

Effect of Experience on Wayfinding in a Large, Complex Environment

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I. EXTENDED ABSTRACT

This presentation will provide a review of the literature on wayfinding in large, complex, multi-level facilities and will describe a correlational research study that assessed the wayfinding performance of twelve subject matter experts (patient transport personnel) of varying experience in a 1.8 million square foot, complex, regional hospital facility. This presentation will also present and discuss possible underlying cognitive and perceptual mechanisms that may contribute to how humans encode spatial and navigational knowledge^{1,2,3,4,5,6,7,8}.

This correlational study uses a mapping task, a pointing task, and a route diagramming task in order to assess participants' survey knowledge and procedural knowledge. This study presents a unique contribution to the fields of architecture and neuroscience because of its assessment of performance of patient transport personnel in a large, regional hospital. One limitation of existing studies is that few utilize a facility of the scale or complexity of a large, regional hospital. Another limitation of existing studies is that most participants were unfamiliar with the facilities used prior to participating in the studies. Of the participants who were familiar with the facilities used in the studies prior to participating, most had a few days to a week's worth of exposure. In only one study did the 'familiar' participants have 1-2 years of exposure to a facility. But even in that case, the extent of their exposure to the entire facility (as opposed to their assigned area) was unclear. Conversely, the present study uses wayfinding subject matter experts (patient transport personnel) with full-time, daily wayfinding experience throughout their respective facility ranging from 4 months to 8 years.

2. REFERENCES

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Joe's goal is improving the capacity of the built environment to enhance human health, well-being, and cognition. He develops representational schemas, design methods, and tools for representing and analyzing the impact of potential environmental design features on user cognitive and task performance. His work engages the following frameworks: complex and dynamical systems science, embodied cognition theories of mind, Edelman's Theory of Neuronal Group Selection, Kirsh's concepts of epistemic and pragmatic action and activity space and performance design, Chua's theory of a cognitive dynamical system, cognitive task analysis, socio-technical systems, cyber-physical systems, ultra-large scale systems, ecological niche construction, neural networks, graph theory, and symmetry breaking. Joe's background includes: architecture, cognitive psychology, human factors, information architecture, and sustainability.

Robin Farr

Robin is the Supervisor of Patient Transport at Greenville Memorial Hospital, part of Greenville Health System, in Greenville, South Carolina.

Johnell Brooks, Ph.D.

Johnell is a Human Factors Psychologist who develops driving simulators that are used as rehabilitation and training tools for clinical settings and classrooms for diverse patient populations ranging from seniors to wounded warriors to young adults on the Autism Spectrum Disorder. She is also part of the Deep Orange program which immerses graduate automotive engineering students into the world of a future OEM and/or supplier. Working collaboratively, students, multidisciplinary faculty, and participating industry partners focus on producing a new vehicle prototype each year.

Lee Gugerty, Ph.D.

Lee is a professor of psychology with research interests in causal reasoning and critical thinking, attention during realtime tasks and spatial cognition. He is also coordinator of the PhD program in Human Factors Psychology at Clemson University.