



## **Aging in Place**

**Improving the lives of senior citizens through independent living**

Illinois Institute of Technology

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## **1. Executive Summary**

The IPRO 360 team of the Spring 2011 semester conducted secondary and primary research on the topics of aging and aging in place. Secondary research consisted of the creation of a database of 50 peer-reviewed articles. Primary research consisted of observation studies and family interviews. The insights from these research techniques stem from three themes within the research: Mindset, Function & Mobility, and Social. The overall insights include the problem areas of: independence, stigma, community-based living, lifestyle changes and pro-activity & education.

## **2. Purpose and Objectives**

### **A. DESCRIPTION OF THE IPRO PROGRAM**

The Interprofessional Projects (IPRO®) Program at Illinois Institute of Technology: An emphasis on multidisciplinary education and cross-functional teams has become pervasive in education and the workplace. IIT offers an innovative and comprehensive approach to providing students with a real-world project-based experience—the integration of interprofessional perspectives in a student team environment. Developed at IIT in 1995, the IPRO Program consists of student teams from the sophomore through graduate levels, representing the breadth of the university’s disciplines and professional programs. Projects crystallize over a one- or multi semester period through collaborations with sponsoring corporations, nonprofit groups, government agencies, and entrepreneurs. IPRO team projects reflect a panorama of workplace challenges, encompassing research, design and process improvement, service learning, the international realm, and entrepreneurship. (Refer to <http://ipro.iit.edu> for information.) The Aging In Place team project represents one of more than 40 IPRO team projects for the Spring 2011 semester.

### **B. SPONSOR INFORMATION**

The Chamberlain Group, from Elmhurst, IL is the sponsor of IPRO 360: Aging in Place. They are the world’s largest manufacturer of residential and commercial remote controls, wireless keypads, gate operators, and various electronic parts. Working under the ownership umbrella of the Duchossois Group, The Chamberlain Group provides access to convenient products and services for homes and businesses worldwide. These businesses include: The Chamberlain Group, Chamberlain Manufacturing Company, AMX LLC, HealthCo, Milestone AV Technologies, Brivo, Duchossois Capital Partners, and Duchossois Technology Partners.

### **C. SPECIAL ACKNOWLEDGMENTS**

Special thanks to Brent Freese, Director of Advanced Development, Luisa Ruge, Design Strategist, and Kenneth E. Fairbanks, Senior Director of Business Development for the Duchossois Group, for their active participation, support and advice. The team met with Chamberlain representatives throughout the semester. They offered their expertise in research and the design process and have also provided constructive feedback on our research insights throughout each phase of research.

#### D. PROJECT PURPOSE

The purpose of IPRO 360 was to conduct research for Chamberlain Group, analyze it to identify significant problems faced by the senior community, and to present these findings to the Chamberlain Group. The problems identified will direct Chamberlain toward the most meaningful aspects of aging in place that could be addressed by Duchossois' companies for commercial application and development.

#### E. PROBLEM STATEMENT

As people advance in age, they gradually lose the ability to perform tasks they once took for granted, and before they realize, those abilities are gone. The once able-bodied person has to look to others to assist their routine tasks - from hygiene to home maintenance. This assistance usually comes with a hefty price tag. The cost of living in an assisted living facility was \$37,572 per year in 2009 (3).

According to a UN press release, dated March 13 2007, the world's population of people over 60 will almost double from 245 million to 406 million (1). This will be a huge burden on the existing health care and social security systems currently in place today. As of 2009, approximately 39 million people were over the age of 65, according to US Census Data (4). The article, "Age-related Changes in Activities of Daily Living Ability," published by the Australian Occupational Therapy Journal in 2004, describes ways in which activities of daily living (ADL) performance ability develops gradually. Performance ability declines after the age of 65 years. This loss of ability brings up major concerns for the elderly. When asked what they fear most, 26 percent of older people ranked loss of independence, and 13 percent ranked placement in a nursing home highest, while only 3 percent ranked death highest (3).

#### F. TARGET AUDIENCES

In this IPRO, our overall goal was to make a preliminary list of the most important problems or problem spaces seniors face that prevent them from living independently in their homes for our sponsor, The Chamberlain Group. Problem areas were identified from the current senior population as well as the baby boomer generation - our target focus for commercial development.

