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Gina Peek
Editor

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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
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1982	17th Knoxville, Tennessee - August 10-12, 1982
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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
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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

Refereed Abstracts – Poster Presentations

MAPPING CONCENTRATIONS OF POVERTY AND PUBLIC SCHOOLS IN MINNEAPOLIS

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Introduction

Much research has documented the effects on neighborhoods and life-long outcomes and successes for children. Children in impoverished neighborhoods are often faced with unequal opportunities. Education attainment is one of the most critical problems among those blocked equalities, especially among urban children in high concentration of poverty.

Neighborhoods and schools are closely associated since children enroll in neighborhood schools by school districts. Segregated neighborhoods are likely housing residential segregation (e.g. Low Income Housing Tax Credit), then lead to segregated public schoolings (Orfield and Wallace, 2007). Neighborhoods and schools are thus important for children development in that social experiences, enrichment opportunities, and inequality occur at the same time.

Many researchers and policy-makers have been building on the consensus that policy changes must interrupt such segregation trends for children who reside geographically within these neighborhoods. One of the most prominent responses to this matter is the creation of the "School Choice Program," which is an open enrollment opportunity for inner-city school students to be bussed to schools out of their school districts. Many states have enacted open -enrollment by codifying the requirements of

intra-district, inter-district, or both. Students are placed in preference to the program if they receive free or reduced price lunches. The purpose of this study is to investigate the concentrations of poverty in local public schools by using geographic information systems (GIS).

Background

Over the past two decades, research has examined the relationship between neighborhood effects and children's outcomes. Leventhal and Brooks-Gunn (2000) reviewed numerous literatures of children and found that neighborhood socioeconomic status- household income, household composition, mother's education, mothers' age, and race/ethnicity-were the most common effects regardless of children's developmental stages. Turley (2003) found that neighborhood income and duration (lived over three years) mattered to children regardless of their races. Ainsworth (2002) reported that neighborhoods with higher education and occupation were associated with higher school performances of children. Racial compositions and emotional attachment in the neighborhoods were an important factor (Brigg, 1997; Kling, Ludwig, and Katz, 2005). Duncan (1994) found that affluent neighborhoods were positively associated with African American boys only if the neighbors were African Americans.

Along with the voluminous neighborhoods effects research linking to children, currently, the study and emphasis on schools has been increasing. Galster, Marcotte, Mandell, Wolman, and Angustine (2007) explored the cumulative effects of neighborhoods on children's outcomes in later life, using the Panel Study of Income Dynamics (PSID). Lower quality public schools (e.g. less supportive on higher

education) in disadvantaged neighborhoods cause lower school attainment and earnings of young adults.

However, the effects of school choice programs have been rarely examined. There are controversial issues: 1) that students are only eligible to change schools with school choice programs due to their financial advantages, and 2) whether students who use the programs benefit from high quality schools. Therefore, it is worth exploring how housing and residential patterns contribute to school choices, in order to understand the effects of school choice programs.

Open enrollment

In order to equalize educational gaps and enhance educational opportunities of public schools, the open enrollment policy was established in the late 1980s. In 1991, Minnesota enacted the open enrollment policy, allowing public school students to attend schools outside of their local school districts. The open enrollment policy has three major provisions: 1) an intra-district school choice program involving suburban districts, 2) an inter-district school choice program involving magnet schools within the Minneapolis school districts, and 3) an accountability program. Students who qualify for free or reduced price lunches receive priority placement into open enrollment.

In 2003, Minnesota expanded this program to enhance educational opportunities for families in the Minneapolis city (suburbs). Under the further policy implementation, our research is to investigate the school choice effects on children who live in high concentration of poverty neighborhoods. As the first step of the research, we examine the current poverty-concentrated public schools in Minneapolis.

Data and Methods

In order to understand how poverty rates are concentrated in neighborhood public schools in Minneapolis, all spatial analyses were conducted using ArcGIS9 (ArcMap 9.2). The data was obtained from the Minnesota Department of Education (DE). The DE provides free or reduced price lunch, as an index of poverty rate (Orfield and Wallace, 2007), for each elementary school from public school districts. Then each elementary school, as a case of this analysis, was joined to its school district and numbers of schools were showed together. The school district boundaries were from the Census Bureau's TIGER files. The study provided a community map of the concentrated poverty and schools in Minnesota, Metro area, and Minneapolis area.

Results and Conclusion

The study investigated the concentrated poverty in public schools in Minneapolis. The urban school districts revealed more segregation than other areas. More specifically, north and south Minneapolis were more concentrated and correlated with racial and income compositions of the residents. This concentrated poverty rate in Minneapolis correlated with enrollment rate, graduation rate, and affordable housing units (Orfield and Wallace, 2007).

Recently, high schools in North Minneapolis have been struggling with educational achievement and declining enrollment (Mitchell, 2010). The declines in enrollment rates are partially due to drop-out rates, and partially due to the move from inner-city students into more affluent suburban schools. This also implies that residential segregation across neighborhoods may be aggravated through school segregation. Schools are closely related to neighborhoods along with the residents' characteristics.

Segregated schools harm children educationally and economically, and ultimately the regions. In order to further understand the relationships and effects with school choice programs and neighborhoods, the demographic characteristics in the neighborhoods, such as race/ethnicity, household income, and parental backgrounds, should be investigated in future studies.

References

Ainsworth, J. W. (2002). Why does it take a village? The mediation of neighborhood effects on educational achievement. *Social Forces, 81,* 117–152.

Briggs, X. S. (1997). Moving up versus moving out: Neighborhood effects in housing mobility programs. *Housing Policy Debate, 8*(1), 195-234.

Duncan, G. J. (1994). Families and neighbors as sources of disadvantage in the schooling decisions of White and Black adolescents. *American Journal of Education*, *103*, 20-53.

Galster, G., Marcotte, D. E., Mandell, M., Wolman, H., & Angustine, N. (2007). The influence of neighborhood poverty during childhood on fertility, education, and earning outcomes. *Housing Studies, 22*(5), 723-751.

Kling, J. R., Ludwig, J., & Katz, L. F. (2005). Neighborhood effects on crime for female and male youth: Evidence from a randomized housing voucher experiment, *The Quarterly Journal of Economics, 120*(1), 87-130.

Leventhal, T. & Brooks-Gunn, J. (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin, 126*(2), 309-337.

Mitchell, C. (2010, November 10). Rethinking north side schools. *Startribune*. Retrieved

April 29, 2011, from

http://www.startribune.com/local/CITY/107010023.html?source=error.

Orfield, M., & Wallace, N. (2007). Expanding educational opportunity through school

and housing choice. *CURA Reporter, 37*(2), 19-26.

Turley, R. N. L. (2003). When do neighborhoods matter? The role of race and

neighborhood peers. *Social Science Research, 32*, 61-79.

Key words: neighborhoods effects, poverty concentration, children, public schools

AN INVESTIGATION OF RESIDENTIAL DISPLAY CASE ILLUMINATION:
PROTECTING FRAGILE ARTIFACTS IN SITU

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This study examined the existing integral illumination of a glass and wood residential display case intended to hold a fragile collection in a university president's house and to determine if the lighting was appropriate. For the purposes of this study, fragile artifacts are defined as those susceptible to degradation from light exposure. The fragile artifacts to be displayed were a collection of Madame Alexander dolls donated by their executive officer, a university alumna.

Display illumination can be particularly damaging to artifacts, with exposure equivalents of up to two days of bright sunlight in only weeks (Texas Historical Commission, n.d.). It is therefore imperative to monitor and control the illumination levels that reach artifacts for the sake of preservation. In order to protect the collection from possible adverse light-associated effects (fading, melting, disintegration) while promoting visual access, the specific research objectives included: to identify and describe the existing case lighting treatment; to measure existing lighting levels; and to compare the existing lighting levels to industry recommendations.

This study was conducted in the Spring of 2009 by an interior design faculty member and graduate and undergraduate students. This research consisted of (1) a review of literature to identify lighting standards for artifact preservation, (2) a field case

study and (3) an industry product review to determine readily available alternatives and recommendations. The researchers consulted the Illuminating Engineering Society of North America's (IESNA) standards for merchandise lighting. The IESNA categorizes displayed materials into three groups based on their susceptibility to light-related damage and assigns maximum illuminance values in footcandles (fc) to each category. According to IESNA (2000), highly susceptible materials include cotton, natural fibers, furs, silk, fugitive dyes, wool, and painted and dyed wood. Moderately susceptible materials include textiles with stable dyes, some plastics, and wood finishes. A maximum illuminance value of 5 fc is recommended for highly susceptible materials, while a maximum of 20 fc is recommended for moderately susceptible materials (2001). Also according to the IESNA, for integral incandescent display case lighting, 4 – 25 watts is recommended (1996). The doll manufacturer's website warned against storing dolls in, "areas affected by direct sunlight or severe heat" (Alexander Doll Company, 2011) but did not make specific lighting recommendations.

Within the display case in situ, the researchers took six footcandle readings on each of its six levels utilizing an Extech 401036 light meter with a remote photocell paddle. Three horizontal readings on shelves (of wood or glass) and three vertical readings (at back of case) were taken per level with all integral lighting "on". To facilitate the study, all readings were taken with the artifacts removed. However, under normal viewing conditions, the artifacts were displayed with high density, positioned throughout the front, middle and rear of each shelf. Several of the artifacts were positioned less than two inches from the integral lighting in situ.

In Spring 2011, a supplemental online search utilizing the key words: "illuminated", "residential", "display", "cabinet", and "furniture" was conducted. The first ten websites found for illuminated cabinets were studied. This was done to determine the current availability of incandescent and other sources of display case lighting.

An examination of the more than 80 Madame Alexander doll artifacts and literature revealed that the dolls were made from hard plastics, vinyl, or wood and their elaborate and colorful accessories contained dyed plastics, metals, cotton, wool, tulle, lace, satin, and faux fur. The researchers categorized the majority of the Madame Alexander dolls and their accessories into two categories: highly susceptible materials and moderately susceptible materials. The existing display case lighting treatment was identified as follows: a quantity of two, 120 Volt, 40 Watt, tubular showcase-style clear incandescent lamps with attached reflectors and on/off switches. The lamps were concealed from normal viewing angles due to their mounting locations under wood shelving and framing elements within the case. The mean of the horizontal light meter readings was 12.87 fc, with a maximum value of 41 fc and a minimum of 7 fc. The mean vertical light meter readings were 11.07 fc, with a maximum value of 41 fc and a minimum of 4 fc.

Through their online search, researchers found that display cases with integral illumination are currently readily available through retail websites. Most of the ten reviewed websites offered multiple light sources. The vast majority (n= 94, 82.46%) of the 114 light sources found on the websites were labeled as (tungsten) "halogen", which is a specialized form of incandescent lighting. Researchers found that only a few (n= 9, 7.89%) of the cabinets contained a light source labeled merely as "incandescent". Six

light sources were labeled as "xenon" (5.26%), one was identified as "LED" and five were labeled "fluorescent" (4.39%). Therefore, it was determined that halogen was currently the most commonly available light source in residential display case furniture.

The researchers determined that the lighting in the president's house display case was incandescent, inappropriate for fragile artifact illumination, and generally exceeded light level recommendations. The wattage utilized was nearly double the maximum recommended value for this application. Although incandescent lamps consume more energy, produce more heat, and have shorter lifetimes than comparable new sources such as compact fluorescent lighting (CFLs) or light emitting diodes (LEDs), incandescents are still found in residential display cases. Incandescent lighting offers warm color temperature, high color rendering index, and low initial cost which are desirable features for display lighting. As CFLs and LEDs continue to develop, the researchers anticipate that their color temperatures, color rendering indices, and initial costs will improve, allowing for more applications in residential display case illumination. If CFLs are shielded, their associated ultraviolet emissions, which could contribute to artifact degradation, would be virtually eliminated. However, many more LED options are currently available for display case retrofits. The footcandle levels anticipated on artifacts by using alternate sources could comply with recommended levels, dependent upon the quantity, wattage, fixture optics, and positioning of the alternate sources. The visited display cabinet websites generally did not include light level information.

It is recommended that the existing lighting in the display case be removed and replaced with low wattage, continuously lit, warm white LED strips for a more sustainable, longer lived, and cooler solution, which will generate lower footcandle

levels, per industry recommendations. Footcandle data is available for retrofit LED strips and they are anticipated to meet recommendations, thereby adequately illuminating and preserving the collection. Additionally, the following measures are recommended by the IESNA to limit fading and are also suggested by the researchers to preserve the collection: rotating artifacts and locating highly susceptible artifacts away from light sources (2000). Also, since empirical lighting case studies are lacking, this study makes a contribution to the body of knowledge.

References

Alexander Doll Company, Inc. (2011). Caring for your doll-Collectible: Storage.

Retrieved from http://www.madamealexander.com/OUR+DOLLS/Doll+Care+-

+Collectible+Dolls/Caring+for+Your+Doll+-+Collectible/32

The Illuminating Engineering Society of North America. (2000). The IESNA lighting

handbook, reference and application (9th Ed.). New York: The Illuminating

Engineering Society of North America.

The Illuminating Engineering Society of North America. (1996). Museum and art gallery

lighting: A recommended practice. New York: The Illuminating Engineering

Society of North America.

The Illuminating Engineering Society of North America. (2001). Recommended practice

for lighting merchandise areas (A store lighting guide). New York: The

Illuminating Engineering Society of North America.

Texas Historical Commission. (n.d.). Basic guidelines for the preservation of historic

artifacts [Data file]. Retrieved from http://www.thc.state.tx.us/museums/

musWord/BasicGuideforPreservHistArtifacts.doc

BASIC ACCESS IN EVERY NEW HOUSE

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Eleanor Smith

Introduction

Our society has made tremendous progress in access to the built environment over the past several decades. The Americans with Disabilities Act opens the doors for people with disabilities to theaters, schools, restaurants and other public buildings which a few decades ago barred access. The Fair Housing Amendment mandates access in new apartments in multifamily residences built since 1991. But unfortunately that change has not yet extended to the way we build single-family houses, where the great majority of people live.

The current norm is to build a small percent of designated, accessible houses for people with disabilities and older people—and then build all the rest with steps at all entrances and narrow bathroom doors.

Later, when a member of the household develops problems walking because of an accident, chronic illness or the aging process, we rush about trying to find a contractor and sufficient funds to have the house renovated. Often people can't get renovations done before being dismissed from the hospital and instead face going to a nursing home, moving to a different house, or trying to survive in a house where they can't exit independently because of steps at all entrances or use their own bathroom because of narrow doors.

Researchers have been suggesting universal basic home access for decades, and have focused on design, but an emphasis on why and how to bring about policy change, and examining the policy changes that have already occurred, is new (Maisel 2007, Maisel et al 2008, Salvesen et al 2008, Smith et al 2008). Policy for every new house to have access seems to be not only new to many people, but also alarming to them because of myths. However, it is not yet extended to the way we build single-family houses, where the great majority of people live.

Purpose

The purpose of this poster is to show the need for basic access in every new house. It also proposes that policy-oriented education and action—NOT merely design oriented education and action-- is the route to go on this issue. This poster session will demonstrate the 'why' and the 'how' of basic home access.

Need for basic access for every house

The question arises: How many houses need access? That number is often greatly underestimated. Researchers at the University of Florida addressed the question, "What is the likelihood that any one house, over the lifetime of the house itself, will have a resident with severe, long-term mobility impairment?" The results were published in the Journal of the American Planning Association (Smith et al. 2008): a startling 25% to 60% of all new houses built in 2000 needed to access. These figures do not include the incidence of severe short-term mobility impairment. They also do not address the question of whether people who develop disabilities can continue to visit in

the homes of their friends and extended family. The percentages can only be higher in 2011, given the widely-documented aging of the population. Furthermore, it is not possible to predict in which houses a disability will occur. So, we can conclude that the basic access is a need for every house.

Proposed solution and conclusion

It is clearly not financially possible to go back and retrofit large numbers existing houses to incorporate basic access, whether or not the current occupants have mobility impairment. Retrofitting typically costs thousands of dollars or even tens of thousands. But it is possible to begin building virtually all new houses with basic access. In fact, two U.S. locales mandate that practice and have produced about 4,000 and 24,000 houses with basic access to date, respectively. Some 50,000 houses—spec houses not special houses—have come about across the country so far, through policies brought about by the "Visitability" or "Basic Home Access" movement. Policy-oriented education and action—NOT merely design oriented education and action-- is the route to provide basic access for every new house.

References

Maisel, J. (2007). Visitability: A Major No-Step Towards Inclusive Housing. *Planning Commissioners Journal,* 66, Spring 2007.

Maisel, J., Smith, E., and Steinfeld, E. (2008). Increasing Home Access: Designing for Visitability. *AARP Public Policy Institute*, August 2008.

Salvesen, D., Ringeart, L., Shay, E., and Smith E. (2008). Housing Visitability: A Necessary Trend, *Urban Land,* May, 2008.

Smith, S. K., Rayer, S. & Smith, E. A. (2008). Aging and Disability: Implications for the Housing Industry and Housing Policy in the United States. *Journal of the American Planning Association*, 74(3), 289-306.

REEXAMINING PROPERTY VALUES OF MANUFACTURED HOMES IN NON-MSA UNITED STATES

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Summary

Manufactured homes have been increasingly popular in non-metropolitan areas in the United States. In appearance, they are becoming more similar to site-built homes. This study updates our previous study, which examined the price differences between two types of housing using the 2001 American Housing Survey (AHS) data (Vanderford, Mimura, & Sweaney, 2006) and allows the observation of one aspect of the U.S. housing market over eight years during the housing boom and bust. This study utilized the hedonic price technique to compare manufactured homes and site-built homes that are otherwise equivalent in characteristics by examining housing units in rural areas (non-Metropolitan Statistical Area) from the 2009 AHS. The findings suggest that manufactured homes are still lower in price than otherwise comparable site-built homes located in rural areas; and compared to eight years earlier, the gap has narrowed.

Background

Two questions motivated this study: 1) If manufactured homes are a less expensive alternative to site-built homes, how much more inexpensive are they today?

2) Was the price gap narrower in 2009 than in 2001? Lancaster's theory of characteristics (Lancaster, 1966) provided a theoretical framework for this study. Hedonic price analysis (Rosen, 1974) is a technique used to assess the implicit value of each of the characteristics that goods or services possess. Hedonic price analysis of housing units allows a closer look at the variations in home values according to the variations in multiple characteristics that are unique to each housing unit, holding everything else constant.

A more recent study examining the survey years between 1993 and 2001 from the American Housing Survey (AHS) data supported the claim that the factors associated with the lowering of structural and neighborhood quality over time are similar among owned manufactured and site-built homes (Boehm & Schlottmann, 2008). Hedonic studies of housing prices published since 2003 include a study of the effect on property value of natural amenities (White & Leefers, 2007), neighborhood income levels and the differential impact of violent crime (Tita, Petras, & Greenbaum, 2006), property size and impact of nearby railroad tracks (Simons & El Jaouhari, 2004), and subdivision characteristics such as covenant restrictions (Rogers, 2010).

Methods and Results

Data preparation. The data for this study came from the 2009 American Housing Survey (AHS) public use national dataset. Both manufactured housing and single-family site-built homes were included in the study. Because manufactured homes are more popular in non-metropolitan areas, only housing units located outside Metropolitan Statistical Areas (MSA) were included in the study. Furthermore, to maintain comparable quality among houses, those included in the sample were all owner-

occupied, single-story structures with no basement and were sitting on a property of 10 acres or smaller.

First, restricting the sample to owner-occupied homes eliminates potential variations that investment properties, other rental properties, and non-occupied homes may have. Second, homes sitting on rented land were excluded from the study as well. Third, there are very few two-story manufactured homes; thus, the sample is limited to one-floor units. Exclusion of houses with a basement was necessary since this feature is not available among the majority of manufactured homes. Lastly, because this study was to primarily compare the housing features, not the land features, the sample was limited to homes sitting on owned land of 10 acres or less, following an earlier study (Hansen, Formby, & Smith, 1994).

In addition, only HUD-coded manufactured homes built since 1977 were included in the study to make sure the homes were comparable. Accordingly, due to the nature of the AHS public access data, all houses included in the sample were built in 1980 or after. We excluded the houses of respondents who claimed current home values below $1,000 from the sample because of possibly unreliable value information. We did not impose an upper limit cap, while the values of site-built homes are generally higher than manufactured homes, even after restricting the aforementioned features. The bias resulting from such distributional difference was reduced by taking the natural logarithm, rather than the units' dollar value. Number of bedrooms were not capped as its distribution was not different ($p < 0.05$) between the two housing types. The final usable sample for the analysis included 333 manufactured homes and 691 site-built homes, a

total of 1,023 housing units. Location of these units is unknown since the sample came from the AHS *public* use data.

Model and variables. The hedonic price model was used to assess the percentage differences in values of manufactured and site-built homes due purely to the difference in structure type. We estimated the model by controlling for other housing and neighborhood characteristics that imply residential real estate values, according to previous literature. The response variable (dependent variable) is, therefore, the logarithm of home values in dollars provided by the survey respondents provided. The main explanatory variable is the structure type, manufactured or site-built. The control variables are house size (ft^3); land size (ft^3); house age; house rating by residents; presence of fireplace, garage, and central air conditioning system; numbers of bedrooms, full bathrooms, and half bathrooms; neighborhood quality items such as safety; and finally, the Census region. The list excludes the housing characteristics that caused multicollinearity.

Results. The model explained 54% of the variations in house values, and the findings suggest that the dollar value of manufactured homes studied was 26% (=exp(-1.3336)) lower than site-built homes. This is less than the figure from the 2001 data, which was 31% (Vanderford, et al., 2006). Other variables that explained the differences in home values were having a fireplace (+), garage or carport (+); house age (-); number of bedrooms (+), full (+) and half (+) bathrooms; having abandoned or vandalized buildings within a half block (-); and being in the Western region (+) instead of the South. None of the control variables explained the variations in home values as much as the structure type variable.

Implications

The findings suggest that in the rural (non-MSA) United States, the manufactured homes are significantly more inexpensive than site-built homes with various equivalent characteristics. Specifically, choosing a manufactured home instead of a site-built home will save the consumer about 26% upon purchase in the current housing stock. Comparing this study to previous studies (Boehm & Scholttmann, 2008), our findings also showed that the differences in the home values between manufactured and site-built homes have been narrowing. This study investigated a timely topic in this economic climate, namely manufactured housing as an affordable alternative to site-built homes. Many families and consumers, although constrained, may not appreciate the newer, HUD-coded modern manufactured homes, because they have outdated images of manufactured homes and do not realize the options available to them. Through this study, we hope to inform this often-misguided audience of the current state of manufactured housing, which is becoming more and more like conventional site-built homes.

References

Boehm, T., & Schlottmann, A. (2008). Is manufactured owned housing a good alternative for low-income households? Evidence from the American Housing Survey. *Cityscape: A Journal of Policy Development and Research, 10*(2), 159-224.

Econometrica, Inc. (April 2011). *Codebook for American Housing Survey, Public Use File 1997 and later*, Version 2.0, U.S. Housing and Urban Development. Available from: www.huduser.org/portal/datasets/ahs/AHS_Codebook.pdf

Hansen, J. L., Formby, J. P., & Smith, W. J. (1994). The measurement and trend of housing inequality in the United States, 1978-85. *Applied Economics, 26*(10), 1021-1028.

Lancaster, K. J. (1966). A new approach to consumer theory. *The Journal of Political Economy, 74*(2), 132-157.

Rogers, W. (2010). The housing price impact of covenant restrictions and other subdivision characteristics. *The Journal of Real Estate Finance and Economics, 40*(2), 203-220.

Rosen, S. (1974). Hedonic prices and implicit markets: product differentiation in pure competition. *The Journal of Political Economy, 82*(1), 34-55.

Simons, R. A., & El Jaouhari, A. (2004). The effect of freight railroad tracks and train activity on residential property values. [Article]. *Appraisal Journal, 72*(3), 223.

Tita, G. E., Petras, T. L., & Greenbaum, R. T. (2006). Crime and residential choice: A neighborhood level analysis of the impact of crime on housing prices. *Journal of Quantitative Criminology, 22*(4), 299-317.

Vanderford, S. E., Mimura, Y., & Sweaney, A. L. (2006). A Hedonic Price Comparison of

    Manufactured and Site-Built Homes in the Non-MSA US. *Journal of Real Estate*

    Research, 27(1), 83-104.

White, E. M., & Leefers, L. A. (2007). Influence of natural amenities on residential

    property values in a rural setting. *Society & Natural Resources, 20*(7), 659-667.

Acknowledgements

STUDENT PREFERENCES FOR HAND VERSUS COMPUTER DRAFTING IN RESIDENTIAL DESIGN STUDIOS

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In the residential design studio, visual communication techniques are used to convey design ideas, but they are also marketable skills. For example:

- A quick sketch in a client discussion conveys design competence;

- Knowledge of a particular design software increases a candidate's employability;

- Hand-rendered drawings adds appeal to a high-profile client presentation; or

- Fluency in design software speeds production of routine drawings.

The current generation of students have always had the choice to communicate by *hand* (write, draw, sketch) or *electronically* (word process, instant-message, text). In the design studio, the choice becomes: *hand drafting* versus *computer-aided design drafting (CAD)* software. Hand drafting is "the process of creating a measured two-dimensional or three-dimensional drawing in perspective, isometric, plan, elevation or section. The process of hand drafting requires more understanding of what you are drawing before you begin" (Seidler & Korte, 2009). Computer drafting (CAD) "describe(s) the process of creating a measured drawing with computer-aided design (CAD) software. CAD software allows you to simultaneously generate perspective, plans, sections, and elevations from a single drawing or model" (Seidler & Korte).

To students raised on electronic communication, computer drafting may seem the norm. Many residential design students hold the perception that a high level of CAD competency is required in the professional world; a view borne out by both anecdotal evidence and research (Brandon &McLain-Kark, 2001; McConnell & Waxman, 1999; McLaren, 2007). However, as shown in McLaren's extensive review of research, there is critical need for design students to develop the spatial skills of intuition, reasoning, and visualization which are more effectively accomplished through hand drafting. This provides a foundation for the design process and for learning CAD so that the software is mastered and can then become a design tool with new possibilities.

Study Design and Methodology

A review of preferences for hand or computer drafting was conducted among students in a housing program with a strong residential design focus. The curriculum teaches hand drafting in the first year studio then introduces two CAD programs common in the residential design and kitchen and bath design industries. Advanced students are given the option of hand or computer drafting with the recommendation to mix the drawing methods in their portfolios.

A senior student in the program conducted the study as an undergraduate research project. The following research question guided the project: What variables influence the difference in preference between hand drafting and computer drafting?

Two surveys were conducted in class in four studio classes (beginning to advanced) in Spring 2011. *Survey 1* (n=48) included all students (Table 1). *Survey 2* (n=36) was a subset of in-major students only. Analyses included frequencies and cross tabulations.

Results

Of the 48 students participating, 22 had no drafting experience when they entered the program, and 4 had hand drafting only. Therefore, over half of the students had no initial computer drafting experience.

Survey 1 variables were gender, education level, age, major, in-state/out-of-state residency, previous drafting experience, and studio class level. Noteworthy trends were:

- Gender: Slightly more than one-half (n=19), of 36 females indicated a preference for hand drafting (Table 2).

- Previous experience: There was a decided bias to hand drafting (n=14) for the 22 students who had no previous drafting experience (Table 3).

- Class level: Lower level students (defined as no more than two studio classes), had preferences equally divided between hand drafting (n=12) or no preference (n=12) (Table 4).

Survey 2 variables were current class enrollment, influence of first year studio experience, current class practice, value in workforce, value to advancement in workforce, and preference without job influence. Noteworthy trends were:

- Preference: Almost two-thirds (n=23) of the 36 respondents preferred hand drafting. These students cited the first year studio (n=15) which was primarily a hand drafting class and current class practice (n=20) as the influences for their preferences.

- Influence of first year studio: Except for the most advanced students, the majority of students agreed that the first year studio was an influence to their drafting preference (Table 5).

- Workforce value: Students agreed that they would be influenced in their preferences by the type of drafting valued in the workforce (Table 5). However, the majority of students said their drafting preferences would not change, even if jobs were not an issue.

Conclusions and Discussion

Student preferences do not necessarily determine what is taught in the college classroom, but they can be a powerful motivator for student success. The results of this study suggest a somewhat unexpected preference for hand drafting that appears related to what is taught in the classroom and influenced by experiential comfort level. At the same time, employment potential and professional success is an important variable that is a strong concern for students.

This study raises several questions for both further study and curriculum evaluation:

- Why is there a female preference for hand drafting and does this present an advantage or disadvantage to these students? If, as much of the research suggests, a strong grounding in hand drafting can lead to better success in both design and computer drafting, then how do we get these students excited about also developing the companion skills in CAD software?

- We have a core group of students who prefer computer drafting, which increases in number at the advanced levels. How do we challenge and motivate these

students to value hand drafting in the development of their spatial skills and overall design education?

