North Apartments in St. Louis, Missouri are an example of a universal design ordinances' influence. The ordinance was unique in requiring that all the units be universally designed instead of just a percentage of them.

6 North is a three-story, 80-unit residential/mixed-use and mixed-income building located in St. Louis's central west end. According to the Center for Universal Design at North Carolina State University, 6 North is the nation's first large-scale example of 100 percent universal design (UD) in a multifamily residential building. All of the project's one and two bedroom apartments - as well as its common spaces, corner coffeehouse, street front live / work units, and gated parking lot - are fully accessible by both disabled and nondisabled persons. UD features incorporated at 6 North include step less entries, open floor plans, front-loading washers and dryers, front-mounted controls, adjustable-height counters and shelves, roll-in showers, offset plumbing controls, lever door handles, rocker light switches, and high-contrast color and texture schemes. It is the brainchild of disability advocates Max and Colleen Starkloff.

Expressing concerns about accessible design—which often results in features that meet rigid design codes but do not always fully address the needs of disabled people and can create an unappealing, institutional image - and explaining the benefits of UD, Colleen Starkloff, the Starkloff Disability Institute's director of education and training, proposed a revolutionary concept: to make the new project 100 percent UD. Rather than incorporating a specific number of units that would be accessible to disabled residents, the entire structure would be equally accessible to individuals of all ages and abilities. By removing the stigma of "handicapped" or "special needs" housing, UD offers a more mainstream approach to providing housing that meets everyone's long-term needs.

The multidisciplinary architecture, planning, and urban design firm bought into the UD concept from the beginning. Construction, which commenced in October 2003, took 14 months, and the project was completed in December 2004.

Although several products were designed specifically for 6 North, standard products generally were used throughout the project, which kept costs down. Planning and placement, rather than unique design, are what make UD work. Standard side-by-side refrigerator/freezers are easily accessible by everyone, as are standard wall ovens (placed lower than usual), dishwashers (placed higher than usual), and smooth cooktops plus front-loading washers and dryers with front-mounted controls. Easy-open hinges, adjustable shelving, and handle pulls (rather than knobs) make cabinet and closet storage spaces more usable and accessible. None of these adaptations strike the casual visitor as "special

needs" features; in fact, nondisabled prospective residents typically comment on how user friendly the apartments are.

Moreover, 6 North continues to serve as a demonstration project for universal design; designers, developers, and planners from throughout the country and around the world still visit the site to learn about the feasibility of and challenges involved in creating UD projects elsewhere.

References

Stern, J. D. (2006, July 1). 6 North apartments. *ULI-development case studies*. Retrieved June 11, 2013, from http://casestudies.uli.org/CaseStudies/C036016.htm

U.S. Department of Labor - Find It By Topic - Disability Resources - Americans with Disabilities Act. (2013, January 1). *United States Department of Labor*. Retrieved June 11, 2013, from http://www.dol.gov/dol/topic/disability/ada.htm

An Analysis of Property Management Expense Control by Ownership Type

Andrew Carswell, University of Georgia
FangZhi Guo, University of Georgia

One of the principal functions of residential property management is expense and cost control. Currently, there are many forms of property management, ranging from an individual investor to more collective type of ownership such as a limited liability, general partnership, or real estate corporation, just to name a few. With the popularity of individual investors choosing rental properties as an investment vehicles (Seay, et. al., 2013), the issue of cost control becomes an issue of some importance for this sector of property management. In addition, a number of schools have adopted residential property management programs in recent years with the intentions of creating a well-educated workforce (Carswell & Phillips, 2008; Goss & Campbell, 2008), presumably with the goal of moving to a property management company whose main purpose is maximizing a property's net operating income.

Using a new secondary data set provided by the U.S. Census Bureau, we are now able to analyze the differences between ownership structure and time spent managing the property, and the effects that these differences have on managing the components of net operating income (such as cost control and revenue maximization). The 2012 Rental Housing Finance Survey includes information from detailed interviews of a nationally representative sample of over 2,000 properties, and provides a measure of financial, mortgage, and property characteristics of multifamily rental housing properties in the United States.

The four research questions that we explored utilizing this data set, plus the justifications for why these questions are important, are listed below:

1) Do apartment management companies/management agents collect a higher percentage of potential rent than do property owners or their agents who operate the properties themselves? There is reason to believe that larger professional property management companies do a better job of marketing their properties through economies of scale. Individual investors, however, may be more locally based and thus more attuned to market conditions and the types of concessions that are necessary to increase occupancy.

2) In situations in which the property owner or his/her unpaid agent conducts the day-to-day management of the property, does the number of hours spent managing the property have an effect on collected rent, relative to potential rent? This question really pertains simply to the effort expended on the operation of the property and whether it has an impact on the property's bottom line.

3) Do management agents/companies do a better job of controlling expenses than property owners? Does size of the management fee have any relationship with expense control? There is a common belief that management companies have greater economies of scale and thus do a better job of

controlling expenses than do individual investors, who may not be as experienced or savvy as these professionals. Regarding the fee, it is expected that the more that a property management firm charges for its services, the more cost savings that the property should experience.

4) Does the type of ownership group (individual versus collective partnership) have an effect on expense control, or on collected rent as a percent of potential rent? This question explores whether individual investors, who may have more at stake with the ultimate performance of this particular property than would larger real estate companies with multiple properties within their portfolios, take all of the necessary steps to achieve maximum cost control.

Preliminary findings produced a mixed bag of results as to the differences between individual investor results in terms of maximizing rental revenue and controlling expenses. Property management companies that are hired to care for rental buildings do not exhibit statistically significant revenue optimization, when compared against properties run by investors or their unpaid agents. Also, regarding expense control, individual investors actually exhibit better expense control than fee management companies, which was unexpected. Number of hours spent managing the property did not seem to have an impact on collected rent, relative to potential rent, among individual owners of rental properties.

References

Carswell, A.T., & Phillips, D. (2008). Assessing the need: The multifamily industry, the universities, and the next generation of property managers. *Housing & Society, 35*(1), 21-40.

Goss, R.C., & Campbell, H.L. (2008). The evolution of residential property management: From caretaker to income maximization managers. *Housing & Society, 35*(1), 1-20.

Seay, M.C., Carswell, A.T., Nielsen, R., & Palmer, L. (2013). Rental real estate prior to the Great Recession. *Family and Consumer Sciences Research Journal, 41*(4), 363-374.

New Modes of Community Empowerment

Joe Colistra, Associate Professor, University of Kansas

This paper presents a new mode of community development that promotes participatory action and empowerment. When residents in an historic residential neighborhood of Denver, Colorado learned of a plan to build speculative housing, they pooled resources and expertise in order to buy the land and build a project they felt would be more congruent with the scale and character of their neighborhood. This group was able to find a voice through architecture. They chose to be active agents in the process of community building rather than allow their interests to be appropriated by outside forces.

Taking a Freirean approach of linking knowledge to power, this group recognized that only those affected by an environment have any right to its determination. Twenty-three long-time residents, all living within a few blocks of the project, put their own homes up for collateral in order to secure a construction loan for this $1 million townhouse development. Acting as Community Organizers, the architects were able to leverage the first project's success into several other community-based ventures including a $2.5 million housing project co-developed by forty-two neighbors.

The architects were cognizant of the political nature of this process and led the citizen group through the participatory actions of establishing a pro forma, setting up a Limited Liability Company, acquiring the land, securing financing, selecting professional engineers and contractors, and ultimately constructing the project. These processes are appreciated as components of community building. This model of community building generated a great sense of pride and accomplishment as the neighborhood witnessed the emergence of award-winning architecture shaped with their own ideas and resources.

Unlike gentrification where return on investment leaves the neighborhood, the profits from this project all stayed within a few blocks. More importantly, neighbors willing to invest in their communities are investing in themselves and the belief they can act critically and strategically to restructure a world they cannot completely remake.

Housing Costs of the U.S. Young Professionals in Rental Units

Hyun-Jeong Lee*, Chungbuk National University
Rosemary Carucci Goss and Julia Beamish, Virginia Tech

Introduction

Many young professionals in metropolitan areas experience challenges to afford independent living due to limited income and financial resources (Samuels, 2014). As a part of a research project aimed to investigate the housing situation and housing cost burdens of young professionals in the United States and Korea, this study's purpose was to further explore the housing costs of the U.S. young professionals who are currently renters.

Methodology

Between March 10 and April 1, 2014, an online survey was conducted with young professionals who met the following sampling criteria: (1) currently full-time employee; (2) three years or less since first employed full-time after college graduation; (3) age between 20 and 34 years; (4) with Bachelor's degree or higher educational attainments; (5) renters not currently living with parents or other relatives; (6) never married; and (7) living in eight metropolitan areas selected by the researchers. A total of 431 useable responses were collected and analyzed statistically using SPSS 21.0. "First housing" in this paper refers to the housing a respondent resided in when first employed full-time after college graduation.

Findings

Overview of Respondents

About 64% were females and 62% had one or more persons living together. Average age of the respondents was 26.6 years and average annual income was $50,832.

First and Current Living Arrangements

When the respondents were first employed full-time after college graduation, 30% lived with parents or other relative, 64% were renters paying a deposit, and 6% were renters not paying a deposit. At the time of the survey, 90% were renters paying a deposit and 10% were renters not paying a deposit.

