The Use of Computer-Based Simulation in the Design Process of Information Systems for Patients

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In this paper, we demonstrate how simulation can be used in the design stage of the systems development life cycle. Although simulation has been long recognized as a useful tool in documenting process flow and overall system design, it has seldom been used as a data capture tool and as a methodology to study appropriate information systems (IS) design, and specifically, in developing IS interfaces. We apply this methodology to the development of an IS for patients.

“A simulation model captures complex, multivariate system components and replicates system operation in compressed time. The visual aspect enables workers to see the effect of proposed changes … [which] permits design of a total solution, addressing interactions of all system components” (Slovensky and Morin, 1997, p.72). Our focus in this paper is to incorporate a simulation model to assist in tracking the types of information that patients demand.

In healthcare, many are currently in agreement that there is a need for improved information systems in an attempt to achieve better decision making (Boyle and Reinbold, 1995; Frisse, 1999). This need then requires a complete determination of the type and scope of the information that would be useful to different decision makers within health care and the most effective means for sharing information. It is hoped that outcomes of our research experience will assist the development of further technology-based educational and training products.

The informatics tool described herein (HISE – Healthcare Interactive Simulation Exercise) is critical in promoting the use of information by patients. During the course of the simulation, the users can access a variety of information in a variety of different formats. In addition, they can request more detailed information support. Studying the information used, the further information required, as well as the decisions made, will assist in determining the necessary improvements needed in IS and the supporting informatics.

In the past, researchers have focused on the general patient perspective - i.e., the clinical needs of the patient; the changes in healthcare that are long overdue; the inpatient versus home care debate However, very little research has concentrated on the patient perspective - especially regarding their personal health care management information needs.

The public needs to educate itself, both individually and collectively, about health options and must demand to be educated when the information is not forthcoming. To some degree, many will argue, the public has been involved through government or representation on hospital boards or community service groups and committees. But, to a large degree, these “so called representations” represent only a small interest group and/or act totally independently. There is no real health group that has managed to organize and represent the will of the general public (i.e., including the healthy). This is desperately needed. If not accomplished, then many of the decisions surrounding patient IS will be made without patient involvement.

References