- Now, with a better understanding of the mix of student preferences, how do we sequence and blend the skill development in both types of drafting to allow the students to gain the greatest benefit?

References

Brandon, L., & McLain-Kark, J. (2001). Effects of hand-drawing and CAD techniques on design development: A comparison of design merit ratings. *Journal of Interior Design 27* (2), 26-34.

McConnell, M., & Waxman, L. (1999). Three-dimensional CAD use in interior design education and practice. *Journal of Interior Design 25* (1), 16-25.

McLaren, S.V. (2008). Exploring perceptions and attitudes towards teaching and learning manual technical drawing in a digital age. *International Journal of Technological Design Education 18: 167-188.*

Seidler, D. R., & Korte, A. (2009). Hand drawing for designers. *Communicating Ideas through Architectural Graphics.* Retrieved from: http://books.dougseidler.com/hdfd/hand-drawing-for-designers/drawing-verses-drafting.asp.

Table 1. Descriptive Characteristics of Student Participants

	Gender (n=48)	Education Level (n=49)	Age (n=49)	Major (n=47)
female	36			
male	12			
1st year		4		
2nd year		17		
3rd year		12		
4th year		12		
5th year		2		
grad		2		
18-19			12	
20-21			25	
22-23			10	
24+			2	
housing				36
other				11

Table 2. Gender Preferences: Female

	Hand Drafting	Computer Drafting	No Preference
drafting preference	19	8	9
n= 36			

Table 3. Influence of Experience on Preferences

Previous Experience	Hand Drafting	Computer Drafting	No Preference
just hand	2	0	2
just computer	1	3	1
both	6	8	3
none	14	1	7
n=48			

Table 4. Drafting Preferences by Class Level

Class Level	Hand Drafting	Computer Drafting	No Preference
Lower	12	4	12
Middle	5	2	0
Upper	5	7	1

n=48

Table 5. Influences on Drafting Preferences

Influences on drafting preferences[1]	Studio Level I	Studio Level II	Studio Level III	Studio Level V[2]
type of drafting in first year studio	8	11	5	0
type of drafting of more value in workforce	8	15	5	3
type of drafting that would help industry advancement	9	14	6	4
Preferences are not influenced by jobs	5	5	2	0

[1] Numbers reported are students answering *yes* to the questions
[2] Students in Studio Level IV did not participate in the studio because it was offered a different semester.

Refereed Abstracts – Oral Presentations

EXPLORING THE ADOPTION OF A SUSTAINABLE WASHER BY OLDER ADULTS

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Introduction

The front loading horizontal-axis (h-axis) washer has been identified as one of the most important new laundry technologies for improving household sustainability. Findings of the Bern Clothes Washer Study (Tomlinson & Rizy, 1998) showed participants saved 38% on water and 58% on energy after switching to a front-loading washer from a top loading vertical axis (v-axis) agitator model. However, consumers have adopted the h-axis slowly because of concerns over bending and water coming out the door when it was opened (Klamkin, 1973) and unwillingness to pay a premium (Martin & Gettings, 1998). Although the elderly consumer segment is growing in relevance to policymakers, marketers, and consumer educators because of its increasing size and economic importance, there has been an overall dearth of research about technology and older adults. Minimal research has focused on the adoption of new technologies by older persons (eg. Ahn & Goss, 2006).

The purpose of this study was to explore older adults' motivation and barriers of adopting an h-axis washer. It is expected that this study will contribute to understanding of sustainable consumption by examining why and how elderly consumers adopt sustainable home appliances.

Methodology

An on-line survey was employed to assess a number of variables related to consumer adoption of clothes washers including h-axis washers. The Statistical Package for the Social Sciences (SPSS) version 17 was used for data analysis. Descriptive analysis, analysis of variance (ANOVA), and Chi-square tests were used to analyze data. A confidence level of $p<.05$ was chosen for statistical significance.

Findings

A random on-line survey of 366 U.S. consumers included 126 respondents who were 55 years old or older. Of these 126 respondents, 12 reported that they did not own washer and were excluded (N=114). Ninety three (81.6%) owned v-axis washers (with and without agitator in the middle), while 21 owned h-axis washers.

A large majority of the respondents (72.8%) were aged between 55 and 64 years old, 65.8% were female, almost 60% had at least some college education, and a majority of the respondents (74.6%) were homeowners living in a single detached home (79.8%). A majority of the respondents (64.9%) had less than $50,000 income (see Table 1).

Since h-axis washers are also water conserving, several questions were asked to explore how water consumption patterns motivated h-axis adoption. Only 6.1% reported a monthly water bill of less than $15, 18.4% paid $15 to $29, 28.1% paid $30 to $59, and 10.6% paid more than $60. Only 16% reported they experienced limitations on water use due to drought conditions and 68.4% reported their home water source as a municipal/city water system or private water company, whereas 20.2% reported having their own well.

A comparison of owners and non owners of an h-axis washer using demographics and water consumption patterns found none of the variables, except "water source", were statistically different. Chi-square tests show that h-axis owners are more likely to have private water company or their own well ($\chi2(3, N = 112) = 8.160, p <.05$) as a water source. While the lack of relationship to the amount of the water bill suggests water cost is not a factor in adoption, owning a private well may be a factor increasing sensitivity to water conservation.

The next set of questions focused on consumers experience with their current machine using a 7-point Likert scale (1=strongly disagree, 7=strongly agree). Only the item related to reading the controls was different between h-axis and v-axis owners, with h-axis owners having significantly less difficulty in reading the controls ($F(1, 112) = 3.979, p<.05$) (see Table 2).

Reasons selected for purchasing an h-axis were also somewhat different based on current washer ownership. H-axis washer owners more frequently selected "energy saving" as a reason to repurchase an h-axis washer ($\chi2(1, N = 114) = 3.797, p<.05$). However, the frequency of selection among the other reasons (water saving, easy to load and unload, modern design, cleaner clothes, detergent savings, gentle on clothing, large capacity, and popular) were similar for both groups.

Conclusion and Discussion

The adoption rate for h-axis washers among older persons (18.4%) is low but still twice the 9% adoption level in 2005 (Davis, 2010). Energy and water saving appear to be good motivators for older consumers to adopt an h-axis washer. The energy benefit is also the main policy-based reason for encouraging h-axis adoption. However, the

results of this study suggest that many elderly consumers are not aware of these benefits and do not have correct information about the h-axis washer as a sustainable washer.

Respondents indicated that an h-axis used more water (18.4%) and energy (29.8%). More of v-axis owners answered h-axis washers use more energy ($\chi2(1, N = 114) = 5.069, p<.05$). This may be understandable, since they have not experienced the technology first hand. However, while current h-axis owners were more likely to recognize an "energy savings" as a benefit of a owning an h-axis, even they did not select "water savings" as a main benefit of an h-axis washer. To encourage wider adoption of the h-axis washer, policy makers and educators need to not only emphasize energy saving but also water savings.

Another selling point for the older consumer may be the location of the controls. H-axis owners reported that they had less difficulty in reading the controls. However, it is not clear if this design is an issue specific to older consumers or not. More in-depth research should be conducted regarding ergonomics/ design of h-axis washer targeting the elderly market.

This study shows that older consumers actively use the Internet when making home appliance purchasing decisions (46.5%), including consumer advice and manufacturer websites. TV, radio, or magazine, were not used often, but they relied on personal references, such as sales person (30.7%) or friends (29.8%). More than half (65.8%) decided their purchase by visiting the store. Considering this, marketing and education materials designed to increase adoption should focus on educating salespersons.

Well-informed manufacturer websites emphasizing sustainability would also be helpful. Finally, since word-of-mouth is critical to emerging technologies (Rogers, 1995), managing consumers' advice websites effectively would also be helpful in communicating the benefits of sustainable washers.

References

Davis, L.W. (June 2010). *Evaluating the slow adoption of energy efficient investments: Are renters less likely to have energy-efficient appliances?* Working Paper 16114. National Bureau of Economic Research, Cambridge, MA.

Klamkin, C. (1973). *How to buy major appliances*. Henry Regnery Company, Chicago.

Martin, M.A., & Gettings, M.B. (1998). *Review of water, lighting, and cooling energy efficiency measures for low-income homes located in warm climates*. Retrieved May 27, 2011, from http://dx.doi.org/10.2172/607493.

Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.

Tomlinson, J.J., & Rizy, D.T. (March 1998). *Bern clothes washer study – Final report*. Energy division of Oak Ridge National Laboratory, US Department of Energy.

Table 1. Demographic Profile of Respondents (N=114)

	Frequency (n)	Percent (%)
Age		
55 to 64	83	72.8
65 to 74	26	22.8
75 to 84	4	3.5
85 or older	1	0.9
Gender		
Male	39	34.2
Female	75	65.8
Education		
Less than high school	10	8.8
High school/ GED	38	33.3
Some college	26	22.8
2-year college degree	10	8.8
4-year college degree	14	12.3
Masters degree	11	9.6
Doctoral or professional degree	5	4.4
Home ownership		
Own	85	74.6
Rent	29	25.4
Housing type		
Single detached home	91	79.8
Building with two or more apartments	14	12.3
Manufactured (mobile) home	9	7.9
Income		
Less than $30,000	41	36.0
$30,000 to $39,999	21	18.4
$40,000 to $49,999	12	10.5
$50,000 to $59,999	11	9.6
$60,000 to $69,999	8	7.0
$70,000 to $79,999	7	6.1
$80,000 to $89,999	5	4.4
$90,000 to $99,999	2	1.8
$100,000 and over	7	6.1

Table 2. Comparisons of Laundry Experience by Washer Ownership (ANOVA)

Issues	Mean*		F	Sig.
	V-axis owners	H-axis owners		
Laundry items are very heavy to lift out of the washer.	2.92	2.81	0.76	0.783
It is easy to transfer items from my washer to the dryer.	5.30	5.14	0.159	0.691
It is difficult to keep clean my washer.	2.58	2.76	0.244	0.622
The controls on the washer are easy to operate.	6.24	6.24	0.000	0.993
I have difficulty in reaching the control on the washer.	1.70	1.33	2.064	0.154
I have difficulty in reading the control on the washer.**	2.03	1.33	3.979	0.049**
My washer is easy to maintain.	5.85	5.33	3.106	0.081

*1=strongly disagree, 7=strongly agree

** Mean is statistically different at the confidence level of 0.05.

BABY BOOMERS: WHAT IS THE LITERATURE MISSING?

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Baby boomers (Boomers), the 78 million Americans born between 1946 and 1964, are the largest generation in U.S. history; they comprise nearly 26% of the population and 39% of heads of households (Myers, 2008; U.S. Department of Housing and Urban Development (HUD), 2006). As Boomers become empty nesters and begin to think about post-work lifestyles, they will change the demand for housing, public transportation, recreation, and community-based programs. Community planners and policymakers need to better understand the housing needs and preferences of Boomers as they plan the development and sustainability of elder-friendly communities that encourage healthy, active living. This is critical as communities work to retain current residents and to attract new ones. This research summary reviews the current literature on housing and community desires of Boomers to identify gaps in knowledge as we work to inform policies and programs.

The diversity within the large numbers of individuals born between 1946 and 1964 is missed when Boomers are characterized as a cohesive cohort. Boomers can be segmented into the oldest or leading edge, born between 1946 and 1951; the middle, born between1952 and 1958; and, the youngest, born between 1959 and 1964 (MetLife,

2009; 2010). Members of each segment are at a different life stage, however, research studies rarely differentiate preferences of Boomers based on these segmentations.

The oldest Boomers are currently ending careers, prompting contemplation of what retirement will bring and how it will be financed (Higgins, 1999; MetLife, 2009). The middle Boomers are still largely working, some with children at home, others already empty nesters (MetLife, 2010). The youngest Boomers, who tend to identify themselves more with GenXers (born between 1965 and 1982) than with older Boomers, are in their peak earning years and not yet concerned about retirement or changes due to aging (MetLife, 2010).

Boomers' decisions regarding housing and community have significant impacts on the rest of society (Greenblatt, 2007; HUD, 2005). Compared to other generations, Boomers overwhelmingly live in suburban areas in single-family, detached, owner-occupied units. Compared to other generations, they tend to have larger, more expensive homes and overall the lowest housing cost burden. Nationwide, 86% of Boomers are homeowners. Leading edge Boomer homeowners value their homes at $269,300; whereas younger Boomer homeowners value their homes at $304,400 (MetLife, 2009). Few Boomers (2%) live in multifamily rental housing; 4% live in condominiums or co-ops (HUD, 2006).

Boomers are often generalized as well-off, educated, traditionally married couples, who own suburban homes, and, in the aggregate, these generalizations are supported. While not as diverse as the generations behind them, Boomers are racially, ethnically and economically diverse (HUD, 2006). Many will struggle financially as they experience increasing health and housing costs (Greenblatt, 2007). For those who are

homeowners, recent declines in home values have reduced home equity—often the financial resource used to finance home modifications and moves to senior housing (AARP, 2003; Myers & Ryu, 2008; Pynoos & Liebig, 2009). Nationally, 28% of households delinquent on mortgage payments or in the process of foreclosure are 50 years or older; it may be difficult for these 600,000 American households to recover from the financial loss of a home before they retire (Shelton, 2008). For many Boomers self-financed in-home supportive care and services or a move to senior housing may not be possible.

The majority of Boomers, 75%, are "somewhat optimistic" they will be in good physical health in later life; only one-third have given significant thought to the home, community, and services they will want or need in the future (AARP, 2003). The majority of Boomers believe they will be able to stay in their current homes as they age; 85% of individuals aged 50 and older would like to remain in their local community if they cannot stay in their current home (AARP, 2010). Factors that influence a propensity or willingness to move include a desire to reduce home maintenance responsibilities, avoid repairs or renovations, find more affordable housing, and move closer to grown children, church, shopping, or other services (Bailey & Gilmore, 2004).

In general, Boomers need more information about realistic supportive senior housing options. Boomers, considering a move, prefer a single-story, single-family home, despite the pull of amenities, recreational facilities, and community features (including security) typically offered in multifamily developments (Wylde, 2008). Among Boomers searching for new housing, the community and the neighborhood is as important as the home itself. A substantial minority (23%) are willing to move to a

condominium or townhome if that means obtaining higher quality features or a better location such as a dense, urban neighborhood with decreased dependence on automobiles (Wylde, 2008).

Developing aging-friendly, vital, and livable communities that offer affordable, appropriate, and vibrant housing options with accessible transportation, health care, social interaction, cultural and religious opportunities could retain and attract Boomers. However, based on the literature, we do not know enough about specific housing needs and preferences based on age segments, race, ethnicity, income, and marital status to develop or redevelop communities to the meet needs of all Boomers. Research needs to differentiate the needs and preferences of diverse Boomer households, policy makers and community planners need to recognize and incorporate the influence of demographic differences within this generation on housing and community amenities that will support unique characteristics. One agreed upon generalization of Boomers is that over their life span they have driven the housing market. Research does not suggest that they do not expect to continue to do so. Communities wanting to attract and retain this segment of the population, individuals generally considered to have financial and social resources and to be publically engaged, need this research-based information.

References

AARP. (2003). These four walls...Americans 45+ talk about home and community.

Retrieved from http://assets.aarp.org/rgcenter/il/four_walls.pdf.

AARP Public Policy Institute. (2010). Strategies to meet the housing needs of older

adults. Retrieved from http://assets.aarp.org/rgcenter/ppi/liv-com/i38-

strategies.pdf

Bailey, C., & Gilmore, K. (2004). *Highlights of a survey of older adults in Ramsey

County*. Saint Paul, MN: The Wilder Research Center.

Greenblatt, A. (2007). Aging baby boomers. *CQ Researcher,* 17(3), 867-885. Retrieved

from www.cqresearcher.com .

Higgins, V. B. (1999). *Building toward the senior boom: Twin Cities area seniors and

their housing needs, from now to 2030.* Retrieved from

http://www.wilder.org/download.0.html?report=1298

MetLife. (2009). *Boomer bookends: Insights into the oldest and youngest boomers*.

Retrieved from http://www.metlife.com/assets/cao/mmi/publications/studies/mmi-

studies-boomer-bookends.pdf

MetLife. (2010). *The MetLife study of Boomers in the middle: An in-depth look at

Americans born 1952-1958*. Retrieved from

http://www.metlife.com/assets/cao/mmi/publications/studies/2010/mmi-boomers-

middle.pdf

Myers, D. (2008). *How population change ushers in a new era for planning* [PDF

document]. Retrieved from

http://www.economicdevelopmentandchildcare.org/documents/technical_assistan

ce/planning_family_friendly/apa_2010_myers.pdf

Myers, D., & Ryu, S. H. (2008). Aging baby boomers and the generational housing

bubble: Foresight and mitigation of an epic transition. *Journal of the American*

Planning Association, 74(1), 17-33.

Pynoos, J., & Liebig, P. (2009). Changing work, retirement, and housing patterns.

Generations, 33(3), 20-26.

Shelton, A. (2008). *A first look at older Americans and the mortgage crisis. Insight on*

the issues [PDF document]. Retrieved from

http://assets.aarp.org/rgcenter/econ/i9_mortgage.pdf

U.S. Department of Housing and Urban Development. (2005). *Elderly housing*

consumption: Historical patterns and projected trends. Washington, DC: Author.

U.S. Department of Housing and Urban Development. (2006). *U.S. housing market*

conditions 3rd quarter 2006. Washington, DC: Author.

Wylde, M. A. (2008). Right House, Right Place, Right Time: Community and Lifestyle

Preferences of the 45+ Housing Market. Washington, D.C.: BuilderBooks.

SMART HOUSE: BABY BOOMERS TRANSFORM A HOME

Marilyn J. Bruin, Jodene Riha, Sauman Chu, Amanda Smoot, G. Mauricio Mejia

Introduction

Baby Boomers comprise nearly 26% of the U.S. population; over their life course they have placed unique demands on maternity hospitals, school systems, higher education, and the development of single-family housing. The majority (75%) believe they will stay in their current homes as they age (ARRP, 2010). However it is likely Boomers will eventually experience many of the physical and cognitive changes, including sensory and motor impairments, experienced by their elders. If so, they will likely need to modify their current home or move to more accessible housing as only 5% are living in housing that can support aging-in-place (Sabia, 2008).

The purpose of the *The Smart House, Livable Community, Your Future* project was to demonstrate how good design, assistive technology, and well-planned community amenities can support independent living by increasing usability, safety, and quality of life across the lifespan. In this abstract we describe how information was delivered through a variety of formats to educate visitors about the design principles, assistive technology and integrative community strategies and report outcomes.

Developing Content

We referred to frameworks, set goals, and wrote a back story for a fictional Boomer couple to help guide selection of objects in the exhibition, and development of workshop and website content to exemplify a home that was safe and fully accessible

across the lifespan. The primary framework was Quality of Life Basics, design features and objects that combine to enhance a sense of worth and well-being for residents (Wylde, Baron-Robbins, & Clark, 1994). We strove for an environment that emphasized privacy, belonging, control or the ability to use the environment, and a sense of safety and security for residents and visitors. We also considered psychological concepts such as home as a setting for nurturing relationships with intimate others, a place to develop and maintain social networks, self-identity, and personalized space, to maintain continuity, as well as serve as a base of activity and family/childhood memories (Hayward, 1977). Finally, we included examples that enhanced and protected equity value, reduced stress, added comfort, preserved physical energy, provided options to meet changing needs, and facilitated ongoing interests and social activities.

Exhibition

A 1,300 square foot exhibition, open February 5 – May 23, 2011 in the NAME Museum of Design, replicated a small suburban ranch house recently renovated by a leading edge Boomer couple to support their active, engaged lifestyle. Exhibition visitors were encouraged to try out objects including a sturdy, comfortable bench in a neighborhood park setting. A welcoming no-step entrance enhanced the front of the house. Comfortable furniture, a "lift-assisted" chair, good lighting and contrasts in color and texture were intended to ameliorate the effects of aging. In the home office, visitors sat in a fully-adjustable chair at an ergonomically-designed desk. The kitchen featured accessible appliances, cabinets, and countertops to facilitate meal preparation from a seated position; visitors were encouraged to handle easy-to-use utensils, open drawers,

and pull-out inserts. The bath featured a walk-in shower, comfortable, accessible toilet and sink as well as a reinforced wall for grab bars. Visitors learned about an alert system, auto-dispensers for medications, and special environmental controls. A home computer with SKYPE helped the residents stay in touch with family overseas; computer software tracked changes in blood pressure and weight.

Workshops

Workshops and community-based presentations explored innovative design for homes and age-integrated communities for three audiences: (a) Consumers; (b) Developers, remodelers, contractors, and designers; and, (c) Community planners and policy makers.

Interactive Website

The website presents interactive learning modules created by students in a game design course and tools to help individuals organize community study groups. The local public television station produced a 30-minute broadcast as well as seven brief videos of Jim and Sarah discussing the features in their home.

Outcomes

Participants' comments collected through a qualitative, online-survey were generally positive.

> "The way it was laid out as it would be in a real home. It is better to see it like it would appear rather than in pictures."

> "Visual! Great examples/exhibits and hands on experience."

"The hands on approach and the ideas generated by seeing it. Good use of technology!"

Participants' also appeared to think about how to apply the information.

"I liked the way it makes the features of aging in place practical - so that those who may say 'I don't need that' can see the benefits"

"Showing how you can downsize and still do it attractively. Also, the importance of green space, parks etc nearby."

"I liked the entry way ideas because that is the area of the home I never considered being a problem for an older person."

"Actually it was seeing that many of the things that make life easier are ready to purchase."

"Maybe even try to set up some sort of program at my church to talk about home accessibility issues."

"It's outreach to people who maybe don't know or have thought little about it."

On the other hand, several respondents were not impressed.

"I guess I was expecting something more complicated, some ideas that people might not think up on their own."

"I didn't know what to expect, but didn't see anything very surprising. So without having clear expectations I was nonetheless a bit disappointed in the lack of "wow" factor.

Overall we feel the project inspired participants. Furthermore, multiple formats and interactivity helped reach Boomers.

References

AARP Public Policy Institute. (2010). Strategies to meet the housing needs of older adults. Retrieved from http://assets.aarp.org/rgcenter/ppi/liv-com/i38-strategies.pdf

Greenblatt,A. (2007). Aging Baby Boomers. CQ Researcher 17(3), 867-885 Retrieved from www.cqresearcher.com

Hayward, D.G. (1977). An overview of psychological concepts of home. In R.G. Brauer (Ed.). *Priorities for Environmental Design Research (EDRA8),* Washington, DC: EDRA.

HUD (2005). Elderly housing consumption: Historical patterns and projected trends. Washington, DC: Housing and Urban Development.

Sabia, J.J. (2008). There's no place like home: A hazard model analysis of aging in place among older homeowners in the PSID. Research on Aging, 30, 3-35.

Wylde, M., Baron-Robbins, A., & Clark, S. (1994). *Building for a lifetime: The design and construction of fully accessible home.* Newtown, CT: The Taunton Press.

INTERNATIONAL TEACHING AND LEARNING SYMPOSIUM

Andrew Carswell, University of Georgia

Lucy Delgadillo, Utah State University

Ann Ziebarth, University of Minnesota

Russell James, Texas Tech University, Invited

The proposed symposium will look at three separate areas in which housing educators can most make an impact on the international arena: teaching, research, and service. Panelists will provide a brief presentation of their experiences incorporating an international perspective into classroom instruction, curriculum enhancement, and study abroad course development, as well as, the benefits and pitfalls of global housing research and the service opportunities for both faculty and students.

International study abroad programs have proliferated at a rapid rate. Between 1994-2004 the number of U.S. students studying abroad increased by 144 percent. According to the Institute of International Education, "with 20 years of sustained and marked growth in U.S. international education, the study abroad experience has moved well beyond the typical junior year abroad, with students seeking educational experiences of various durations, at different points- and sometimes more than once- in their academic careers" (Obst, et al. 2007, p. 6).

Study abroad experiences result in a number of benefits for students including personal growth, intercultural development, as well as education and career attainment (Ingraham & Peterson, n.d.; Dwyer & Peters, n.d.). While the opportunity to immerse

American students within other cultures and housing environments provides much in the way of enhancing students' educational horizons, the task of coordinating and planning such an international experience is a long, arduous process that usually takes longer than a year. The panelists for this portion of the symposium will cover the pitfalls in developing such a program, including a) choosing your destination, b) the administrative processes involved with the set-up, c) the marketing of your program to potential students, d) the risks and challenges that educators face upon arriving at their destination, e) how to integrate a housing component into the curriculum of a study abroad program, f) experiences teaching in a Latin American country and culturally sensitive issues, and g) various possibilities for housing-related service-learning opportunities within such study abroad programs.   Panelists will include Housing Education and Research Association (HERA) members who have completed study abroad programs in the past and those who are currently in the development stage of providing such a program.

Global housing issues are also being integrated into traditional classroom instruction and curriculums. Educators both within and outside of HERA have offered perspectives on international housing within the typical classroom settings. These course offerings have varied from simply an educational module to a full-blown course on international housing. Panelists will talk about the opportunities that educators have to engage United States students in international housing issues, challenges regarding the delivery of housing content to foreign audiences, the lack of available educational and instructional materials related to international housing, and acceptance of such material by both students and faculty members.

Differences in culture can cause significant difficulties in the classroom if not recognized and managed with respect. Several pedagogical adjustments need to be made in order to provide a culturally sensitive curriculum. The modifications in the pedagogy should be guided by cultural values of the destination country in order to provide culturally-based education. One of our panelists will explain how those values will determine the attitudes and expected behaviors that are likely to be encountered during this learning experience, and the respective cultural and pedagogical adjustments necessary for the effective delivery of a curriculum. The case study for this presentation will be her experience in teaching in a Latin American country.

Excellence in instruction relies on adequate and accessible research base for the teaching content. Academics have bemoaned either the lack of widespread cross-national comparative housing research or the inherent difficulties in performing such research (Clapham, 1996; Harloe & Martens, 1984; Kemeny & Lowe, 1998). Part of the reason for such lack of collaboration includes such things as parochialism within various research circles, lack of data compatibility across countries, and the ethnocentric approach that various researchers take which hampers effective international housing research. Still, academic research communities do exist that encourage such research. Housing educators have also provided their own expertise on U.S. housing and housing-related issues in foreign university settings. Panelists for this part of the symposium will discuss the challenges and opportunities for international research and service experiences.

The symposium will conclude with a discussion on the role of organizations such as the Housing Partnership Network, which helps to foster international housing partnership exchanges on several levels (Bledsoe and Weech, 2011).

References

Bledsoe, T., & Weech, P. (2011). International housing partnership exchange. *Community Development Investment Review, 7*(1), 12-27.

Clapham, D. (1996). Housing and the economy: Broadening comparative housing research. *Urban Studies, 33*(4/5), 631-647.

Dwyer, M.M. & Peters, C.K. (n.d.) *The Benefits of Study Abroad.* Accessed online May 31, 2011 at www.clarku.net/offices/studyabroad/pdfs/ES%20study.pdf.

Harloe, M., & Martens, M. (1984). Comparative housing research. *Journal of Social Policy, 13*, 255-277.

Ingraham, E.C. & Peterson, D.L. (n.d.) *Assessing the Impact of Study Abroad on Student Learning at Michigan State University.* Accessed online May 31, 2011 at http://etic.ed.gov.

Kemeny, J., & Lowe, S. (1998). Schools of comparative housing research: From convergence to divergence. *Housing Studies, 13*(2), 161-176.

Obst, D., Bhandari, R. & Witherell, S. (2007). Current trends in U.S. study abroad & the impact of strategic diversity initiatives. *Meeting America's Global Education Challenge,* Issue 1. New York: Institute of International Education.

Panel members: Andrew T. Carswell, Lucy Delgadillo, Russell N. James, III

QUALITATIVE ASSESSMENT OF THE MUTUAL SELF HELP PROGRAM IN UTAH

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Introduction and Literature Review

Examining the current homeownership literature reveals that there has been significant substantive and perceived benefits associated with home-ownership (Doling & Ronald, 2010; Rossi & Weber,1996; Shapiro, 2006; Van Zandt & Rohe, 2006). While most of the studies have been on national samples of homeowners, rather than on low-income homeowners, the nature of the Mutual Self Help Program (MSHP), a government funded program, allows one to identify benefits among low-income participants. The government, through the U.S. Department of Agriculture and FHA programs, has invested substantial time and money in encouraging homeownership among lower-income households.

Despite these efforts, the impact and satisfaction of MSHP borrowers remains largely unstudied. This study will contribute to the existing literature by directly assessing the satisfaction of MSHP participants in Utah.

Within the 502 direct loan program, a variant was derived known as the Mutual Self Help Housing Program (MSHP). This program allows 502 direct loan recipients to work with a participating partner, usually a nonprofit or housing authority, to build their

own home. The partner provides technical assistance in directing the building process,

forming groups of participants who then work together to build their respective homes.