Housing Costs and Housing Cost Burdens

Average rent and deposit of current renters with deposits were $1,442 and $1,947, respectively. Average rent of renters without deposits was $1,249. Average annual housing costs (deposit plus 12-month rent) of current housing was $18,804. When housing costs of respondents living with parents or other relatives in first housing was considered $0, housing costs increased between the first housing and the current housing for 54% of the respondents.

About 59% of respondents were sharing either their current deposit or monthly rent with roommates. Housing cost-to-income ratios were calculated as percentage of deposit and monthly rent paid by a respondent (deposit and monthly rent minus the portion paid by roommate) to monthly income of the respondent. Results indicated that 37% respondents' deposit-to-income ratio and 43% of respondents' monthly rent-to-income ratio increased since their first housing. About 22% of all respondents were housing cost burdened in their current housing since they paid 30% or more of their income for monthly rent. There was no significant difference in housing cost burden between respondents who shared housing costs with roommates and those who did not (p=.275).

Conclusions

Many young professionals in metropolitan areas were found to face housing affordability problems and these problems seemed to remain from their first housing after college graduation to their current housing. Thus, it is important to develop and provide more housing that young professionals can afford until they can achieve financial stability.

References

Samuels, R. (2014, June 14). Millennials consider leaving Washington as the city becomes more costly. Washington Post. http://www.washingtonpost.com/local/millennials-consider-leaving-washington-as-the-city-becomes-more-costly/2014/06/16/825e4308-eb67-11e3-9f5c-9075d5508f0a_story.html

Acknowledgement: This work was supported by the National Research Foundation of Korea Grant funded by the Korean Government (NRF-2011-0014238).

The Impact of Deferred Maintenance on Indoor Air Quality in Low-Income Housing

A. Sue Ballard de Ruiz, Department of Family and Consumer Sciences, Tennessee State University
Kimberly Jackson, Health Impacts of Degraded Environments

Degraded housing quality and lower socioeconomic status have been shown to have a strong correlation to the exposure of indoor air pollutants (2). Older homes are more likely to experience deferred maintenance issues related to leaky roofs or plumbing, as well as other factors that impact human health(3). All of which contribute to the degradation of indoor air quality in these homes. Nearly twenty percent of the asthma cases reported in the United States are estimated to be attributable to dampness and mold exposure in the home with a national annual cost of $3.5 billion (4). While housing, environmental, and health agencies fund programs to expand public knowledge of the dangers of degraded indoor environments, abatement and remediation remain the responsibility of the homeowner. Homeowners that attempt to address mold growth on their own may find they have degraded the indoor air further. Cleaning products, especially chlorine bleach and disinfectants used to retard or remove mold, account for nearly 15 percent of all asthma cases (5, 6).

As part of a study conducted concurrently with a low-income housing energy efficiency improvement HUD grant, indoor air quality testing was conducted by the non-profit agency, Health Impacts of the Degraded Environment. While the purpose of the grant was to reduce energy consumption through weatherization, concern was expressed at how these energy improvements would impact indoor air quality. No grant funds were used in the testing, however some funds were reallocated for mold remediation and replacement of damaged materials.

Methodology

A total of one hundred homes received energy improvements which included calking, reusable air filters, attic insulation, replacement windows, ductless heating and air systems, and repairs necessary to facilitate those improvements. Seventy five pre-tests were conducted prior to energy and building renovations. Indoor air quality pre-tests were conducted prior to energy and building renovations. Air samples were collected using a four hour test for PM10, NO2, VOCs (excluding formaldehyde), and mold. A homeowner behavior survey and visual inspection was also conducted to determine occurrence of smoking, use of chemicals, exhaust fans and gas appliances, and presence of mold and pests. These homes received energy improvements which included calking, reusable air filters, attic insulation, replacement windows, ductless heating and air systems, and repairs necessary to facilitate those improvements. Thirty post tests have been conducted to date, following energy retrofits and some

deferred maintenance work, such as new roofing, plumbing repairs, and removal of materials with heavy mold growth.

Results

Both NO2 and VOCs decreased post weatherization; however, PM10 and mold counts increased. Mold may be partially responsible for the increase in PM10. Twenty nine percent of the post-tested homes exceeded the Healthy Home Standard for mold, and 49% of all homes had at least one elevated indicator. Absent or non-functioning bathroom and kitchen exhausts were noted as prevalent deferred maintenance issues in these homes, leading to difficulties in removing moisture. Forty five percent of all post-tested homes had increases in PM10 greater than .01mg/m^3, the level at which the BIESAK study noted increased asthma symptoms in study participants (1). Moreover, the number of all post-tested homes exceeding EPA and CARB PM10 standards was 9% and 23%, respectively.

Conclusions

It appears that deferred maintenance, rather than weatherization, was the primary cause of degraded indoor air quality in this study. Deferred maintenance, most commonly leaky plumbing, was the determined cause of elevated mold counts in all of these homes, except one. In all cases, the homeowners were aware of the mold problem as well as the cause of the moisture. However, the homeowners did not, or could not, invest in the necessary maintenance to remedy the problem and avoid additional damage. In all homes tested, timely, cost-effective home maintenance would have reduced or eliminated unhealthy levels of mold and particle pollution.

References

Breysse, P.; Diette, G,; Matsui, E., et al. 2006 November. Home Moisture and Asthma Symptoms in Inner-City Asthmatic Children. Epidemiology: Volume 17 - Issue 6 - p S239. ISEE/ISEA 2006 Conference Abstracts Supplement: Session Abstracts: Abstracts

Chi, PSK and Laquatra, J. 1990. Energy efficiency and radon risks in residential housing, Energy. Vol. 15 (2), pp 81-89.; Evans, GW and Kantrowitz, E. 2002. Socioeconomic status and health: the potential role of environmental risk exposure, Annual Review of Public Health, in press.; Farr, N. and Dolbeare, CN. 1996. Childhood lead poisoning: solving a health and housing problem, Cityscape: A Journal of Policy Development and Research. Vol. 2 (3), pp 167-181.

Laquatra J., Maxwell L.E. and Pierce M. 2002. Indoor Air Pollutants, Limited Resource Households and Childcare Facilities. Department of Design and Environmental Analysis, Cornell University, Ithaca, NY, USA. Proceedings: Indoor Air 2002.

Mudarri D., Fisk W.J. 2007 June. Public health and economic impact of dampness and mold. Indoor Air. 17(3):226-35.

Zock, J., Plana, E., Jarvis, D., et al. 2007. The Use of Household Cleaning Sprays and Adult Asthma. American Journal of Respiratory and Critical Care Medicine 176 (8): 735–41

Zoch, J., Vizcaya D., Le Moual N. 2010 April. Update on Asthma and Cleaners (*Curr Opin Allergy Clin Immunol*). 10(2): 114-120.

Go Green Energy Retrofits supported by the Department of Housing and Urban Development

Indoor Air Quality testing and data analysis provided by Health Impacts of Degraded Environments

Instructional Strategies and Programming Ideas for Introducing Healthy Home Concepts to Residents of Multi-Family Housing

Martha W. Keel, Ph.D., Professor and Specialist, The University of Tennessee Extension
Bonnie L. Hinds, M.S., Extension Specialist, The University of Tennessee Extension

To date, much of the emphasis on healthy housing education has been directed towards residents of single family homes. In a nation, however, where approximately 20 percent of the population resides in multi-family rental properties, it is imperative that residents understand what they can do within their individual units to promote health. The first, most assertive challenge in educating rental populations, however, is that of accessing them.

With a small grant from the Healthy Homes Partnership, University of Tennessee Extension embarked on a project to educate and survey a cross-section of multi-family rental residents from across the state on those healthy housing topics of greatest relevance to them. The necessity of onsite programming was obvious, albeit the logistics of actually accomplishing such an objective more querulous. The convening of a statewide advisory board was crucial in securing relationships with management companies, most of whom were initially anxious, in welcoming what would become the onsite healthy housing fair. The Tennessee Housing Development Agency, in particular, was a huge catalyzer in this regard. The multi-agency statewide advisory board was instrumental, as well, in bridging the most fundamental challenge in any outreach efforts--actually enticing participants. Advisory Council members, all familiar with educational programming and event planning, were convinced that, like their namesake agricultural forebears, the fairs would have to be colorful and fun, with the ability for residents to come and go freely, thereby rendering a presentational format unworkable. Because federal funding would not allow the purchase of food or incentive items, the fair concept seemed imperiled early on.

A small ancillary grant from the University's Department of Public Health, an advisory council partner, was secured to fill in the funding gaps, and the strategizing for a carnival-like atmosphere commenced. Colorful and provocative educational exhibits were developed, allowing participants to wend their way through housing principles, and a crowd-pleasing quiz wheel, replete with small prizes emphasizing cleaning, storage, and integrated pest management (IPM) techniques, served as the platform for more lengthy discussions as to how residents could optimize their efforts to render and maintain healthy housing practices for themselves and their families. To emphasize the importance of healthy indoor air, glossy recipe cards and attractive kits focused on green cleaning were made available to attendees. Those residents who completed an anonymous survey form relating their knowledge of, behaviors regarding, and concerns about housing issues were issued a raffle [like] ticket that entered them into a drawing for a $25.00 gift card. The drawings took place each half hour, emphasizing again, the celebratory atmosphere of the events. Both residents and management staff of the five fairs, held in

locations across the state, expressed their enthusiasm for the format that allowed education to flourish amidst fun. In many instances, the events also served as a mechanism for apartment managers to become acquainted with residents and for residents to become better acquainted with each other.