Objectives:

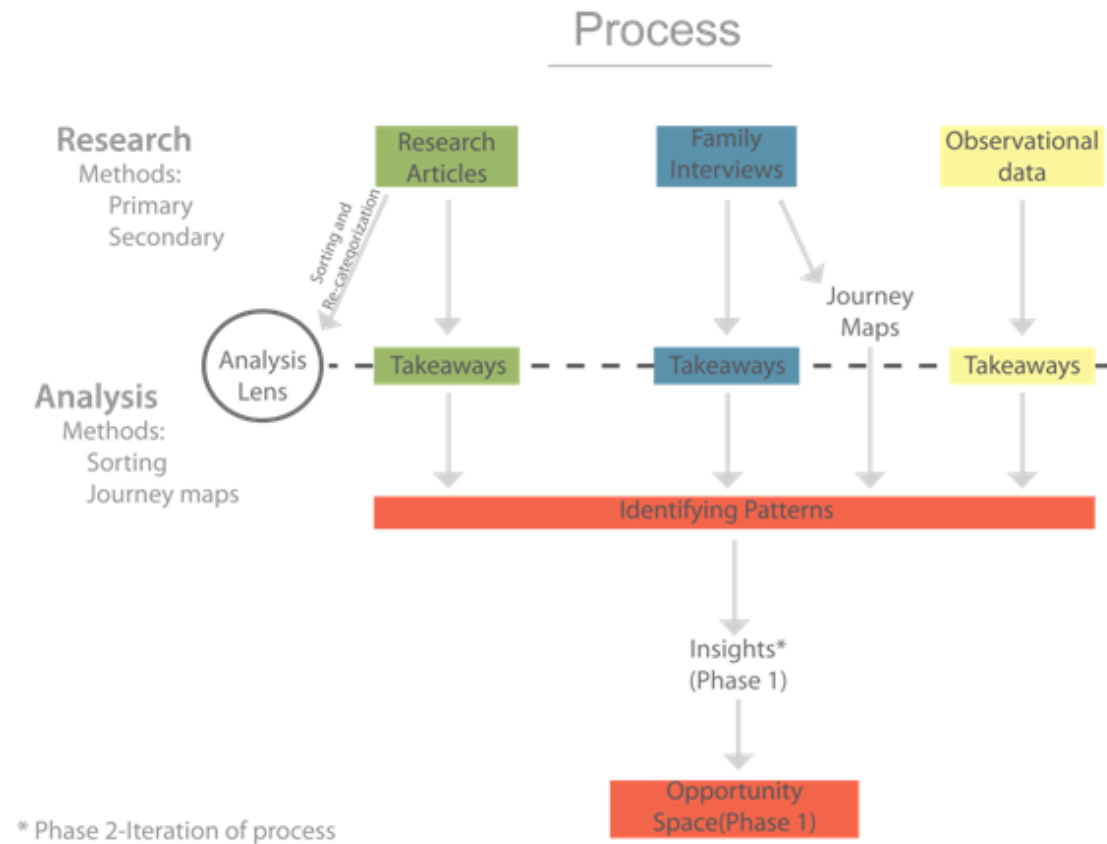
- Achieve optimum work product for the semester through collaboration with the sponsor

- Learn and understand the needs of the aging population, and those individuals associated with their support and care
- Identify the problem spaces that most affect aging in place & which fit within the core competencies of the Duchossois group
- Work efficiently as a team to complete our tasks in a timely and organized fashion
- Be dedicated, honest, respectful and willing to work with fellow team members
- Practice giving and receiving constructive criticism

### 3. Organization and Approach

#### A. RESEARCH PROCESS CHART

The below chart is a visual depiction of the research techniques applied, and how those research techniques were analyzed independently and then collaboratively with the other techniques in order to create a larger, more inclusive and insightful list of problem areas to focus on for our sponsor.



#### B. OVERALL RESEARCH ORGANIZATION

There were two forms of research conducted in this IPRO: primary research and secondary research. Secondary research consisted of gathering and sifting through sources from databases and extracting useful, relevant information regarding the subject of aging from the sources. The sources examined consisted of over 50 peer-reviewed articles. The articles were analyzed and the most relevant information was extracted from them in the form of takeaways, which were posted into a shared group document, analyzed for common themes, then organized based on the identified themes.