Participants perform roughly 65% of the labor on the home, which reduces the overall

costs of the home building process and improves the equity position of the borrower

(RCAC, 2010).

Methodology

This research is qualitative in nature with the goal of exploring and systematically

reporting subjects' experiences while building their homes through the MSHP. This

study is part of a larger quantitative study concerning the outcomes of 502 loans over

the last seven years. There were twenty research questions that guided the interview.

Consistent with the modern qualitative approach (Creswell, 2003), interviews were

conducted by phone or by email.

Sampling

The unit of investigation for this study was individuals who participated in MSHP.

The selection of participants came from the list of program participants provided by two

nonprofit agencies, Neighborhood Nonprofit Housing Corporation in (deleted for blind

review), and Rural Community Housing Development Corporation (deleted for blind

review). A random number generator was used to select 30 names. Interviewees were

contacted via phone, at which time the primary researcher explained the topic of the

interview. The researcher then asked for an interview that would likely last between 30

to 40 minutes. Participants had the option to do the interview over email or phone.

Incentives for participation—a $20 Wal-Mart gift card—were also mentioned. The consent letter was read to them (or sent by mail) and the interview conducted. After the interview, their mailing address was confirmed and the signature of receipt letter with return envelope sent out to them.

Analysis

Phone interviews were recorded and transcribed from their audio versions. The interviews and notes were then read through initially to glean the meaning of the data collectively. Notes and reflective thoughts were written in the margins for subsequent use. Next, general coding of the data began through labeling sections of the material by topic. To be consistent with the ideas of the interviewees, the labels were often terms supplied by them during the interviews, and not terms imposed by the researcher; these are called "en vivo" codes. Each interview was treated on an individual basis in this step. As a step of ensuring reliability, labeling was performed by the primary researcher and assistant researchers for purposes of comparing consistency and logicality. No major inconsistencies were found.

The following section reports the topics that were grouped and organized into five themes. The relating nature of the comments helped organize the supporting evidence into a significant description of major themes related to major challenges, proposed changes, major skills learned, strengths of the program, and recommendations for improvement. The final sample included 15 participants of the MSHP. Due to space constraints, only the broad categories of answers will be presented in this abstract. For specific questions on the interview see Appendix 1.

Results and Conclusion

In interviewing the participants of the 502 Loan Mutual Self-Help Program, five themes emerged that provide insight into the program itself and its impact on involved families. The first theme is that the MSHP gives participants *access to homes* that were previously unattainable. Throughout the interviews, participants mention that had they not been a part of the program, they would not have been able to qualify for a mortgage and subsequently a home.

Another theme is that participation in this program *increases human capital*. The process of building a home requires participants to vastly expand their knowledge of construction and maintenance skills. These types of skills and knowledge increase each participant's level of human capital, which is likely to increase productivity, and save money in the future.

The *increase of social capital* is another key element to this program's outcomes. Through the group building procedure, participants met their future neighbors and learned to work with them through a difficult process. Through this common background, a bonding experience gave them access to a support system.

The fourth theme indicated *areas of weakness* in the program. The most prevalent suggestions and complaints about the program were confusion concerning the loan and subsidy. Other issues involved problems with site supervisors and a lack of customization with the homes. Finally, the burden of childcare was a prevalent struggle for the participants.

The final theme to emerge was that participants believed the process was difficult, and not without problems; however, *overall it was worth it* for the benefits

received. The access to a valuable, growing asset, gains in social and human capital, as well as a sense of community, pride, empowerment, and confidence far outweighed the difficulties of building the sweat equity for most participants. Most interviews expressed gratitude and satisfaction with the program. It's clear from the majority of participant responses that this program helped a low-income group move to more steady ground and that while it was difficult, it was well worth it.

References

Doling, J. & Ronald, R. (2010). Home ownership and asset-based welfare. *Journal of Housing and the Built Environment, 25 (2),* 165-173.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches (2nd ed.).* Thousand Oaks, CA: Sage Publications.

Rossi, P. H. & Weber, E. (1996). The social benefits of homeownership: Empirical evidence from national surveys. *Housing Policy Debate, 7,* 1-35.

Rural Community Assistance Corporation (RCAC). (2010). *Fact sheet; USDA Rural Development section 523 mutual self help housing program.* Retrieved online at http://www.rcac.org/assets/files/self-help/shFactSheet9-30-10.pdf.

Shapiro, T. M. (2006). Race, homeownership and wealth. *Journal of Law and Policy, 20,* 53-74.

Van Zandt, S., & Rohe, W. M. (2006). Do first-time homebuyers improve their neighborhood quality? *Journal of Urban Affairs, 28 (5),* 491-492.

Appendix 1. Interview questions.

1: How long prior to participating in Self Help were you actively working towards home ownership? (1year, 6 months, etc)

2: What challenges, if any, did you face in trying to purchase a home?

3: What challenges, if any, did you have while qualifying for the USDA 502 loan?

4: What challenges, if any, did you find during the building process?

5: What, if anything, could the nonprofit agencies have done to help you better prepare for the construction process?

6: If there was anything you could change about the construction process, what would it be and why?

7: What, if any, construction skills did you learn by participating in the Self Help program?

8: What, if any, skills would you have liked to have learned but did not have the opportunity to?

9: What, if any, non-construction skills did you learn as a result of participating in Self Help?

10: Has working with other participating families during construction influenced your life now? If so, in what ways?

11: How has having other program participants nearby influenced the neighborhood?

12: Are there any other benefits your family has received from participating in the program? If so, what are they?

13: Have you experienced any drawbacks from participating? If so, what are they?

14: What do you feel are the strengths of the Mutual Self Help program?

15: What do you feel are the shortcomings of the Mutual Self Help program?

16: If you could make recommendations regarding changes to the Mutual Self Help Program what would they be?

17: What do you feel are the benefits to the USDA 502 loan?

18: What do you feel are the drawbacks to the USDA 502 loan?

19: If you could make recommendations regarding changes to the USDA 502 loan what would they be?

20: Feel free to relate anything else that you would like regarding your experience with the Mutual Self Help program.

SUSTAINABLE HOME LAUNDRY PRACTICES AND EQUIPMENT – WILL ENERGY

AND WATER SAVINGS MOTIVATE CONSUMERS?

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Purpose

The purpose of this study was to gain insight into factors and decisions related to how U.S. consumers use their laundry equipment, as well as decisions about equipment selection. These choices have implications related to sustainable practices for water and energy usage.

Background

With the exception of a few hybrid style washers, most washers used in the U.S. fall under two basic types which were introduced to the market almost simultaneously – the top-loading agitator design and the more energy efficient front-loading design. The standard top-loading washer, often referred to as a vertical axis (v-axis) design, uses a full tub of water (40 gallons on average per load) and an agitator (Consumer Energy Center, 2011; Tomlinson & Rizy, 1998). The energy efficient front-loading washers (horizontal axis – h-axis) tumble the clothing items through a small pool of water and rinse with sprays of water, using only 20 – 25 gallons of water or less per load (Consumer Energy Center, 2011). In addition, the faster spin speed pulls more moisture

out of the clothing which reduces drying time, thereby increasing energy savings. Since being introduced to the U.S. market, the v-axis washer design dominated the market, and by 1973, 95% of all automatic washers were v-axis (Klamkin, 1973). Consumers were slow to adopt the h-axis design because of ergonomics and concerns over water leaks (Klamkin, 1973), but they remained uneducated about the technology and benefits of the h-axis machines (Tomlinson & Rizy, 1998).

The energy crisis of the 1970s increased concern over energy savings and spurred interest in the more efficient h-axis machines, which were included in newly developed Department of Energy (DOE) standards and policies. Even with this increased policy interest, a study by Simpson and Heaton (1984) found that only 43% of the respondents were "very concerned" about laundry energy and 47% were "moderately concerned". Participants in the Bern Clothes Washer Study where household were provided an h-axis washers had little difficulty using them and stated high satisfaction with cleaning performance and drying (Tomlinson & Rizy, 1998). The h-axis design offered many advantages, including energy and water efficiency. The Bern study found a savings among participants of 38% for water and 58% for energy after switching to an h-axis washer from v-axis models (Tomlinson & Rizy, 1998). Between 1998 and 2005, h-axis ownership increased from 2% to 14.5% (The Stevenson Company, 2006).

Methods

To assess the current picture of sustainable laundry practices, an Internet survey of 366 randomly selected U.S. consumers, acquired through a market survey service, was conducted to elicit details about the adoption and use of laundry technologies, including the h-axis washer. An understanding of consumer practices and purchasing decisions for laundry appliances is essential to increasing the adoption of sustainable laundry practices. A final sample of 319 respondents was used for this analysis. A majority of the respondents were female with some college education and were between the ages of 45 and 65.

Results

The survey found that 22.7% of participants currently own an h-axis washer (up from 14.5% in 2005) perhaps partly due to increased availability, and that 24% of current v-axis owners planned to replace their machine with an h-axis clothes washer. Participants were asked to select reasons for buying an h-axis clothes washer (see Table 1). Energy savings was significantly more important than all other reasons, which supports the findings of The Stevenson Company (2006) which found that energy was more of a motivator than features when selecting a clothes washer. Water savings was also significantly more important than features. Cost was listed as the main reason by participants not considering an h-axis for their next washer.

Table 1. Means for Reasons for Adopting an H-Axis

Reasons	Mean	SD
Energy savings	0.75^a	0.43
Water savings	0.69^b	0.46
Easy to load and unload	0.59^c	0.49
Large capacity	0.55^c	0.50
Less time to dry clothing after washing	0.49^d	0.50
Gentle on clothing	0.48^d	0.50
Cleaner clothes	0.45^{de}	0.50
Detergent savings	0.42^e	0.50
Modern design	0.25^i	0.44
Popular	0.12^g	0.32
Other	0.06^h	0.23

Note: Means in a column sharing superscript are not significantly different at the .05 level based on t-tests.

The 75 participants who own an h-axis washer were also compared with the 244 participants who own a v-axis washer. Analysis of variance (ANOVA) was used to determine how the means for each group differed. ANOVA found that h-axis owners were significantly more likely to report their washer as Energy Star qualified ($F(1, 317) = 34.07$, $p < .0001$). The h-axis washers were reported to be between 1-5 years old which makes them significantly newer ($F (1, 317) = 24.12$, $p < .0001$) than the v-axis washers,

which were between 3-7 years old on average. A higher repurchase rate of h-axis owners was accompanied by a significantly higher recommendation level ($F(1, 317) = 25.824, p < .0001$).

Participants were asked to estimate the water usage of their current washers. There was a significant difference in the water use estimates between v-axis and h-axis owners based on ANOVA ($F(1, 317) = 13.068, p < .0001$). While h-axis owners estimated their water use of 7 gallons fairly accurately; the v-axis owners underestimated the water use of their machine by more than half, which has educational implications. They estimated between 7 and 15 gallons, much less than the average 40 gallons required by most v-axis machines (Consumer Energy Center, 2011; Tomlinson & Rizy, 1998). Owners of h-axis machines were significantly more likely to correctly choose the v-axis machine as the one that used more energy ($F(1, 317) = 14.017, p < .0001$). While only 13% of h-axis owners incorrectly guessed that their machine used more energy, slightly more than a third of v-axis owners (36%) thought their machines were the most efficient.

Conclusion

Is energy and water efficiency enough of a motivator to overcome the higher price of energy efficient washers? The results of this study demonstrate that while adoption is increasing, there is still an important role for education about the benefits of this technology.

References

Consumer Energy Center. (2011). *Clothes washers*. California Energy Commission.

www.consumerenergycenter.org/home/appliances/washers.html.

Klamkin, C. (1973). *How to buy major appliances*. Henry Regnery Company, Chicago.

Simpson, L.P. & Heaton, L.M. (1984). *Laundry satisfaction and concern for energy*.
International Conference of Textile Colorists – Chemists Book of Papers.
American Association of Textile Chemists and Colorists, Research Triangle Park,
N.C.

The Stevenson Company. (March 2006). Major home appliance study - Saturation and
marketing study 2005. Report to Association of Home Appliance Manufacturers,
Washington DC.

Tomlinson, J.J. & Rizy, D.T. (March 1998). *Bern clothes washer study – Final report*.
Energy division of Oak Ridge National Laboratory, US Department of Energy.

OLDER ADULTS: A CRITICAL ASSET TO COMMUNITY CRIME PREVENTION

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Project Summary:

Originally, an initiative was designed to help improve the safety and security of homes for older adults and to provide them with social engagement opportunities. Most of the funding for the initiative was provided through grant assistance. Through the work of volunteers, support of the local municipality, and generosity of local churches and business; homes were provided with safety features and residents were provided with opportunities to get to know their neighbors better. As result of the initiative residents said that they feel safer in their homes. One resident stated, "It's wonderful to come home and be able to see the entire driveway and feel safe that no one is there. I'm so appreciative that this program was started and I'm sure others are just as thankful."

Description:

Several groups of older adults expressed not feeling as safe in their homes as they once did due to increasing crime and expressed that they did not know their neighbors well enough to ask for help. In July 2009, an aging-in-place grant was awarded to launch an initiative in the local community. Therefore a partnership was established to help increase the security of older adults' homes. The neighborhood chosen to launch the initiative was identified by local police as an excellent pilot project site. The goal of this project was to increase the security of residents' homes and provide them with engagement opportunities to get to know their neighbors better. Residents were recruited through local churches, informational sessions, flyers handed

out at a neighborhood block party, and through mail. A total of eighteen residents from a local neighborhood participated in the initiative over the course of a year.

Accomplishments:

Throughout the neighborhood, older adults were provided with solar powered address signs, motion sensor lighting, glow in the dark safety strips, deadbolts for doors, and landscape trimming to increase the security of homes. Police officers suggested the solar powered address signs because they often have trouble reading residents addresses when they need to. Motion sensor lighting was also identified as key to helping secure residents homes. To help fund the motion sensor lighting, 20 lights were donated by the local municipality. Electrical work for the lights was completed by a local electrician volunteer. Landscape trimming was suggested so that criminals would not have a place to hide around homes. All landscape work was completed by volunteer groups from the surrounding area. Glow in the dark safety strips were provided to residents for exterior stairs leading into the home. Several homeowners did not have proper locks on their exterior doors. Therefore, deadbolts were purchased with the grant money and were installed by volunteers. A trivia night and ice cream social were also held at the end of the initiative to bring residents together in the neighborhood to get to know one another better.

Continuing Research:

Currently I am also a PhD student. Since the close of the initiative, I became increasingly interested in older adults' perceptions of crime and how they coincide with actual crime reports. I also became curious about how certain design elements within the neighborhood could also be contributing to actual crime occurrences and residents

increased perceptions of crime in the neighborhood. As I am discovering, community

crime prevention is a wicked problem and includes a variety of potential sources,

solutions, and complex perspectives about what and who is the cause.

Recently, I went back to the neighborhood and re-interviewed some residents

and discovered that they have very strong feelings about when they think crime occurs,

who commits crimes, and their likelihood of being victimized as an older adult. All of the

residents interviewed have altered their lives in some way because of the fear of being

victimized. I also went back to the community and performed a design analysis of the

neighborhood based on Crime Prevention Through Environmental Design (CPTED)

principles for neighborhood and home design. I found that the neighborhood has both

positive and negative design features that could be influencing criminal activity. For

example, many streets within the neighborhood are not equipped with sidewalks or

appropriate street lighting. Appropriate street lighting would allow criminals to be more

easily noticed and allow residents to keep a better eye on the street. One resident

stated that she did not walk around her neighborhood much because there were "no

sidewalks and it was too dark because there were no street lights."

Conclusion:

Although the initial initiative worked to help increase the security of older adults'

homes, I am not positive that this did much to decrease their negative perceptions of

crime in their neighborhood. As I discovered later, residents still had very strong fears

about crime in their neighborhood. This may be because residents were mainly

receivers of the services to make their homes safer and not actually involved greatly in

the process of understanding crime in their neighborhood. I feel that future initiatives will

need to take on more of a community development approach rather than an expert

approach in which older adults in the community are directly involved in developing,

implementing, and evaluating the initiative. Hopefully empowering older adults to make

a change in their neighborhood will help transform some of their perceptions and fears

about crime. Some of the residents interviewed felt completely helpless against

criminals in their neighborhood. They felt they could only rely on the police for protection

in crime related situations. I feel that older adults have many key assets which could

make them effective partners in community crime prevention efforts. Some of these

assets include: more time to devote, a rich history of the community, and increased

experience and skills. Many of them are also homeowners which increases their stake

in issues that affect their community. Next steps include developing a crime prevention

effort which partners older adults in the community with experts to design, implement,

and evaluate an initiative that is meaningful and useful to the residents who live there.

PROACTIVE LATER LIFE HOUSING DECISIONS:

COMPLEXITIES AND UNCERTAINTIES

Karl Flaming

Introduction

Given the complexities and uncertainties involved in later life housing decisions, Pope and Lang (2010) suggest that there is a need for qualitative studies to further describe the decision-making processes of proactive older adults who relocate, either in the absence of, or in anticipation of, a crisis or stressful life event. Previous research does not clearly distinguish between "… moving in response to imminent need and moving in the absence of a crisis or imminent need" (Pope & Lang, 2010: 4). Furthermore, the research reported by Pope and Lang identifies factors such as educational achievement and financial status, which are related to residential relocation later in life, but as they state, "There is no way to know the complete circumstances under which the relocation decision was made" (2010: 4). These and other issues are addressed in this paper.

Proactive coping theory informs this examination of a range of circumstances surrounding older individual's decisions regarding late life housing. According to Aspinwall and Taylor (1997: 471), proactive coping is defined as "efforts undertaken in advance of a potentially stressful event to prevent it or modify its form before it occurs". Anticipated stressful events might range from very specific events such as the declining ability to maintain activities of daily living (Graf, 2008), to more general problems

associated with advancing age. Proactive coping involves the ability to anticipate future stressful events that might alter normal trajectories. This leads to developing strategies to more effectively maintain wellbeing later in life. Later life housing decisions are a case in point, and are the focus of this abstract. Specifically, this abstract describes eight cases[1] of later life relocation decisions (see Table 1).

The Study

This study began in 2008 when the author first became interested in Continuing Care Retirement Communities (CCRCs) and began to attend marketing sessions in order to learn more about housing options that they offered for families such as his. While attending these marketing sessions, the author shared questions, concerns, interests, etc. with other prospective CCRC residents as well as with current residents who were available to answer questions. Given the author's long time research interests in housing, the initial personal interest in later life housing options soon became a research project including IRB review and approval.

Eight Cases

This paper reports the experiences of eight couples[1] including the author, who exhibited an interest in later life housing options. At the outset of this study in 2008, four of the couples participating in this study resided in a Continuing Care Retirement Community (CCRC[3]), one couple lived in a gated age restricted retirement community, and three of the couples including the author still lived in their own non-age restricted community. These three couples were actively exploring alternative types of retirement communities (see Table 1). In short, all eight couples were proactive in the sense that they either had moved or were contemplating a move from their home to a retirement

community prior to or in anticipation of a crisis. This clearly sets this study sample apart from seniors who prefer to age in place in their own home (AARP, 2000; Glassman, 1998; U.S. Census Bureau, 2003).

In 2008, both members of couples C1, C2, C3, C5, and C6 were capable of independent living while one member of couples C4 and C7 were not capable of independent living. By the end of 2010, couples C4 and C7 had lost a member to death and couple C8, because of failing vision of one member, opted to move to a CCRC though still able to live independently.

The residences and communities of the eight couples illustrate the wide range of available alternatives of later life housing options. At the outset of this study three years ago, four of the couples participating in this study resided in a Continuing Care Retirement Community (CCRC)[2], one couple lived in an age restricted gated retirement community, and three of the couples still lived in their own homes while actively exploring alternative types of retirement communities (see Table 1).

Of the eight couples, couple C5 continues to reside in their non-age restricted community, while continuing to explore a move to some type of retirement community. Couple C6, at the urging of their children, briefly considered living in a CCRC near their children but after looking at several CCRCs decided to remain in their gated age restricted retirement community in another city, in part because of the cost of the CCRC entry fee, and in part because they were very satisfied with their current community.

During the three years of the study, age, and debilitating health events have taken their toll on several of the couples. At the time of this writing, two of the couples (C2 and C6) have lived in a retirement community for more than a decade and one (C1)

is now in the fourth year of residence in a CCRC. The ages of the members of these three couples range from the early seventies to over ninety years of age. Chronological age clearly is relevant but not always a predictor of physical wellbeing or of the ability to maintain independent living. Life course theory (Clausen, 1988; Scott and Alwin, 1988) focuses on significant transitions that result in altered trajectories. The following comment by one of the subjects in casual conversation, "We are at that point where decisions are being made for us," illustrates the unpredictability of life as one ages, and the difficulties in being proactive. Serious health issues and death can be expected, but cannot be predicted.

The role of caregivers is also noted. At the outset of this study, of the eight couples, two (C4 and C7) had a spouse who no longer was able to maintain independent living without his caregiver (see Table 1). The fourth couple (C4) moved prior to a crisis because of the husband's declining health and within a year of the move, he died. The surviving spouse has remained in the CCRC that is located in the same community as their home prior to the move to the CCRC and she has expressed satisfaction with CCRC living. The caregiver wife of couple C4 suffered a severe health event that resulted in extended hospitalization and precipitated her disabled husband having to move into an assisted living complex. After her recovery, they then moved into a CCRC until his death a year later. Following that, she returned to independent living in her home community.

The importance of available long term care is also illustrated in the case of couple C3. Couple C3 is an elderly couple in their late eighties who moved into a CCRC a year prior to the outset of this study. At the time of their move into the CCRC, both

were very active but recently one of the spouses suffered a stroke and had to be moved

into the skilled nursing section of the CCRC. This is a type A CCRC where the initial,

and monthly fees cover both the independent living apartment and, as needed,

assisted, memory, or skilled nursing care. Their proactive housing choice was a

fortuitous decision.

Finally, couple C8 at the outset of the study resided in their home. Potential long-

term health issues, particularly declining vision, prompted a decision to consider a move

closer to their children as well as to a more supportive housing environment.

Subsequently, they moved to a CCRC where they are able to maintain independent

living, and they report enjoying the amenities offered by the CCRC. At this point in time,

their long-term physical, social, and emotional wellbeing appears to be substantially

enhanced by the move to a CCRC. The focus of our current research is to examine in

more detail social and mental/emotional wellbeing of current and prospective elderly

households.

Implications for Further Research

As suggested by Pope and Lang (2010), further research into the circumstances

surrounding late life decisions of senior citizens is needed. One important implication of

the research reported in this paper is that with advancing age, it becomes increasingly

difficult for individuals to be proactive as health events are more and more difficult to

predict or anticipate. Physical wellbeing as measured by Instrumental Activities of Daily

Living (IADL) is a critical indicator, a major and often uncontrolled circumstance for an

aging individual. For a couple, the healthier one becomes the caregiver, and as in the

case of couple C7, the caregiver can also be at risk without an adequate support

system. While this paper focused primarily on physical wellbeing, social and mental

wellbeing need to be examined and are the current focus of this study.

References

AARP (2000). Fixing to stay: A national survey on housing and home modification issues. Author, Washington, D.C.

Aspinwall, L.G. and Taylor, S. E. (1997). A stitch in time: Self-Regulation and proactive coping. Psychological Bulletin, 121, 417-436.

Clausen, J. A. (1998). Life Reviews and Life Stories. In J. Z. Giele and G. H. Elder Jr. eds., Methods of life course research: Qualitative and quantitative approaches. London: Sage Publications.

Glassman, M.H. (1998). Clinical issues in housing choice for vulnerable elders. Journal of Geriatric Psychiatry, 31, 37-54.

Graf, C. (2008). The lawton instrumental activities of daily living scale. American Journal of Nursing, 108:52-62.

Pope, N.D. & Lang, B. (2010). Residential Relocation in Later Life: A Comparison of Proactive and Reactive Moves. Journal of Housing For the Elderly. 24:2,193-207.

Scott, J. and D. Alwin. (1998). Retrospective versus prospective measurement of life histories in longitudinal research. In J. Z. Giele and G. H. Elder Jr. Methods of life course research: Qualitative and quantitative approaches. London: Sage Publications.

U.S. Census Bureau (2003). Homeownership trends. U.S. Government Printing Office, Washington, D.C.

Footnotes

1. Snowball sampling was used to select the eight couples for this sample. All eight couples have exhibited an active interest in retirement communities.

2. Continuing Care Retirement Communities (CCRCs) offer a range of facilities and amenities that allow residents to age in place, beginning with independent living and extending through assisted living, memory support, and skilled nursing care.

TABLE 1:
Current & Prospective Elderly Housing Residents by Resident Type & Physical Wellbeing Over a Three-Year (2008-2011) Time Span.

CASES (COUPLES)		Residence Type by Time	IADL [a] by time
C1	Time 1-2	CCRC-A[b] Resident[d]	Both Positive
	Time 3	CCRC-A Resident	Both Positive
C2	Time 1-2	CCRC-D[c] Resident	Both Positive
	Time 3	CCRC-D Resident	Both at Risk
C3	Time 1-2	CCRC-D Resident	Both Positive
	Time 3	CCRC-D Resident	Hus Pos/Wife Neg
C4	Time 1	CCRC-D Resident	Wife Pos/Hus at Risk
	Time 2	CCRC-D Resident	Wife Pos/Hus Deceased
	Time 3	CCRC-D Resident	Wife Pos
C5	Time 1-2	Single Family – prospect [d]	Both Positive
	Time 3	Single Family - prospect	Both Positive
C6	Time 1-2	Single Family – prospect	Both Positive
	Time 3	Single Family - prospect	Both Positive
C7	Time 1	Single Family – prospect	Wife Pos, Hus Neg
	Time 2	CCRC-D Resident	Wife Neg, Hus Neg
	Time 3	Single Family home	Wife Pos, Hus Deceased
C8	Time 1-2	Single Family – prospect	Both at Risk
	Time 3	Single Family - prospect	Both at Risk

a. Instrumental Activities of Daily Living. Positive here indicates fully able to maintain independent living. Negative here indicates not able to maintain independent living.
b. Type A CCRCs provide a life care contract, and full care w/entry and monthly fees.
c. Type D CCRC's do not provide a life care contract.
d. Four of the couples were residents in a CCRC, the other four at the outset of this study expressed an interest in moving to a CCRC and here are referred to as prospective residents.

MULTIFAMILY RENTAL HOUSING:

AN ALTERNATIVE FOR LEADING EDGE BOOMERS

Rosemary Carucci Goss, Julia O. Beamish, Brandon Barber Bailey

Introduction

Today, there are roughly 75 million individuals in the United States described as the Baby Boomer generation, born between 1946 and 1964. Around 36 million of these individuals born between 1946 and 1955 are part of what is called the Leading Edge Baby Boomer or Early Boomer Generation (Franchese, 2010). The first individuals of the Leading Edge Boomers turned 65 in 2011. The Joint Center for Housing Studies of Harvard University (2010) projects that the number of renter households over the age of 55 will rise by more than 3 million over the coming decade. Multifamily rental may provide a strong housing alternative for these individuals, especially if it is designed and marketed to appeal specifically to Leading Edge Boomers.

Literature Review

Researchers study generations to gain insight into shared experiences that shape their behavior and underlying values (Strauss and Howell, 1991). Marketers analyze each generation or age cohort to understand their buying preferences and lifestyle decisions (Beamish, Goss, & Emmel, 2001). The AARP (2010) reports that 89% of individuals over 55 want to age in place. However, due to the large number of Baby Boomers, the remaining 11% that do not prefer to age in place home could have a major impact on demand for alternative types of housing.

This study examines how the developers and managers of multifamily housing design and manage their properties to attract Leading Edge Baby Boomers to their communities. The purpose of this research is to identify current marketing, design, and leasing strategies that multifamily rental practitioners implement in order to attract Leading Edge Boomers.

Methodology

The research team (two faculty and one student) selected four development companies that own and manage multifamily, rental housing: one regional and three national companies with properties located in the Southeast, Central, and Western regions in the United States. Telephone interviews were conducted with two executives per company at three companies and one executive at the fourth company. They also interviewed an architect, a development consultant, and a market researcher to gain other perspectives on design and marketing practices that would attract Leading Edge Boomers. Interviews occurred between March and April 2011 and were recorded with consent for transcription; content was analyzed to identify major themes.

Findings

Researchers identified one overall theme and five individual themes from the interviews: three individual themes are design-oriented and two pertain to the marketing and sales process. The overall theme identified in this research is that the majority of developers and owners are still targeting Echo Boomers (born between 1981 and 2001), instead of Baby Boomers because they have not seen an increase in Boomers seeking apartment homes. Company A stated: "We haven't seen that many of those individuals coming through the door yet. This finding is easily explained since there are

roughly 80 million Echo Boomers to market to today according to JCHS (2010).

Developers have not seen the need to change their marketing plan to reach out

specifically to Leading Edge Boomers.

The following themes were identified:

1) *Leading Edge Boomers and Echo Boomers like many of the same services,*
amenities, and design elements.