The resident surveys were developed through a partnership with a group of graduate students from the University of Tennessee Department of Public Health. The124 usable (complete) surveys collected during the fairs yielded useful information for future outreach efforts and insights that will prove helpful in developing a healthy housing curriculum for multi-family residents at a later date.

Healthy Homes: Building Connections

Keishon J. Thomas, Fort Valley State University
Pamela Turner, University of Georgia

Children are exposed to indoor environmental hazards in the spaces where they spend the majority of their time- home, childcare facilities and schools. The environmental health of children requires the involvement of the child's primary role models: parents, caregivers and teachers. It's particularly important to provide environmental health education and information to parents, caregivers, and the organizations that provide support in the community. In an effort to reduce children's exposure to indoor environmental health hazards, this project was designed to take a holistic and comprehensive approach to educating parents, childcare providers and the community. The target audiences for the project were parents, childcare providers, and community health and housing organizations.

The project came together through a partnership between two universities that conduct extensive work with rural communities. We understand the unique challenges encountered in rural areas. Healthy housing resources and information tends to be more limited and harder to access than resources in urban communities. This project focused on bridging that gap and finding low-cost and no-cost ways for parents, childcare providers and community service providers to access healthy housing resources and information. We worked together to form a Healthy Homes Advisory Group focused on serving rural areas of the state. A primary objective of this group was to develop an inventory of healthy-housing related resources that were easily accessible. In addition, we conducted in-person and web-based healthy housing programs that targeted parents and childcare providers. The objectives of these activities were to increase knowledge about how to reduce environmental hazards and make the indoor environment healthier.

The goals of this presentation are to: (1) present participants with best practices for the development of a healthy homes advisory group focused on rural communities;(2) offer information on low-cost and no-cost ways for childcare providers and parents to make the indoor environment healthier; (3) provide tools to measure changes in knowledge and behavior; and (4) discuss lessons learned through the development of an online educational tool.

The outcomes for participants are: (1) gain knowledge about how to work with the community to assess their needs and bring together an advisory group to help address the needs of the community; (2) discover ways to involve rural organizations, childcare providers and parents in the development of healthier homes, families and communities; and (3) learn more about engaging the audience in online and in-person educational programs.

Sponsorship: This project was funded by the Healthy Homes Partnership, funded by HUD's Office of Healthy Homes and Lead Hazard Control.

Housing Diversity in Children's Literature

Carla Earhart, Professor, Residential Property Management Program,
Department of Family & Consumer Sciences, Ball State University, Muncie IN
Katie Morris, 2nd Grade Teacher, Aldine Independent School District, Houston TX
Debra Shidler, Graduate Assistant, Residential Property Management Program
Department of Family & Consumer Sciences, Ball State University, Muncie IN

Objective

Several studies have been conducted to examine diversity in children's literature, such as gender diversity and racial diversity. This symposium focuses on an often-overlooked issue in children's literature…housing diversity. Many families with children live in something other than an owned single-family detached house. Children need to see individuals portrayed positively in a variety of housing environments.

Due to the limited research in this field, a pilot study was conducted to evaluate the "housing message" in children's literature. Symposium participants will learn about the limited research in this field and then participate in an activity to discover for themselves the housing diversity presented in children's literature.

Pilot Study

Methodology. Children ages 4-8 are very impressionable; lifelong beliefs are often formed during this time in a child's life. As a result, books written for this age group were used in this study. Purposive sampling was used by selecting books whose content dealt with housing in some way. Over 40 books were obtained from area libraries and retail sources.

These books were then reviewed by 10 college students participating in the *Redefining the Dream* immersive learning project. Each book was read independently by each reviewer one or more times before being evaluated. Each reviewer completed an instrument in which they evaluated each book's content on the following factors, using a Likert scale from 1 (negative) to 5 (positive):

- Structural Condition – overall physical quality of the structure depicted
- Location/Environment – atmosphere of the surrounding neighborhood and community
- Text – connotation of the words and phrases used to describe the housing structure

Several open-ended questions were also included in the evaluation instrument. Each book was discussed by the group until consensus was reached regarding recommendation of the book.

Results. The stories and pictures in the books represented a variety of housing types, but more books focused on traditional houses rather than apartments, townhouses, duplexes, or manufactured

housing. Some of the stories portrayed apartments and apartment residents in a positive way, but others were quite negative.

Implications. Schools, libraries, child care centers, and families should invest in children's books that focus on the positive aspects of a broader range of housing options. In addition, more children's books should be written in this genre. Lastly, additional research is needed to extend the work that was started with this pilot study.

Participation Activity

As a part of the symposium, audience members will have the opportunity to review and discuss the housing diversity in children's books. Several sample books will be provided along with an updated version of the evaluation instrument used in the original study. Audience feedback will also be gathered regarding future opportunities in this line of research.

(Credit is extended to the Virginia B. Ball Center for Creative Inquiry for the original funding for this project.)

Images of Community Crime in Ferguson, Missouri: Older Adults' Perspectives

Kandace Fisher-McLean
Housing and Environmental Design Specialist, University of Missouri-Extension

Research Purpose

The purpose of this research study is to investigate how older adults feel about crime in Ferguson, Missouri and how their quality of life has been affected by their perceptions of crime. It is hoped that the information collected from their participation in this research study can be used to better understand and eventually help reduce fear of crime, improve the rate of those wishing to age-in-place, and improve the lives of older adults in Ferguson and other communities. The questions trying to be answered in this research study are as follows:

In Ferguson, Missouri:

1) What are the physical places and elements that older adult's feel represent crime?
    a. What social messages are represented in the images captured by older adults?
3) How has their perceived quality of life been affected by their thoughts of crime?

Methodology

This study employed a Transcendental Phenomenological qualitative research approach and the methods for collecting data included auto-photography, photo-elicited interviews, and a short survey. The data analysis will consist of an assessment of transcribed interviews and a visual examination of the photos taken by the research participants.

Procedures

Participants were supplied with disposable cameras and were asked to take pictures of physical elements and places that they felt symbolized crime in their neighborhood. They were also asked to take pictures of physical elements and places that they felt positively contributed to the image of their neighborhood. Once participants were finished taking the pictures, they were developed by the primary investigator and used to develop the structure for a photo-elicited interview. In the interview, participants were asked some general questions about their neighborhood, they were asked to describe the photo that they took, the kind of social messages they felt were sent by the images they captured, and how their quality of life was affected.

Results

All data has currently been collected for the study and all of the interviews have been transcribed. I will begin analyzing the data the week of July 13th. I will have results for this study available for presentation at the 2014 HERA conference.

Conclusions

I will have conclusions for this study available for presentation at the 2014 HERA conference.

Implications

I will have implications for this study available for presentation at the 2014 HERA conference.

A Regional Affordable Housing Study for the Mid-Michigan Program for Greater Sustainability

Suk-Kyung Kim, Michigan State University

Introduction

Mid-Michigan Program for Greater Sustainability is a three year regional planning effort funded by the US Department of Housing and Urban Development (Kim 2013). As the second project of this program, the Regional Affordable Housing Study was conducted to analyze the existing housing stock in Clinton, Eaton, and Ingham Counties to accurately diagnose affordability of individual and regional housing. The study results were expected to establish achievable goals to improve housing affordability across the Tri-County Region (Kim, 2014). This presentation will introduce this study, its process, and major findings.

A Regional Affordable Housing Study

This study went through a multiple data collection process to obtain different stakeholders' opinions about regional housing conditions and future directions of housing planning. Data collection methods included 1) an analysis of housing and community profiles based on 2000 and 2010 censuses, 2) interviews with 33 housing experts, 3) interviews with 17 regional planners, 4) an analysis of comprehensive plans of target communities, and 5) an online and mailed survey with 797 residents selected from the region.

Major Issues to Achieve Regional Housing's Affordibalility

The issues commonly addressed by a variety of stakeholders through the entire research process were as follows: First, quantity of affordable housing for owners and renters was addressed. Particularly, more affordable housing for seniors both owner-occupied and rental units was strongly indicated to accommodate an increase in senior population (65 or older). In addition, more rental units for low-income renters and residents with disabilities were strongly desired. Second, the quality of affordable housing was addressed. The Tri-County Region has been dominated by single-family detached houses. The need for a variety of housing options was highlighted. For instance, providing more side-attached, low-rise apartments, and mixed-use developments was strongly supported by housing experts, planners, and residents. Providing a variety of housing options for growing populations in this region, such as refugees, and international students was also recommended.

Third, developing regional comprehensive plans for housing was highly recommended by housing experts and planners. Only several jurisdictions addressed current and future housing issues in their comprehensive plans. For a more effective and holistic approach to the regional housing issues, a comprehensive housing plan at regional level should be established and implemented. Fourth, housing vacancy and foreclosure issues should be managed at the regional level. Only Ingham County Land Bank exists for handling vacant and foreclosed units in that county. Clinton and Eaton Counties have no

county-level entity to resolve these issues although the housing vacancies have been a critical issue in these counties. Establishing an organization to manage those issues was highly recommended. Fifth, public transportation and wakable and bikable community development that particularly considers low-income owners and renters who need certain modes of transportation for commuting to their jobs was suggested. Lastly, developing and maintaining strong partnerships among developers, planners, and other stakeholders was emphasized for practical implementations of the regional housing plans.

