

# Research Plan

**IMPORTANT:** When completing this outline, please use the [Research Plan Guidance](#) for the content necessary to develop a comprehensive yet succinct Research Plan. Using the guidance to complete this outline will help facilitate timely IRB review.

---

**Study Title:** Post-Occupancy Evaluation of the Ed Roberts Campus: Universal Design Aspects

**Protocol Number:** TBD

**Principal Investigator:** Kyuho Ahn and Linda Zimmer

---

## A. Introduction and Background

The built environment has a particularly profound influence on the living qualities of people with disabilities due to their need for architectural accommodations. To this end, the design professions have relied on ADA Accessibility Guidelines (ADAAG) published in 1991, to ensure that public buildings offer proper accessibilities to people with disabilities. The ADAAG is designed to protect the human rights of Americans with disabilities; it sets minimum standards for eliminating barriers in all public buildings but does not pro-actively support independent living of disabled individuals. The updated 2010 ADA guidelines expand inclusion for better service/product accessibilities for people with disabilities. Although most public buildings in the United States satisfy the ADA regulations, many users with disabilities still feel vulnerable in navigation and use because the design of many public buildings still does not support independent use or take into account social and psychological well-being of disabled users. In design education, ADA issues have traditionally been taught in isolation as mandated regulation requiring compliance. Professionals and students, as a result, see accessibility issues as obstacles to creativity, and ADA issues are often treated minimally and passively in architectural projects. A new design paradigm is necessary to overcome these issues and Universal Design responds to it.

Universal/Inclusive Design advocates that a good product, service, or environment should be designed in a way that everyone has equal opportunities to enjoy the products/service/environments provided regardless of ability, gender, ages, ethnic group and/or culture. The design implications should be above and beyond building codes and ADA regulations, yet there are few tested examples of designs that consciously exceed these minimum expectations. The 82,000 square-foot Ed Roberts Campus, designed by Leddy Maytum Stacy (LMS) Architects and occupied since 2011, has established an important set of specific design guidelines to promote universal design principles that truly support independence of people with disabilities. However, it is still unclear how the building design has performed in use as there has been no systematic study. Now that the building has been open to the public for five years, it is important to evaluate its design to establish the credibility of the design guidelines used. There have been few POEs of public buildings conducted and even fewer that concentrate on Universal access. Those that do address accessibility are typically limited to healthcare environments.

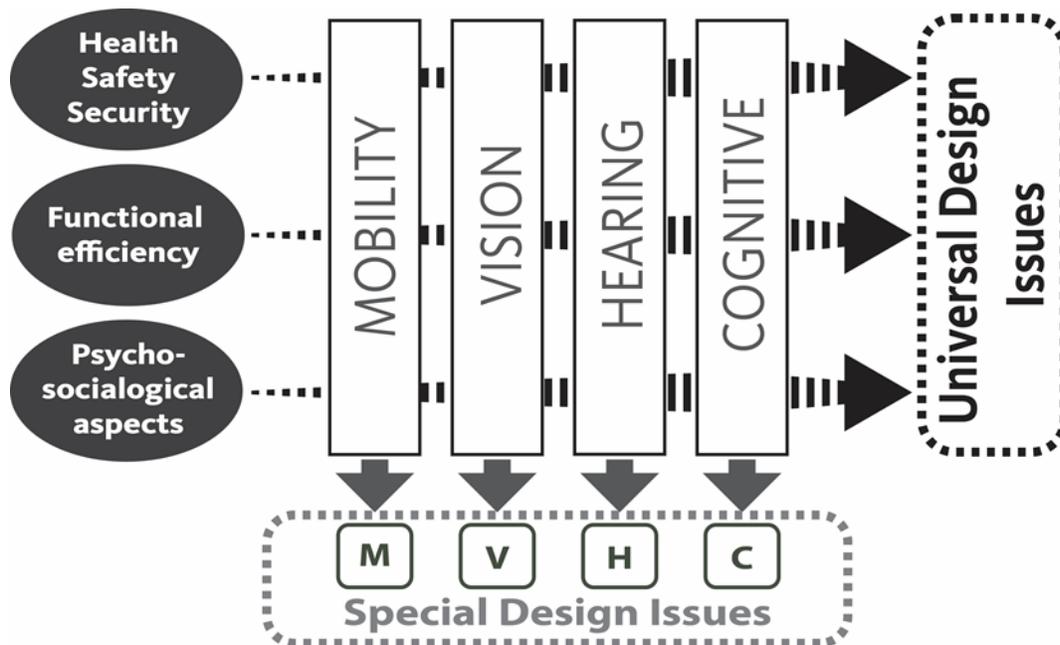
The programming and design phases of the ERC were lengthy (the building was in the planning stages for five years). This allowed LMS to conduct a series of participatory design workshops to engage the users. LMS worked extensively with a large and diverse user group in identifying guiding principles. These include celebrating the diversity of the human condition and providing replicable design solutions. An iconic suspended circular ramp is one example of the principle of celebrating diversity of humans who use the building. Replicable strategies and elements include tactile variations, auditory elements, and various options for use of building features. LMS defines replicable solutions as those that can be easily implemented (and/or employed by others) using available technologies and products, rather than using more advanced, and specialized gadgets and equipment. By evaluating the success of these celebratory and replicable elements from a viewpoint of users, we hope to aid designers who may wish to study (or already be studying) elements in the ERC.

