



Comparing three methods for participatory simulation of hospital work systems

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Publication date:
2017

Document Version
Peer reviewed version

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Citation (APA):

Broberg, O., & Andersen, S. N. (2017). *Comparing three methods for participatory simulation of hospital work systems*. Abstract from 12th International Symposium on Human Factors in Organizational Design and Management, Banff, Canada.

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TITLE: Comparing three methods for participatory simulation of hospital work systems

Symposium: Methods and tools in human factors for health environment design

Summative Statement: This study compared three participatory simulation methods using different simulation objects: Low resolution table-top setup using Lego figures, full scale mock-ups, and blueprints using Lego figures. It was concluded the three objects by differences in fidelity and affordance addressed different elements of a hospital work system.

Problem statement Different methods for simulating the future work system for healthcare professionals have been applied in a number of green field and renovation design projects of hospitals in Denmark. The methods differed in the type of simulation objects representing the work system. Hence, this was an opportunity to study if these differences influenced which elements of a work system were in focus when healthcare professionals simulated and evaluated future work. Preliminary observations indicated this was the case but it was not understood how and why this influence took place.

Research Objective / Question: How does the simulation object influence which elements of a work system are being evaluated in participatory simulation events?

Methodology: Observation notes and video recordings of three types of simulation events using different objects were analyzed in respect to which elements of a work system were being targeted. A work system was defined as consisting of human work practices embedded in the three interdependent dimensions: space, organization and technology. All simulation events were based on participants playing clinical scenarios using the objects.

Results: Full scale mock-ups significantly addressed the local space and technology/tool elements of a work system. In contrast, the table-top simulation object addressed the organizational issues of the future work system. The blueprint based simulation addressed the organizational issues in combination with a global space outlook, e.g. the layout of an entire department.

Discussion: It is proposed that the simulation objects influence on work system focus is based on two attributes: Fidelity and affordance. Fidelity concerns the degree of resolution or the level of detail of what are being manifested by the simulation object. The affordance is a property of the object concerning how simulation participants will perceive how it may be used. When having a low-resolution model of a work system as in the table-top setup it is much easier to test a number of "what if" scenarios on how to organize the work in different spatial layouts.

In addition to the object attributes other factors may play a role in what work system elements are being addressed. An important one seems to be at which point in the hospital design process the simulation is carried out.

Conclusions: Different simulation objects may to a certain degree influence what part of a work system is being addressed in participatory simulation events. For human factors practitioners in hospital design projects it is important to pay attention to this when planning and facilitating simulation events to evaluate different designs.