The research findings were presented to local planners and stakeholders in May 2014 at "A Mid-Michigan Study of Affordable Housing Seminar: Summation and Evidence-based Solutions." Based on the findings and suggestions from this study, the Greater Lansing Housing Coalition and the Tri-County Regional Planning Commission have been developing a five year comprehensive housing plan for the region.

References

Kim, S. K. (2013). Elements for improving regional housing affordability: With a focus on housing experts' opinions. Proceedings: Housing Education and Research Association (HERA) Conference, pp.93-95. Tulsa, OK. October 27-30, 2013.

Kim, S. K. (2014). Housing profile, issues and solutions from housing experts and planners, and residents' opinions on housing affordability in the Tri-County Region. A Seminar of the Regional Affordable Housing Study of Mid-Michigan Program for Greater Sustainability. May 28, 2014. The Kellogg Center, Michigan State University, East Lansing, MI.

Multi-Family Housing Senior Residents' Reasons for Moving, Residential Satisfaction, and Intention to Move

Hyun Joo Kwon*, Purdue University
Julia O. Beamish, Virginia Tech

Introduction

Market-rate multifamily housing (i.e., non-subsidized and non-age restricted) in a livable community contains attractive features such as maintenance services, amenities, and proximity to services and businesses that could appeal to an aging population (Haughey, 2003; Kwon & Beamish, 2010; Mitchell, Beamish, Goss, & Kwon, 2009). As the aging population grows, many older adults could choose multifamily housing if their motivations and background are understood. Even though it is necessary to understand older adults' housing behaviors and needs as they relate to multifamily housing, few studies have been conducted. The purpose of this study is to identify the relationships among older adults' reasons for moving into multifamily housing, their residential satisfaction, and their intention to move by adopting the *theory of housing adjustment* (Morris & Winter, 1975, 1978) and the *model of elderly migration* (Wiseman, 1980) that residential satisfaction influences propensity to move.

Methodology

A self-administered questionnaire was developed and data were collected by an online survey company. The target population was people age 55 and over living in market-rate multifamily housing that excludes subsidized and age-restricted multifamily housing. A total of 431 usable surveys for this study were collected in February, 2012. Reasons for moving into current housing includes 46 items (1=very unimportant to 5=very important), residential satisfaction contains 40 items (1=very dissatisfied to 5=very satisfied), and intention to move comprises three items (1=strongly disagree to 5=strongly agree). SPSS and LISREL were used for descriptive statistics, t-test, one-way ANOVA, exploratory factor analysis (EFA), and structural equation model (SEM).

Findings

From EFA, three major reasons for moving into current housing (the multifamily living reason, the nearby activities reason, and the financial reason), and three residential satisfaction factors (satisfaction with the unit design, the multifamily community, and the location) were identified. SEM revealed that the multifamily living reason significantly positively influenced satisfaction with the unit design, the multifamily community, and the location. The nearby activities reason had a significant influence only on satisfaction with the location. The financial reason significantly negatively influenced satisfaction with the unit design,

the multifamily community, and the location. Satisfaction with the unit design and the multifamily community were significantly negatively related to the intention to move.

Conclusions & Implications

People who moved into their current multifamily housing for the multifamily living reason may choose to live in multifamily housing as a lifestyle choice, such as low maintenance and common facilities. Respondents who moved into their current housing because of the nearby activities seemed to focus on proximity to desirable local amenities, such as shopping, restaurants, and medical facilities. Older adults who moved into their current housing for the financial reason seemed to have made their choice out of necessity. Significant relationships between satisfaction with the unit design and the multifamily housing community, and intention to move support Morris and Winter's (1975, 1978) *theory of housing adjustment* and Wiseman's (1980) *model of elderly migration*. The findings indicate that several aspects of multifamily housing are attractive to older adults and that the housing option should be considered positively by people looking for empty-nest and retirement housing. Further, multifamily housing developers, marketers, and managers should examine how their properties can be enhanced to appeal to seniors.

References

Haughey, R. M. (2003). *The case for multifamily housing* (2 ed.). Washington, DC: ULI-the Urban Land Institute.

Kwon, H. J., & Beamish, J. O. (2010). *Boomers housing for later life: Comparison of multifamily housing communities and senior housing communities.* Paper presented at the Housing Education and Research Association, Portland, OR.

Mitchell, K. J., Beamish, J. O., Goss, R. C., & Kwon, H. J. (2009). *Rental apartment -- A viable option for Boomers?* Paper presented at the Housing Education Research Association Conference, Santa Fe, NM.

Morris, E. W., & Winter, M. (1975). A theory of family housing adjustment. *Journal of Marriage and the Family, 3*(1), 79-88.

Morris, E. W., & Winter, M. (1978). *Housing, family, and society*. New York, NY: Wiley.

Wiseman, R. F. (1980). Why older people move: Theoretical issues. *Research on Aging, 2*, 141-154.

Housing Situation of Young Professionals in the United States and Korea

Hyun-Jeong Lee*, Chungbuk National University
Julia Beamish and Rosemary Carucci Goss, Virginia Tech

Introduction

For beginning professionals, finding housing they can afford with their limited budget can be a major challenge. Furthermore, the burden of housing costs can influence one's career decisions (Lee, 2014). As a part of a research project to investigate the housing situation of young professionals in the United States and Korea, this study's purpose was to compare the housing situation of young professionals in the two countries and the young professionals' attitude and perceptions regarding housing costs.

Methodology

Between March 10 and April 21, 2014, an online survey was conducted to young professionals in the United States and Korea meeting the following sampling criteria: (1) currently full-time employee; (2) three years or less since first employed full-time after college graduation; (3) age between 20 and 34 years; (4) with Bachelor's degree or higher educational attainments; (5) not currently living with parents or other relatives; (6) never married; and (7) living in major metropolitan areas selected by the researchers. As results, a total of 1,040 useable responses (501 from the United States, 539 from Korea) were collected and analyzed using SPSS 21.0.

Findings

Overview of Respondents

Among the respondents in the two countries, 58% were female and 20% had graduate degrees or higher educational attainments. The average age was 27.3 years.

Housing Characteristics

More U.S. respondents were owners and/or living in single-family structures, and more respondents in Korea lived in studio/efficiency units and/or lived alone (p=.000). Among six aspects of housing (overall size, location, cost, quality/condition, management, and neighborhood), respondents in both countries showed the lowest satisfaction with costs.

Parental Support and Cost Sharing with Roommates

Respondents in Korea showed a greater tendency to receive parental support to afford their current housing costs, while the U.S. respondents showed a greater tendency to share current housing costs with their roommates (p<.001). In detail, it was found that more respondents received support to

cover one-time costs (e.g., deposit, down payment and closing costs) than to afford monthly mortgage or rent payments.

Respondents in Korea were less willing to have roommates to share housing costs and had a greater tendency to expect parental support (p<.001). Approximately 21% of the respondents perceived it proper to receive financial support from parents even after employment.

Perceived Influence of Housing Costs on Housing Choice

Regardless of countries, respondents perceived that housing cost was very influential when choosing their current housing. Also, respondents thought the cost influence would become much stronger when choosing their next housing (p=.000).

Conclusions

Many young professionals in the United States and Korea received parental support or shared costs with roommates in order to afford their housing costs. Lump sum funds, such as deposit, down payment and closing costs, might hinder young professionals' ability to afford housing based on their own financial situation. Thus, policies to allow rental units with no or small security deposits or financial support programs targeting young professionals in metropolitan areas would be helpful to alleviate housing cost burdens of young professionals in the areas.

References

Lee, H. (2014). Expectations on post-college housing and parental supports of workforce entry preparers from non-capital regions. *Journal of the Korean Housing Association*, *25*(3), 155−164.

Acknowledgement: This work was supported by the National Research Foundation of Korea Grant funded by the Korean Government (NRF-2011-0014238).

Healthy Home Assessment for Immigrant and Non-Immigrant Households in Rental Units in Minnesota

Marilou Cheple, State of Minnesota
Becky Yust, University of Minnesota
Marilyn Bruin, University of Minnesota

According to research conducted by social scientists, building scientists, and health professionals, poor indoor air quality is correlated with certain illnesses, especially respiratory illnesses, as well as a sense of well-being. Immigrant families living in Minnesota have a particular challenge because of cultural differences and a lack of understanding of how their housing units function in cold climates.

The lack of control of moisture in buildings can lead to building deterioration and subsequently to indoor air quality problems such as mold and mildew. Illnesses and health conditions caused by conditions related to high relative humidity in living quarters can be debilitating and lead to poor performance of children and adults in school and work. The lack of fresh air and adequate ventilation may produce similar results.

Although there is limited published evidence that education on indoor air quality can be effective in reducing the incidence of health problems, there is research suggesting that education is important and can be an effective strategy to reduce indoor air pollutants. Andragogy, the theory of adult education, was the basis for this research (Knowles, 1998) suggesting that adults would likely make choices that would have a positive effect on their families if they were educated about those choice.

This pilot research included an education intervention with twelve control and twelve intervention households of low-income immigrant and non-immigrant households living in apartments in Minneapolis, Minnesota. Both groups completed pre- and post-intervention surveys that included questions about household characteristics, household maintenance, perceptions of indoor air inside their apartments, and basic information about family demographics. Households in the intervention group participated in a three-hour training on indoor air quality in homes. Air quality measurements also were taken in each of the housing units of all participant households.

