Conferences Proceedings

Editors: Daniel Mittleman, PhD, and Deborah A. Middleton, PhD

Make No Little Plans...
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posed to investigate student perceptions by asking what and how students do and know in the architectural design studio and what they think about designing with others.

Methods and Strategies for Bridging the Design Practitioner-Researcher Gap

Janet Wampler (University of Missouri, Columbia)

By the very nature of the design profession, designers are required to make decisions that impact the way people live. Because of the long-term implications of decisions by designers, great importance and accuracy of information gleaned during the design process is paramount to the decision-making process. In the mid-twentieth century, a new field emerged which is directly concerned with the relationship between human social and psychological needs and elements of the natural and built environment—the field of environment behavior. In response to the need for environment behavior research (EBR), the Environmental Design Research Association (EDRA) was established. To date, a significant number of studies have been conducted and results published about the use by and the importance of EBR to the design practitioner. Although EBR has gained recognition and empirical data has been translated into useable processes and procedures, its use is often limited to a few. If designers are to retain their competitive advantage, the need to accommodate and change is its first challenge. To this end, this study was undertaken to determine if the application gap still exists and, if so, what factors do professional architects today believe are causing the disconnect and how it should be addressed.

The methods and strategies for gathering and disseminating data in this study are not unusual or unique—this study is a follow-up or continuation of studies by Merrill (1976) and Schmidt (1983). In fact, the findings from this study are similar to those of Merrills and Schmidt’s. Respondents in all three studies indicated a need for more emphasis on EBR during design education—suggesting a shift in the design education paradigm. For a shift to occur, the primary audience—professional designers and design educators—must embrace this change in thinking and consciously work towards shaping the new paradigm.

However, in the almost 40 years the gap issue has been studied and solutions put forth—such as a shift in design education paradigm—efforts to get the profession (academic as well as professional) to step up and change have been marginal at best. If a genuine paradigm shift is to occur, it may not occur from within the profession. I would suggest that those of us who wish to make meaningful interventions in the design field begin to develop strategies that position ourselves as client advocates for architectural services. Such an advocate would speak both languages—that of design-speak and of client-speak. Relieving the client from the burden and time it takes to learn design-speak and relieving the architect from the time consuming task of listening to the client talk about their problems in client-speak. Those design professionals who wish to embrace this role of translator will greatly facilitate the design process and go a long way in increasing the satisfaction of the client, making the entire enterprise work more effectively. They could also provide environment behavior researchers with real-world problems for research.

Impacts of Architectural Design on Communication Among Hospital Staff: An Example of Centralized vs. Innovatively Designed Decentralized Nurses’ Stations

Chia-Hui Wang, (Hwa-Hsia Institute of Technology, Taiwan and University of Illinois at Urbana-Champaign), Kathryn H. Anthony (University of Illinois at Urbana-Champaign), Nai-Wen Kuo (Taipei Medical University, Taiwan)

Previous literature shows that it remains inconclusive whether centralized or decentralized nurses’ stations are better. Our research regarding users’ experiences in an innovatively designed nurses’ station was received positively in EDRA 41. Although nursing and medical staff working in this hybrid nurses’ station were highly satisfied based on results of focus-group discussions, it is important to further examine the advantages in greater depth through additional quantitative research. Thus,
we applied social network analysis on investigating the impact of different design and centralized versus innovatively designed decentralized nurses' stations on communication among staff.

We surveyed 305 physicians and nurses working in 11 nurses stations of two hospitals to determine their networking of consultations and interactions in working environments. Among the 11 nurses’ stations, six are centralized nursing stations; the others are innovatively designed decentralized nurses’ stations. To evaluate impact of nurses’ station design on communication and interaction among physicians and nurses, we applied a self-report instrument with five-point Likert’s scales and a social network questionnaire. In the end, 273 valid questionnaires from among the 305 staff were collected.

We applied social network analysis to measure degree centrality, closeness centrality, and betweenness centrality for interaction and consultation activities that occur among hospital staff with different designs of nurses’ stations (decentralized versus centralized).

Results of social network analysis support all of the hypotheses that staff working in centralized stations have statistically significant higher degree and closeness centralities than those of innovatively designed decentralized stations in terms of consultation and working interaction networks. In addition, staffs working in decentralized stations have statistically significant higher betweenness centralities than those working in centralized stations, which means that those working in decentralized stations are highly dependent on someone (head nurses) to maintain their consultation and working interaction networks.

In this study, centralized stations facilitate better communications and interactions among physicians and nurses than decentralized ones, even though these decentralized stations are innovatively designed. In today’s medical society, due to rapidly changing professional practice, nurses’ stations should be designed as a space for senior staff to pass on their experience and knowledge to their junior colleagues so that the nurses’ station can be a space for accumulating experience and knowledge, as well as mentoring. Therefore, ways to enhance staff communication in decentralized nurses’ station by improved space design or advanced technology is an important issue to be studied.

Design Research of Cancer Infusion Treatment Environments

Zhe Wang (Cannon Design), Michael Puksztai (Cannon Design), Natalie Petzoldt (Cannon Design), Jennifer Cayton (Cannon Design)

Each year, 1.5 million people are diagnosed with cancer, the second leading cause of death in the United States. Americans have made measurable success battling cancer and increased the five-year relative survival rate in cancer patients from 50 percent in the 1970s to 66 percent in 2009 (ACS, 2009). However, very limited research investigates the treatment environments for cancer patients.

Infusion treatment environments are the places where patients receive chemotherapy to stop cancer growth, which is a systemic treatment received by more than 50 percent of cancer patients (AMGEN, 2008). Based on results from previous research, environmental features in infusion spaces are thought to influence patient care and safety, satisfaction, and operational efficiency (Cohen, Allison et al., 2009; French, Rodgers et al., 1974). However, significant features in infusion treatment environments have not been identified.

In the design of the infusion treatment environments at the Indiana University Simon Cancer Center, Cannon Design applied selected design strategies to foster patient care and safety, satisfaction, and operational efficiency. The design strategies include providing daylight and outdoor views for more than 70 percent of the treatment areas through a floor plan in multi-edge shape and appropriately placed windows, de-centralizing support areas to promote accessibility, and providing lounge spaces to facilitate social interaction. These strategies are based on the firm’s 10-year hands-on design experiences and studies regarding cancer treatment environments. Evidence needs to be built through design research to support these strategies.

Questionnaire surveys were conducted in the cancer center to collect data on patient care and safety (e.g., physical privacy, toilet-room access, window view, way-finding, stress, and risk of falls), satisfaction including hope for future treatments/work, and operational efficiency. A total of 143 patients, 130 family members, and 16 staff members were surveyed. Along with the surveys, two trained researchers observed the use of public space in the infusion treatment environ-