Experiential Design – Rethinking relations between people, objects and environments

• Paper / Proposal Title:
CODY: Using Virtual Reality for Co-Designing Residential Interiors for People with Parkinson’s Disease

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• Abstract (300 words):
How do we design appropriate home modifications to an increasingly diverse population with different mobility and accessibility needs? While universal design is deemed the aspirational design approach for addressing an inclusive range of individuals, certain impairments may need specialized design features not easily meshed within a universal design strategy. Using a person-centered approach to addressing such needs, a multidisciplinary team from the University of Florida has developed and is testing a Virtual Reality (VR) tool — named CODY, for Co-Design for You — for experiencing and co-designing home alterations by individuals with movement disorders, specifically the movement challenges faced by persons with Parkinson’s disease (PD).

CODY comprises a virtual reality system and a gait analysis Strideway mat. The visual simulation is a bedroom with a connecting door to a bathroom. Using a matched pair experimental design, research participants (persons with PD, and age-matched adults without) are asked to move from the bedroom, through the doorway, into the bathroom,
with the gait mat recording their movement. The experimental conditions have different door widths (standard, ADA, and variable) and door frame colors (same as wall, contrast with wall, variable). The VR system presents the doorway designs and the interior environment at room-scale so that persons can view and navigate through the door. A Leap Motion system enables participants in the “variable” condition to seamlessly change the doorway design (e.g., changing width, color of door frame) to their preference.

Outcome measures include movement patterns recorded by the gait mat and completion of three surveys addressing usability, satisfaction and anxiety. Statistical analyses will be completed and presented at the conference.

The researchers anticipate that further development of CODY will result in a tool that clinicians and rehabilitation centers can use to assess those home modifications most beneficial to individual clients with PD or other movement disorders.

• Author(s) Biography (200 words each):

Sherry Ahrentzen, PhD, is Shimberg Professor of Housing Studies at the University of Florida (UF) and a Holland Professor in the Rinker School of Construction Management. Her research focuses on housing and community design that fosters the physical, social and economic health of households. She currently leads a multidisciplinary team of UF faculty examining residential building performance of occupant health, specifically that of older adults. Over her career, she has received the Distinguished Professor Award from the Association of Collegiate Schools of Architecture; the Career Award from the Environmental Design Research Association; and the ARCC James Haecker Award for Distinguished Leadership in Architectural Research.

Ravi Srinivasan, PhD, is Associate Professor of Construction Management and Director of UrbSys Lab, M.E. Rinker, Sr. School of Construction Management at the University of Florida. His research focuses on urban building energy sensing, controls, big data analysis, and visualization. He is also an External Faculty Collaborator, Center for Environmental & Building Design, University of Pennsylvania. Dr. Srinivasan received his Ph.D. and M.S. in Architecture (Building Technology) from the University of Pennsylvania; M.S in Civil Engineering from the University of Florida. He has published two books and over 80 technical journals, conference proceedings, and chapters.

Assistant Professor of Interior Design at UF, Dr. Shabboo Valipoor’s research centers on understanding the role of the built environment and its integrated objects in improving or impairing physical and psychological health. Her research mainly focuses on acute care facilities as well as residential settings for the elderly, where a small alteration in the physical environment can make substantial changes in lives of vulnerable populations. She has published on topics of safety and accessibility, quality of care, environmental stimuli and positive distractions in healthcare and human factors sectors.
She serves on the North America Chapter of the International Academy for Design and Health Leadership Committee.