There were three hypotheses in this research; the nulls of two of the hypotheses, that training and education on indoor air quality will change behaviors that affect indoor air quality and that attending indoor air quality training will change occupant perception of learning about air quality in their homes, failed to be rejected. However, the null of one hypothesis, that training and education will improve the indoor air quality, was rejected based on lower vapor pressure measurements in the intervention group housing units. That is, the training provided to the intervention group resulted in lower vapor pressure measurements than the control group. This outcome did provide the intervention group households with a lower amount in water molecules in their dwellings and thus better indoor air quality. This result cannot be

attributed as a result as a result of the maintenance behavior practices of the occupants as those results showed no significant difference from pre to post-training.

In conclusion, the research showed that improvement in indoor air quality could be made as a result of educating heads of households. However, training was not explicitly linked to behavior change or to occupants' perceptions. Further exploration of behavior change based on training in warranted.

Acknowledgement: Funds for this research were provided by the Cooperative State Research, Education, and Extension Services (CREES).

References

Knowles, M., Holton, E., & Swanson, R. (1998). The adult learner, Gulf Publishing Company, Houston.

Aging and Housing in North St. Paul: A Resilient Community Project

Deborah Mitchell, PhD student, Housing Studies Program, University of Minnesota
Marilyn Bruin, PhD. Professor Housing Studies Program, University of Minnesota

Fall 2013, the students in HSG 5481 *Promoting Independence through Housing and Community* collaborated with the Resilient Community Project to develop suggestions to support aging in place. Students reviewed data, interviewed residents and key informants, and conducted a literature review. Like most residents in most communities, North Saint Paul residents wanted to stay in their home and community. Recommendations to the City focused on home modification as an extension or component of rehab programs; students encouraged the inclusion of universal design and visitability principles to ensure that modifications were useful, aesthetic, increased property values, and improved neighborhoods.

Needs Assessment

Students reviewed data from the American Community Survey and the Census, the City Comprehensive Plan, and visited the community. The City had a very low vacancy rate, 70% of the housing units were single-family detached, 71 % were owner-occupied, 90% were built before 1990, and 20% before 1950; the median value of owner-occupied units was $203,700. Thirty-one percent of residents paid may less than 20% of their income on housing; 28 % paid more than 35%. The median rental rate on rental units was $759. In 24% of the households, the householder lived alone; 10% the householders were 65 years or older; 23% had at least one resident 65 years or older (U.S. Census Bureau, 2014).[3]

Interviews

Students interviewed 23 attendees (55 years and older) about their housing needs at an open house for the Resilient Community Project. Data from semi-structured open-ended questions were recorded, field notes, and participant observations and field notes were reviewed multiple times and discussed to generate emergent themes, clusters, develop reflections, codes and categories. Students also interviewed five experts, administrators in home modification programs and contractors, to collect best practices for a city home modification program.

Findings and Discussion

The central research question was if older residents plan to age in their current home and how the City could respond to their needs. The results indicate about 90% of the respondents are planning on aging in place. There is a sense of denial about aging and housing needs; 61% did not articulate plans to

[3] In Hennepin County 12% of the residents were estimated to be over the age of 65. In Minnesota, 13.6% of the residents were estimated to be over the age of 65.

change housing. When asked about plans to move for health issues, responses included “I’m not thinking about that yet” and “I’ll deal with it when it comes up.” A few had thought about modifying their home and where open to options, or bought rambler style homes with aging in place in mind. Another person stated “I have a closet on the main floor where I will put my laundry.” Other plans included making bathrooms and showers more accessible and putting in a ramp.

Respondents are concerned about sidewalks and community lighting; they wanted the City to encourage home modifications through low interest financing, forgivable loans to those who age in place, and information to make good decisions about home modifications and confidence in selecting tradespersons.

Four of the five experts identified the need for education and outreach. One emphasized the need for “well-seasoned rehab specialists who know home modifications.” No one had specific home modification programs targeted to seniors; none included Universal Design in their program. The key informants agreed with the residents interviewed that finding reliable contractors was an issue.

Affordable Multi-Family Housing: Advancing Sustainability

Becky L. Yust, Michael Urness, Deborah Mitchell, University of Minnesota

Affordable multifamily housing developers in Minnesota are required to meet sustainability standards if they expect to receive funding through the housing finance agency (MHFA). However, there is no mechanism in place to share information among developers about the effectiveness of technologies used in the buildings. The objective of this pilot study was to assess information about selected technologies that could be gathered after a development has been occupied. By focusing on key issues related to the technologies from the perspectives of the owners, architects, managers, and residents, developers and funders can better meet the housing needs of low-income households with innovative, efficient and healthy housing that will improve the quality of life for residents while saving long term operating costs.

A research advisory committee identified five buildings to be selected for the study that had implemented one of four technologies: a roof with vegetation (green roof), a variable refrigerant flow (VRF) system, geothermal system, or a single unit heating and cooling system in each apartment. The developments were each affordable to a target market, were constructed utilizing tax credit or state financing, and ranged from 40 to 70 apartments (total of 273 units).

Semi-structured in-person interviews were conducted with the owners, architects, and site managers (15 total interviews) of each building to understand their expectations of and experiences with the technology implemented from initial decision-making during the design phase to daily use and maintenance of the systems. After IRB approval was obtained, managers provided a list of apartment numbers in their buildings. Using a computer generated random number list, a random sample of 20% of the apartment numbers in each building (53 units) were sent letters of invitation to participate in the study. The goal was to interview at least 10% of the residents in each building about their experiences of living in their apartment; however, only nine residents (17% of the 53 units sent letters) across four of the five buildings completed interviews.

Transcripts were analyzed to determine common themes, concerns, and opportunities. Key findings were that the owners and architects were motivated by the potential operating energy savings of the heating and cooling systems they specified. However, in the case of the VRF systems, a trained individual was required to modify the system after installation—not regular maintenance staff—and this was not necessarily budgeted in operations. The geothermal system, on the other hand, was straightforward in its operation and very reliable. The green roof was installed to help with water run-off and did not have any noticeable effect on energy savings. The single unit system allowed residents to be billed directly for their energy consumption but was not always reliable. Residents generally were not aware of the type of system to heat and cool their apartments or of the green roof, but were satisfied with the comfort of their apartments.

The process of gathering information in this pilot study will serve as a guide for how MHFA can collect information and share it with developers and designers of affordable multifamily housing to use as they make decisions about implementation of green technologies. The data demonstrated the efficacy and benefit of gathering and sharing information among developers and architects and managers on the costs and efficiencies about new technologies in multifamily buildings.

An Entrance for Healthful Living and Aging in Place

Nancy Asay, ASID, Missouri State University

This presentation is about retrofitting home entrances to increase quality of life and aging in place. Seven existing homes are used as examples of how entrances can be changed to improve the lifestyle of the homeowners, and increase their home value while they remain in their preferred residence.

The purpose of this study is to increase awareness of universal design and to show ideas for adding elements to an existing home renovation for the purpose of aging in place as discussed in *Beautiful Universal Design* (Leibrock & Terry, 1999). This entrance research is for use in the upcoming revised edition of *Beautiful Universal Design* with an anticipated publication date of 2016.

One out of every five Americans (age 15 and over) needs help seeing, hearing, speaking, walking, using stairs, lifting, carrying objects, getting around, or simply getting out of bed. It is estimated that there will be over 65 million Americans over the age of 65 by the year 2030, and over a million boomers will reach the age of 100. Universal Design can reduce the fear of aging with designs that compliment capabilities. Studies show that one out of every five Americans will have arthritis by the year 2020. Most people with arthritis are not in wheelchairs (Leibrock & Terry, 1999).

Studies show that access to nature, (even only visually) improves concentration. In addition, nature experiences have been associated with reduced stress, and improved positive affect as well as stress control, and emotional well-being. Environmental psychology suggests that nature allows for a soft fascination that can restore attentional fatigue and concentration (Kaplan & Kaplan, 1987 – 2005).

"People can live rewardingly inconvenient lives." "Staying young and living long is mostly a function of your environment." We have control over our environment. One of the most powerful things we can do is set up a garden; creating a good, low-impact exercise that gives one a sense of purpose and something meaningful to do (Buettner, 2014).

The Environmental Standards Council (ESC) of the Center for Health Design recently submitted a successful proposal to the Facility Guidelines Institute to include "access to nature" as one of the key elements of the physical environments, *Environments for aging,* spring 2014.

In this study, seven existing homes of varying styles are used to examine how the entrances can be redesigned and structurally changed to accommodate universal design principles and aging in place. The redesigns of these home entrances create a low-impact exercise through gardening which also incorporates a meaningful life purpose and healthful environment. The entrances all include a covered pathway with no steps, effective lighting, raised gardens, and seating.

References

Buettner, N. (executive producer of Blue Zones Expeditions & conference keynote speaker). (2014). *Environments for Aging Conference.* (Anaheim, CA).

Kaplan, R., & Kaplan, S. (1987 – 2005). *Environmental Psychology.*

Leibrock, C., & Terry, J. E. (1999). *Beautiful universal design: A visual guide.* New York, NY: John Wiley & Sons.

Wang, D., & Glicksman, A. (2013). "Being grounded": Benefits of gardening for older adults in low-income housing. *Journal of Housing for the Elderly*, 27, 89-104.