Primary research consisted of obtaining, sharing and analyzing data from first-hand experiences and observations. The sources of data for the primary research consist of two categories, personal interviews and group observations. All personal interviews conducted this semester consisted only of family members of the researchers on the IPRO 360 team. There were two groups that were observed for the group observations, The +55 Club (a local club of organized seniors looking to increase their social networks and planned social activities) and Pioneer Gardens (a senior assisted living facility).

### C. SECONDARY RESEARCH BREAKDOWN

#### **Articles:**

A non-exhaustive list of over 50 peer-reviewed articles was obtained as a background and database for problem areas to be identified. These articles focused on the topics of aging and aging in place. They ranged from topics of geriatric care to the baby boomer perception of aging. Articles were distributed among team members who then read and summarized the documents. Team members then documented a major insight or takeaway from each article they reviewed and related their findings back to the team to collaborate. From these collaborations 3 recurring themes emerged:



*Mindset* (attitude, self-perception)



*Mobility and Function* (affecting activities of daily living - daily tasks such as turning on a stove to cook a meal or bathing)





*Social* (social activity, ability to network)

These themes within the research allowed the team to create a lens to look through when conducting primary research. Throughout the process of gathering data, we require a lens to look through in order to weed out irrelevant or useless information and also to help organize information. We needed to find out whether our primary research takeaways and insights had the same themes or differed.

#### D. PRIMARY RESEARCH BREAKDOWN

##### **Observations (55+ Club meeting, Pioneer Gardens):**

For primary research consisting of observations of the assisted living facility and at the 55+ Club meeting, team members took notes on any observations they made, then summarized those notes into takeaways (a list of interesting or unique insights), which ideally contained all relevant information. Team members then posted them in an online document available only to the team.

##### **Family Interviews:**

For personal interviews, researchers interviewed family members in a private setting. Various questions from a written list composed by a sub-team were used in order to reveal the individuals' perceptions of aging, their current reality concerning aging and retirement for themselves or family members they've cared for, any lifestyle changes and also to obtain a feel for the individuals' verbiage or comfort level associated with retirement and aging.

The family interviews were organized into 1-2 page summaries, then turned into timelines, which listed all the major events/lifestyle changes that made a significant impact on the family member's ability to live independently –i.e. a family member had back surgery, which restricted their mobility and function. From these summaries and timelines, the team looked for similarities upon comparison (of the timelines) and then reviewed secondary research to compare insights between both groups of research.

## 4. Analysis and Findings

### A. RESEARCH FINDINGS

By the midterm, the IPRO 360 team had created a secondary research database that contained data collected from 50 peer-reviewed articles. Summaries of the articles were uploaded into the database, along with takeaways that contained relevant insights about senior living. From this data, the IPRO team identified topical categories for sorting the articles. The categories were first broken down into three sections: 1. Mental, 2. Physical, and 3. Methods.

This initial sorting helped reveal themes in the research and helped structure the methodology and format of the primary research. Additional categories that described the problems faced by the senior community, which could be addressed by Chamberlain Group and the Duchossois Group, were later identified from this data and included the following themes:

1. Social (social activity, ability to network),
2. Mindset (attitude, self-perception) and
3. Function and Mobility (affecting activities of daily living).

It is in the combination of the analysis techniques used (see Organization and Approach above) as well as the insights obtained from secondary research that we identified the major conclusions and problem areas relevant to Chamberlain Group's interests.

## **5. Conclusions and Recommendations**

### **A. OVERALL CONCLUSIONS**

The conclusions made by the team at the end of the project based on the research conducted consisted of five major categories: independence, stigma, community-based living, lifestyle changes and pro-activity & education.

#### **Independence:**

Baby boomers view independence as being in control of their own situations and wish to retain that control. In regards to independence, it is apparent from our research that the baby boomer generation values independence and empowerment. Baby boomer and senior citizen family members expressed a strong desire to avoid nursing facilities and to not be a burden on family and friends. They would like to remain in control of their own aging.

#### **Stigma:**

There exists a stigma associated with aging that divides "old" from "young". Addressing the stigma associated with aging crosses all problems related to helping people age in place. This in turn communicates a perceived loss of value and control in life. Any solutions that address the issues related to aging must also avert the stigma associated with needing assistive services or products.

The difficult truth is that assistance can significantly improve the quality of life of a person, but these are often rejected because they represent a loss of control. Identifying ways to incorporate new forms of control with assistance can ensure aging individuals are helped, while allowing seniors to maintain a level of independence.