## B. Specific Aims/Study Objectives

This goal of the POE is to investigate the ERC's building performance, with a particular focus on universal design strategies as perceived by user groups with varied disability profiles.

In our study, we are specifically concerned with understanding how the ERC interior functions in a universal context, but also with comparing the relative success of features for users with differing disability profiles. For instance, does a water feature help in wayfinding for one group but confuse another?

To identify universal design issues of building performance, we have identified user groups based on disability profiles that include ambulatory, auditory, visual, and cognitive disabilities. We seek to identify co-universal design elements that are perceived as supportive by all disability profiles and what are the conflicting design elements that have different positive or negative perceptions.



The survey protocol is based on Building Performance Criteria suggested by Presser . (see below). Criteria will be cross referenced to each user's disability profile.

1. Health, Safety, and Security – accessibility, emergency wayfinding, sense of comfort and personal and social security (privacy), indoor air quality

2. Functional, Efficiency, and Work-flow – space navigation, wayfinding (communication), efficiency, adjacency, group work vs. private work

3. Psycho-sociological Aspects – building images, personal and social privacy, social images, aesthetics

In terms of functional efficiency and work-flow it is also important to classify users based on their status such as administrator, staff, visitors, maintenance staff, and/or tenant groups. In this way, we can gauge perceived building performance based on how different groups define task oriented performance. Additionally, a typology of the building components should be investigated to identify building performance criteria for the survey development. For example, an open auditorium, a conference space, and a restroom have distinctive functional criteria. It is important to establish such spatial typologies that require different performance criteria. This includes entryways, outdoor patio, auditorium, service facilities (meeting rooms and supporting facilities), restrooms, childcare facility, reception desk, ramp, etc.

Three different research studies will be conducted for data collection and analysis. They are ***On-line User Survey***, ***Focus Group Study***, and ***Behavioral Mapping***. Each research method provides unique sets of information that support findings and uncover design issues that may not be available from either of the other research methods.

The goal of the ***User Survey*** is to discover design features where users with different disabilities agree on building performance. This will suggest universal design strategies that can be applied regardless of disability profiles. Second, it is to discover design features where users with different disability profiles differ on their assessment. Many anecdotal experiences from disabled users suggest such conflict and this survey analysis can reveal such claims.

While a user survey provides quantitative data for statistical evidence, a ***Focus Group Study*** generates qualitative data that explains details of how users perceive or interact with architectural stimuli. These detailed qualitative user experiences of the ERC design features would further assist the findings of the survey data analysis and unveil additional design issues of ERC building performance.

***Behavioral Mapping*** is a useful tool to observe and/or identify underlying pattern of user behaviors within an architectural environment. By recording how people use the space and move around within the environment, we hope that the Behavioral Mapping data “triangulate” findings from the survey and the focus group study.