Many owners see strong parallels in building to meet the needs of Echo boomers

that will simultaneously attract Baby Boomers. Company C's VP of Development said:

"We need to be more thoughtful about planning the units because Echo boomers and

Baby Boomers are both coming in now and they both want the same thing." Features

identified that support this perception were: a "lock-and-leave" lifestyle, concierge

services, and a desire for an urban location in close proximity to retail and transportation

services that encourage social interaction.

2) *Elevator buildings will help new apartment homes meet the future needs of*
Leading Edge Boomers and aid in project feasibility due to increased density.

High land cost were mentioned by three out of the four development companies

as a major barrier to overcome in making their proforma numbers work in today's

financial environment. Higher densities help make these projects feasible. The market

research consultant points to two key benefits: "elevator served product removes

accessibility inhibitors so that they include this market [Boomers]…getting a denser

product in return."

Fair Housing requires that 100% of apartment homes serviced by elevators be

adaptable. Universal accessibility means enhanced clear floor spaces, wider doorways,

and reinforced bathroom walls for grab bars. As a bi-product, (not an intentional design decision), multifamily developers view these as features that may help Leading Edge Boomers remain in apartment homes longer.

3) *Fitness and wellness centers are a major draw to both Leading Edge Boomers and Echo boomers.*

Designing these areas to feel like commercial health clubs is a growing trend to attract both markets. Company C stated that, "at street level, a fitness center functions as a high-end service amenity and energizes the commercial feel of the street-front." Company A's Vice President of Property Management described their newly redesigned fitness spaces in suburban properties which now include wellness niches that function as a yoga and meditation room, or are utilized for individual workouts.

4) *Leading Edge Boomers have a strong need for customization.*

This may be true especially if they are entering the multifamily rental market from a single-family home. Multiple companies reported installing closet organization systems, accent walls, and other storage accessories. The architect interviewed cited that on one successful project, he helped his client, "design a flexible kitchen that allowed residents to choose their own IKEA island."

5) *Leading Edge Boomers require an individualized sales process.*

Three out of the four companies discussed a different sales approach when leasing to the over 55 consumer. Their team members recognized that the leasing process with a Leading Edge Boomer requires a more service-driven approach in comparison to their Echo Boomer counterparts. With Leading Edge Boomers, Company

B found it important to reinforce the sale and build relationships at each point of contact. Company C's Director of Marketing cited follow-up techniques such as handwritten thank you cards instead of emailed notes as a preference of Leading Edge Boomers. Both companies developed new training curricula including relationship driven follow-up techniques, tailored customer service, and a shortened approach to response time.

Conclusions and Implications

This study sheds light on the design decisions and marketing practices that multifamily developers use to attract Baby Boomers. Findings make the case for companies to hire more college graduates well-versed in market segmentation, generational differences, and strategic outreach techniques to gain a market share of Leading Edge Boomers when these individuals begin to retire and move. More research is needed in order to examine what decisions drive Leading Edge Boomers to choose apartment home living as their next housing choice.

References

AARP.com. (July 8, 2010). My Generation: Aging in Place. *A neighborhood group helps older residents stay in their homes longer*. Retrieved from http://www.aarp.org/home garden/livable-communities/info-07-2010/aging-in-place.html

Beamish, J., Goss, R., & Emmel, J. (2001). Lifestyle Influences on Housing Preference. *Housing and Society,* Vol. 28, No. 1 & 2, 2-27.

Franchese, P. (2010). *Early Boomer: How America's Leading Edge Baby Boomers will Transform, Aging, Work, and Retirement.* Met Life Mature Market Institute Report. September. Retrieved from http://www.hrbartender.com/images/boomers.pdf.

Joint Center for Housing Studies of Harvard University. (2010). *The State of the Nation's Housing*. Cambridge: President and Fellows of Harvard College.

Strauss, W., & Howe, N. (1991). *Generations*. New York: Quill William Morrow.

PREDICTORS OF LEVEL OF MORTGAGE DEBT AMONG OLDER ADULTS IN THE UNITED STATES

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Introduction and Objectives

The U.S. housing market experienced an increase in home values from the 1990s to 2006 (Standard & Poor's, 2009). During this time, mortgage debt levels increased among near retirees (Bucks, Kennickell, & Moore, 2006; Center for Retirement Research at Boston College, 2008; Masnick, Di, & Belsky, 2006). The primary objective of this study is to examine the predictors of level of mortgage debt among homeowners age 65 and older with a mortgage during 2006, the peak of the U.S. housing boom. The secondary objective is to examine the difference in mean level of mortgage debt among homeowners age 65 and older who are employed and those of the same age group who are not employed. Since mortgage debt levels vary by homeowner, this study contributes to the literature by specifically examining the level of mortgage debt held by older homeowners. This study will benefit older homeowners preparing for retirement as well as the financial professionals who advise them on asset accumulation and withdrawal.

Literature and Theory

The increase in mortgage debt levels among near retirees may be attributed in part to later age at first marriage, remarriages, and dual earner households (Masnick, et al., 2006). Using data from 2000, Lee, Lown, and Sharpe (2007) examined factors

contributing to the likelihood of holding mortgage debt among homeowners age 65 and older. It was found that being Black or Hispanic, employed, having some college or more, having household size of two compared to one, holding consumer debt, and having a higher net worth increased the likelihood of holding mortgage debt for homeowners age 65 and older (Lee et. al., 2007). The life cycle income hypothesis (Modigliani & Brumberg, 1954) leads one to assume individuals nearing retirement would have assets sufficient to maintain their standard of living through life expectancy and hold little to no debt. It is also assumed that once paid employment ceased, debt levels would be at zero balance or near zero balance.

Methods

The 2006 wave of the Health and Retirement Study (HRS) was used. The HRS is a national data set of persons age 50 and older detailing among other things, their financial status. The HRS is ideal for this study because of its national representation and comprehensive information on respondents' finances. The analysis accounts for the clustered and stratified sample of the HRS. The sample for research question one consists of 1,647 (5,207,782 when weighted) household heads age 65 or older reporting mortgage debt in 2006. The sample for research question two consists of 1,655 (5,227,799 when weighted) household heads age 65 or older reporting mortgage debt and employment status in 2006.

Research questions

1- What are the predictors of the level of mortgage debt among household heads age 65 and older in the U.S. in 2006?

2- Does the mean level of mortgage debt held in 2006 among household heads age 65 and older who are employed differ from that of those in the same age group who are not employed?

The dependent variable is level of mortgage debt (LMD) reported in 2006 and includes first and second mortgages, home equity loans, and balances on home equity lines of credit. The independent variables consist of factors assumed influential in determining the level of mortgage debt obtained by households with a head age 65 or older (Lee, et al., 2007 among others) and include: level of income, level of assets, level of consumer debt, age, gender, education, marital status, employment status, race/ethnicity, and health status.

Model

$LMD = \beta_0 + \beta_1 Level\ of\ Income + \beta_2 Level\ of\ Assets + \beta_3 Level\ of\ Consumer\ Debt + \beta_4 Age + \beta_5 Male + \beta_6 High\ School\ Graduate + \beta_7 College + \beta_8 Divorced/Separated + \beta_9 Widowed + \beta_{10} Employed + \beta_{11} Hispanic + \beta_{12} Black + \beta_{13} Health\ Status + u$

Procedures / Statistical Analysis

An ordinary least squares regression model was used to answer question one and a t-test for two independent samples was used to answer question two. The data were analyzed for outliers using Cook's Distance and multicolinearity using Variance Inflation Factor (VIF) and Spearman and Pearson Correlation Coefficients. Influential outliers were removed and the final model did not have any problems with collinearity.

Results

Question 1

What are the predictors of the level of mortgage debt among household heads age 65 and older in the U.S. in 2006? The results indicate that level of income, level of consumer debt, having a college education, being separated or divorced, and being of Hispanic race/ethnicity were all positive and significant predictors of LMD. The age of the household head was found to be negative and significantly related to the LMD.

Table 1: *Predictors of Level of Mortgage Debt in 2006* n=1,647

Independent Variable	Log Level of Mortgage Debt			
	Coef.	S. E.	t	P > |t|
Log level of income	0.44192	0.04025	10.98	<.0001
Log level of assets	-0.01598	0.01105	-1.45	0.1485
Log level of consumer debt	0.00834	0.00406	2.05	0.0402
Age	-0.01324	0.00450	-2.94	0.0033
Gender (Female)				
Male	0.07033	0.05737	1.23	0.2204
Education (Less than High School)				
High school graduate	-0.05280	0.08004	-0.66	0.5095
College education	0.26642	0.07867	3.39	0.0007
Marital Status (Married)				
Separated/divorced	0.24915	0.08102	3.08	0.0021
Widowed	0.06857	0.07141	0.96	0.3370
Employment Status (Not employed)				
Employed	-0.06936	0.06113	-1.13	0.2567
Race/Ethnicity (White)				
Hispanic	0.36344	0.11881	3.06	0.0023
Black	0.02591	0.08475	0.31	0.7599
Health Status (Poor/Fair Health)				
Excellent/very good/good	-0.01137	0.06123	-0.19	0.8528
Intercept	7.12604	0.55607	12.81	<.0001
Test of Model Fit F value = 24.68				
Prob. > F = 0.0001				
Adj. R^2 = 0.1576				

Note: Reference groups are in parenthesis

Question 2

Does the mean level of mortgage debt held in 2006 among household heads age 65 and older who are employed differ from that of those in the same age group who are not employed? In light of the life cycle income hypothesis, it was expected that those not employed would have lower LMD than those employed. The mean difference in LMD among those not employed ($84,331) and those employed ($103,531) was -$19,200 (p-value = 0.0003), indicating that the mean LMD of those not employed is significantly lower than the mean LMD of those employed.

Conclusion and Implications

This study shows that level of income and consumer debt are positively related to LMD. Since income is likely to decrease upon retirement, older homeowners preparing for retirement need to be aware of the implications of borrowing from their equity which include repayment with interest, and should hard times befall them, the potential to lose their home to foreclosure. They should also be aware of the financial implications of holding both consumer and mortgage debt. While this may be something they have done throughout their employed years, holding both types of debt while aging in retirement may present a financial risk. Financial professionals can benefit from this study by recognizing the predictors of LMD in older age among their clientele and then helping them plan accordingly so their accumulated assets are sufficient and withdrawal rates not too high.

When considering the life cycle income hypothesis (LCIH), and prior literature (Lee, et. al., 2007) it was expected that those not employed would have lower LMD than

those employed. The findings of this study supported this expectation as those who were not employed had a significantly lower mean LMD than those employed. Even with this finding, those not employed still had a mean LMD of $84,331 which may not be recognized as a trivial amount to many. The finding of this study compliments the assumption of the LCIH in that persons who have ceased paid employment have lower levels of mortgage debt than those who are still employed. However, the mere fact that those in this sample have acquired debt that requires repayment when they are no longer employed goes against the Life Cycle Income Hypothesis.

References

Bucks, B. K., Kennickell, A. B., & Moore, K. B. (2006). Recent changes in U.S. family

finances: Evidence from the 2001 and 2004 survey of consumer finances.

Federal Reserve Bulletin, 92, A1-A38.

Center for Retirement Research at Boston College. (2008, August). The housing bubble

and retirement security. (Working Paper 2008 -13). Chestnut Hill, MA: Author.

Lee, Y. G., Lown, J. M., & Sharpe, D. L. (2007). Predictors of holding consumer and

mortgage debt among older Americans. *Journal of Family and Economic Issues,*

28(2), 305-320.

Masnick, G. S., Di, Z. X., & Belsky, E. S. (2006). Emerging cohort trends in housing

debt and home equity. *Housing Policy Debate, 17*(3), 491-527.

Modigliani, F., & Brumbeg, R. (1954). Utility analysis and the consumption function: An

interpretation of cross-section data. In K. K. Kurihara (Ed.), *Post-Keynesian*

economics (pp. 388-436). New Brunswick, NJ: Rutgers University Press.

Standard & Poor's. (2009, January). S&P/Case-Shiller home price indices 2008, a year

in review. Retrieved February 28, 2009, from http://www2.standardandpoors.com

/spf /pdf/index/Case-Shiller_Housing_Whitepaper_YearinReview.pdf

INTERIOR ILLUMINATION IN CONGREGATE AREAS:

A PILOT STUDY OF A CONTINUING CARE RETIREMENT COMMUNITY

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Introduction

The purpose of this study was to examine the interior electric lighting at a large continuing care retirement community (CCRC) in a major city in the southern U.S. This study looks at shared community spaces utilized by older adult independent living residents at the CCRC. Independent living residents are those who do not require regular assistance in the performance of daily activities, such as eating and getting around. Research objectives included: measure and record existing lighting levels; and compare existing lighting levels to industry recommendations *for the general public* and *for older adults*. This research was conducted as part of a larger study that considered the quantity and quality of lighting and the relationship to older adults' quality of life. As the older adult population in the U.S. continues to grow, more research is needed to assess the existing facilities available to older adults, in order to best meet their needs. Many of older adults are anticipated to have some type of visual impairments.

Review of Literature

Many publications have explained that light is a prerequisite to the performance

of visual tasks and that normative aging potentially degrades the vision of older adults

(Rea, 2000; Boyce & Raynham, 2009; Illuminating Engineering Society of North

America, 2007; Winchip, 2005; Gordon, 2003; Bee & Boyd, 2003). Additionally, the

Illuminating Engineering Society of North America (IESNA) has developed specific

illumination recommendations to improve sight within interior spaces (Rea, 2000;

IESNA, 2007). Professionals in the lighting industry consider the IESNA to be *the*

lighting authority in North America (Rea, 2000). According to Rea (2000), *The IESNA*

Lighting Handbook, which was first printed sixty years ago, is "the most important

reference document in the lighting profession" (p. xi). The IESNA supplements the

Handbook with a series of recommended practices publications, such as *Lighting and*

the Visual Environment for Senior Living (IESNA, 2007). These publications are

regularly utilized by lighting designers, electrical engineers, architects, etc., as

guidelines for the appropriate quantity of illumination for CCRCs and other facilities.

Note that the latter publication indicates that "older adults include persons aged 60

years and older and people of all ages with some form of visual impairment" (IESNA,

2007, p. 19). These standards were utilized to assess existing lighting in the current

study.

Methodology

Setting

The CCRC, from which the sample is drawn, is located on a 52-acre gated

campus in a large city in the southern part of the USA. An extensive expansion and

renovation was competed in 2001. Shared community areas in the CCRC include, but are not limited to, the following: a crafts room, a cards room, a buffet-style dining room, a formal dining room, a fitness center, mail-box areas, and a convenience store. The current researchers anticipated that a field study of this operating facility could assist them in developing a more complete understanding, regarding the design and operation of illuminated environments for older adults' needs.

Method

The current study employed field observation, field documentation, and analysis. Researchers examined the quantity of interior lighting in selected congregate activity areas in the CCRC through a site survey. Illuminance measurements were taken by the researchers in Footcandles/Lux, utilizing a Sylvania DS 2000 digital light meter. Researchers compared the existing illuminance levels to lighting industry recommendations from Illuminating Engineering Society of North America (IESNA) publications. IESNA makes recommendations for the illumination of spaces to meet the *needs of the general public* to complete tasks. IESNA also recommends higher light levels to meet the *needs of older adults* for these same spaces and tasks. In comparing the field measurements to these recommended light levels, researchers calculated the difference between the corresponding pairs. Researchers subtracted the recommended light level from the field measurement, yielding the "Difference from the Recommended Light Level." A negative result indicated that the field measurement was below the recommended level, while a positive result indicated that the field measurement exceeded the recommended level. Next, researchers divided the field measurement by

the recommended light level for each space, and the result of this calculation was recorded as the "Percent Difference" between the actual and recommended levels.

The researchers secured a letter of permission from the CCRC administrator prior to submitting to the researchers' university Institutional Review Board (IRB) for approval. This study was subsequently approved for use with human subjects. The on-site data collection ran from May 18 to May 23, 2009.

Results

Regarding the *minimum* average levels recommended by the Illuminating Engineering Society of North America (Rea, 2000) *for the general public*, four of the eight interior spaces studied – *Buffet Dining*, *Formal Dining*, *Fitness Room*, and *Public Restrooms* – were found to be in compliance. Half of the spaces studied – the *Craft Room*, *Bridge Room*, *Mail-box Areas*, and *Convenience Store* – were found not to be in compliance *for the general public*.

Regarding the *more stringent* light level recommendations *for older adults*, for which only limited specific interior spaces were mentioned by name in the recommended practices (IES, 2007), the only one of the eight rooms studied in the CCRC that was found in compliance was the *Fitness Room.* Only the *Fitness Room* was found to be in compliance with *both the general public and older adult* recommendations.

Conclusions and Recommendations

Because the light levels in both Food Service Facilities (*Buffet Dining* and *Formal Dining*), as well as the *Public Restrooms,* were in compliance only with the

recommendations for the *general public,* the lighting in these rooms may contribute to a better experience for the residents' families and CCRC staff, but not necessarily for older adults. Of the eight spaces considered by the current study, the researchers found only one area of the CCRC that met the IESNA's light level quantity recommendations *for older adults*: the Physical Therapy Area (*Fitness Room*). These results indicate that undeveloped potential exists at the studied facility: older adult residents' lighting needs may not be met by the current lighting configuration.

Additional research may examine lighting at additional CCRCs and other places were older adults reside or visit to insure that their visual needs are being met. The lighting needs and visual impairments of older adults are significantly different from other age groups. Failure to provide adequate illumination may create difficulties and delays in older adults' completion of daily tasks.

It is recommended that the results of these studies be provided to lighting policy makers and facility planners. These groups should address older adults' needs for increased illumination. Research results could inform future lighting industry standards and the lighting design of new residential communities as well as those for other public facilities frequented by older adults.

References

Bee, H., & Boyd, D. (2003). *Lifespan development: Study edition (3rd Ed.).* New York: Allyn and Bacon.

Boyce, P., & Raynham, P. (2009). *The SLL Lighting Handbook.* London: The Society of Light and Lighting.

Gordon, G. (2003). *Interior lighting for designers (4th Ed.).* Hoboken, New Jersey: John Wiley & Sons.

Illuminating Engineering Society of North America. (2007). *Lighting and the Visual Environment for Senior Living.* New York: Illuminating Engineering Society of North America.

Rea, M. (Ed.). (2000). *The IESNA lighting handbook* (9th ed.). New York: Illuminating Engineering Society of North America.

Winchip, S. (2005). *Designing a quality lighting environment.* New York: Fairchild Publications.

SURVEYING SOLDIERS, STUDENTS, AND SENIORS:

GENERATIONAL PERCEPTIONS OF SUSTAINABLE LIGHTING AND LIGHT

POLLUTION ACROSS HOUSING COMMUNITIES

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Purpose and Background

As part of a larger study, funded by the U. S. Environmental Protection agency, the purpose of this study was to investigate generational perceptions of adult members of soldier, university student, and senior households regarding *sustainable lighting* and *light pollution*. These three household populations and sites were expected to represent diverse lighting perceptions and treatments. The authors were also interested in increasing their research efforts relative to the needs of military households and were recently made aware of the U.S. military's interest in implementing sustainable solutions at their housing sites.

Sustainable lighting is defined here as lighting that illuminates the target area with a minimum of energy consumption and waste. Although sustainability is becoming more commonly addressed, the researchers could find little previous research regarding perceptions of sustainable lighting and even less on light pollution by housing community residents. *Light pollution*, defined by Rea (2000), is light that is "directed upward to the sky or reflected… that interferes with astronomical observations or

appreciation of the night sky" (p. 10-5). Light pollution has spawned *lighting curfe*ws, which strive to eliminate lighting during some evening hours (International Dark-Sky Association [IDA], n.d.b). *Light trespass* is a related issue of unwanted illumination entering interiors at night (Obtrusive Light Subcommittee, 2000a). Further, *lighting ordinances* are becoming more common nationally (IDA, n.d.c). The International Dark-Sky Association (IDA) promotes the use of "dark-sky friendly" lighting which does not cause waste or pollution (IDA, n.d.a; IDA, n.d.d; IDA, n.d.e).

Research Objectives

- *Determine housing community stakeholders' preferences regarding sustainability*

- *Explore effects of age and housing community group type upon light pollution tolerance at housing sites*

- *Explore effects of age and housing community group type upon willingness-to-act to mitigate the effects of light pollution*

The researchers anticipated that the generational characteristics represented in each of the three housing types could potentially influence residents' perceptions of light and sustainability. Researchers have suggested that generations manifest common traits and outlooks. Traditionalists, born 1945 or earlier, are described as being less familiar with technology. Baby Boomers, born from 1946 to 1964, may be success-driven and conspicuous consumers. Generation X, born 1965 to 1981, are thought to be computer savvy and confident in their opinions. Millennials, born 1982 to 2000, are said to be computer savvy and concerned about the environment (Lancaster, 2004).

Methodology

In the Fall of 2010 and the Spring of 2011, a 51 item survey, which utilized seven point Likert-style, multiple choice, and open-ended questions, was self-administered in a hard copy format to a convenience sample of housing occupants in two mid-western states. The survey respondents included adult members of soldier households, university students, and seniors in a continuing care retirement center. Respondents were queried regarding demographics; sustainability; light pollution awareness and concerns; and related attitudes, beliefs, preferences, and willingness-to-act. IRB approval and permissions from administrators were granted prior to data collection.

Results

A total of 200 respondents participated in the study. Participation was as follows: Soldiers, (n=66, 33% of total respondents), students, (n=92, 46% of total respondents), and seniors (n=42, 21% of total respondents). The corresponding average, minimum, and maximum ages of the respondents in these three groups was as follows: 32, 18, 66 for soldiers; 22, 20, 44 for students; and 87, 69, 96 for seniors.

Table 1 presents some information regarding generational membership and housing type. Crosstabs were used to determine year of birth and housing type. There are 176 valid responses to age (generation) x housing.

Table 1.

Generation x Housing Crosstabs

	Housing Type			
Generation	Soldiers	Students	Seniors	Total
Traditionalists (<1945)	0	0	37	37
Boomers (1946-1964)	1	0	0	1
Generation X (1965-1981)	31	3	0	34
Millennials (1982-2000)	21	83	0	104
Totals	53	86	37	176

Survey Response: Sustainability

Respondents were asked to indicate on a seven-point Likert-style scale how much they agreed with the statement, "Sustainability is important to me." Sustainability was found to be most important to university students and soldiers. A large majority of the university students (n=75, 81.5% of students) and half of the soldiers (n=49, 74.24% of soldiers) affirmed that sustainability was important to them. Sustainability was important to seniors, but to a lesser degree. Only 26 (62% of seniors) agreed or strongly agreed that sustainability was important to them.

Survey Response: Light Trespass

Respondents were asked to indicate on a seven-point Likert-style scale how much they agreed with the statement, "A dark bedroom at night is important to me." The majority of the soldiers (n=51, 77% of the soldiers) and students (n=80, 87% of the students) indicated that dark bedrooms at night were important to them. Seniors were much more ambivalent, with only 25 (59.5% of seniors) indicating agreement.

Survey Response: Light Pollution

Respondents were asked to indicate on a seven-point Likert-style scale how much they agreed with the statement, "Light pollution bothers me." The majority of students (n=56, 60.9% of students), soldiers (n=43, 65.2% of soldiers), and elders (n=26, 61.9%) were neutral or disagreed.

Survey Response: Willingness-to-Act

Respondents indicated on a seven-point Likert-style scale how much they agreed with the statement, "I am willing to modify existing light fixtures to prevent light pollution." The majority of students (n=63, 68.5% of students) and seniors (n=22, 52.4% of seniors) expressed willingness. Fewer than half of the military respondents (n=31, 47% of soldiers) indicated willingness. This could be a function of personal control; most of the soldiers lived in base housing and may have had limited control.

Conclusions

Several interesting themes emerged from the responses. Notably, younger respondents expressed greater interest and placed greater emphasis on sustainability. This may be a function of coursework emphasizing environmental topics, including sustainability. These respondents may have more education that speaks specifically to this charged word and concept. A greater proportion of these younger respondents were willing to modify fixtures to mitigate light pollution. This could indicate that sustainability education may lead to positive behavioral change.

Limitations and Recommendations

The relatively small, non-random sample limits the extent to which results may be generalized. Therefore, future research is recommended with a large, randomized sample taken from a wider geographical area.

Implications

Surveying the perceptions of sustainable lighting across generations and housing communities fills a gap in the existing research. It is anticipated that educators, future designers and housing site administrators could use these findings as they consider sustainable lighting retrofits and new construction.

References

FSA-Approved Fixture, the GlareBuster, wins big at ALA. Retrieved April 2, 2009, from

http://www.darksky.org/mc/page.do?sitePageId=56421&orgId=idsa.

International Dark-Sky Association (IDA). (n.d.b). *Lighting and crime* [Information sheet

#51]. Tucson, AZ: Author.

International Dark-Sky Association (IDA). (n.d.c). *Outdoor lighting ordinances and*

community standards [Information sheet #172]. Tucson, AZ: Author.

International Dark-Sky Association (IDA). (n.d.d). *IDA Fact Sheet*. Retrieved April 3,

2009, from http://data.nextrionet.com/site/idsa/ida_fact_sheet_20081211.pdf.

International Dark-Sky Association (IDA). (n.d.e). *Fixture Seal of Approval*. Retrieved

April 21, 2009, from http://www.nextrionet.com/mc/page.do?sitePageId=56421&

orgId=idsa.

International Dark-Sky Association (IDA). (2008). *Light pollution and energy* [Brochure].

Tucson, AZ: Author.

IYA2009. (n.d.). *Dark skies awareness: Seeing in the dark*. Retrieved April 3, 2009, from

http://www.astronomy2009.org/globalprojects/cornerstones/

darkskiesawareness/.

Lancaster, L. (2004) [Summarized by Cox, R.], "When generations collide: How to solve

the generational puzzle at work", available at:

http://www.oregonjobs.org/DAS/HR/LO/

docs/WhenGenerationsCollide.pdf (accessed 14 June 2010).

Obtrusive Light Subcommittee of the IESNA Roadway Lighting Committee. (2000a).

Addressing obtrusive light (urban sky glow and light trespass) in conjunction with

roadway lighting, TM-10-00. New York: The Illuminating Engineering Society of North America.

Rea, M., (Ed.). (2000). *The IESNA lighting handbook* (9th ed.). New York: Illuminating Engineering Society of North America.

MARKET-BASED POLICY IMPLICATIONS FOR IMPROVING ENERGY-RETROFIT PROGRAMS IN THE GREAT LAKES REGION*

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INTRODUCTION

The Building America program of the U.S. Department of Energy is an industry-led research program which aims to accelerate the development and adoption of advanced building-energy technologies and practices in new and existing homes (Department of Energy, 2011). As a part of its program, Building America emphasizes energy-efficient retrofitting for existing homes.

A review of existing literature shows that most previous studies proposed retrofit strategies for existing homes based on various simulation results. These studies typically concentrated on one or two types of houses (i.e., 100 one-type houses) located in a certain area, or on interior spaces in a single home (Hendron & Engebrecht, 2010). However, in reality, various housing types exist in the same region; thus, retrofit strategies should be established based on an understanding of housing types and market characteristics.

In fact, effective energy-retrofit solutions vary greatly by housing characteristics (such as style, construction type, materials, existing construction details, building form,

number of stories, and ducting patterns) (Hendron & Engebrecht, 2010). These characteristics can influence the effectiveness of various retrofit solutions.

RESEARCH CONTEXT

In order to increase effectiveness of energy retrofits of homes located in the Great Lakes region which is a sub-region of the cold climate zone (i.e., zone 4), differentiated plans for common home types (archetypes) should be developed. Homes in this sub-region typically require longer heating periods than cooling, more insulation than other climate zones, and different forms and materials to accommodate geographical characteristics. In particular, some existing homes in Michigan, for example minimize exterior perimeter to reduce heat loss.

This research project is based on the belief that energy retrofit solutions can be matched to the various archetypes and their unique characteristics. There currently is little research to show the range of diversity and prevalence or precise physical characteristics of existing housing stock. This data gap is addressed as part of the four-year Building America project. The project analyzes national housing data for the Great Lakes sub-region and conducts field case studies of five major cities (i.e., Lansing, Grand Rapids, Ann Arbor, Toledo, and Ft. Wayne) to determine archetypes and characteristics of existing homes.

RESEARCH PURPOSE

The purpose of this study is to identify the archetypes of housing in the target regions for understanding and estimating the retrofit needs depending on the

archetypes and proposing a more accurate and practical retrofit plan for existing homes in these areas. The first research objective is to investigate information on housing archetypes in the Great Lakes regions. The second objective is to estimate energy-efficient retrofitting opportunities among these housing archetypes, and discuss implication directions supporting the retrofitting need considering architectural characteristics of homes.