#### **Community-Based Living:**

Living alone increases risks and challenges associated with aging. As people age, their social connections tend to break down. This is detrimental to individuals because not only is their social support network decreasing in size and extent, but friends are able to keep each other independent for longer. Thus, the loss of this network is a threat to an individual's independence and identity.

#### **Lifestyle Changes:**

Baby boomers acknowledge the importance of lifestyle changes to prevent their loss of independence. Several family members of the class demonstrate this, including 1 individual who has begun Tae Kwon Do classes and lost over 25 lbs. Others have actively tried to improve their overall diet, by reducing fat and

sodium intake, while increasing the amount of vegetables they eat. While these steps taken are quite moderate and easy to do, there are many other lifestyle changes that lead to a loss of independence due to sudden dramatic changes, whether brought on by an accident (i.e. a fall), or naturally occurring (i.e. an overall decrease in mobility). If proper lifestyle changes are not made in time, more severe ones will inevitably follow later in life.

**Proactivity & Education:**

People tend to not plan sufficiently or early enough for the aging process. Solutions are reactive rather than proactive. Proactive planning and education with respect to services and products will extend an individual's independence. Planning for college, graduation, work, family, retirement are good ways to ensure success in the coming life stage; planning for aging is equally valuable. Learning about and acknowledging vulnerabilities and resources available will prevent someone from being stranded in the case of an emergency.

**B. RECOMMENDED NEXT STEPS**

This semester's team has narrowed the focus of this IPRO to 5 problem spaces. Future IPROs have the opportunity to continue research and further explore the problem spaces identified or to seek more problem spaces. Primary and secondary research areas have extensive information to support or challenge defined problem spaces. Opportunities include leveraging the easily accessible baby boomer population within IIT and maintaining relationships with Pioneer Gardens and the 55+ Club. Overall, the continuation of the Aging In Place IPRO will be guided by Chamberlain Group and the Duchossois Group.

## **6. Appendices**

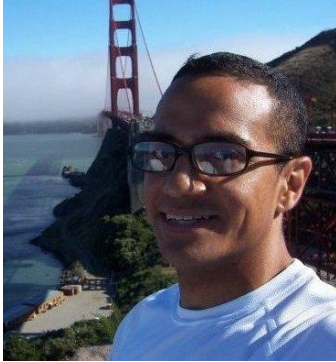
### A. IPRO 360 Team Expenses

Spring 2011

The IPRO 360 group from the Spring 2011 semester had no official expenses.

## B. List of Team Members

Faculty Advisor - Limia Shunia



**Mario Alvarez**  
**Major: Mechanical Engineering**



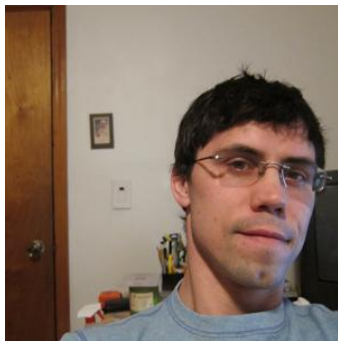
**Emily Bardsley**  
**Major: Architecture**