### **C. Methods, Materials and Analysis**

#### On-line User Survey

An on-line user survey will be conducted to collect data. The goal of this survey is to identify perceived quality of the Ed Roberts Campus public space architectural design features evaluated by users (visitors, staffs, volunteers, and clients), with focus on universal design aspects. We are particularly interested in how users with different disabilities evaluate the ERC differently. The on-line survey will be assistive technology compatible to accommodate the survey participants who need alternative forms of communication due to their disabilities. We anticipate that the on-line survey is to be conducted for a month and we hope that we get 100 responses (visitors: 30, staffs/volunteers: 30, Clients: 40) from the survey.

A statistical analysis will be conducted to identify core-design implications that can be applied universally and disability specific design implications that possibly conflict with other design implications for the other disability profiles.

#### Focus Group Study

We will conduct an on-site focus group study that engages members of ERC and disability communities to document perceived quality of building performance. The goal of this focus study is to identify and record more detailed users’ insights about the building design that are not possible to identify via the survey. Each participant will be invited to engage in a discussion of how ERC building elements perform and to note specific examples by posting “specialty tags” at designed areas or objects identified by the participant while he/she is walking through the space. These specialty “tags” are coded by color based on three building performance criteria used. We hope to have at least 25 subjects participating. The focus group will employ assistive technologies (e.g. captioning, hearing aids, etc.) and/or American Sign Language (ASL) interpreters to support better communication if requested. The research team will travel to the site to conduct focus groups. A signed consent form will be required to participate in the focus group study.

Each participant will sign-in by completing the consent form. Then each will be issued an envelope that contains 1) a numbered form whereby participant can elect to provide anonymous demographic data and disability profile. The participant # on this form will be used to track data in a confidential manner. This form will be collected. 2) Participant #s will be keyed to custom pre-printed “post-in” notes and clip boards used in the walk through of the building (described below).

The data will be coded. Descriptive and qualitative data analysis will be conducted if there any emerging patterns exist to support or reject the findings of the on-line survey.

## Behavioral Mapping

The goal this behavioral mapping is to identify behavioral patterns when people navigate the public space of the Ed Roberts Campus over time. By documenting the behavior of all individuals within a specified place and time, it can reveal how or what is being used, or not used. The space we will be studying is the main lobby and atrium of the Ed Roberts Campus. Record characteristics that are readily observable, such as approximate age, abilities, whether the individual is alone or in a group, and what they are doing will be coded. Digital photographs will be taken during the observation to assist the behavioral mapping data. When the primary investigators analyze the photographs, all identifiers of subjects will be pixelized to protect identities. The researchers who conducting the behavioral map data collection will complete the IRB CITI training prior to the data collection.

We will conduct a Behavioral Mapping on site while we are visiting the ERC for the Focus Group Study. The behavioral patterns of how people use the space and furniture will be recorded for three-time periods: 8-10am, 11:30-1:30pm, and 4-6pm for three days (Monday, Tuesday, and Wednesday) except during the Focus Group Study (most likely the focus group study will be conducted on Tuesday and/or Wednesday lunch time.). Each behavioral mapping has 15-minute (10-minute data entry and 5-minute break) intervals for each round. During two hours of behavioral mapping session, a total of 8 entries ( $<10\text{min} + 5\text{min. interval}> \times 8 = 2 \text{ hours}$ ) will be completed.

The data will be coded and analyzed based on qualitative approach to find supporting/rejecting evidence of the on-line survey findings.

## **D. Research Population & Recruitment Methods**

### On-line User Survey

We will use a LISTSERV email list of the ERC to recruit voluntary survey participants from the user groups of staffs, volunteers, and clients. For general public and non-ERC affiliated visitors, we will create a survey link on the ERC website and use fliers in which a URL link to the survey is indicated. we will to make the survey available to ERC users who are on site through two secure digital tablets located in the public area of the ERC. We anticipate 100 samples from the on-line survey.

Participation will be incentivized by having participants enter a raffle for a \$50 gift card, with two winning participants.