RESEARCH METHODS

One of the initial tasks is to analyze the existing housing stock in order to identify prevalent archetypes and prepare a general classification system (i.e., taxonomy) of housing stock results for the region. To identify archetypes, we investigated styles, construction types (i.e., wooden structure, slabs, exterior/interior walls, roofs, etc.), materials, building forms (i.e., overall volumetric shape of a building, including the form of the roof), and number of stories. The data sources used are the American Housing Survey data and archives stored in the Michigan State Historic Preservation Office, and information from site visits of five city cases. A taxonomy of housing archetypes will be created later for this research stage.

SUMMARY OF FINDINGS

1) Existing Housing Stock

A total of 4,522,600 homes exist in the State of Michigan in 2009. Among them, 74.6% of homes are owner-occupied units. The percentage of owner-occupied units varies among cities. Grand Rapids shows a comparably higher percentage of owner-

occupied units (=60.6%), while Ann Arbor and Lansing show lower percentages of owner-occupied units, 46.7% and 58.4% respectively.

Energy retrofit needs can be diagnosed initially by the age of homes and heating-related equipment. Table 1 shows that only 8.7% of Michigan homes are less than 11 years old (built after the year 2000). The percentages are different among the three cities. Approximately 5.4% of existing homes were built after 2000 in Ann Arbor, 3.7% in Grand Rapids, and 3.4% in Lansing, These numbers show that a majority of existing homes are older than 11 years. In particular, 25.3% of currently existing Michigan homes were built before 1950. Grand Rapids owns more '60 year or older homes' than the other two cities. About 48.7% of existing homes there were built before 1950. These different distributions of age of homes may affect the majority of architectural styles of housing in each city.

As Table 1 presents, the numbers of homes lacking complete plumbing facilities or complete kitchens are slightly different among the cities. Grand Rapids has a higher percentage of homes lacking complete plumbing or a kitchen. The total number of those homes is much higher in Grand Rapids than in the other two cities.

Table 1. Housing Stock in 2009 (see Appendix 1)

2) Architectural Styles of Homes

The initial investigation of literature and archives identified major architectural styles of current homes in various cities, which will be used as the baseline of archetypes this study will identify in the future. Some typical examples include

Bungalow, American Foursquare, Cape Cod, Ranch, I-House, and Vintage styles (see figures 1 and 2 in Appendices 2 and 3). The analysis of architectural styles of housing in each city will be completed by September, 2011.

Figure 1. Bungalow (Photo by Kim)

Figure 2. American Foursquare (source: http://www.oldhouseonline.com)

3) Other Expected Findings of Existing Homes to Estimate Retrofit Needs

In addition to the basic categorization depending on year of completion and styles, this study will compile information on construction types (i.e., wooden structure, slabs, exterior/interior walls, roofs, etc.), materials, building forms (i.e., overall volumetric shape of a building, including the form of the roof), and number of stories of existing homes. This information will be used to create a matrix to show individual characteristics of the housing archetypes. We will create a taxonomy based on this matrix to determine what should be the most influential housing type for deep energy-efficient retrofitting in these regions.

CONCLUSION

Implementing energy-retrofitting programs should be based on an exact understanding of the current housing stock and retrofitting needs. This study will identify high-impact housing types and their market potential for technical deep-energy retrofits to existing single-family housing in this region. Based on this market-analysis research,

we will bring more practical and direct guidelines affecting future policy for energy-retrofitting programs.

The specific items identified in the taxonomy of housing archetypes will also provide affluent information for diverse stakeholders associated with retrofitting activities, such as homeowners, contractors, builders, and manufacturers.

References

Craven, J. (2011). *Home style guide*. Retrieved May 15, 2011, from

http://architecture.about.com/od/housestyles/tp/housestylesindex.htm

Hendron, R., & Engebrecht, C. (2010). *Building America house simulation protocols*.

Oak Ridge, TN: U.S Department of Energy. September 2010.

U.S. Census Bureau (2009). *Selected housing characteristics, American

Community Survey: Ann Arbor*. Retrieved May 15, 2011, from

http://factfinder.census.gov.

U.S. Census Bureau (2009). *Selected housing characteristics, American

Community Survey: Grand Rapids*. Retrieved May 15, 2011, from

http://factfinder.census.gov.

U.S. Census Bureau (2009). *Selected housing characteristics, American

Community Survey: Lansing*. Retrieved May 15, 2011, from

http://factfinder.census.gov.

U.S. Census Bureau (2009). *Selected housing characteristics, American Community

Survey: Michigan*. Retrieved May 15, 2011, from http://factfinder.census.gov.

U.S. Department of Energy (2011). *About Building America*. Retrieved May 1, 2011.

from http://www1.eere.energy.gov/buildings/building_america/about.html.

* This abstract introduces ongoing research that will be completed in December 2011.

Thus, it does not include complete findings. We expect to add further findings and

present them at the HERA conference in October 2011.

Appendix 1. [Table 1. Housing Stock in 2009]

Items		State	Target Cities		
		Michigan Total	Ann Arbor	Grand Rapids	Lansing
Housing Stock	Total	4,522,600 (100%)	48,723 (1.08%)	80,821 (1.79%)	54,982 (1.22%)
Occupied Units	Total	3,860,160 (100%)	44,107 (100%)	73,311 (100%)	48,535 (100%)
	Owner-occupied	2,879,917 (74.6%)	20,603 (46.7%)	44,436 (60.6%)	28,323 (58.4%)
	Renter-occupied	980,243 (25.4%)	23,504 (53.3%)	28,875 (39.4%)	20,212 (41.6%)
Year of completion	Total	4,522,600 (100%)	48,723 (100%)	80.821 (100%)	54.982 (100%)
	Built after 2005	76,092 (1.7%)	523 (1.1%)	592 (0.7%)	287 (0.5%)
	2000 to 2004	316,724 (7.0%)	2,093 (4.3%)	2,377 (2.9%)	1,588 (2.9%)
	1990 to 1999	580,054 (12.8%)	4,723 (9.7%)	4,948 (6.1%)	2,149 (3.9%)
	1980 to 1989	446,425 (9.9%)	5,249 (10.8%)	5,603 (6.9%)	4,490 (8.2%)
	1970 to 1979	711,453 (15.7%)	9,409 (10.8%)	6,570 (8.1%)	8,813 (16.0%)
	1960 to 1969	545,422 (12.1%)	9,689 (19.9%)	8,506 (10.5%)	8,112 (14.8%)
	1950 to 1959	703,306 (15.6%)	6,799 (14.0%)	12,880 (15.9%)	10.074 (18.3%)
	1940 to 1949	392,422 (8.7%)	2,922 (6.0%)	8,188 (10.1%)	5,731 (10.4%)
	1930 or earlier	750,702 (16.6%)	7,316 (15.0%)	31,157 (38.6%)	13,738 (25.0%)
Other	Total occupied	3,860,160 (100%)	44,107 (100%)	73,311 (100%)	48,535 (100%)
	Lacking complete plumbing facilities	14,418 (0.4%)	187 (0.4%)	646 (0.9%)	157 (0.3%)
	Lacking complete kitchen facilities	21,153 (0.5%)	258 (0.6%)	998 (1.4%)	191 (0.4%)

Source: U.S. Census Bureau (2009). 2005-2009 American Community Survey

5- Year Estimates. Retrieved May 15, 2011 from http://factfinder.census.gov.

Appendix 2.

Figure 1. Bungalow (Photo by Kim)

Figure 2. American Foursquare (source: http://www.oldhouseonline.com)

HOME ENERGY COMMUNITY OF PRACTICE:

IMPACTING RESIDENTIAL ENERGY EDUCATION FOR CONSUMERS

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The daily demands and real-life pressures families experience are genuine and the need for credible, timely and accurate information to solve these problems is essential. One area in which consumers need access to trustworthy, reliable information is in the area of home energy efficiency and conservation (Council on Environmental Quality, 2009). Residential energy prices are increasing and there are ever growing concerns about the nation's ever increasing demands for energy (EIA, 2011). The housing stock in the United States is aging, with the median age being 37 years of age. Older housing stock is likely to have significant energy concerns including aging heating and ventilation equipment, leaky ductwork and building envelopes, and inadequate insulation. Additionally, there are concerns about our increasing energy use related to global warming and the protection and conservation of the world's natural resources.

While the need is present, consumers often face a number of barriers in their efforts to improve efficiency. In a survey designed to determine whether or not homeowners had made energy efficient improvements after receiving an energy audit, researchers found that barriers to making improvements include financial resources, time and information (Kirby, Chilcote & Guin, 2008). While monetary and time restraints

may be more difficult to overcome, information and educational resources regarding energy efficient improvements do exist and should be easily available for consumers wishing to access it.

eXtension was created for the purpose of addressing important issues affecting families in their every day lives, including the area of energy. eXtension is a national initiative that allows for real-time learning and "is an internet-based collaborative environment where Land Grant University content providers exchange objective, research-based knowledge to solve real challenges in real time". (eXtension, 2011). The eXtension website, www.extension.org, contains articles, on-demand learning and interactive resources including blogs, videos and decision making tools; frequently asked questions and ask the expert features all designed to provide consumers with real-time information to address their varying needs.

The information available through eXtension is provided by Communities of Practice. Communities of Practices, as defined by eXtension are:

. . . a virtual network of subject matter content providers consisting of faculty, professional and para-professional staff, county educators, industry experts, clientele and government agency representation who share knowledge or competence in a specific content area and are willing to work and learn together over a period of time to further develop and share that knowledge in forms of educational products and programs (eXtension, 2009).

Subject matter providers are mostly Cooperative Extension specialists at land grant universities, however they may also include Cooperative Extension field faculty and other professionals/experts in a particular field. Communities of Practice and

eXtension enhances the resources available across the Cooperative Extension system by pooling the collective intellect of faculty members and other professionals across the nation. As resources shrink and faculty positions decline, eXtension allows Cooperative Extension to provide valuable content and resources to all consumers, even in states who may or may not have a subject matter specialist in a particular area (Sellers, Crocker, Nichols, Kirby & Britnall-Peterson, 2009; eXtension, 2007.

Currently, there are over 59 Communities of Practice (CoP's) that work through eXtension. These CoP's include a wide range of concerns including financial security, drinking water, family caregiving, land use planning and home energy. The Home Energy Community of Practice is a relatively new community, whose purpose is to "improve home energy measures and management practices to minimize natural resource consumption and environmental deterioration while reducing residential energy use and costs." (Home Energy CoP, 2009).

In an effort to make credible resources on home energy more widely available, the Home Energy Community of Practice has created an in-depth data base of resources related to energy use and efficiency in new and existing homes. Additionally, the CoP provides extensive content on renewable energy alternatives for residential housing. To assist in the development of content for the Home Energy eXtension site, the CoP relies on the knowledge and best practices of its members. Currently the Home Energy CoP is made up of 9 leaders and 107 members from land grant universities and energy related professions with expertise in areas such as renewable energy, lighting, new construction, retrofits, and landscaping.

The CoP received funding through the national eXtension initiative to support the initial development of content for the Home Energy site. Through face-to-face working meetings as well as virtual work days, the members of the CoP created educational content, adapted content and identified areas where important content was lacking. The vast majority of content used in the creation of the site came from educational materials that been previously developed for other purposes, i.e. fact sheets, research notes, educational lessons. This content was then adapted for use as a short article, news release, feature article or frequently asked question. All created and adapted content was then reviewed by multiple subject matter experts as well and editor to ensure accuracy and clarity.

Through the collective efforts of the CoP members, the Home Energy site contains 176 frequently asked questions, 113 articles for consumers, 9 features and 90 news related articles. As of May 16, 2011, Google Analytics indicated that the site had been viewed 56,699 times. The CoP currently hosts monthly webinars that serve not only to update members on the activities of the CoP, but also as professional development seminars that highlight new research and practices in the field of residential energy. Webinar topics have included energy efficiency tax rebates, weather stripping, green products, energy efficient appliances, energy codes and energy efficient windows.

As a fairly new community of practice, the Home Energy CoP is working toward identifying appropriate evaluation tools for measuring the impact of the content on consumer choice, behavior and energy savings. Evaluation of impact is difficult as there is not yet a way to follow up with users especially over time. As part of its future

direction, the CoP will focus on ways to elicit immediate and long-term impact from users of the site.

The needs of the population regarding energy information are great. The Home Energy Community of Practice is one way to reach consumers with credible, timely information that assists individuals and households in making energy efficient changes, both behavioral and structural, which save money for consumers and protect and conserve the resources in the environment.

References

Council on Environmental Quality, Middle Class Task Force. (2009). *Recovery through retrofit.* Retrieved from

http://www.whitehouse.gov/assets/documents/Recovery_Through_Retrofit_Final_Report.pdf.

eXtension (2011). *What is eXtension?* Retrieved from http://about.extension.org/

eXtension (2009). *Community of Practice Handbook.* Retrieved from

http://create.extension.org/node/2121

eXtension. (2007). JAC article: Five myths about eXtension. Retrieved from

http://about.extension.org/wiki/JAC_Article

EIA (2011, May). *Electric Power Monthly*. Retrieved from

http://www.eia.doe.gov/cneaf/electricity/epm/epm_sum.html

Home Energy Community of Practice. (2009). *Home Energy Management and Operation Information.* Retrieved from

http://cop.extension.org/wiki/Home_Energy:_Mission_and_Values

Kirby, S., Chilcote, A., and Guin, A. (2008). Residential energy audits: A tool for enhancing consumer energy efficiency and conservation improvements*. 2008 Housing Education and Research Association Annual Proceedings.* Pgs. 75-78.

Sellers, D.M., Crocker, A.B., Nichols, A., Kirby, S.D. & Britnall-Peterson, M. (2009). Creating the eXtension family caregiving community of practice. Journal of Extension. 47(5). Retrieved from http://www.joe.org/joe/2009october/a1.php

BOOMERS LIFESTYLE, HOUSING SATISFACTION AND

INTENTION TO MOVE AT RETIREMENT

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Introduction

Boomers, people born between 1946 and 1964, comprised about 30% of the U.S. population, in 2009 (U.S. Census Bureau, 2009). Boomers are now between 47 and 65 years old and are preparing to retire. When people move from one lifecycle stage to another the current residential situation may not satisfy their housing needs and they may consider moving (Wiseman, 1980). Residents' lifestyle may be another important consideration when thinking about moving. Boomers are considered to be heterogeneous in terms of their lifestyles and attitudes toward housing (Schriener & Kephart, 2010). Studies show that researchers and housing developers should consider Boomers' diverse lifestyles (Lynn & Wang, 2008; Schriener & Kephart, 2010). The purpose of this study is to examine lifestyle factors related to Boomers' satisfaction with their housing, neighborhood and community in order to understand their intention to move when they retire.

Methodology

This research was designed as a quantitative study using a self-administered questionnaire. The researchers developed the questionnaire based on the previous studies on lifestyle factors(Lee, 2005; Wells & Tigert, 1971) and 3 housing satisfaction

scales within the Ecological Model(Beamish, Goss, & Emmel, 2006; Shea & Inman, 1994). The population was people born between 1946 and 1964 living in the U.S. The data were collected using convenience sampling by an online survey questionnaire distributed by a market research company during April, 2011. The company had more than two million marketing research people who can participate in various types of survey in return for non-momentary compensation such as gift cards and points.

Factor analysis was employed to identify lifestyle factors. A structural equation model (SEM) examined the relationships among lifestyles, housing satisfaction, and intention to move. The Statistical Package of SPSS 16.0, PRISREL and LISREL 18.0 were used to analyze the data. A significant level of $p<.05$ was chosen as the criterion for accepting hypotheses.

<div align="center">Results</div>

Four hundred and thirty-eight people participated in the survey and a total of 403 completed responses were analyzed. Mean age of the total respondents was 57 years old. Sixty-six percent of the participants were female and 51% had a college degree or some higher education. Almost 62% of the respondents were married, 15% were divorced, 11% were never married and 6% were widowed. Twenty-eight percent of respondents had under $35,000 in annual income, 20% earned $35,000 to $49,999, and 23% made $50,000 to $74,999 per year. Seventy-eight percent of respondents were living in single-family, detached housing, 5% were living in town houses, and almost 14% were living in multifamily housing. Eighty-one percent of participants owned their home. Almost 44% of residents were living in a city suburb, 26% were in a rural

area, 25% were in a small town, and 5% were in a city downtown. The average household size was 2.26.

To determine the lifestyle factors, 49 activity, interest, and opinion (AIO) statements related to the housing environment were developed. The questionnaires used a 5 point Likert scale, from strongly disagree to strongly agree, to evaluate statements such as "I often entertain others in my home" and "I want a home located in a natural setting". Using exploratory factor analysis, four housing lifestyle factors were confirmed: 1) House Oriented lifestyle (e.g., key words: sense of well-being, good air quality, joy of living, and beautifully decorated home); 2) Community Oriented lifestyle (e.g., key words: sports events in my community, entertaining in the community, and outdoor activities); 3) Technology Oriented lifestyle (e.g., key words: online shopping, latest technology at home, and up-to-date features); and 4) Social Interaction Oriented lifestyle (e.g., key words: entertaining others in my home, spending time with family, and conversation with family and friends). This four-factor solution explains 52% of the total variance of the 23 statements. Cronbach's Alphas of the four factors ranged from .586 to .892.

Housing satisfaction was evaluated using three scales: 1) eight items related to Housing Unit satisfaction (e.g., cost, tenure type, size, design and maintenance) (M=3.65, SD=.78); 2) two items related to Neighborhood satisfaction (e.g., safety and security, and relationships) (M=3.83, SD=.87); and 3) nine items related to Community satisfaction (e.g., access to relatives, restaurants and shopping areas, and work places) (M=3.57, SD=.69). The items were coded with a 5 point Likert scale, from very dissatisfied to very satisfied.

Thirty percent of the total respondents (n=120) strongly agreed or agreed to having an Intention to Move at retirement. There were no statistically significant differences in terms of socio-economic and housing characteristics between those who Intended to move and those who did not. There were significant differences between those who intend to move and those who do not in terms of future housing preferences. Those people who intend to move showed higher preference for renting an apartment in the downtown city.

There are significant positive relationships between House Oriented lifestyle and Housing Unit, Neighborhood, and Community satisfaction variables. House Oriented lifestyle also showed a positive relationship with Intention to Move. Boomers with Community Oriented lifestyles also showed positive relationships with Housing unit, Neighborhood and Community satisfaction. Social Interaction Oriented lifestyle and Neighborhood satisfaction had a significant positive relationship, but there were significant negative relationships between Technology Oriented lifestyle and Housing unit and Community satisfaction. Finally, both Housing Unit and Neighborhood satisfaction showed significant negative relationships to Intention to Move.

Conclusion and Implication

Almost a third of Boomers in this study intend to move at their retirement. This is surprising since previous reports often cite statistics (AARP, 2003, 2010) that show most adults over 50 want to "age in place". This difference may occur because the current study focused on Boomers (46 to 65 years old) and not on all older adults, and because of the ambiguity of the meaning of "aging in place". The housing market will need to respond to this demand and downtown, apartment, rental properties are the

most likely beneficiaries. Boomers interested in the design and management of their house is likely to be satisfied with their housing, yet they are likely to want to move. This segment is not consistent with the overall findings indicating a negative relationship between satisfaction and intention to move. Since those with the House Oriented lifestyle enjoy working on their home they may want to move so that they can be involved in the challenge of planning and designing a new living space.

This research shows that lifestyle factors can be an important underlying explanation to better understand Boomers' housing satisfaction and intention to move. Traditionally, housing researchers have seen a relationship between housing dissatisfaction and the intention to move. While this is also true in this study, lifestyle explained the intention to move among those Boomers who are satisfied with their current housing.

References

AARP. (2003). These Four Walls: Americans 45+ Talk about Home and Community (pp. 108): American Association of Retired Persons.

AARP. (2010). Aging in Place: A neighborhood group helps older residents stay in their homes longer. Retrieved May 26, 2011 from http://www.aarp.org/home-garden/livable-communities/info-07-2010/aging-in-place.html

Beamish, J. O., Goss, R. C., & Emmel, J. (2006). *Influences on Housing Choice and Behaviors*. New Jersey: Upper Saddle River.

Lee, H. (2005). *Influence of Lifestyle on Housing Preferences of Multifamily Housing Residents.* Dissertation, Virginia Tech, Blacksbrug, VA.

Lynn, D., & Wang, T. (2008). The U.S. senior housing opportunity: Investment strategies. *Real Estate Issues, 33*(2), 33-51.

Schriener, J., & Kephart, M. (2010). Building for Boomers: Guide to Design and Construction. New York City: McGraw-Hill.

Shea, J., & Inman, M. (1994). An ecological model for assessment of housing design for aging populations. *Housing and Society, 2*(3), 91-96.

U.S. Census Bureau. (2009). Facts for features. Retrieved May 22, 2011 from http://www.census.gov/popest/states/NST-ann-est.html

Wells, W. D., & Tigert, D. J. (1971). Activities, interests, and opinions. *Journal of Advertising Research, 11*, 27-35.

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

Specification of Environmentally Responsible Products for

SPECIFICATION OF ENVIRONMENTALLY RESPONSIBLE PRODUCTS FOR RESIDENTIAL INTERIOR ENVIRONMENTS

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Abstract

Environmentally responsible (ER) or sustainable products are expected to cause the least environmental impact on people and the sustainability of the planet (Moussatche, 2008). The challenge with ER specification writing is gaining access to legitimate product information and not information that has been greenwashed, or information that is too difficult to understand, or in many cases information on product that are not available to the public. The purpose of this paper is to report the findings on the feasibility of specification writing for environmentally responsible materials in both the residential design and build industry and residential design curriculum.

This research project stemmed from a classroom service-learning project that involved 19 senior level students taking an advanced residential design methods studio course. As with service-learning projects the focus of the project must be on curriculum and with satisfying a community need. The community partner was a local home builder and the project entailed designing a home exterior and interior for a lot the builder had planned for a spec build. The students had to meet the builder's needs including budget, lot size, builder aesthetics and sustainability. A standard curriculum expectation of students in the senior design studio is that full product specification information is collected for the project. In addition, the client asked that all specifications show as

much information relating to the sustainability of the product's history as possible. Based on the curriculum focus on sustainable design and the client's request for detailed ER product specifications the instructor organized the students' specification collection methods in way to explore the following research questions:

1. What is the feasibility of accessing product history through asking "Questions for Manufacturers" on all products (Foster, Stelmack, & Hindman, 2007, p.86)?

2. What is the feasibility of teaching and learning ER specification writing in residential design curriculum?

Method

The selection of the product sample was assigned by the instructor. The student project teams were required to specify certain products in their home design including but not limited to: front door, flooring, interior paint, and kitchen faucet. There were 70 specifications collected in total. Thirty-five specifications were conventional products and 35 were products deemed environmentally responsible by the manufacturer. The objective was for the students to specify a conventional and ER product that are comparable. For instance, the kitchen faucet would need to have two product specifications, one that is Water Sense (ER product) and one that is non-Water Sense (conventional product) that were around the same style and price range. This allowed for student learning by comparing the products, but also served to focus on research question one.

In order to collect the data across the four student groups a specification template was created by the instructor and revised once it was in use by the students (see Figure 1). The specification template was designed to collect general product

information but also information about the process of gathering ER information. The product history information was guided by Foster, Stelmack, and Hindman's (2007) list of "Questions for Manufacturers" that asks the basic questions required to understand the ER of a product (pp. 86-107). Figure 1 shows a specification template that included the list of "Questions for the Manufacturer" for a flooring tile product. Descriptive statistics will be used to show the findings in the main areas of data collection such as time spent completing the specification and how many of questions were answered by the manufacturer.

Results

Specifications.

From the descriptive statistics and notes on the specification, the main findings suggest that (1) Distributors of the product are not well-versed in ER product information and the manufacturer must be contacted directly. (2) The industry can expect challenges when trying to obtain ER product information from the manufacturer on both ER and conventional products. This research found that some large and established manufacturers believe divulging the answers to the ER product questions is providing the public with private trade secrets. (3) It will take an average of one and half hours to obtain answers to ER product questions and this does not guarantee that the manufacturer can or will answer the questions. (4) Material Safety Data Sheets (MSDS) information may be available but it does not guarantee the information is complete or understandable to the majority of users.

Curriculum and Student Learning.

The majority of the students did not feel discouraged by the challenges faced when attempting to obtain full ER product information. In fact, many felt it had prepared them for what to expect when trying to specify ER products in the future

Conclusion/Implications

There are existing challenges for specifying ER products, and subsequently there are challenges for students' learning about ER specification writing. This project found that the main challenge to ER specification writing is gaining information from the manufacturers, but it was these very challenges that provided excellent opportunities to discuss the current state and future of sustainable design with the students.

Future recommendations for ER specification writing should focus on standardizing the information required from the manufacturer in order to accurately identify the ER product features. Next, the industry will need to continue encouraging third-party certification of products (e.g. Energy Star and GREENGUARD) and online databases that showcase ER products (e.g. Green Spec® Product Guide and Greener Product). Although, relying on established product databases and third-party certifiers does not guarantee that the product meets the ER requirements for unique project needs. Thereby, the responsibility of ER product specification is based in the overall knowledge and decision making of the individual specifying the product.

It is recommended that senior or graduate level students seek full ER product information. The instructor used the experience and findings as an opportunity to critically discuss the state of the sustainability from the field perspective and what it means for the future of the industry. The students should be empowered to learn ER

specification writing is in need of research and development to successfully continue the

design and build of sustainable structures.

References

Foster, K., Stelmack, A., & Hindman, D. (2007). *Creating sustainable residential*

interiors. NY: Wiley.

Moussatche, H. (2008). Specifications of products for environmentally responsible

interior design. In L. Jones (Ed.), *Environmentally responsible design: Green and*

sustainable design for interior designers (pp.289-336). Hoboken, New Jersey:

Wiley & Sons.

Figure 1
Environmentally Responsible Product Specification Template

Project Name:

Area for item to be used/ applied: Time Allocated:

Item Type: (circle one)

Concrete Openings Finishes Equipment Furnishings Mechanical Electrical

Quantity: _____ Check
one that applies ☐ Sustainable Option ☐ Conventional Option

Room/Schedule Code:

Product:

Manufacturer:

Model/Item #:

Cost:

Total:

Color:

Dimensions:

Manufacturer and/or Vendor Website(s):

Universal Design Features:

Sustainability Features:

Notes (Install Instructions):

Cleaning:

Handouts available for home owner care manual? ☐ Yes ☐ No

        If yes, please attach information to include in homeowner product care manual

Product Image:

Figure 1 (continued)
Environmentally Responsible Product Specification Template

Is there a 3-Part *MasterFormat* Manufacturer Spec Available? ☐ Yes ☐ No

If yes, please attach to specification.

Is there a MSDS Available? ☐ Yes ☐ No

If yes, please attach to specification.

Were you able to ask the manufacturer the questions? ☐ Yes ☐ No

If yes, what percent of your questions were answered clearly by the manufacturer?

☐ 0% ☐ 1-5% ☐ 5-15% ☐ 15-30% ☐ 30-45% ☐ 45-60% ☐ 60-80% ☐ 80-100%

List of "Questions for Manufacturers" Product History (Foster, Stelmack, & Hindman, 2007, p.92). CSI Division # 9 – FINISHES (Flooring- Stone Tile or Flooring)

Q1. Where is it quarried?
A1.

Q2. How rare is it?
A2.

Q3. What is the process used for quarrying?
A3.

Q4. What percent of it, if any, is reclaimed?
A4.

Q5. How does the quarry give back to the land, town, or community?
A5.

Q6. Where is it fabricated and finished?
A6.

Q7. Can you recommend or use adhesives, grout, mortar, or sealants without solvents, additives, formaldehyde?
A7.

Figure 1 (continued)
Environmentally Responsible Product Specification Template

Q8. How does the manufacturing process use water and energy efficiently?
A8.

Q9. Does the product off-gas or emit toxins to installers or end users?
A9.

Q10. What sustainable manufacturing processes do you use?
A10.

Q11. How is it packaged and shipped?
A11.

Q12. Can packaging be returned for reuse?
A12.

Q13. Where does the waste go?
A13.

Q14. How is the waste safely dispose or reused?
A14.

Q15. Does the product or its waste emit toxins into the land at disposal?
A15.

Q16. Are there recycling programs in place that assist in the recycling of this product?
A16.

Product Cost Comparison		
	Sustainable Product	Conventional Product
Product & Manufacturer		
Price per x (you list if unit, sq. ft, linear ft, etc…)		

THE ASPIRE CLINIC: AN INTERDISCIPLINARY CLINIC MODEL OF CARE THAT OFFERS RESIDENTIAL DESIGN SERVICES

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Abstract

The ASPIRE Clinic is an innovative model of care that offers holistic care through access to diverse service providers working together in one venue. In the Fall of 2010 the clinic began to offer residential design services. Residential designers can improve the health and well being of families by improving the built environment of the residence. Fostering public awareness towards the importance of a healthy and efficient family residence can improve individual health, decrease medical conditions and improve residential satisfaction. Unique to the ASPIRE Clinic is the interdisciplinary care being offered, however, the recent addition of residential design services into the clinical care model has been challenging. This report will describe the mission, history and services offered through the ASPIRE Clinic. Next, the report will discuss the advantages of offering design services in this setting. Further discussed with be the challenges identified and the possible solutions of offering residential design services in this type of clinical setting.

