

Group D-5 | Rethinking the Design of Mental and Behavioral Crisis Stabilization Units through Integrating Physical Mock-Up Simulations and Artificial Intelligence

Full-scale physical mock-ups have played a crucial role in the design development and evaluation of healthcare environments in recent years. However, this framework lacks specific tools or recommendations for implementation in educational settings (e.g., architectural studios), and fails to leverage recent advancements in design development through artificial intelligence (AI). Moreover, there is a paucity of research on incorporating physical mock-ups to evaluate design features for mental and behavioral health environments, such as the Crisis Stabilization Unit (CSU).

In this pilot study, students collaborated with researchers from the Department of Architecture and Construction Science as well as a panel of experts (N = 14), including healthcare designers, mental and behavioral practice leaders, researchers, and clinicians (psychologists and psychiatric nurses) to develop and test design iterations for a CSU using low fidelity (cardboard), full-scale physical mock-ups. The goal was to develop design iterations for the observation lounge environment (e.g., nursing station) in a freestanding CSU with areas accommodating adolescents with multiple co-occurring conditions (e.g., mental health and substance abuse conditions) and varying acuity levels (high, medium, and low risk of harm to oneself or others). Semi-structured interviews were held with the panel of experts, followed by scenario-based simulations of care activities in the physical mock-up of the CSU. Experts' feedback on design features, including the unit layout and furniture, was gathered through questionnaires and focus groups following each scenario. Additionally, images of the physical mock-up and data from simulations were utilized with generative AI tools to develop innovative strategies for optimizing the quality of the CSU environment for adolescents. Findings from this study will inform the future design of CSU environments for adolescents and develop recommendations to effectively use full-scale, physical mock-ups to improve the design of CSUs.



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