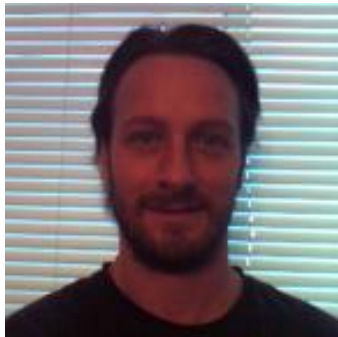
**John Ingles**  
**Major: Physics**



**Brian Kibbe**  
**Major: Mechanical Engineering**



**Joseph Klimek**  
**Major: Architecture**



**Jamie Mitchell**  
**Major: Biomedical Engineering**



**Rebecca Morgan**  
**Major: Business**



**Angelina Papazova**  
**Major: Psychology**

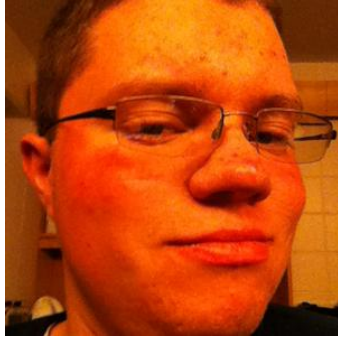


**Keyur Patel**  
**Major: Biomedical Engineering**



**Salma Salih**  
**Major: Psychology**





**Michael Sanders**  
**Major: Physics**



**Shefali Umrana**  
**Major: Biomedical Engineering**

### C. Observational Research Contact List

1. Pioneer Gardens, 3800 So. Martin Luther King Drive, Chicago, IL 60653,  
(773)-420-4100

2. Lincoln Park Village, 2502 N. Clark St., Chicago, IL 60614,  
(773)-248-8700

3. Golden Years Retirement Inc., 7847 Ogden Ave., Lyons, IL 60534,  
(708) 447-6223

4. Pershing Convalescent Home, 3900 S. Oak Park Ave., Stickney, IL  
60402, (708) 484-7543

5. Friendship Village, 350 W. Schaumburg Rd., Schaumburg, IL 60194,  
(847) 884-5050

6. Bellmont Village of Oak Park, 1035 Madison St., Oak Park, IL 60302,  
(708) 848-7200

7. 55 + Club, 653 West 37th Street, Chicago, IL

#### D. Consent Form

The consent form on the following page was issued to caretakers at the Pioneer Gardens facility in Chicago, IL in order to conduct unobtrusive observational research within community areas (such as the dining hall or activity room) at the facility.

### CONSENT DOCUMENT

**Please read this consent document carefully before you decide to participate in this study.**

As a representative of facility named \_\_\_\_\_, I give permission to Illinois Institute of Technology (IIT) students from the IPRO 360 course to observe the residents of this facility in a public setting (i.e. dining or social event) in a non-disruptive manner. I understand the observation will include note taking but will not involve interviewing, photographing, video taping, or audio recording the observees/residents . I also understand that all observees'/residents identities will be coded to ensure confidentiality.

The observation team (2-5 students), will spend approximately one to two hours observing the residents in a public setting. In the event that a resident initiates conversation with the team, the students will follow the desired protocol recommended by the representative of the facility. I also understand that this observation is for educational purposes only, to enhance understanding of the problems faced by the seniors and their immediate relatives and caregivers. Although participation involves no future obligation, I may be contacted for future observation sessions involving identical observational methods.

#### **Protection of Confidentiality and Privacy**

I understand no resident will be identified by name in any report from the findings. I also understand that notes taken by the students may be used for describing and presenting project findings and recommendations but they will not be connected to a name. I give my consent to Illinois Institute of Technology (IIT) to use such notes for educational purposes only. I am informed that the documentation notes will be kept in a locked cabinet and destroyed by researchers within 6 years.

Any further questions about the research and my rights as a participant will be answered if I contact the project director Professor Limia Shunia, Institute of Design, 773.490.5613, mail@limiashunia.com

I understand that the Illinois Institute of Technology is not responsible for any injuries or medical conditions I may suffer during the time I am a research subject unless those injuries or medical conditions are due to IIT's negligence. I may address questions and complaints to Glenn Krell, MPA, CRA, Executive Officer of IIT Institutional Review Board at 312-567-7141.

**Participant's Consent**

I have read the material above and any questions I asked have been answered to my satisfaction. I agree to allow the IIT students to observe the residents in a public setting. I have received a copy of the consent form.

\_\_\_\_\_  
Subject Signature Date

\* Observation

## E. References

1. Department of Public Information. World population will increase by 2.5 billion by 2050; People over 60 to increase by more than 1 billion. New York: Department of Public Information, 2007. N. pag. Web. 17 Jan. 2011. <<http://www.un.org/News/Press/docs/2007/pop952.doc.htm>>.
2. Hayase, D., Mosenteen, D., Thimmaiah, D., Adler, K., & Fisher, A. G. (2004, June). Age-related changes in activities of daily living ability [Electronic version]. *Australian Occupational Therapy Journal*, 51(4), 192-198.
3. Kalorama Information. *The Long-Term Care Market: Nursing Homes, Home Care, Hospice Care, and Assisted Living*. N.p.: Kalorama Information, 2010. N. pag. MarketResearch.com. Web. 20 Jan. 2011.
4. U.S. Census Bureau. (2007, January 12). *State & county Quickfacts: Allegany County, N.Y.* <http://quickfacts.census.gov>.