About the ASIPRE Clinic

The Mission of the Clinic.

The ASPIRE Clinic is supported through the land-grant University system and the three pillars of research, instruction, and service support the operational structure of the clinic. The service objective of the ASPIRE Clinic is to offer the community with one venue where diverse but related services can be obtained for a fee decided by an income based sliding scale. The Clinic is a teaching facility and all the student service providers are mentored through faculty supervision. The Clinic is also a research facility that provides many opportunities for innovative interdisciplinary research collaborations.

The History of the Clinic.

Prior to forming the interdisciplinary ASPIRE Clinic in 2009, the clinic was an established center that solely provided Marriage and Family Counseling for the public. The idea to turn the center into a clinic offering more services than just Marriage and Family Counseling grew from the desire and ability to offer diverse but holistic care. It was from the idea of holistic care that the center became the ASPIRE Clinic and additional services, including residential design services, were introduced.

The Holistic Services Currently Offered by the Clinic.

The ASPIRE Clinic is affiliated with a College of Family and Consumer Sciences and five of the six disciplines offering services stem from the supporting college. The ASPIRE Clinic provides services that include mental health, personal relationships, financial therapy and/or planning, legal problem solving, nutritional wellness, and

residential design needs. The community is encouraged to use any variation of the services offered in order to receive well-rounded care. For example, a couple can begin with marriage counseling and soon identify that financial therapy services are also needed. The family can then easily gain counseling from diverse service providers. Moreover, the service providers can work together on client cases in order to provide the client(s) with the most optimum and holistic care available.

Residential Services and the ASPIRE Clinic

Advantages of Offering Residential Services in a Clinic Setting.

The ways that residential designers can assist the public are very broad and are solely based on the specific needs of each individual and/or family. Services include both the consulting and/or practice of disability related needs, aging related needs, lowering energy expenses, health concerns in the home and organization and storage. A couple in marriage counseling might identify financial issues are straining the relationship. One solution to the financial aspect could be lowering housing expense through weatherization of the home, and it is in this scenario that the residential design services become part of the holistic care solution.

Challenges of Offering Residential Services in a Clinic Setting.

There have been challenges regarding the addition of residential design services into the existing therapy based structure of the clinic. The three main challenges in adding residential design services include: (1) Education of the collaborators from the other disciplines about residential design services and the feasibility of inclusion as a

service offered by the clinic. It is challenging to describe the diversity of services offered by designers and the feasibility of offering the services through the clinic. (2) The operational management of offering design services through the clinic requires that different procedures are used that are not clinical in nature. For instance, one main difference between the therapy model of care and the design model of business is that the student designers need to conduct home visits and have casual and frequent client interactions. Whereas, it is critical that the student counselors in the other disciplines must retain privacy from clients outside of the therapy setting. In addition, the fee structure for offering the residential services needs to be different than the other disciplines. (3) Some modifications to the residential design services are in the process of being revisited and possibly changed or removed to better fit working within the clinic setting. Although the services originally offered are important to provide for the public, some services may not be feasible to offer through the clinic, and these challenges and the possible solutions are currently being identified as new client interactions occur and are evaluated for feasibility and success.

Limitations of Current Report

This report is an informal account examining the residential services over the inaugural year of offering these services. Empirical evidence had not been collected at this stage because development, operation and management of the service in the clinic setting has been the focus.

Implications and Conclusion

The ASPIRE Clinic is one of the first clinics to offer this model of holistic care. Even though there have been some challenges in developing and managing an interdisciplinary clinic, the benefits supersede the challenges. Research and experience with more client cases will assist the Clinic with developing the clinic to its optimum potential. Residential design services will continue to serve an important role in the creation of a holistic model of care.

EXPLORING 2006 AND 2009 LENDING PATTERNS IN RURAL NORTH CAROLINA

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Introduction

Rural residents have few options for prime loans, and therefore, predatory (subprime) lending is often the only option for low-income and minority communities (Housing Assistance Council, 2011). From the Carsey Institute (2006), high APR (annual percentage rate) loans are a factor in predatory lending and are concentrated in *rural* areas with chronic poverty and a high proportion of minorities, and ties to *manufactured housing*, which represents 15% of the rural housing market.

In a depressed economy, such lending trends are particularly noted in North Carolina where (a) 85% of counties are designated as rural (NC Rural Economic Development Center, Inc., 2010); (b) mortgage borrowers were 20% more likely than those in the nation to receive a subprime loan (Center for Responsible Lending, 2002); and (c) NC ranks third among states for new manufactured housing shipments (U.S. Census Bureau, 2010).

The NC homeownership rates in the past decade were relatively higher than the U.S. total homeownership rates. In 2005, the NC housing market experienced a housing booming with 70.9% homeownership rate (as cited in Finance-Data.com, 2010), compared to the total U.S. homeownership with 68.9% (U.S. Census Bureau, 2009). Such a high homeownership rate in NC influenced housing affordability or foreclosure

issues currently. From the Center for Responsible Lending (2008), the subprime

foreclosure rates in NC increased three fold in recent years from less than 17,000 in

1998 to 50,000 in 2007; and the proportion of 2006 home loans to African-American

families that were subprime was 43%. Therefore, it is important to note changes in

lending characteristics in rural North Carolina in the late 2000s when the United States

experienced both a housing boom and a housing crisis.

Methodology and Procedures

The authors employed a secondary dataset, the 2006 and 2009 Home Mortgage

Disclosure Act Loan Application Register (HMDA LAR) provided the by Federal

Financial Institutions Examination Council and selected only loans that originated in

rural NC (N=165,011 in 2006 and N=129,286 in 2009).

In this study, rural areas were those where a population density was no more

than 250 people per square mile following the definition of the U.S. Census 2000 (as

cited in NC Rural Economic Development Center, Inc., 2010). To distinguish low-

income groups and minority regions, HUD estimated median family incomes in NC

($53,800 in 2006 and $57,000 in 2009) and the U.S. Census Bureau's racial percentage

were used in this study [The percentage of minority population (non-Whites alone and

non-Hispanic and Latino) to total population for tract in 2006 was 31.6% and that of

2009 was 33.2%]. If a loan applicant earned family income of less than the HUD

estimated median family income in NC, the applicant was considered a low-income

group. If a loan applicant lived in the area where the minority population percent of the

HMDA was higher than U.S. Census Bureaus' minority population percent, the applicant

was considered as living in the high-minority area. The Statistical Package for the Social

Sciences (SPSS) version 18 and descriptive statistics were employed to provide the lending profiles of 2006 and 2009 in rural NC areas.

Findings

From the descriptive statistics results, there were important changes in the lending profiles in years 2006 and 2009 (Table 1).

Important Changes in Applicant Information

- The loan applicants who referred to themselves as *Black or African-American* dropped from 9.7% in 2006 to 6.2% in 2009, compared with 78% and 83% for Whites respectively.

- Regarding sex, as of 2006, 67.6% were male while 27% were female. In general, the percentage of males was higher than that of female heads of households in 2006 and 2009. When comparing the numbers of female applicants in 2006 (27%) with the female applicants in 2009 (23.2%), there was a decrease of 3.8%.

- The loan applicants who lived in high minority areas had a decrease from 24% in 2006 to 19.3% in 2009.

- When comparing the numbers of applicants having a family income of less than $50,000 in 2006 (32%), those in 2009 had decreased by 4.4% to a percentage of 27.6%.

Important Changes in Loan Information

- Between 2006 and 2009, the proportion of conventional loans decreased. In 2006, 93% of all loans in rural NC areas were defined as conventional loans and only 11% were government insured or guaranteed loans. However, in 2009, 73% were defined as conventional loans, and 27% were government related loans.

- The primary loan purpose also changed. In 2006, more than half (53%) of all loans were borrowed for home purchases; but in 2009, 68% of all loans were used for refinancing.

- When comparing the numbers of loans for manufactured housing in 2006 (6.7%) with the manufactured housing loans in 2009 (4.6%), the decrease was 2%.

- Loans with *preapproval requested* decreased. In 2006, almost 23.4% were loans where preapproval was not requested; but only 13% were loans where preapproval was not requested in 2009.

- Regarding purchaser type, the proportion of the secondary mortgage programs (Fannie Mae, Ginnie Mae, and Freddie Mac) showed an increase. However, when comparing the numbers of loans which were not sold in the calendar year of 2006 (42.1%) with those in year 2009 (24.6%), these loans reflected a decrease of almost 18%.

Conclusions and Implications

An important value of the study was documentation of the 2006 and 2009 lending profiles of NC rural residents. From the descriptive statistics, rural NC areas showed different lending profiles between 2006 and 2009, which implies lending disparities. In 2009, those who were minorities (African-Americans), females, and lower-income, and lived in manufactured housing in rural NC areas were less likely to receive loans than those in 2006. Another consideration was the change in the primary loan purpose from home purchases in 2006 to refinancing in 2009. The current economic crisis has led to unemployment and financial difficulties, which is likely to cause them to borrow money for their living.

Further analysis is needed to determine which changes are significant and which comparisons with other state, regional and national data will add to the understanding of lending issues. Data analyses with the secondary datasets, like HMDA, can assist housing researchers, educators, nonprofit organizations, or policymakers in their future studies or policies.

References

Carsey Institute. (2006). *Subprime and predatory lending in rural America: Mortgage lending practices that can trap low-income rural people*. Retrieved from http://www.carseyinstitute.unh.edu/publications/PB_predatorylending.pdf

Center for Responsible Lending. (2002). *North Carolina's subprime home loan market after predatory lending reform.* Retrieved from http://www.responsiblelending.org/ mortgage-lending/researchanalysis/HMDA_Study_on_NC_ Market.pdf

Center for Responsible Lending. (2008). *Foreclosures and lost wealth from subprime lending in North Carolina*. Retrieved from http://www.responsiblelending.org/north-carolina/nc-mortgage/research-analysis/nc-snapshot-04-23-08.pdf

Finance-Data.com. (2010). *Home ownership rate for North Carolina*. Retrieved from http://finance-data.com/series/NCHOWN

Housing Assistance Council. (2011). *Foreclosure in rural America: An update.* Retrieved from http://www.ruralhome.org/storage/documents/rcbiforeclosure brief.pdf

NC Rural Economic Development Center, Inc. (2010). *Rural/urban counties in North Carolina.* Retrieved from http://www.ncruralcenter.org/grantee-reportingforms. html

U.S. Census Bureau. (2009). *Housing vacancies and homeownership (CPS/HVS).* Retrieved from http://www.census.gov/hhes/www/housing/hvs/annual09/ ann09ind.html

U.S. Census Bureau. (2010). *Manufactured housing shipment summary report - by state: October 2010*. Retrieved from http://www.census.gov/const/mhs/ shipmentstostate2010.pdf

Table 1.
2006 and 2009 Lending Profiles of Rural NC Areas

	2006 (*N*=165,011)		2009 (*N*=129,286)	
	n	%	n	%
Ethnicity				
Hispanic or Latino	5,066	3.1	2,838	2.2
Not Hispanic or Latino	143,048	86.7	114,687	88.7
Applicant Race				
American Indian or Alaska Native	1,200	.7	740	.6
Asian	1,295	.8	982	.8
Black or African American	15,967	9.7	7,967	6.2
Native Hawaiian or Other Pacific Islander	488	.3	316	.2
White	128,572	77.9	107,261	83.0
Sex				
Male	111,512	67.6	91,854	71.0
Female	44,530	27.0	30,040	23.2
High/Low Minority Areas				
Low minority areas	125,223	75.9	104,190	80.6
High minority areas	39,582	24.0	25,010	19.3
Income Levels				
High income	95,232	57.7	72,362	56.0
Low income	60,619	36.7	45,090	34.9
Applicant Income				
1 Less than $25,000	8,063	4.9	4,800	3.7
2 $25,000 to $34,999	15,426	9.3	9,784	7.6
3 $35,000 to $49,999	29,446	17.8	21,010	16.3
4 $50,000 to $74,999	41,008	24.9	30,136	23.3
5 $75,000 and more	61,908	37.5	51,722	39.9
Loan Type				
Conventional (any loan other than FHA, VA, FSA, or RHS loans)	152,594	92.5	94,359	73.0
FHA-insured (Federal Housing Administration)	6,053	3.7	18,279	14.1
VA-guaranteed (Veterans Administration)	5,801	3.5	12,203	9.4
FSA/RHS (Farm Service Agency or Rural housing Service)	563	.3	4445	3.4
Property Type				
One to four-family (other than manufactured housing)	153,700	93.1	123,184	95.3
Manufactured housing	11,105	6.7	5,980	4.6
Multifamily	206	.1	122	.1
Loan Purpose				
Home purchase	86,741	52.6	37,857	29.3
Home improvement	10,514	6.4	4,213	3.3
Refinancing	67,756	41.1	87,216	67.5
Preapproval				
Preapproval was requested	4,653	2.8	2,570	2.0
Preapproval was not requested	38,671	23.4	16,331	12.6
Not applicable	121,687	73.7	110,385	85.4
Purchaser Type				
Loan was not originated or was not sold in calendar year covered by register	69,436	42.1	31,747	24.6
Fannie Mae (FNMA)	17,300	10.5	19,659	15.2
Ginnie Mae (GNMA)	4,908	3.0	12,922	10.0
Freddie Mac (FHLMC)	13,493	8.2	25,156	19.5
Farmer Mac (FAMC)	50	.0	11	.0
Private securitization	5,984	3.6	247	.2
Commercial bank, savings bank or savings association	8,213	5.0	14,372	11.1
Life insurance company, credit union, mortgage bank, or finance company	13,358	8.1	7,302	5.6
Affiliate institution	11,320	6.9	5,104	3.9
Other type of purchaser	20,949	12.7	12,766	9.9

	N	Min.	Max.	M	SD
2006 Loan Amount	165,011	1,000	38,000,000	142,561.71	204,506.403
2009 Loan Amount	129,286	1,000	6,900,000	173,410.74	123,639.809

TWEET IT UP! THE USE OF SOCIAL MEDIA IN INSTRUCTIONAL DESIGN

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Introduction

Professors employ a variety of instructional methods. Twitter, a social media microblog, was utilized as a method of instructional design in Managing Affordable and Specialized Housing (Course #123). A semester-long assignment provided an opportunity to expose students to the vast and efficient communication network of Twitter and required them to use the medium as a source for information from housing industry experts. Students tweeted in groups of three in the collaborative learning environment of Twitter. The assignment had students following leading professionals and trade associations related to 1) military housing, 2) student housing, 3) affordable housing, and 4) community associations. Students created dialogue with professionals and associations by asking them questions about the four specialized housing industries.

The purpose of this presentation is to share information regarding the data collected and analyzed in #123, discuss challenges experienced with project coordination, and identify social media trends and lessons learned from the Twitter assignment. The benefit of creating personal learning networks (PLNs) (Warlick, 2009) within Twitter will also be presented. Finally, reflection upon the project to understand

what occurred, what were the successes, how and why decisions occurred, and how it can be implemented in other courses and scenarios will be discussed.

Literature Review

Twitter, a microblog limited to 140 characters, began in 2006. According to McFedries (2007), a "microblog can be seen as a weblog that is restricted to 140 per post but is enhanced with social networking facilities" (p. 84).

PLNs have historically been created through family, friends, colleagues, books, textbooks, periodicals, television, radio, and experience. "Information and communication technologies, including an ever-growing repertoire of open source applications, have free content from the printed page, giving voice to the ideas of people we have never had access to before and enabling us to reshape our information experiences to suit our learning needs. Harnessing these new technologies to create and grow our own PLNs is imperative for educators who want to stay connected to the changing world we are charged with introducing to our students" (Warlick, 2009, p. 13). Students created their own PLNs through selecting people to follow on Twitter.

In a case study reported by Ebner, et al (2010), Twitter was used to foster informal and process-oriented learning. The results of the case study showed that Twitter supported an informal learning due to its informal communication and its transparency. Additionally, Twitter supported process-oriented learning by a "constant information flow between students and between students and teachers" (Ebner, et al, 2010, p. 99).

Grosseck and Holotescu (2008) explored and experimented with Twitter as an

educational tool. Some of the techniques they employed were: course blog, reference/research, facilitating a virtual classroom, creating a learning experience, and a tool for assessing opinion. Grosseck and Holotescu (2008) surmised that Twitter can have a positive impact on instruction due to the following factors: 1) Engaging education and sharing best practices, 2) It changes classroom dynamics and connects students to the "real world", 3) It connects people who may not have met otherwise, 4) It tracks conversations, 5) It's a new and fun form of learning, 6) 140 characters keeps announcements limited and focused, and 7) Professors make themselves available outside the classroom.

Assignment Background

Employers expect students to be functional in social media upon hiring. Therefore, students in #123 were instructed to engage in dialogue with industry professionals via tweets throughout the semester to learn about student, military, and affordable housing and community associations. Students documented their thoughts, reactions, and knowledge through video logs (vlogs) and through a final poster presentation at the end of the course.

Students were instructed to include a specific hashtag (#) with all of their tweets. Through use of a specified hashtag, students in #123 could sort and search for course-related tweets. Also, through the use of a hashtag, tweets could be archived and analyzed. All tweets were archived through TwapperKeeper, an online tweet storage service. Tweets were analyzed through The Archivist, an online Twitter hashtag analysis service.

Results

Students' archived tweets provided data of top twitterers, hashtags, conversations, and words. The data showed that the same group of students tweeted regularly. Twitter requires self-starters due to the manner in which you find people to follow. Feedback from the students indicated slow responses from professionals and associations became frustrating; however it was still a very powerful communication venue. Students felt it was a collaborative and comfortable learning environment.

In order to obtain quantitative data regarding students' experience regarding Twitter, #123 students completed The Use of Social Media in Instructional Design Survey in Spring 2011. The purpose of the survey was to determine challenges experienced with the Twitter project, discover the importance of utilizing social media in instructional design, and identify any social media trends within instructional design. The sample size of the survey was 15.

Survey results indicated 53% did not have a Twitter account prior to #123 and 93% of all #123 accounts are still active. Almost 90% of the students rated their Twitter experience as Good or Very Good. Students stated Twitter as an instructional method "diversified my field of knowledge" and provided "networking opportunities with industry professionals". Close to 70% of students would like to use Twitter in future classroom settings and 87% believe Twitter will become more popular in future classroom settings. Only 53% believe Facebook will become more popular in future classroom settings. Inconsistent and delayed responses from industry professionals were experienced by 80% of students. Students also commented determining who to "follow" was difficulty and the 140-character limitation was difficult.

Conclusion

Employers demand graduates who have command of technology and social skills. Twitter is a convergence of the two. Housing faculty should consider using Twitter and hashtags in other courses due to its ease of use and students' willingness to tweet. Twitter is an effective Personal Learning Network where students created an informal learning community through selecting people to follow. Instruction through Twitter should be encouraged as it has shown to have a positive impact on instruction.

References

Grosseck, G. & Holotescu, C. (April 2008). *Can We Use Twitter For Educational*

Activities? Paper presented at the International Scientific Conference

eLearning and Software for Education, Bucharest, Romania.

Ebner, M., Lienhardt, C., Rohs, M., & Meyer, I. (2010). Microblogs in Higher

Education – A Chance to Facilitate Informal and Process-Oriented

Learning? *Computers & Education,* 55, 92 – 100.

McFedries, P. (October 2007). All A-Twitter. *IEEE Spectrum, p. 84.* Retrieved

May 29, 2011 from http://spectrum.ieee.org/computing/software/all-atwitter.

Warlick, D. (March/April 2009). Grow Your Personal Learning Network. New

Technologies Can Keep You Connected and Help You Manage

Information Overload. *Learning & Leading with Technology.* March/April, 12-16.

A DEMOGRAPHIC PROFILE OF LOW-INCOME SOUTHERN MINORITIES:

THE 2009 AMERICAN HOUSING SURVEY

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The biennial American Housing Survey (AHS), sponsored by the U.S. Department of Housing and Urban Development and conducted by the U.S. Census Bureau, provides household demographic data that can be investigated for its influence on housing issues and concerns. This aspect of the AHS is especially critical today as we consider the housing challenges of the growing diversity of our population, as influenced by immigrants and minorities. Further, the AHS data can allow study of unique demographic trends in regions and select population groups which might not be revealed in other national data. Using data from the most recent 2009 AHS, this paper presents demographic trends in the Southern[1] region of the U.S., focusing on low-income minorities (non-Whites).

Increasing Number of Minorities

The United States is experiencing rapid increases in minority (non-White) populations. The 2010 Census revealed that Blacks/African Americans represented about 13% of the population and Asians about 5%, not considering mixed racial categories. Hispanics /Latinos, which are not a racial category, represented about 16% of the population. Of the total non-Hispanic/Latino population, Whites are about 64% (U.

S. Bureau of the Census, 2011). From Frey's (2006) analyses based on U.S. Census sources, fast rates of Hispanic growth in the U.S. are seen in large *Southern* metro areas, including those in North Carolina, Tennessee, Georgia, Florida, and Oklahoma.

Relatively Lower Income Levels

According to the Joint Center for Housing Studies of Harvard University (2010), median incomes of minority households are lower than those of White households. According to Noss (2010), based on the 2008 and 2009 *American Community Survey* of the Census Bureau, household incomes in 13 out of 17 states in the *South* were below the U.S. median (2009 U.S. median household income = $50,221).

Sample Selection

To select a subsample of Southern low-income minority households from the 2009 American Housing Survey (AHS) national sample, the following procedures were used:

1. A category, *South*, from a variable REGION, was selected.

2. The variable, *race1*, was used when determining a minority group. The race variable was categorized into 21 groups. *Minority*[2] included all race categories (2-21) except *White Only* (1).

3. A low-income group was developed using the variable related to family income (zinc). If a household head earned family income less than $50,221 (2009 U.S. median household income), the head was considered as a low-income group.

The useable sample was 2,304 low-income minority household heads in the Southern U.S., 70.5% of the total minority household heads in the South. The Statistical Package for the Social Sciences (SPSS) version 18 was used to describe data for this

study. Descriptive statistics (frequencies, percentages, and means) were employed for the Southern U.S. low-income household heads' demographic characteristics.

Findings: Demographic Profile of Low-Income Minorities in the

Southern United States

Only 12% of the sample was foreign-born. Average age of the household head was almost 49 years. Education levels and family income were relatively low in that 59% reported being a high school graduate or less and 58% earned less than $25,000. Their household sizes were relatively small with $M = 2.35$ persons. Most were not married (76%) and female (62%). The majority lived in urban areas (66%), and less than half of the sample was homeowners (45%, Tables 1 and 2).

Discussion and Conclusion

The Theory of Housing Adjustment (Morris & Winter, 1975, 1978) postulates that an important factor in the adjustment process to achieve housing satisfaction is overcoming constraints. This demographic profile reveals income as a housing constraint and thus a housing challenge for low-income Southern minorities. In this study, less than half of the sample was homeowners (44.5%). Low-income minority households that are homeowners are likely to have purchased homes with below median prices which are more likely to be inadequate, and they would be more likely to be challenged to maintain these homes. From the Joint Center for Housing Studies of Harvard University (2010), the median home price in 2009 was $172,100. Assuming a 30-year mortgage with 10% down payment and 5% mortgage rate, a homeowner would pay $835 per month as an after-tax mortgage payment, unaffordable to most households in this sample, even considering regional differences.

In this study, more than half of the sample were renters (55.4%) and lived in urban areas (65.6%). Renters and households living in apartments in urban areas may have more options for housing than in rural areas. However, renters in this study also had housing affordability issues. A Fair Market Rent (FMR) is the U.S. Department of Housing and Urban Development's best estimate of *rent and utilities* for a modest rental unit in the current market, using approximately 30% of household income (Wardrip, Pelletier, & Crowley, 2009). The national 2009 FMR for a 2 bedroom housing unit was $928 a month (Wardrip et al., 2009). As a comparison, to spend 30% of income for housing would require a household to earn $37,105, which is more than 78% of the sample reported as income (Table 1).

Other factors that could compound housing challenges were also identified for further investigation. Lack of education limits opportunities to increase earning potential. The high percentage of this sample of household heads that are not married and/or female suggests single-parent, one-income households with their multiple challenges. Sex of a household head can act as a constraint where the purveyors of housing view women, particularly low-income minority women who are household heads of families, as undesirable neighbors, tenants, or poor credit risks, regardless of income or social status. Finally, immigrants (foreign born) in this sample may face further housing challenges due to language and cultural barriers.

References

ICF International. (2009). *Codebook for the American Housing Survey, public use file: 1997 and later.* Retrieved from http://www.huduser.org/Datasets/ahs/AHS_Codebook.pdf.

Joint Center for Housing Studies of Harvard University. (2010). The *state of the nation's housing 2010*. Retrieved from http://www.jchs.harvard.edu/publications/markets/son2010/son2010.pdf.

Morris, E. & Winter, M. (1975). A theory of family housing adjustment. *The Journal of Marriage and the Family, 37*(1), 79-88.

Morris, E. & Winter, M. (1978). *Housing, family, and society*. New York: John Wiley & Sons, Inc.

Noss, A. (2010). *Household income for states: 2008 and 2009 – American Community Survey briefs.* Retrieved from http://www.census.gov/prod/2010pubs/acsbr09-2.pdf.

U. S. Bureau of the Census. (2011). *American FactFinder.* Retrieved from http://factfinder2.census.gov.

Wardrip, K. E., Pelletiere, D., & Crowley, S. (2009). *Out of reach 2009.* National Low Income Housing Coalition. Retrieved from http://www.nlihc.org/oor/oor2009/oor2009pub.pdf.

Footnotes

[1] The Southern region is defined as Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas (ICF International, 2009).

[2] *Minority* as used in this study does not include Hispanics. Almost 93% of Hispanics are categorized as *White Only (1)* in AHS (ICF International, 2009). Hispanic/Latino is not a race category. It is a limitation of our study that the race variable did not allow us to specifically include Hispanics as a minority. Therefore, if a researcher wants to explore a minority sample including Hispanics, additional variables from the AHS would need to be considered.

Table 1

Demographic Profile: Categorical Variables (*N* = 2,304)

Demographic Variable	n	%
Citizenship		
Native, born in U.S.	2,002	86.9
Native, born in Puerto Rico or U.S. outlying area	19	.8
Native born abroad of U.S. parent(s)	19	.8
Foreign-born, U.S. citizen by naturalization	129	5.6
Foreign-born, not a U.S. citizen	135	5.9
Education		
Less than high school	564	24.5
High school graduate	785	34.1
Some college or associate degree	663	28.8
Bachelor's degree or more	292	12.7
Family income		
Less than $25,000	1,326	57.6
$25,000 to $34,999	479	20.8
$35,000 to $49,999	451	19.6
$50,000 to $50,220	48	2.1
Marital status		
Married	548	23.8
Not married	1,756	76.2
Sex		
Male	869	37.7
Female	1,435	62.3
Geographical location (Central city/Suburban)		
Urban	1,511	65.6
Suburban	488	21.2
Rural	305	13.2
Tenure status		
Own or buying- regular	1,027	44.6
Rent for cash	1,216	52.8
No cash rent	61	2.6

Table 2

Demographic Profile: Continuous Variables (*N* = 2,304)

Variable	N	Min.	Max.	M	SD
Age	2,304	17	93	48.74	17.684
Family income	2,304	0	50,200	21,564.13	14,257.454
Household size	2,304	1	14	2.35	1.520

PHOSPHOROUS IN THE WATER: BEST MANAGEMENT PRACTICES FOR RESIDENTIAL SETTINGS

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Background

Academics across all disciplines write about water. Others, including engineers, architects, developers, and builders have introduced features that consumers enjoy most in neighborhoods. These features include resource-intensive landscapes consisting of large lots, manicured lawns, and a variety of impervious surfaces. These desirable characteristics create externalities that may have an adverse impact on water quality. Water is an essential resource. As human scientists in the areas of housing and environment, we are charged with researching ways to prevent pollution, improve water quality, and conserve resources.

Why we care about phosphorous (P) in water

Phosphorus (P) occurs naturally in deposits of apatite, where it is mined and processed as a highly soluble P fertilizer. Phosphorus is a "macro-nutrient" necessary for all forms of life and is needed for crop and plant production in relatively large amounts. Although excess P in terrestrial ecosystems is not significant, excess P concentrations in surface waters can cause eutrophication, resulting in explosive plant

and algae growth (US Environmental Protection Agency, 2011). Surface water bodies suffering from eutrophication have significant problems, including but not limited to low dissolved oxygen levels (detrimental to aquatic life such as fish) and increased costs associated with drinking water treatment.