Mortgages and Financial Satisfaction in Retirement

Martin Seay

Given historically low mortgage interest rates, significant attention has been given to the concept of voluntarily carrying a mortgage into retirement. This discussion is typically driven by the objective financial benefits of borrowing at low rates and using the proceeds to invest in assets with a higher rate of return. . However, there are often psychological costs associated with carrying debt that may lead to unintended consequences on a retiree's financial satisfaction. Previous generations of retirees were encouraged to enter retirement debt free, and especially be free of mortgage debt. This adage aligned with using debt during younger years and relying only on income sources during retirement.

Given this backdrop, a sample of 2,955 retired homeowners from the 2012 Financial Capability Survey (FINRA) is utilized to explore the association between holding a mortgage in retirement and financial satisfaction. A two-step hierarchal regression model is employed to better isolate the effect of mortgage debt of financial satisfaction. The first step implemented a basic model of socio-demographics (age, gender, education, marital status, race, and presence of dependent children), financial constraints (difficulty paying bills, spending relative to income, and the presence of a car loan or medical debt), financial characteristics (income, presence of income shock, receipt of pension and social security income, emergency fund, retirement plans, stocks, liquid savings, and other real estate) and housing characteristics (whether they had a mortgage and whether the mortgage exceeded the value of the house). The second step added measures of financial capability (measures of objective and subjective financial knowledge and retirement needs preplanning) and financial beliefs (risk tolerance and comfort with debt load).

Results of the first model indicate that, holding all else equal, a negative relationship exists between holding a mortgage and financial satisfaction. It is important to note that this model controls for whether a respondent reports spending more than their income or having difficulty paying bills; no relationship was found for medical or car loan debt. Results of the second model indicate that, once a measure of an individual's comfort with his or her level of debt is included, there is no relationship between holding a mortgage and retirement satisfaction. This suggests that there are no psychological costs of carrying a mortgage into retirement after controlling for an individual's comfort with their debt level. Consequently, before delving into a mortgage payoff analysis and discussion or a financial leverage strategy, financial professionals may first want to discover their client's views about their current and potential debt level. Significant evidence is provided reinforcing the importance of financial fundamentals, as the magnitude of the relationships between financial satisfaction and the presence of an emergency fund, spending relative to income, the presence of an income shock, and difficulty paying bills were the highest noted.

References

Martin Seay*, Ph.D., CFP®, Assistant Professor, School of Family Studies and Human Services, Kansas State University

Sarah Asebedo, M.S., CFP®, Assistant Professor of Practice, Department of Agricultural and Applied Economics, Virginia Tech

Cametra Thompson, J.D., Ph.D. Student, School of Family Studies and Human Services, Kansas State University

Cherie Stueve, MBA, CPA (inactive), AFC®, Ph.D. Student, School of Family Studies and Human Services, Kansas State University

Ricardo Russi, MBA, Ph.D. Student, School of Family Studies and Human Services, Kansas State University

Leadership, Capacity Building and Social Capital: A case study of the Georgia Initiative for Community Housing

Kim Skobba, University of Georgia
Karen Tinsley, University of Georgia

Non-metro communities often struggle to respond to local housing problems, particularly problems of housing quality, availability and affordability (Morton et al., 2004; Ziebarth et al., 1997). Pavey et al. (2007) suggest that capacity-building and effective working relationships that nurture civic capacity are vital for rural community development, though lack of cooperation, distrust, apathy and multiple visions for the future are significant barriers to progress. Programs that improve leadership skills, knowledge, motivation and networks of rural residents have shown to be an effective way to increase community resources and capacity (Etuk et al., 2013). The research uses a case study of the Georgia Initiative for Community Housing (GICH). The Georgia Initiative for Community Housing (GICH) is a three-year program that was developed in 2004, recognizing that many Georgia communities, especially rural communities, struggle with how to bring together the critical players, access funding, and create and implement a locally based plan to meet housing and neighborhood revitalization needs through partnerships and coordinated action. The purpose of this research is to explore how individuals participating in GICH, a community capacity-building program, work together to address local housing and neighborhood revitalization needs. This research will use program survey data to examine the following questions:

- Who are the community housing team members and what is the nature of their working relationship?
- How do the teams work together to develop and implement their plan?

The case study draws on survey data from GICH program participants collected over three program years (2010-2012) and program records of work completed during this same period. Each community takes part in the program for three years; five new communities are accepted each year. A total of 25 communities participated in the program at some point during the three-year period – 15 during the first survey wave and five in each subsequent year. The survey was conducted with a total 243 GICH participants, including 101 housing team members who were in the first year of the program, 56 who were in the second year, 69 in the third year and 15 who were program graduates. Findings from this survey suggest that the community housing teams were largely comprised of people who knew each other before starting the GICH program and that there was a high degree of respect and trust among team members. While the vast majority felt that their community housing team was representative of their communities, the participants had higher levels of education, were older and more likely to be White than their communities as whole. The survey results also suggest that it takes several years for community housing teams to achieve a clear vision. Views of local officials' acceptance of their housing team's

recommendations change over the years of the program, with 80 percent of first-year participants indicating that their recommendations would be taken seriously by elected officials compared to 65 percent of third-year participants. Case studies from four GICH communities will be used to further explore how GICH housing teams work together to develop and implement their plans and the successes and challenges these teams face throughout the three years of the program.

References

Etuk, L.E., Rahe, M.L., Crandall, M.S., Sektnan, M. & Bowman, S. (2013). Rural leadership development: Pathways to community change. *Community Development*, 44 (4), 411-425.

Morton, L.W., Allen, B.L., & Li, T. (2004). Rural housing adequacy and civic structure. *Sociological Inquiry*, 71 (4) 464-491.

Pavey, J.L., Muth, A.B., Ostermeier, D. & Steiner Davis, M.L.E. (2007). Building capacity for local governance: An application of interactional theory to developing a community of interest. *Rural Sociology*, 72 (1) 90-110.

Ziebarth, A., Prochaska-Cue, K. & Shrewsbury, B. (1997). Growth and locational impacts for housing in small communities. *Rural Sociology*, 62 (1), 111-125.

Housing of the Future

Katrina M. Lewis, Kansas State University, Department of Interior Architecture and Product Design

The way we inhabit our world has evolved over thousands of years. Humans have lived in caves, built huts with sticks and mud, and constructed teepees from animal hide and branches. Today, we construct elaborate buildings and houses made of metal, stone, glass, and wood. We build them bigger, faster and stronger than ever before. We are capable of housing thousands of people within a single skyscraper. And the future presents a variety of possibilities, from cities in the sky or continued expansion of the ever-growing suburb, street after street. Historical precedent tells us that housing will take different shapes and forms, will experience shifts in materiality, and will be built and located in ways previously not imagined. Considering the evolution of human habitation; however, have the defining characteristic of a house or housing use really changed that much in the past thousand years? We assume that the concept of what a house is has not significantly changed, but rather how we use the spaces that we build?

The proposed presentation aims to address such questions, with the author detailing a four-week design exercise that explores possibilities for housing design in the next one hundred years. Second-years students at Kansas State University in the Department of Interior Architecture and Product Design research and formulate ideas on the future of housing while focusing on one major and two minor issues impacting their future of housing scenario, including:

- Population growth
- Food insecurity
- Increasing globalization and growth of a global consumer culture
- Global warming and climate change
- Technology innovation, new construction, and relocation techniques
- War and terrorism
- Scientific advancement and computer information age

During the four-week exercise, students are expected to:

- Analyze and research current housing trends in different regions of the world
- Form an understanding of how people live and operate in different regions of the world
- Investigate and hypothesize how housing can not only change, but how it can better accommodate residents
- Design a dwelling for a hundred years from now based on research and student outcomes

The author will discuss exercise activities, evaluation procedures and reference materials, as well as present student work. Overall, the goal of the presentation is understand what students think a house would be in the future based on their research.

Using Virtual Models and Digital Fabrication in Early Design Studios.

Tilanka Chandrasekera, Assistant Professor, Oklahoma State University-Stillwater
Noriel Jacobs Gray, Oklahoma State University-Stillwater

Design problem solving has been discussed through methods such as insight problem solving (Chandrasekera, Ngoc and D'Souza, 2013) trial and error problem solving (Youmans, 2011), and formal and logical processes (Dorst, 2011). The effect of prototyping (which is essentially a trial and error method of problem solving) is discussed in a number of studies with regard to design problem solving (Kershaw, Hölttä-Otto and Lee, 2011; Youmans, 2011; Viswanathan, and Linsey, 2009). In most of these studies where prototyping in the design process is discussed, one re-occurring theme is its affect on fixation (Youmans, 2011; Viswanathan, and Linsey, 2009). Design fixation is identified as the inability of the designer to move away from an idea in order to resolve a problem (Jansson & Smith, 1991). Some studies on physical protyping or model making in design has shown to increase fixation (Christensen, and Schunn, 2007). The fixation that might be caused by physical prototyping is explained through sunk-cost effect where in, the time designers spend making the physical prototype of their initial ideas, which they tend to fixate more on (Viswanathan, and Linsey, 2013) Digital prototype maybe an approach to alleviate any fixation effects caused through physical prototyping.

While identifying digital prototyping as a valid method in problem solving this study explores the connection students make when translating the virtual models in to physical reality using digital fabrication. Two sections of an early interior design studio, where each section had 15 students were selected as subjects for this study. They were provided with a simple interior design problem and as a part of that design problem they were asked to design a piece of furniture that corresponded to their overall design concept. One section of the studio were instructed to explore the problem using physical models and the other section were instructed to explore the problem using virtual models, which at the final stage would be fabricated using a digital printer. The design process of students in both sections was recorded through intermediate sketches and discussions. An Extended linkography (Cai, Do & Zimring, 2010) method was used to analyze the results to understand how fixation affected the design process of students using different mediums to communicate their design intentions.