### Focus Group Study

We will use the LISTSERV email of the ERC and the online survey to recruit volunteers. At the end of online survey, the survey participants are invited to volunteer. The contact information (phone number or email addresses) will be collected separately to ensure anonymity of on-line survey responses. We hope to have at least 25 samples for the Focus Group Study.

As an incentive, participants can enter themselves into a raffle whereby the winner can choose an ERC organization of their choice to receive \$100 donation from the research team.

## Behavioral Mapping

No recruitment is necessary for this study.

## **E. Informed Consent Process**

On-line User Survey (an alteration of the elements of informed consent and a waiver of documentation of informed consent)

Due to the nature of on-line survey, we are not able to obtain signed written consent from participants. However, will provide online survey consent form at the beginning of the survey. To participate in the survey, participants

are required to choose “agree” button to proceed the survey. The consent form is linked in the survey and the survey have been included in this application. The actual on-line survey can be seen via this link: [https://oregon.qualtrics.com/jfe/form/SV\\_7ZAxo6kxp44gMEB](https://oregon.qualtrics.com/jfe/form/SV_7ZAxo6kxp44gMEB) .

#### Focus Group Study (Written informed consent will be administered and documented)

The participants who sign up for the Focus Group Study will gather together at the Osher Foundation Education Center in the ERC located in the atrium. The center is equipped with assistive technology such as assistive listening devices. Each participant will receive the consent form and will be required to sign it to participate the Focus Group Study. The consent form is included in this application.

#### Behavioral Mapping (a waiver of informed consent)

There are no informed consent procedures necessary for this study. The researchers will collect behavioral data by observing people/users in a natural setting.

### **F. Provisions for Participant Privacy and Data Confidentiality**

#### On-line Survey

The on-line survey consists of three sections that are associated with privacy and data confidentiality: (1) actual survey for data collection, (2) Focus Group Study recruitment, and (3) raffle ticket registration. The data collected from the (1) actual survey are anonymous and stored separately. In this on-line survey, anonymous demographic information of disability profiles will be collected at the end of the survey for the purposes of statistical analysis only.

The contact information collected separately via (2) the Focus Group Study recruitment will only be used for contacting the individuals who signed up. The data via (3) the raffle ticket registration will be collected separately and will only be used for drawing gift card winners.

#### Focus Group Study

No personal data collected in this study. All demographic data, disability profiles, and “post-in note data” are anonymous. All data collected will be stored in a secured location.

#### Behavioral Mapping

Neither individual identities nor private data are collected within behavioral data on the Behavioral mapping. Field surveyors will collect photography of the space being observed for behavioral data support. In this case, all identifiers of personal privacy will be pixelized to ensure further privacy protection. All data collected will be stored in a secured location.

### **G. Potential Research Risks or Discomforts to Participants**

There are no reasonable foreseeable (or expected) risks of any kind associated with these studies. However, there studies may include risks that are unknown.

### **H. Potential Benefits of the Research**

There are no direct benefits for participants. However, the research findings will contribute to a stronger understanding of the role of design in promoting independence for users of public buildings.

### **I. Investigator Experience**

**Kyuho Ahn**, Co-principal Investigator

Kyuhoo Ahn is an associate professor of interior architecture at University of Oregon. He earned an M.F.A. in interior design, receiving a Research Excellence Award, from Iowa State University. He is LEED-accredited and certified by the National Council for Interior Design Qualification (No. 022270).

Professor Ahn studies how built environments influence human experiences and how these relationships inform design decisions. His work focuses specifically on how diversity affects design from three different viewpoints, cultural identity in the built environment, cross-cultural design thinking, and inclusive design. Projects include ongoing studies that examine relationships between human behavior and environmental stimuli, and what are the profound impacts of the built-environment on vulnerable populations. These include: "Store Environment and Consumer Satisfaction," *International Journal of Design in Society* (2016); Daycare Program Facility for Adults with Autism, Chico, CA (2015, Design Project); and "BluePath Survey: Empathy for Accessibility Beyond ADA Regulations and Enhancement of Diversity Awareness," 2013 IDEC Conference.