From residential uses, lawn fertilizer is perhaps the largest source of phosphorus in stormwater runoff (Bierman, Horgan, Rosen, Hollman, & Pagliari, 2010). Residential soils become "high" in P when P fertilizer applications exceed turfgrass requirements, causing P to accumulate and potentially become a non-point source. Even if all P applications within the watershed cease, it will take years for soil P levels to decrease. During that time, dissolved P can be transported to waters during runoff events.

Traditional best management practices (BMPs) such as storm water retention basins and vegetative filter strips are only capable of removing P that is sorbed onto soil particles suspended in runoff. The term sorb refers to "the combined processes of adsorption and precipitation of P from dissolved to solid forms" (Chad J. Penn, Bryant, Kleinman, & Allen, 2007, p. 269). Such BMPs do little for preventing dissolved P losses.

Best management practices: Phosphorus removal structures for improving water quality

P removal structures are a new best management practice for preventing P losses. A P removal structure is a unit filled with a P sorption material (PSM; material with a high affinity for P) placed in a hydrologically active area with high P runoff water. The P removal structure is designed such that runoff water is channeled, which allows water to come into contact with the PSMs and reduce P level. At this point, low P water drains from the structure. The advantage of using PSMs in a P removal structure is that

the P saturated PSMs can be removed. This represents true P removal from the watershed instead of temporarily reducing the solubility and mobility of soil P.

Phosphorous removal in a residential setting: Passive filtration

Residential areas are ideal applications for P removal structures. Residential areas are not only non-point P sources, but many housing developments are already designed to channel water via drainage ditches and storm water retention basins; this makes addition of a P removal structure to such a setting accommodating. For example, a P removal structure was constructed by Stillwater, OK, in a residential watershed (150 acres) that produced high dissolved P concentrations in runoff at the watershed outlet. Computer modeling estimates the necessary amount of a particular PSM required for a site, predicts how long it will last, and estimates how

much P it will remove.

Figure 1.The ditch filter designed to capture and filter high phosphorus runoff from part of Stillwater Country Club and surrounding residential area.

After six months of operation, this P removal structure with steel slag as the PSM was able to remove 25 percent of all dissolved P that flowed into it (Chad J Penn, Bryant, Callahan, & McGrath, 2011).

<u>Cooperative Extension: Helping a neighborhood get acquainted with P removal</u>

Oklahoma political culture limits certain environmental regulations, including stormwater. Instead of regulation, consumer behavior is guided by public education (Whittenburg, 2010). According to Stillwater Stormwater Program Manager Cody Whittenburg, the largest threat to local stormwater is the collective action of homeowners (C. Wittenberg, personal communication, May 27, 2011).

We have identified an ideal neighborhood for a P removal structure. The neighborhood, Berry Creek, is a high-end neighborhood, established around 2003. Berry Creek features lawns, vegetable gardens, swimming pool, clubhouses, parking, paved roads, sidewalks, and creeks. Importantly, Berry Creek is located in a regulation-apprehensive, rural environment. As a retrofit, it may be difficult implement a P removal structure. Although green is the color of the day, an important point to consider is the counter intuitiveness of conservation. Homeowners may embrace greening the environment, but this might not match their preferences and revealed behaviors for resource intensive landscapes. Here, Cooperative Extension can make a difference. Cooperative Extension has addressed water quality protection from the residential standpoint, mostly via the research-based, unbiased Home*a*Syst program.

Cooperative Extension can serve as catalyst, facilitating pollution prevention strategies and behavior change when economic incentives are lacking. In times of decreasing property values, Extension can assist. Consumers may be willing to pay to live "greener" neighborhoods. This program will highlight beginning interactions between Cooperative Extension, local government, and Berry Creek as related to water quality through P removal computer modeling and structures.

References

Bierman, P. M., Horgan, B. P., Rosen, C. J., Hollman, A. B., & Pagliari, P. H. (2010). Phosphorus runoff from turfgrass as affected by phosphorus fertilization and clipping management. *Journal of Environmental Quality, 39*(1), 282-292.

Penn, C. J., Bryant, R., Callahan, M., & McGrath, J. (2011). Use of industrial by-products to sorb and retain phosphorus. *Communications in Soil Science and Plant Analysis, 42*(6), 633-644.

Penn, C. J., Bryant, R. B., Kleinman, P. J. A., & Allen, A. L. (2007). Removing dissolved phosphorus from drainage ditch water with phosphorus sorbing materials. *Journal of Soil and Water Conservation, 62*(4), 269.

US Environmental Protection Agency. (2011). Basic information: What is the problem? Retrieved May 20, 2011, from http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/basic.cfm

Whittenburg, C. (2010). Stormwater programs: City Council study session. Retrieved May 28, 2011, from http://www.slideshare.net/CityofStillwater/stormwater-programs

INDUSTRY PERSPECTIVES ON FACTORS DRIVING AND LIMITING GREEN BUILDING INITIATIVES IN MULTIFAMILY HOUSING

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Introduction

As the housing market rebounds from one of the worst downturns since the 1940s, owners and managers of multifamily properties are searching for innovative ways to stabilize their balance sheets and increase Net Operating Income. From a revenue perspective, these owners are counting on two primary demographic shifts, immigration and the surge of Echo Boomers, to enter the rental market (NMHC, 2011). Alternatively, owners are also searching for ways to reduce operating expenses and stabilize occupancies by appealing to a market of renters that is "eco-friendly" and socially conscious.

Today, one-third of U.S. households, or 39 million, rent their homes and forecasters estimate the need for another 3.8 million rental units between 2010- 2020 (NMHC, 2011). In addition, multifamily housing is a major component of the residential sector which is responsible for about 21 percent of total energy consumption and about 22 percent of total carbon emissions from fossil fuel combustion in the United States (EPA, 2011).

These statistics highlight just a few of the reasons that multifamily owners and operators are examining their sustainable practices particularly amid an onslaught of greater regulatory mandates which are offset only by a few government incentives. The move to greener buildings is occurring with less hesitancy; however, the fiduciary responsibilities are creating a robust discussion among Real Estate Investment Trusts (REITs) (Nelson, 2007).

Purpose and Scope

The purpose of this project was to identify the factors driving and limiting green building initiatives in multifamily housing based on industry perspectives. The scope of this research focuses on Class A institutional-quality multifamily real estate. Class A institutional-quality multifamily housing is newer and the rent is higher than the other classes: B, C and D. The findings will assist owners as they develop appropriate green strategies for their business models.

Methodology

The methodology used in this research consisted of personal interviews with ten CEO's of major REITS in the multifamily industry and provides perspectives on the drivers and limitations for integrating sustainable building principles into their operational model; results of this study revealed both common perspectives, as well as drastic differences in opinions among industry leaders. Respondents provided their perspective via 20-60 minute conversations regarding the topic of green building and offered their approach as well as the state of the industry as a whole. These respondents specified a number of factors that drives or limits green building initiatives in multifamily housing.

Results, Conclusions and Implications

Results revealed that financial motivation, tenant expectation, investor demand, and, to some extent, government mandates are among the identified driving factors for greening multifamily housing. All respondents believed that the primary motivation to green multifamily housing is to reduce operating cost and increase net operating income. All industry leaders stated that tenant expectations and investor demands were also among the significant driving factors. Most of the respondents believed that the mandates at all levels of government would require green building in the future; staying ahead of these forecasted mandates was a major motivation for all respondents to go green. Although some industry leaders considered green building certifications as a driving force and as an integral part of their approach for greening, others believed that there was no or little value in certifying buildings. With varying opinions around the "value-add" of LEED (Leadership in Energy and Environmental Design) and the U.S. Department of Energy's and EPA (joint program) "Energy Star" program, the majority of owners and operators are still struggling to find that equilibrium between what the resident is willing to pay for and what the business enterprise can afford to make in retrofitting and capital improvements.

Industry leaders also identified the factors limiting the greening of multifamily housing, including lack of consumer awareness, temporal misalignment of cost and benefit, and lack of data sources and baselines with respect to green multifamily housing. Respondents agreed that, in spite of great achievements in promoting green buildings, marketing is still required to educate clients about green building merits. The other factor limiting green building initiatives in multifamily housing is that the payback

period of the investment is longer than the desired time specified by the portfolio manager or lender. Moreover, lack of data sources and baselines makes the cost-benefit analysis difficult for the operators of Class A multifamily housing. Surprisingly, industry leaders did not perceive cost of greening as a limiting factor because they believed that there had been an increase in the number of "green" products available and a price adjustment due to the increased awareness of products and services. Table 1 summarizes the factors driving and limiting green building initiatives in multifamily housing based on industry perspectives.

Table 1

Summary of driving and limiting factors

Number of Respondents	Driving Factors	Limiting Factors
100%	• Financial motivation • Tenant expectation • Investor demand	• Lack of tenant awareness
More than 50%	• Government mandates	• Lack of data sources and baseline • Temporal misalignment of cost and benefits
Less than 50%	• Certifications	• Cost of greening

The results may be used by owners and operators of institutional quality real estate, as well as other real estate professionals that are stakeholders in housing policy or serve as housing educators. These findings reveal industry perspectives, concerns and expectations amid the new realities that exist in the real estate industry. Implications from this study will strengthen the body of research that exists in this specific area of multifamily real estate. As industry professionals consider these

applications, there may also be an opportunity to adapt these findings to other types of real estate however, one common theme that could be applied is how to best shift from a single bottom line approach to one that is focused on the "triple bottom line" benefitting people, the planet and profits.

References

Environmental Protection Agency. (2011). *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009.* Washington, DC.

Joint Center for Housing Studies. (2009). *Meeting Multifamily Housing Finance needs during and after the credit crisis: A policy brief.* Harvard University

Joint Center for Housing Studies of Harvard University (2010).*State of the Nation's Housing*. Cambridge, MA.

National Multi-Housing Council (2011).*Survey of Apartment Market Conditions.* Washington, D.C.

Nelson, A.J. (2007). *The Greening of U.S. Investment Real Estate-Market Fundamentals, Prospects and Opportunities*. RREEF Research.

Keywords: Multifamily housing, green building, Industry perspective, Driving factor, Limiting factor, Real Estate Investment Trusts.

A REVIEW OF SOCIETAL AND ECONOMIC TRENDS THAT

INFLUENCE HOUSING DESIGN

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The purpose of the study and presentation is to examine home design trends during the last century in relation to societal and economic change. The methods used to assess the homes were observational and archival. The homes used for this research and presentation were selected residences in Bowling Green, Ohio (first settled in 1832). The replication of this research strategy can be used as a teaching tool in most communities and at any educational level, and demonstrates the possible reasons why home design changes occur as seen from the past, present and a look to the future. However, the research findings might most benefit the home owner and those involved in housing design research and development, for example, design educators, housing extension specialists, architects, interior designers, contractors and builders.

As we all are aware, consumers create demand, and markets follow this demand. Similarly, a home is created around a family or persons living in the space. During the past 100 years, the makeup of the family has changed. This change is reflected in family interactions with their interior and exterior home environments. By looking at past trends of families interacting with their homes, a fair projection of what a home will be, mean, or look like in the future can be established.

Social and economic trends have played a large role in the transformation of the family over the years. Looking into the past, the average family size went from a husband and wife having 7 children in 1800 all the way down to 3.5 children in 1900. This has much to do with the shift from a farm-focused society to the industrial revolution era and beginning of urban development. With the given medical technology it was much more common in 1900 for a woman to die during childbirth and for a child to not live past the infant years ("Achievements in Public Health, 1900-1999: Family Planning"). The square footage size of homes has fluctuated in respect to the changing family size over the years. Homes built between 1900 and 1920 were often built to accommodate not just more children in a family than today, but also a service staff. It was not uncommon for the service staff to have living quarters in a separate area of the home.

In the 1930s, America was suffering through the financial collapse caused by the Great Depression. The depression era added to the downsizing of families and homes. Having a service staff was not as common and so providing living quarters was not necessary. In the 1930s the genesis of the "nuclear family" was established, and families lived within the intimacy of their own home. Family planning became institutionalized in the 1940s with the American Medical Association officially endorsing birth control in 1937 resulting in a slight decrease in the average number of persons per household. During the World War II home building slowed, and then went into massive production when the troops came home. Building materials were in short supply and the smaller ranch style home in suburbia became popular in the 1950s and 1960s.

Average persons per household in 1970 were 3.14, with the average home square footage being 1,400. In 2004 the average persons per household was 2.6 with the average home square footage being 2,330. There was an inverse relationship to the number of persons per household steadily decreasing, while the average home square footage continued to increase. The socio-economic realities of growing divorce rates, adoption, same sex cohabitation, and single living have been issues the homeowner has adapted to, but there was a phenomena, during the 1990's, of people simply wanting bigger homes regardless of the number of people living there.

However, the consumer's philosophy about buying real estate changed after the US housing collapse in the fall of 2008. Along with bank failures and record costs for energy, international as well as US markets realized (perhaps reluctantly) the need for change in construction, building methods and the associated costs, both in material resources and labor costs. As the general population, but particularly seniors, witnessed their financial net worth and standard of living decline, a shift in priorities occurred. Most people now cannot afford the "dream mega mansions" of the 1990s. Even if the home buyer has the financial resources to mega build, difficulties arise in coping with high energy costs, taxes, and home maintenance. With these realities there is a need for an operational change in being a home owner. Today, and into the future, Universal Design/Barrier-free strategies and green, sustainable design principles are being united by home designers. The result is "responsible" home design which combines environmental, cultural and societal-based building solutions which are affordable to both the home owner and the planet. For example, when looking to purchase a home the space must work for all the residents potentially throughout their life-span. It must be

accessible, healthy to live in and affordable in materials and energy costs (energy efficient HVAC, renewable resources like solar and geo thermal). Also, the life of the home (the years of use) must be considered. If you design a home that can accommodate every person's needs for space (bathrooms for wheelchair use, zero threshold entrances, etc.) and environmental needs (providing windows for day-lighting and well-being), then you do not have to go to the expense ($$, natural resources) of moving or remodeling. Nowicki/Harrell's (2010) book, *Our Forever Home,* wonderfully illustrate these principles. This shift of emphasis from living in a home for social status to living in an energy-efficient, healthy, and accessible residence should add to the homeowner's overall satisfaction with their home, which for most people represents their most important investment.

References

"Achievements in Public Health, 1900-1999: Family Planning". *Centers for Disease Control and Prevention.* Centers for Disease Control and Prevention, 3 Dec. 1999. Web.01 May 2011.

Nowicki, G., & Harrell, I. (2010). "Our Forever Home: A Universally Designed, Green Remodel". Published by Harrell Remodeling, (ISBN: 978-0-557-34138-2).

PRIVATE RENTAL PROPERTY OWNERSHIP DURING THE 2000s

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Introduction

Shiller (2008) indicates that the real estate market in the 2000s was a tale of two halves. Beginning in the late 1990s, real estate experienced nearly unprecedented appreciation through the middle of the decade. This started to change in 2005, as appreciation began to slow. By 2006, the U.S. had entered a period of depreciating home prices that remained through the end of the decade. This research explores the effect of this changing market on a household's decision to own private rental property. Three time periods are used for this analysis: 2001, 2004, and 2008. These time periods were chosen to reflect ownership during the early to mid-boom, the height of the boom, and after the market began to decline.

Data and Methods

Data from the Survey of Income and Program Participation (SIPP), a nationally representative longitudinal survey conducted by the U.S. Census Bureau, are utilized. Given the three time period analysis, data are utilized from the 2001, 2004, and 2008 panels. The final samples consist of 24,068 households, (96,110,000 when weighted), 34,756 households (100,620,000 when weighted) and 31,075 households (101,150,000 when weighted), respectively. Ownership of either residential or vacation rental property

serves as the dependant variable in this study. Variables of interest include householder characteristics (age, ethnicity, race, educational attainment level, and health status) and household characteristics (type, income, net worth, tenure status, region, and housing burdened status).

Table 1 provides a bivariate profile of ownership in each of the three time periods. Overall, there is a positive trend in rental property ownership, as rates increase from 4.57% in 2001 to 5.08% in 2008. This increase is most clearly illustrated by an increasing ownership rate of higher net worth households, while the lower quintiles largely remain steady. Additional variables consistently offering relatively high ownership rates at the bivariate level include households with higher incomes, that own homes, maintain a limited housing burden on their primary homes, that consist of married couples, and that are located in the West. Householder characteristics associated with high ownership rates include those with higher education, in good health, age 55-64, and who are White or Asian.

A logistic regression model is created for each time period to provide a multivariate analysis. Previous research using the SIPP has shown that failure to account for the complex sampling design when making estimates can lead to Type 1 errors (Nielsen, Davern, Jones, and Boies, 2009).The Taylor series method (Tepping, 1968) is used to incorporate the necessary complex sampling design information into the analysis.

Results

Results of the logistic regression model can be found in table 2. Our analysis provide insights into both rental property ownership and the effect of the changing economy on the ownership decision. As might be expected, high net worth proves to be the strongest correlate. What may be surprising is that the magnitude of this relationship significantly increases, with the 5th quintile being 3.69 times more likely to own rental property than the third in 2001, to being 5.87 times as likely in 2008. While ownership of rental property would be associated with increasing net worth from 2001 to 2004, it is interesting that this increased likelihood of ownership holds true in 2008, when, on average, the ownership of real estate would have been associated with decreasing net worth.

Discussion

Possibly the most intriguing result is a consistent preference demonstrated by African-Americans, holding all else constant, for owning rental property as compared to White respondents. This stands in stark contrast to numerous studies which find that African-Americans demonstrate lower stock ownership rates than Whites (Hanna and Lindamood, 2007; Xiao, 1996; Wang and Hanna, 2007). One hypothesis for this gap is a lack of familiarity with the stock market and financial institutions (Yao, Gutter, & Hanna, 2005). The theme of familiarity as a predictor of investment is persistent in the literature (Huberman, 2001), and it is possible that a greater familiarity with income property and the rental market, combined with a predication towards consumptive oriented goods (Stevenson & Plath, 2002), appears in this case to drive African-Americans towards rental property ownership.

A combination of statistically significant results indicating that homeowners and those that are housing burdened in their primary home raise questions about an overreliance on real estate as an investment strategy. This implies that households, with exposure to real estate through homeownership, that are currently overextended on their primary residences are more likely to be further exposed to the real estate market through rental property. When considering Modern Portfolio Theory (Markowitz, 1952), a household's further expansion into real estate may indicate a lack of diversification in its overall portfolio. Furthermore, these results reveal a scenario with many households positioned for financial difficulties in the latter half of the decade due to an overreliance on real estate.

References

Hanna, S. D., & Lindamood, S. (2007). Changes in stock ownership by race/Hispanic status, 1998-2004. *Consumer Interests Annual, 53*, 96-105.

Huberman, G. (2001). Familiarity breeds investment. *Review of Financial Studies, 14*, 659-680.

Markowitz, H. (1952). Portfolio selection. *The Journal of Finance, 7*(1), 77-91.

Nielsen, R. B., Davern, M., Jones Jr, A., & Boies, J. L. (2009). Complex sample design effects and health insurance variance estimation. *Journal of Consumer Affairs, 43*(2), 346-366.

Shiller, R. (2008) Historic turning points in real estate. *Eastern Economic Journal*, *34*, 1-13.

Stevenson, T. H., & Plath, D. A. (2002). Marketing financial services to the African American consumer: A comparative analysis of investment portfolio consumption. *California Management Review, 44*(4), 39-64.

Tepping, B. J. (1968). *Variance estimation in complex surveys.* Paper presented at the American Statistical Association Social Statistics Section.

Wang, C., & Hanna, S. D. (2007). The risk tolerance and stock ownership of business owning households, *Financial Counseling and Planning*, *1*(2), 3-18.

Xiao, J. J. (1996). Effects of family income and life cycle stages on financial asset ownership. *Financial Counseling and Planning*, *7*, 21-30.

Yao, R., Gutter, M. S., & Hanna, S. D. (2005). The financial risk tolerance of Blacks, Hispanics and whites. *Financial Counseling and Planning*, *16*(1), 51-62.

Table 1
Rental Property Ownership by Selected Charateristics: 2001-2004- 2008

Characteristic	2001		2004		2008	
	Households (Thousands)	Ownership %	Households (Thousands)	Ownership %	Households (Thousands)	Ownership %
Total Households	96,110	4.57%	100,620	5.00%	101,150	5.08%
Age of Head of Household						
Age 25-34	18,040	2.09%	18,330	2.24%	16,610	2.55%
Age 35-44	23,250	3.60%	23,130	4.30%	20,610	4.56%
Age 45-54	20,530	5.65%	22,450	5.92%	23,330	5.52%
Age 55-64	13,820	7.01%	15,980	7.52%	18,480	7.01%
Age 65 plus	20,480	5.11%	20,730	5.27%	22,110	5.41%
Ethnicity						
Hispanic	6,260	5.47%	10,280	2.38%	11,420	2.83%
Not hispanic	95,490	4.56%	90,340	5.29%	89,730	5.37%
Race						
White	81,000	4.82%	82,620	5.25%	82,930	5.42%
Black	11,040	2.81%	12,130	3.24%	12,130	3.12%
Asian	3,140	4.98%	2,930	5.68%	3,160	5.92%
Other	930	2.46%	2,940	4.52%	2,940	2.83%
Education						
Less the high school graduate	14,820	2.62%	10,220	2.39%	8,200	1.90%
High school graduate	27,500	3.82%	26,930	3.72%	26,780	3.05%
Some college or associates	27,900	4.44%	35,720	4.77%	34,920	4.92%
Bachelors degree	16,380	6.38%	17,540	7.39%	19,580	7.27%
Post-gradutate degree	9,510	7.02%	10,210	7.66%	11,670	8.80%
Region[a]						
Northeast	18,870	4.86%	19,260	5.21%	18,710	4.77%
Midwest	22,590	4.17%	23,080	4.69%	23,080	4.42%
South	34,510	3.83%	36,050	4.18%	37,150	4.28%
West	20,140	6.00%	22,230	6.45%	22,210	7.39%
Household Type						
Family						
Married couple	51,870	5.95%	53,740	6.26%	52,890	6.62%
Male householder	3,680	3.02%	4,290	3.94%	4,360	3.40%
Female householder	10,780	1.40%	11,500	1.84%	11,860	2.26%
Non-family						
Male householder	12,910	3.70%	13,800	4.65%	14,770	3.79%
Female householder	16,880	3.35%	17,290	3.70%	17,270	3.83%
Household Annual Income						
Q1	19,220	1.85%	20,130	2.16%	20,230	2.04%
Q2	19,230	3.23%	20,120	3.18%	20,230	3.54%
Q3	19,220	4.03%	20,120	4.35%	20,230	4.08%
Q4	19,220	5.77%	20,130	5.57%	20,230	6.23%
Q5	19,220	7.96%	20,120	9.73%	20,230	9.53%
Household Net Worth						
Q1	19,220	0.54%	20,130	0.24%	20,250	1.02%
Q2	19,220	1.00%	20,120	1.13%	20,220	0.87%
Q3	19,220	3.24%	20,120	3.09%	20,270	2.53%
Q4	19,220	5.49%	20,120	5.73%	20,180	6.16%
Q5	19,220	12.56%	20,120	14.79%	20,230	14.86%
Tenure Status						
Homeowner	68,760	5.94%	71,250	6.62%	71,270	6.78%
Non-homeowner	27,350	1.11%	29,370	1.05%	29,880	1.04%
Health Status[b]						
Good health	79,020	4.81%	83,310	5.34%	84,990	5.44%
Poor health	17,090	3.44%	17,310	3.33%	16,160	3.21%
Housing Burdened[c]						
Yes	23,530	2.92%	26,700	3.29%	31,100	3.69%
No	72,590	5.10%	73,920	5.62%	70,050	5.70%

Note. Calculations based on the SIPP, 2001 panel, waves 1 -3 and topical module 3, 2004 panel, waves 1 -3 and topical module 3, and 2008 panel, waves 2-4 and topical module 4.

[a] Regions based on census regions

[b] Determined based on self reported health status. Health status rated good if indicated to be excellent, very good, or good. Health status rated poor if indicated to be fair or poor.

[c] Housing burdened is defined as spending more than 30% of gross income on primary residence's housing costs including rent, mortgage payment, and utilities

Table 2
Rental Property Ownership Prediction Model: 2001-2004-

Characteristic	2001		2004		2008	
	Odds Ratio	P-value	Odds Ratio	P-value	Odds Ratio	P-value
Intercept	N/A	<.0001**	N/A	<.0001**	N/A	<.0001**
Age of Head of Household						
Age 25-34	-	-	-	-	-	-
Age 35-44	1.024	0.8610	1.106	0.3886	0.960	0.7471
Age 45-54	1.277	0.0678	1.199	0.1198	0.879	0.2980
Age 55-64	1.438	0.0119*	1.378	0.0094**	0.941	0.5895
Age 65 plus	1.191	0.2631	1.135	0.3155	0.800	0.0743
Ethnicity						
Hispanic	1.093	0.8145	0.802	0.1626	1.044	0.7807
Not hispanic	-	-	-	-	-	-
Race						
White	-	-	-	-	-	-
Black	1.482	.0053**	1.454	0.0013**	1.395	0.0106*
Asian or other	0.994	0.9786	1.095	0.4821	0.854	0.2380
Education						
Less the high school graduate	-	-	-	-	-	-
High school graduate	0.906	0.4647	0.910	0.4285	0.994	0.9733
Some college or associates	0.877	0.3296	0.966	0.7901	1.296	0.1693
Bachelors degree	0.867	0.3621	1.015	0.9143	1.347	0.1209
Post-gradutate degree	0.805	0.2027	0.858	0.3034	1.369	0.1151
Region[a]						
Northeast	1.045	0.6995	1.021	0.8249	0.929	0.4327
Midwest	0.921	0.4281	1.021	0.8048	0.974	0.7784
South	-	-	-	-	-	-
West	1.306	.0045**	1.148	0.0862	1.552	<.0001**
Household Type						
Family						
Married couple	-	-	-	-	-	-
Single parent householder	0.610	.0010**	0.847	0.1313	0.816	0.0740
Non-family		54.43%				
Male householder	1.073	0.9097	1.528	<.0001**	1.021	0.8388
Female householder	0.989		1.112	0.2836	1.063	0.4935
Household Annual Income						
Q1	0.637	.0036**	0.763	.0285*	0.764	0.0491*
Q2	0.912	0.4354	0.895	0.3061	1.065	0.6022
Q3	-	-	-	-	-	-
Q4	1.281	.0127*	1.042	0.6602	1.150	0.1291
Q5	1.218	0.0809	1.234	.0396*	1.206	0.0556
Household Net Worth						
Q1/Q2	0.303	<.0001**	0.277	<.0001**	0.473	<.0001**
Q3	-	-	-	-	-	-
Q4	1.628	<.0001**	1.812	<.0001**	2.376	<.0001**
Q5	3.694	<.0001**	4.810	<.0001**	5.872	<.0001**
Tenure Status						
Homeowner	1.570	.0067**	1.039	.0007**	2.201	<.0001**
Non-homeowner	-	-	-	-	-	-
Health Status[b]						
Good health	0.952	0.6502	1.270	0.6661	1.029	0.7544
Poor health	-	-	-	-	-	-
Housing Burdened[c]						
Yes	1.204	0.0647	1.270	.0053**	1.428	<.0001**
No	-	-	-	-	-	-
Puesdo R²		0.123		0.143		0.145
Concordance Ratio		78.0%		78.5%		78.9%

Note. Calculations based on the SIPP, 2001 panel, waves 1 -3 and topical module 3, 2004 panel, waves 1 -3 and topical module 3, and 2008 panel, waves 2-4 and topical module 4.

[a] Regions based on census regions

[b] Determined based on self reported health status. Health status rated good if indicated to be excellent, very good, or good. Health status rated poor if indicated to be fair or poor.

[c] Housing burdened is defined as spending more than 30% of gross income on primary residence's housing costs including rent, mortgage payment, and utilities

*p<.05. **p<.01.

THE HOUSING ACCOMMODATIONS OF LOW-INCOME FAMILIES

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The majority of Americans' housing experiences are marked by progressive changes in tenure status, moving from renting to ownership and improving the quality of their housing throughout their lives. However, a smaller portion of American families do not make this type of progress over time (Clark, Deurloo & Dieleman, 2003). While only a handful of studies examine longer-term housing experiences of low-income households, those that exist suggest that they are not progressive. Instead, they are marked by residential instability and a reliance on housing accommodations that fall outside of the rental-homeownership dichotomy (Bartlett, 1997; Cook, Crull, Fletcher, Hinnant-Bernard, & Peterson, 2002; Fitchen, 1992). In her study of rural, low-income women, Fitchen (1992) found that the families moved often, with many moving at least once a year and a significant number making three or more moves in that same period. Families that were able to secure private market rental housing, typically did so by renting low cost apartments or trailer homes.