The anticipated results of the study are expected to contribute to design education to understand the implication of using different mediums to express design intentions, and to better understand how different mediums provide means of alleviating fixation in the creative design process.

References

Chandrasekera, Tilanka, Ngoc Vo, and Newton D'Souza. "The Effect of Subliminal Suggestions on Sudden Moments of Inspiration (Smi) in the Design Process." Design studies 34, no. 2 (2013): 193-215.

Youmans, Robert J. "The Effects of Physical Prototyping and Group Work on the Reduction of Design Fixation." Design studies 32, no. 2 (2011): 115-38.

Dorst, Kees. "The Core of 'Design Thinking'and Its Application." Design studies 32, no. 6 (2011): 521-32.

Kershaw, Trina C, Katja Hölttä-Otto, and Yoon Soo Lee. "The Effect of Prototyping and Critical Feedback on Fixation in Engineering Design." Cognitive Science Society, CogSci (2011).

Viswanathan, VK, and JS Linsey. "Enhancing Student Innovation: Physical Models in the Idea Generation Process." Paper presented at the Frontiers in Education Conference, 2009. FIE'09. 39th IEEE, 2009.

Jansson, David G, and Steven M Smith. "Design Fixation." Design studies 12, no. 1 (1991): 3-11.

Christensen, Bo T, and Christian D Schunn. "The Relationship of Analogical Distance to Analogical Function and Preinventive Structure: The Case of Engineering Design." Memory & cognition 35, no. 1 (2007): 29-38.

Viswanathan, Vimal K., and Julie S. Linsey. "Role of Sunk Cost in Engineering Idea Generation: An Experimental Investigation." Journal of Mechanical Design 135, no. 12 (2013): 121002.

Cai, Hui, Ellen Yi-Luen Do, and Craig M. Zimring. "Extended linkography and distance graph in design evaluation: an empirical study of the dual effects of inspiration sources in creative design." Design Studies 31, no. 2 (2010): 146-168.

A Contextual View of Surveillance with Implications in the Home Environment

Gregory Galford, AIA
Gina Peek, Ph.D.

Introduction

Society is facing increased levels of surveillance and struggles with defining and maintaining a balance between security and privacy. The most private of those physical places is the home. Advances in technology are enabling personal safety through heightened visual control over home environments. A theoretical and historical context for viewing surveillance proves useful to increase understanding of this complex problem.

Why do we care?

Surveillance in the personal, home environment has a long history. For example, consider prisons as forced housing. Early models, such as the Eastern State Penitentiary in Philadelphia, used Bentham's panopticon as a means to monitor inmates. The panopticon is model that places a viewing tower in a central location, allowing guards to monitor inmates. The advantage of the panopticon was twofold. It allowed the fewest number of guards to watch the greatest number of inmates. Inmates did not know at which points they were being watched, thus, behavior was controlled. The historical use of Bentham's panopticon was effective in that it provided a corporeal model of watching as a tool of power.

Surveillance has changed and current physical means are much more varied and sophisticated. Current technology allows us to look into home environments, citing the need to maintain or increase safety and security for loved ones. As with the panopticon model, technology allows us to look into personal space. Here, in the home environment, technology is used for monitoring and collecting data. Although ever present, this technology fades into the background and becomes just another part of the environment. While it has become easier to accept in our public institutions, the future role of surveillance in spaces of privacy, such as homes, raises new concerns.

Methods

This literature review will present, question, and synthesize dominant theories of surveillance to examine the ways in which our behavior is impacted and to raise relevant items for future discussion. This literature review will serve as the basis for future study.

Results and Implications

Home environment surveillance is a relevant concern for housing professionals. Questions surrounding home surveillance have implications for teaching, research, and Extension. The literature

suggests that there is increasing public awareness and concern about surveillance in the home environment. The line between security and privacy is grey, at best. Surveillance is a social question that has entered the private home.

References

Andrzejewski, A. V. (2008.). *Building power: Architecture and surveillance in Victorian America*. Knoxville, TN: Univ. of Tennessee Press.

Aronson, E. (2003). *The social animal*. San Francisco: W.H. Freeman & Co.

Bentham, J., & Bozovic, M. (1995). *The panopticon and other prison writings*. London: Verso.

Carr, E. H., & Davies, R. W. (1961). What is history? New York: Random House.

Elmer, G. (2003). A diagram of panoptic surveillance. New Media and Society, 5(2), 231-247.

Foucault, M. (1988). *Madness and civilization: A history of insanity in the age of reason*. New York: Random House.

Foucault, M. (1995). *Discipline & punish: The birth of the prison*. New York: Random House.

Johnston, N. B. (2000). *Forms of constraint: A history of prison architecture*. Urbana, IL: University of Illinois.

Lyon, D. (2001). *Surveillance society*. Buckingham: Open University Press.

Lyon, D. (2002). *Surveillance as social sorting: Privacy, risk and automated discrimination*. London: Routledge.

Lyon, D. (2007). *Surveillance studies: An overview*. Cambridge: Polity Press.

MacArthur, J. R. (2007). *Architecture of authority*. New York: Aperture.

Markus, T. A. (1993). *Buildings and power: Freedom and control in the origin of modern building types*. London: Routledge.

Rapoport, A. (1982). *The meaning of the built environment: A nonverbal communication approach; with a new epilogue*. Tucson, AZ: The University of Arizona Press.

Rothman, D. J. (1971). *The discovery of the asylum: Social order and disorder in the new republic*. Boston: Little, Brown & Co.

Rothman, D. J. (2002). *Conscience and convenience: The asylum and its alternatives in progressive America* (Rev. ed.). New York: Aldine de Gruyter.

Watson, C. W. (2000). Multiculturalism: Open University Press Buckingham.

Self-Sufficient Housing in St. Louis

Pablo Moyano Fernández

Today, the vast majority of the energy generated in the United States comes from fossil fuels; St. Louis is no exception. Coal provides 82% of Missouri's electric power generation, and only 1% comes from renewable sources. Our ever-growing dependency on fossil fuels is having devastating consequences on our delicate environment, resulting in effects that range from global warming to contaminated landscapes and ecosystems. The built environment generates a large percentage of this pollution and contamination. In the US, buildings consume approximately 50.1% of total energy and 74.5% of electricity, constituting 49.1% of all carbon dioxide emissions. As the world population increases, buildings exert increasing demands on energy resources, pushing the global habitat from exhaustion toward collapse.

Because housing constitutes more than 75% of the actual building stock, self-sufficient dwellings could significantly impact the future health of human habitation. Designers thus have a social responsibility to address and eliminate negative environmental impacts, and an opportunity to connect people with the natural environment and with each other in their homes.

This presentation showcases a selection of design studio projects addressing the emergent challenges for future generations of designers: i. design a wiser form of inhabitation, ii. mitigate and restore damaged ecosystems from a design perspective, and iii. exploit local specificity. Students were asked to develop explicit responses to the local environment by promoting an architectural advancement of current and future problems of human habitation. They proposed dwellings that respond to social, cultural, political, geographical, technical, economical, and environmental contexts. These buildings reduce carbon emissions by generating the energy they consume, collecting and treating the water they need, and reducing, reusing and recycling the waste they produce.

The studio was structured by a series of initial exercises that created a conceptual framework for the projects. Following this iterative process the final exercise called for the design of 100 units housing in sites adjacent to St. Louis' Metrolink Stations.

In the first exercise, students were asked to choose three environmental strategies and research alternative responses for each in at least three buildings. Next, students were asked to choose three housing precedents that have different configurations in terms of massing and sectional qualities. From those precedents they had to create a sectional study that maximized the selected environmental strategy while simultaneously creating spatial situations adaptable to a dwelling. In the third exercise, students worked in groups to research the specificity of three assigned sites within the context of the neighborhood. From this collective effort each of the three groups created a ten minute movie

characterizing the selected area, the neighborhood, and, more generally, St. Louis. Students used observations and conclusions from this to guide their specific projects in the final exercise.

The methodology proposed encouraged students to use research as a source of inspiration and way of questioning the validity of their findings. Many students achieved unexpected outcomes and strategies through this initial challenging of existing solutions, and were able to propose new ways to interrelate environmental strategies with spatial implications.

Throughout this process, students were faced with the unique opportunity to re-envision the American dream of the twenty-first century: the eco-dream. This dream consists of a self-sufficient dwelling embedded in a productive landscape that betters the quality of life by generating not only food, but also alternative green energy, clean air and water. The final projects reflect the student's vision of St. Louis as a model for a responsible city of tomorrow.

References

[1] US Energy Information Administration, 2008.

[1] Guallart, Vicente, and Cappelli, Lucas, *Self-Sufficient City: Envisioning the Habitat of the Future, 3rd Advanced Architecture Contest*. Barcelona: Actar, 2010, pp. 8.