Professor Ahn studies inclusive design from a diversity point of view. In his teaching and research, Ahn urges designers consider disability issues as a cultural identity as well as a physical or psychological condition. By looking at inclusion in this way, designers may more readily consider the social ramifications as well as the physical ramifications of their work. Professor Ahn has directed many students at the graduate and undergraduate level who participate in funded research and design studios with a focus on accessibility. These include: "Center for Independent Living and Culture, Oakland, CA (2015, \$5,000)," "Live Young: Sky Lakes Wellness Center, Klamath Falls, OR (2014, \$1,000)" and "Inclusive Architecture and Design(2013, graduate seminar, \$4,000). Student research has been disseminated including "Designing for All: Better Spaces for the Vision Impaired," 2014 IDEC Conference; and "Evaluating a Retail Space Using a Systematic Design Approach," 2013 IDEC Conference.

#### **Linda Zimmer**, Principal Investigator

Linda Zimmer is an associate professor and director of the Interior Architecture program at the University of Oregon. She earned a Bachelor of Interior Architecture from Kansas State University and Master of Interior Architecture from the University of Oregon. Her professional career includes extensive work in the office workplace and her research interests have been shaped by her professional practice as well as academic interests. She is certified by the National Council for Interior Design Qualification (No. 5560)

Professor Zimmer studies the interaction between people and the built environment and is specifically interested in how spaces and furnishings evolve over time as a result of formal design interventions and/or informal changes made by users. Her research and creative practice explores flexibility and change in the built environment from multiple perspectives. Ongoing research takes form in studies that document changes to building interiors. The "Secret Life of Buildings" project documents changes to the lease spaces of modernist office buildings over the life of the building including Pietro Belluschi's Equitable building in *The Secret Life of the Equitable Building: How Office Interiors Change* IDEC Conference (2012). She examines how open schools evolved and were manipulated over time by users (*Evolution of the Open Plan School: A Case Study* IDEC Conference). She has conducted post occupancy evaluations including those to examine prototypical environments for group work in conjunction with Steelcase "POE's and Prototypes: Post Occupancy Evaluations Comparing Two Prototypical Groupworkspaces in the Open Office" *Journal of Interior Design Education and Research*. Her interest in user experience extends to furnishings where she examines modularity and flexibility in furnishings and even how furniture may be modified and constructed by users. "Six Board Chest Project: Experiments in Open Making" IDEC Conference 2016, In her teaching and research, Zimmer urges designers consider how their designs might facilitate changes over time to adapt to changing users and circumstance.

#### **Olivia Asuncion**, Research Consultant.

Olivia Asuncion earned a Bachelor of Arts degree in Architecture from the University of California Berkeley, and a Master of Architecture from the University of Oregon, with a focus on social and universal design. She currently works as an architectural designer at Shah Kawasaki Architects, a public sector architectural firm in Downtown Oakland that promotes community development through beautiful and functional designs.

In her previous experience, Ms. Asuncion worked as a project assistant at Equity Community Builders, where she collaborated with project and construction managers to find creative financing solutions to urban in-fill projects that exemplify innovative, environmentally-responsible and socially-equitable design. Projects include the Ed Roberts Campus in Berkeley, CA.

Ms. Asuncion is passionate about improving architecture through design research. She strongly believes that design decisions have the potential to create physical symbols that tear down social barriers and inequalities. While at the University of Oregon, she began a study entitled “Accessible Evacuation: improving Fire Safety and Building Evacuation for People with Disabilities,” where she assessed the efficacy and accessibility of existing evacuation protocols and building safety codes and theorized solutions for more inclusive and safe building designs. Her research was presented in various symposia, including the University of Oregon Department of Architecture’s Annual Student Research Symposium, and the Environmental Design Research Association EDRA46LosAngeles Conference in 2015, where she received First Place for the Student Best Design Award. Ms. Asuncion also managed the Large Classroom Comparison Research project, finding correlations between teacher-student interactions and the physical qualities of large lecture halls. This work was presented at EDRA47Raleigh Conference in 2016. She believes that environmental design can have a positive effect on the human condition and that it is the responsibility of designers to ensure that projects promote social equity and universal design.