Wright, Caspi, Moffit and Silva (1998) describe the housing strategies of low-income individuals as existing on a continuum between conventional housing and homelessness. Included within this continuum of lower-hierarchy arrangements are various forms of unstable, inadequate, and vulnerable housing. Living doubled-up, either voluntarily or involuntarily, and shelters are common strategies within this

continuum. Bartlett (1997) reported extended shelter stays and frequent periods of doubling up with relatives among the families in her study. Similarly, Fitchen (1992) notes that when poor families in rural areas find themselves without a home, they typically seek out friends or family, often parents, for temporary housing accommodations. While moving in with friends and family is used as emergency housing for some, for others it is a means of securing informal housing assistance. In her study of women living in low-income neighborhoods in Philadelphia, Clampett-Lundquist (2003) found that the most common housing strategy for women living on cash assistance from welfare was to live with mothers, boyfriends or other acquaintances. Living with others served as a form of informal housing assistance, filling the gap between their income and their housing costs.

This research used structured, in-depth interviews to explore the long-term housing patterns, or housing careers, experienced by low-income families and the ways in which vouchers affect these patterns. Using an event history approach, information on past housing, employment and life circumstances was collected from 30 participants, 17 who had a voucher and 13 on the waiting list to receive one. The research was conducted in cooperation with two housing authorities in a Midwestern metropolitan area. The data obtained from this study allowed for the study of individual housing careers as well as an aggregate analysis of the housing accommodations of all study participants.

The findings of this study suggest that low-income families spend a disproportionate amount of their housing careers in accommodations that fall outside of conventional forms of rental housing and homeownership. As a whole, the low-income

participants in this study moved through several types of housing accommodations throughout their adult housing careers (Table 1). In addition to the rental housing and homeownership, participants secured housing by living with friends and family members, through employment (typically military housing or caretaking) and housing provided by shelters and other more institutional forms of housing (in-patient chemical dependency programs, prison). About one-third of all the accommodations documented in the study were doubled-up and off-lease rental arrangements with family or friends, stays in shelters or residential treatment centers or episodes of homelessness. These accommodation types are not included in conventional conceptualizations of the housing career.

For the participants in the study, receiving a voucher put them on a more normative housing career path. The participants with Housing Choice Vouchers remained in the private rental market and were able to avoid lower-hierarchy living arrangements. The receipt of a voucher generally improved their housing stability. The majority of participants experienced longer-duration stays after the receiving their voucher, with several participants living in the same place for more than five years.

The information gained from this research suggests that the existing housing career model does not adequately capture the housing careers of low-income families. The families in this study moved through a wide variety of housing accommodations throughout their housing career and few, if any, would have housing careers considered to be progressive under the renter-owner dichotomy. However, study participants often moved strategically through housing accommodations in order to avoid homelessness or to escape untenable housing and neighborhood conditions. At the same time, the

participants were more likely to move for negative reasons such as eviction, safety concerns and relationship problems. Taken together, the upward/downward moves of the low-income families in this study represent housing changes that are fundamentally different from normative moves to improve housing tenure and quality. Expanding the housing career model beyond rental and homeownership provides insight of the challenges faced by low-income adults and the strategies they employ to maintain housing for their families.

The findings suggest that the housing careers of low-income individuals are both complex and very different from those of higher income individuals. The findings also highlight the critical housing issues experienced by low-income people and emphasize the important role that Housing Choice Vouchers play in helping people with serious housing problems. While this research is qualitative, conducting intensive interviews with only a small sample of households, many of the findings are consistent with previous research on low-income populations. Further research is needed to understand how individual characteristics and life circumstances affect long-term housing experiences of low-income households. In addition, all of the participants in this study had minor children in the household. Future research on the housing careers and life trajectories of children growing up in voucher households would provide a better understanding of the long-term impact of housing stability achieved through the receipt of a voucher.

References

Bartlett, S. (1997). The significance of relocation for chronically poor families in the USA. *Environment and Urbanization, 9*(1), 121-131.

Clampet-Lundquist, S. (2003). Finding and keeping affordable housing: Analyzing the experiences of single-mother families in North Philadelphia. *Journal of Sociology and Social Welfare*, *30*(4), 123-140.

Clark, W. A. V., Deurloo, M. C., & Dieleman, F. M. (2003). Housing careers in the United States, 1968-93: Modelling the sequencing of housing states. *Urban Studies, 40*(1), 143.

Cook, C. C., Crull, S. R., Fletcher, C. N., Hinnant-Bernard, T., & Peterson, J. (2002). Meeting family housing needs: Experiences of rural women in the midst of welfare reform. *Journal of Family and Economic Issues, 23*(3), 285-294.

Fitchen, J. M. (1992). On the edge of homelessness: Rural poverty and housing insecurity. *Rural Sociology, 57*(2), 173-193.

Wright, B. R. E., Caspi, A., Moffitt, T. E., & Silva, P. A. (1998). Factors associated with doubled-up housing--A common precursor to homelessness. *Social Service Review, 72*(1), 92-111.

Table 1

Housing Accommodation Type, Frequency and Average Duration

Housing accommodation type	n	%	Average duration (in months)
Homeownership	6	2.0	50.0
Rental housing:			
Private market	82	31.1	18.0
Private market w/voucher	47	17.8	33.3
Public or project-based affordable housing	24	8.1	28.4
Transitional or supportive housing	6	2.0	6.8
Family or friend	6	2.0	43.8
Employment/education housing	7	2.4	13.3
Living with others:			
With parents	22	8.3	11.0
With other family or friends	47	17.8	12.9
Shelters/institutional housing			
Homeless shelter	5	3.0	5.4
Domestic violence shelter	2	.8	1.5
Chemical/mental health	2	.8	3.5
Jail or prison	2	.8	9.0
Other institutional	1	.3	
Homelessness (car, outdoors, hotel)	3	1.1	4.3
Total	264	100.0	20.4

REASONS SENIORS SEEK REVERSE MORTGAGES

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Introduction

Sustaining a comfortable life in retirement is a growing concern for most adults. Financial retirement concerns include funding an increasing number of years in retirement, maintaining adequate health, paying for home repairs, property taxes, and home improvements, and healthcare, as well as managing debts and home loans (DeVaney, 2008; Weber & Chang, 2006). A decline in traditional pensions, moderate to low 401(k) participation, and low savings rates coupled with the rising Social Security retirement age and discouraging predictions about the ability of Social Security to maintain current benefit levels have contributed to retirement funding concerns (Eschtruth, Sun, & Webb, 2006).

Lusardi and Mitchell (2007) identified housing wealth as the key element of saving for many ready-to-retire Americans. They further discovered that most "older Americans do not plan to sell their homes to pay for additional retirement expenses" (Lusardi & Mitchell, 2007, p. 212). Additionally, they found less than a third of respondents had ever tried to calculate how much they needed to save for retirement, let alone planned how they would pay for retirement (Lusardi & Mitchell, 2007).

With longer life spans, inadequate retirement savings, and increased mortgage and consumer debts, Moschis and Burkhalter (2007) identified "retirement income adequacy" as a major concern for current and future retirees. The reverse mortgage is one option to increase retirement income and/or decrease retirement debt (Opdyke, 2006).

Research Purpose/Objectives

Up to September 2009 Reverse mortgages increased annually with a total of 573,112 Home Equity Conversion Mortgages (HECMs) having been originated since the program inception in FY 1989-90 (NRMLA, 2011). That number has since grown to 702,535 as of May 2011 (NRMLA, 2011). Eschtruth and colleagues (2006), predict the number of reverse mortgages will continue to grow as more baby boomers enter retirement with insufficient wealth from other sources. This study sought to gain a better understanding of the reasons why more senior Americans are seeking reverse mortgages.

Theoretical Framework

The life-cycle hypothesis proposes that people attempt to maintain a reasonably stable level of consumption over their lifetime (Ando & Modigliani, 1963). Generally this means that younger people borrow to meet their consumption needs, middle-aged adults pay down debt and save a significant part of their earnings, and older adults spend down their assets as their income drops in retirement to maintain their consumption level. A reverse mortgage is one way to accomplish a stable level of consumption during retirement.

Methodology/Procedures

This study extracted data from all inactive reverse mortgage files of the clientele at the Utah State University Family Life Center Housing and Financial Counseling Services (FLC HFC) from the four year period of October 1, 2005 to September 30, 2009 (n=101). Files eligible for this study included clients who were no longer actively being counseled, who decided to obtain a reverse mortgage, and those who did not obtain a reverse mortgage. The data collected from the reverse mortgage files at the FLC HFC was analyzed using The Statistical Package for the Social Sciences (SPSS). Descriptive frequencies, ANOVAs, and cross tabulations were used.

Results

The most common presenting reason stated by the client was to pay off an existing mortgage. The second most commonly stated reason was to increase income; of these clients, about half stated that they wanted to pay off an existing forward mortgage and to increase income. Paying off an existing mortgage or existing debt effectively increases discretionary income. All clients with an existing forward mortgage stated paying it off as a presenting reason, and about one third also wanted to pay off non-housing debt. See Figure 1 for details.

The 'other' category included reasons such as to be able to afford to retire, to prevent foreclosure, as an option to pay for long-term care, as an option in case investments continue to depreciate, to visit family and travel, to purchase a new hearing aid, to pass money to children without probate and tax consequences, to pay off a child's mortgage, pressure from a salesperson, as a result of attending a free seminar (with free dinner), because a relative has one and likes it, and to learn more about

reverse mortgages (for education). The category of 'for security purposes' is different than the education listed in the 'other' category; the clients who stated it was 'for security' seriously wanted to put something in place today so that they did not have worry about how they would meet future expected and unexpected financial needs.

There were differences in the reasons for considering a reverse mortgage between younger (74 and younger as per the age of the youngest client) and older (75 and older) reverse mortgage counseling clients. Table 1 identifies the reasons which were statistically significant. The younger clients were more likely than the older clients to report the desire to pay off an existing forward mortgage. In contrast, the older clients were more likely than the younger clients to desire to increase their income. Older clients were also more likely to want to purchase a new car. Younger clients had a higher average property value than the older clients, and younger clients had a higher average annual income than older clients. See Table 2 for details.

Discussion

The reverse mortgage lending product was created to allow senior homeowners access to additional income to pay for home repairs and home improvements, existing debts, existing home loans, and to meet living expenses (AARP, 2008; Weber & Chang, 2006). Paying off an existing mortgage in effect increases monthly income. The majority of clients stated the main reason for seeking a reverse mortgage was to pay off an existing mortgage. Younger clients were more likely to want to pay off their existing mortgage and/or non-housing debts. Using funds from a reverse mortgage, especially at a younger age, to pay off an existing forward mortgage is troubling as little or no

resources will be left for later years when seniors may need to pay for home repairs, health care, emergencies, and other unanticipated expenses (AARP, 2008).

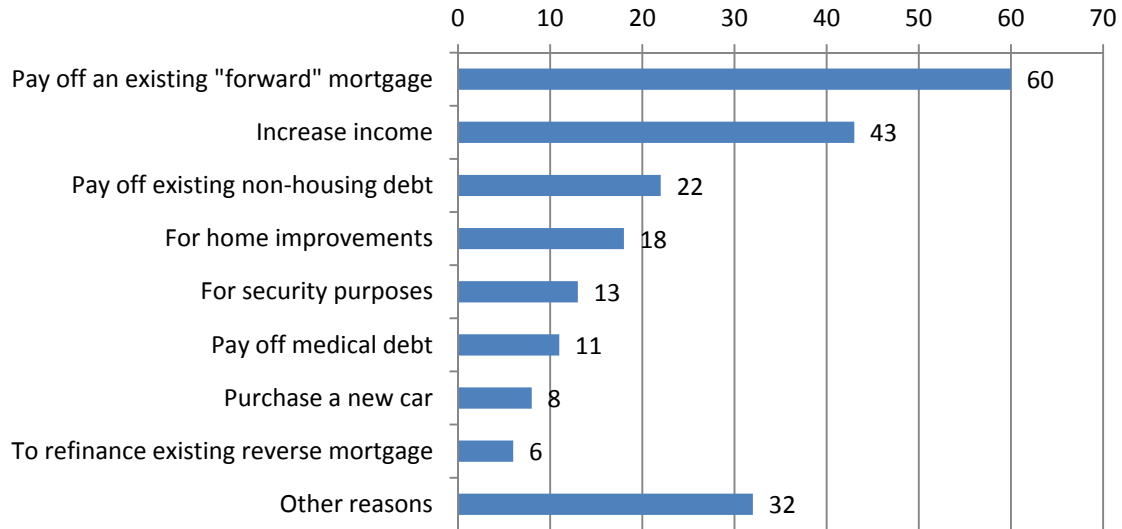**Presenting Reasons Client Stated for Considering a Reverse Mortgage**

Reason	Value
Pay off an existing "forward" mortgage	60
Increase income	43
Pay off existing non-housing debt	22
For home improvements	18
For security purposes	13
Pay off medical debt	11
Purchase a new car	8
To refinance existing reverse mortgage	6
Other reasons	32

Figure 1. Presenting reasons client stated for considering a reverse mortgage.

Note. More than one reason could have been stated by each client.

Table 1

Reasons for Considering a Reverse Mortgage by Age

Description	Chi-sq value	Sig
Pay off an existing forward mortgage	5.4[a]	.02*
Increase income	4.0[a]	.05*
Pay off existing non-housing debt	3.5[a]	.06
For home improvements	0.7[a]	.40
For financial security	0.1[a]	.82
Pay off medical debt	0.4[a]	.51
Purchase a new car	5.5[a]	.05*
Refinance an existing reverse mortgage	2.5[a]	.11
Other reasons	1.2[a]	.29

Note. More than one reason could be stated by each client.

[a] 0 cells (.0) have expected count less than 5.

* $p < .05$

Table 2

Client Financial Characteristics (as reported by client)

Description	*N*	Min	Max	Mean	Median	*SD*
Monthly income	96	$650	$7,700	$2,452	$2,083	1344.6
Younger	61	$650	$7,700	$2,663	$2,500	1311.7
Older	35	$700	$5,833	$2,083	$1,489	1340.0
Annual income	96	$7,860	$92,400	$29,483	$24,996	16320.2
Younger	61	$7,860	$92,400	$32,087	$30,000	15995.3
Older	35	$8,400	$70,000	$24,944	$17,760	16103.9
Non-housing debt	49	$450	$105,000	$15,194	$10,140	17490.2
Younger	37	$450	$105,000	$17,695	$11,000	19213.5
Older	12	$561	$20,000	$7,481	$6,750	6386.2
Housing debt	64	$1,500	$159,000	$59,851	$54,997	38676.5
Younger	45	$1,500	$159,000	$58,762	$52,000	38050.0
Older	19	$9,100	$140,000	$62,432	$63,008	41066.8
Property value	100	$40,000	$800,000	$174,326	$150,000	105000.7
Younger	62	$40,000	$800,000	$190,856	$152,500	126326.7
Older	38	$80,000	$300,000	$147,355	$150,000	44552.3

References

AARP Foundation (AARP). (2008). *Reverse mortgage loans: Borrowing against your home*. Washington, DC: National Center for Home Equity Conversion.

Ando, A., & Modigliani, F. (1963). The life cycle hypothesis of savings: Aggregate implications and tests. *The American Economic Review, 53*(1), 55-84.

DeVaney, S. A. (2008). Financial issues of older adults. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (pp. 209-221). New York, NY: Springer.

Eschtruth, A. D., Sun, W., & Webb, A. (2006, September). Will reverse mortgages rescue the baby boomers? *An Issue in Brief: Center for Retirement Research at Boston College*, (54), 1-6.

Lusardi, A., & Mitchell, O. S. (2007). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, *54*, 205-224.

Moschis, G. P., & Burkhalter, J. N. (2007). Making ends meet: How will the elderly manage their finances and post-retirement expenses? *Journal of Financial Services Marketing*, *12*(3), 235-241.

National Reverse Mortgage Lenders Association (NRMLA). (2011). *Annual HECM production chart*. Retrieved from http://www.nrmla.org/rms/statistics/default.aspx?article_id=601

Opdyke, J. D. (2006, December 27). Making your house pay in retirement. *The Wall Street Journal*, D1-2.

Statistical Package for the Social Sciences (Version 11.0) [Computer software]. Chicago. IL:SPSS, Inc.

Weber, J. A., & Chang, E. (2006). The reverse mortgage and its ethical concerns [Electronic version]. *Journal of Personal Finance*, *5*(1), 37-52.

CASE STUDIES IN COMMUNITY DEVELOPMENT CORPORATIONS' EFFORTS TO STABILIZE NEIGHBORHOODS FROM THE EFFECTS OF FORECLOSURES

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Purpose:

Local communities are struggling with how best to address the multifaceted challenges caused by the current foreclosure crisis that destabilized many neighborhoods by increasing numbers of abandon buildings, overall blight, and crime. Accordingly, nonprofit community development corporations (CDCs) are responding to this crisis by providing foreclosure prevention counseling, pressuring lenders to modify loans to homeowners at risk and acquiring foreclosed housing to preserve and expand affordable housing. The goals of this research are the following: provide insight into CDCs strategies and efforts to stabilize and revitalize neighborhoods through foreclosure acquisition and assist CDC practitioners, community activist and policy-makers in evaluating the impacts of various foreclosed housing acquisition strategies used to achieve neighborhood stabilization objectives.

According to a report by Enterprise Community Partners (Sheldon et al., 2009), the process of acquiring foreclosed property is difficult and technically demanding while the supply of foreclosed housing stock far exceeds the financial resources available to local nonprofits. The Urban Institute report states that "research that can inform response strategies probably merit the highest priority at this point" (Kingsley et al., 2009, p. 43). Our specific research objectives are to provide CDCs, community activists governmental stakeholders, and researchers with important information on various challenges encountered and acquisition strategies employed to stabilize neighborhoods in response to the foreclosure crisis by answering the following questions:

1. What acquisition strategies are CDCs employing to acquire and redevelop foreclosed housing? How do these strategies differ from those used for traditional community development

2. How effective are these strategies in achieving their overall goals to stabilize/revitalize local neighborhoods? What successes have they achieved?

3. What are the key challenges encountered by CDCs during implementation of foreclosure acquisition and redevelopment strategies? How are CDCs responding to these challenges?

4. What are the key lessons for CDCs and policy-makers?

Methodology and Procedures:

The researchers conducted the case studies from 2008-2010 on two CDCs located in small to midsize cities outside of Boston, Massachusetts. We selected two CDCs for a comparative, case study approach because we concluded that one case would be inadequate to answer our research questions, but selecting multiple cases "dilutes the overall analysis" (Creswell, 1998, 63). Creswell argues that the more cases studied the greater the lack of depth of any individual study. As a result, two cases enabled us to optimize the power of comparison without the disadvantage of diluting the analysis of each case. We decided to use a unit of analysis at the level of foreclosure acquisition/redevelopment activities and projects, which includes CDC actors within real estate departments and committees as it appeared the best approach to achieve our major research goals.

This research used multiple data and evidence-gathering techniques to ensure validity of case study research as recommended by Yin (2003). Accordingly, the research followed the principle of triangulation by using the following data-gathering techniques.

1) Documentation: such as internal communications, reports, proposals, formal studies, media articles, and other documents from web searches.

2) Archival Records: including organizational and occupant records, such as budgets, maps and site plans of projects;

3) Interviews with Key Informants: such as real estate development and other staff knowledgeable about foreclosure acquisition and redevelopment activities.

4) Observations: visits were conducted for each case location and target neighborhoods for foreclosure acquisitions. In addition, researchers attended real estate and foreclosure acquisition committee meetings to observe discussion about prospective foreclosed properties to acquire. Further, in the Lowell case, one researcher was a participant observer as a member of the real estate committee and foreclosure acquisition taskforce.

Results:

Both CDCs were very sophisticated in tracking foreclosures and had high expectations of success to acquire and redevelop foreclosed housing due to anticipated state and federal funding. For 2008, one CDC set a goal to acquire 25-30 foreclosed properties, totaling 90 units. Despite the early enthusiasm and considerable staff time invested in tracking foreclosed properties, both acquired fewer properties than originally anticipated. As of September 2010, one CDC acquired nine properties with 32 foreclosed and abandoned units and the other two vacant properties that were demolished to develop 23 units of affordable rental housing.

These organizations encountered numerous challenges during efforts to acquire foreclosed properties due to market conditions, inaccessibility of lenders, and limitations within the finance system. One major challenge was competition

from local private investors who were more nimble than CDCs in making purchasing decisions, due to in-house capital and lack of constraints placed by government funding sources on nonprofit developers. In addition, investors operated from a business model allowing them to pay more upfront and invest less in building rehab because of lower standards. Conversely, CDCs generally encountered funding gaps due to their sizeable rehab investments. CDCs also lacked adequate leverage with lenders and mortgage servicers to negotiate purchases of foreclosed properties, while investors received favorable treatment by brokers. While both CDCs were qualified for the National Community Stabilization Trust's "first look" program to assist local communities acquire foreclosed housing, these CDCs had little success in acquiring properties through this initiative.

Conclusions and Implications:

The case studies provided considerable evidence that CDC foreclosure acquisition and redevelopment is extremely challenging. It's crucial that CDCs engaged in these activities have a high level of organizational capacity and the ability to invest intensive staff time to sustain these efforts. For a CDC to successfully acquire foreclosed properties and compete with private investors, organizational flexibility is imperative, as CDCs must become more nimble than what is needed for traditional housing development. Many of the factors affecting CDCs' ability to acquire foreclosed housing is beyond their control, such national lenders and servicers with collateralized loan pools dominating the foreclosure

landscape. The cases also demonstrated how CDCs follow different acquisition and development models when acquiring and redeveloping foreclosed housing. In addition, data to evaluate the neighborhood impacts of foreclosed housing acquisition and redevelopment activities were limited and approaches are needed to better assess these impacts.

While government programs aided CDCs foreclosure acquisition and development efforts within the cases, government policy also hindered efforts by CDCs to stabilize neighborhoods. Although, the intent of Neighborhood Stabilization Program (NSP) was to provide funding for communities to acquire and develop foreclosed housing, program requirements also hindered CDCs' efforts. For example, purchase prices must be at least 1% below the formal appraisal, which prevented CDCs from acquiring key foreclosed properties. In addition, NSP initial regulations prevented CDCs from acquiring foreclosed housing prior to the REO stage, prohibiting acquisition from "short sales" and at auctions. Overtime, HUD recognized that the initial definition of eligible properties created serious barriers to acquire and redevelop foreclosed properties. As a result, HUD expanded its definition of "foreclosure and abandoned" allowing CDCs to purchase foreclosed properties at auction. These cases also provided excellent insight on how federal policies impact neighborhood level developments efforts.

References

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks: Sage Publications.

Kingsley, G.T., Smith R.E., and Price, D. (2009). The Impacts of Foreclosures on Families and Communities. A Report to the Open Society Institute. Washington, DC: The Urban Institute.

Sheldon, A., Bush, P., Kearsley, A., and Gass, A. (2009). The Challenged of Foreclosed Properties: An Analysis of State and Local Plans to use the Neighborhood Stabilization Program. Columbia, MD: Enterprise Community Partners, Inc.

Yin, R. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.

CONNECTING WITH MILLENNIALS THROUGH THE INTERNET, SOCIAL MEDIA AND MOBILE DEVICES: A REVIEW OF GREEN AND HEALTHY HOMES PROGRAMMING SUCCESSES AND CHALLENGES

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Healthy homes is a term used by professionals to refer to homes that are sited, designed, built, maintained, and renovated in ways that support the health of their occupants (U.S. Department of Health and Human Services, 2009). In 2009, the Surgeon General issued a call to action to promote healthy homes. Since then, there has been an increased focus on developing imaginative and realistic solutions to help ensure that everyone has access to safe, healthy, affordable, and accessible homes. This holistic approach to improving health and housing incorporates many aspects of sustainability, providing an opportunity to integrate programming on healthy homes and 'Green' living. Consumers are often unaware of connections between the structure they call home, and actions related to care and maintenance of the structure, including the purchase, use, and storage of household products. Well-implemented and placed programming and information can help to create those linkages.

The purpose of this paper is to examine the challenges and highlight the successes that Cooperative Extension and other outreach professionals face in reaching young adults, specifically Millennials (adults born after 1980). Primary

challenges for educators are adapting traditional outreach tools to interface with current technology and connecting with audiences that rely on the Internet for research and information on issues related to home and family care.

The majority of adults (66%) have a broadband Internet connection at home, with only 21% of adults reporting that they do not use the Internet at all (Smith, 2010). If not surfing the Internet at home, one can easily surf the Internet at work, or on a phone or other wireless device. Accessing the Internet on a phone or other wireless device has grown significantly, especially for those under 49 years of age (Lenhart, Purcell, Smith & Zickuhr, 2010). These devices provide easy access to the Internet at a relatively affordable rate.

Among adult Internet users, searching for health information is one of the top online activities (Zickuhr, 2010). Since consumers are already searching for health information, this presents an opportunity for educators to educate them about green and healthy housing. To reach consumers online it is important to use their terminology and provide the information in a suitable format. Adopting social networking tools and placing the same old message on them does not work. Educators need to understand the audiences they are trying to reach. Millennials have fused technology into most areas of their lives. Mobile devices have become the accepted method of communication and their primary access point for information. Millennials are more likely to use social networking websites than other adults, and three-fourths of them have created a profile on a social networking site as compared to 50% of Generation X (30 to 45 year olds), 30 of

Boomers (46 to 64 years old), and 6% of individuals 65 years and older (Pew Research Center, 2010).

A national polling of 666 individuals in 2010 found that 59% of consumers considered a product's environmental sustainability important and 19% of the Millennials were willing to pay "significantly more" for green products (Capstrat, 2010). This is well above any other age cohort (4% of 30-45 year olds, 7% those 46-65, and 5% of those over 65) was willing to pay. It should come as no surprise that 18 to 29 year olds are comfortable with terms like green, recycling and protecting the environment. They grew up 'Green', so engaging them in the green and healthy homes conversation should follow as long as we meet them where they are and connect with them at their access points - using tools and terminology with which they are familiar.

Understanding Millennials and their predilection for instant access to information helped in the development of the Georgia Website along with the Georgia Facebook group and fan pages, and Twitter account. The website was designed as an information-portal on living greener; reducing the number of household chemicals used in one's home; 'Green/Socially Responsible' investing; recycling; reducing consumption; and community engagement around green and healthy living.

The social networking tools are used to promote outreach and deliver living-green messages along with healthy homes information. The online initiative incorporates terms such as green and living greener instead of 'sustainability' or 'environmentally friendly' as a way to reach beyond individuals who consider

themselves as environmentally-aware. Project leaders recognize that measuring outcomes can be challenging for online-outreach projects; however, web page hits, Facebook fans, Twitter followers and online activities provide some insights.

A major challenge has been increasing awareness about the website and social networking sites. We continue to experiment with new ideas to expand our online impacts. For example, tweeting using "hash tags," and adding live Facebook feed to the website. We are about to launch the Georgia YouTube channel that will feature videos on making green cleaning products, avoiding greenwashing, and greening your tailgate. Engaging students in the development process helps to maintain a youthful focus.

Face-to-face programs remain an important way to spread the message about green and healthy homes. Between January 2010 and April 2011, Georgia Extension agents provided green and healthy homes programs for 222 consumers. These programs covered topics such as making green cleaning products, conserving energy, and eliminating home safety hazards.

Successful programs engage the participants in the learning process, and motivate them to take action to improve their indoor environment. The changes can be as simple as purchasing fewer household chemicals, testing one's home for radon, placing a doormat by the door, or removing one's shoes before entering the home. Each individual is motivated to change their behavior for different reasons. Outreach activities are designed to meet individuals where they are, encouraging small changes that do not conflict with their financial ability to change behaviors or their beliefs and values.

It is important for Cooperative Extension professionals to emphasize the value of the research-based free information and face-to-face programs they provide. Equally important is to adapt to the changing environment. We need to continue developing innovative tools to take our message about green and healthy housing to today's consumers.

References

Lenhart, A., Purcell, K, Smith, A. & Zickuhr, K. (2010, February 3). *Social media & mobile internet use among teens and young adults*. Pew Internet & American Life Project. Accessed May 30, 2011 at http://pewinternet.org/Reports/2010/Social-Media-and-Young-Adults.aspx.

Capstrat (2010). Sustainability Poll. Accessed May 31, 2011 at http://www.publicpolicypolling.com/pdf/SustainabilityPoll.pdf.

Pew Research Center (2010). *Millennials: A portrait of generation next. Confident. Connected. Open to change.* Accessed July 26, 2011 at http://pewresearch.org/millennials/

Smith, A. (2010, August 11). *Home broadband 2010*. Pew Internet & American Life Project. Accessed May 30, 2011 at http://pewinternet.org/Reports/2010/Home-broadband-2010.aspx.

U.S. Department of Health and Human Services (2009). *The Surgeon General's call to action to promote healthy homes.* U.S. Department of Health and Human Services, Accessed May 30, 2011 at http://www.surgeongeneral.gov/topics/healthyhomes/index.html.

Zickurh, K. (2010, December 16). *Generation 2010*. Pew Internet & American Life Project. Accessed May 30, 2011 at http://pewinternet.org/Reports/2010/Generations-2010/Overview.aspx.