Sustainable Living Outreach Using Social Media

Pamela R. Turner, University of Georgia
Sarah Kirby, North Carolina State University

In today's digital world social media opens up new ways to provide information and education to new audiences, and expand our connections around the globe. Social media engages 72% of adults, with 57% using Facebook. Slightly under one-third (31%) of Facebook users, keep up with news and current events through Facebook (Smith, 2014). It is important to gain an understanding about how people use the Internet and social media so we can more effectively connect with users and provide them with current and helpful research and information on sustainability. Concerns about global warming, depletion of nonrenewable energy sources, and population growth have resulted in increased interest in sustainability. According to the U.S. Environmental Protection Agency ", sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations" (n.d., para. 1). Essentially, this means meeting the needs of the present without compromising the ability of future generations to meet their needs. This includes conserving resources, reducing waste, utilizing renewable resources, and decreasing the use of harmful chemicals.

An advantage of using social media is the ability to provide real-time learning opportunities 24 hours a day, so information is always available at a time that is convenient for the consumer. With social media the message may come from a specific source, but it is in the control of the recipient as to when they choose to read it or even if they desire to read it at all. Outgoing social media messages must be eye-catching or relevant to that individual. Generic messages are less effective at capturing the attention of the online audience.

There are a variety of different approaches and tools that can be used to provide sustainability information and education to online audiences. While providing information is essential, it is also important to create dialog among learners. Social media tools allow educators and learners to interact with each other in ways websites or other static types of learning environments do not. One of the most significant things those desiring to interact with others must do is to identify a target audience and engage them through the social media tools they use. James (2010) writes that in order to promote sustainable behavior, educators must attract consumer attention, use persuasive messages, provide strategies for change, consider delivery messages, and focus on the audience.

This presentation will address two approaches to providing sustainability information using social media – a defined topic of interest and a broad categorical approach. The defined topic is residential energy conservation and the broad topic is living greener. While both topics address consumer behavior and technologies related to housing and the environment, the defined topic provides the user with a more

structured and predictable source of information in a single focused area. The broader topic provides an opportunity to reach a more diverse audience and addresses the broad concept of sustainability; however, the variety of postings may not appeal to the audience all of the time, so it could be challenging to retain audience members. The presenters will discuss strategies for identifying an audience, and selecting the appropriate approach and social media tools. They will also discuss the challenges and opportunities social media presents to research institutions as an educational tool.

References

James, R. (2010). *Promoting sustainable behavior.* University of California, Berkley. Retrieved from http://sustainability.berkeley.edu/sites/default/files/Promoting_Sustain_Behavior_Primer.pdf.

Smith, A. (2014, February 3). *6 new facts about Facebook*. Pew Research Center. Retrieved from http://www.pewresearch.org/fact-tank/2014/02/03/6-new-facts-about-facebook/.

U.S. Environmental Protection Agency (n.d.). *What is sustainability?* Retrieved from http://www.epa.gov/sustainability/basicinfo.htm.

Believing in Homeownership: Behavioral Drivers of Housing Tenure Decisions

Rachel Bogardus Drew, Joint Center for Housing Studies, Harvard University

Homeownership in the United States has long been associated with achievement of the American Dream (Cullen 2003). The many benefits ascribed to homeownership – including wealth accumulation, better neighborhoods, better outcomes for children, and a sense of personal success and stability – have cast it as a means to a better life (Dietz & Haurin, 2003). Generations of home-owning families are a testament to homeownership's ability to deliver on this dream, providing not just upward socioeconomic mobility but also inclusion in a social practice viewed as being as central to American life as voting (Shlay, 2006). Yet, while numerous studies have sought to identify determinants of individual decisions about owning and renting housing (Fu, 2013), very few have considered the role that beliefs in these benefits may play, particularly in the United States (Reid, 2013).

This paper fills this gap in the literature, using data collected from the 2011 Fannie Mae National Housing Survey on beliefs about the benefits of homeownership, to analyze their relationship with renters' stated intentions to buy or rent housing in the future. The nationally-representative survey asked renters ages 25-64 with plans to move (N=1,487) how much they agreed with statements about four outcomes potentially associated with homeownership—that it provides a good place to raise children, a safe physical structure, more control over living space, and more space for families. Respondents who considered these to be 'major' reasons were presumed to hold strong beliefs in these benefits. A question about the financial benefits of owning versus renting was also used as an additional indicator of individual tenure beliefs. Each of these belief variables were regressed separately against stated future tenure intentions, while controlling for respondents' socio-demographic characteristics (race/ethnicity, income, family status), financial conditions (annual income, total household debt), and potential constraints on tenure options (self-reported ability to qualify for a mortgage and sacrifice required to own).

The analysis found that beliefs are strong indicators of tenure intentions, more so than even some personal and economic characteristics that are commonly assumed to drive tenure preferences, such as family composition and income (Henderson & Ioannides, 1983; Clark et al, 2003). Indeed, renters who believed in the five assessed benefits of owning were estimated to have between 70 and 280 percent greater odds of expecting to own in the future than those who do not hold such beliefs. Many of the personal characteristics assessed, meanwhile, were also statistically significant predictors of future tenure plans, in keeping with prior research on tenure preference trends by race, age, and income (e.g. Haurin et al, 1996; Gyourko & Linneman, 1996; Gabriel & Painter, 2003). Notably, renters' debt levels, marital status, and perceptions about constraints on their ability to purchase and own homes were not significant in the regression analyses, and thus unlikely to be predictive of future tenure intentions. These findings confirm that beliefs influence tenure intentions independent of personal characteristics, and support the

hypothesis that individuals with strong beliefs in the benefits of homeownership are more likely to expect to buy homes in the future.

References Cited

Clark, W. A. V., M.C. Deurloo, and F.M. Dieleman. 2003. "Housing Careers in the United States: Modeling the Sequencing of Housing States." *Urban Studies* 40, no. 1: 143-60.

Cullen, J. 2003. *The American Dream: A Short History of an Idea that Shaped a Nation*. New York: Oxford University Press.

Dietz, R. D., & Haurin, D. R. (2003). The social and private micro-level consequences of homeownership. *Journal of Urban Economics, 54*(3), 401-450.

Fu, K. 2013. "A Review of Housing Tenure Choice." In *Proceedings of the 17th International Symposium on Advancement of Construction Management and Real Estate*, edited by J. Want, Z. Ding, L. Zou, and J. Zuo, 351-60. Berlin: Springer.

Gabriel, S., and G. Painter. 2003. "Pathways to Homeownership: An Analysis of the Residential Location and Homeownership Choices of Black Households in Los Angeles." *Journal of Real Estate Finance and Economics* 27, no. 1: 87-109.

Gyourko, J., and P. Linneman. 1996. "Analysis of the Changing Influences on Traditional Households' Ownership Patterns." *Journal of Urban Economics* 39, no. 3: 318-41.

Haurin, D.R., P.H. Hendershott, and S. Wachter. 1996. "Borrowing Constraints and the Tenure Choice of Young Households." *Journal of Housing Research* 8, no. 2: 137-54.

Henderson, J.V., and Y.M. Ioannides. 1983. "A Model of Housing Tenure Choice." *American Economic Review* 73, no. 1: 98-113.

Reid, C. 2013. "To Buy or Not to Buy? Understanding Tenure Preferences and the Decision-Making Processes of Lower-Income Households." Working Paper HBTL-14. Cambridge, MA: Joint Center for Housing Studies, Harvard University.

Shlay, A.B. 2006. "Low-Income Homeownership: American Dream or Delusion?" *Urban Studies* 43, no. 3: 511-31.

Acknowledgements:
The author would like to thank Steven Deggendorf of Fannie Mae for his assistance with the National Housing Survey data used in this analysis, Chris Herbert and Eric Belsky of the Joint Center for Housing Studies for their support and comments on this research, and Michael Johnson and Christian Weller of the McCormack School of Policy and Global Studies at the University of Massachusetts, Boston for their advisory role in the dissertation on which this paper is based.

Disclaimer:
This paper uses data from the January-December 2011 Fannie Mae National Housing Survey. The author is solely responsible for the content of this paper, which does not necessarily reflect the views of Fannie Mae.

2014 Abstract Reviewers

Katrin	Anacker	George Mason University
Axton	Betz-Hamilton	Eastern Illinois University
Tilanka	Chandesekera	Oklahoma State University
Karl	Flaming	University of Colorado Denver
Elizabeth	Borimani-Mundoma	University of Florida
Leslie	Green-Pimentel	Delta State University
Gabrielle	Guerin	University of Minnesota
Sarah	Kirby	North Carolina State University
Hyun Joo	Kwon	Purdue University
Hyun-Jeong	Lee	Chungbuk National University
Sung-Jin	Lee	North Carolina Agricultural and Technical State University
Yanmei	Li	Florida Atlantic University
Gina	Peek	Oklahoma State University
Joy	Pottoff	Bowling Green State University
Pat	Snodgrass	University of Missouri
Pamela	Turner	University of Georgia
Kenneth	Tremblay	Colorado State University
Ann	Ziebarth	University of Minnesota

2014 Conference Moderators

Concurrent Session I-A:	Pat Snodgrass
Concurrent Session I-B:	Rebecca Blocker
Concurrent Session I-C:	Mark Porth
Concurrent Session II-A:	Marsha Alexander
Concurrent Session II-B:	Connie Neal
Concurrent Session II-C:	Kandace Fisher
Concurrent Session III-A:	Pat Snodgrass
Concurrent Session III-B:	Connie Neal
Concurrent Session III-C:	Rebecca Blocker
Concurrent Session IV-A:	Jeffrey Barber
Concurrent Session IV-B:	Tom Fuhrman
Concurrent Session IV-C:	Michael Goldschmidt