Public Abstract
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Graduation Term:SP 2014
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Degree:PhD
Title:A USER-CENTERED DESIGN OF PATIENT SAFETY EVENT REPORTING SYSTEMS

As a primary source for learning from lessons in healthcare settings, the patient safety event reporting systems play a key role for health providers in the collection, aggregation, analysis and dissemination of patient safety events and actionable knowledge.

Usability is critical to the success of computerized system, yet it has received little attention in the field of patient safety event reporting. Failures in this regard may largely contribute to the low user acceptance and low-quality data that the reporting system currently confronted. In this project, we studied about three usability aspects of the system regarding the efficiency, effectiveness and user attitudes in an iterative process of system prototyping. With the involvement of user feedback and evaluations, the project identified and dealt with a number of usability problems that undermined the system acceptance and data quality.

As demonstrated in a most recent study, two functions of text prediction on structured and unstructured data entries for event documentation were proposed and evaluated. With 52 subjects, a two-group randomized experiment was conducted to quantify the impact of the functions on the three usability aspects. Consequentially, on structured data entry, the results were an overall 13.0% time reduction and 3.9% increase of response accuracy with the functions; on unstructured data entry, there was an overall 70.5% increase in the text generation rate, a 34.1% increase in the reporting completeness score, and a 14.5% reduction on the amount of text fields ignored by subjects. Subjects' usability attitudes were slightly improved with the proposed functions according to questionnaire result. The user acceptance and data quality have proven increased over the user-centered design process.

This project has three contributions to health informatics practice and research. First, it proposed a conceptual model of guiding the usability enhancement of patient safety event reporting system. Second, it introduced and evaluated the technique of text prediction to the nursing clinical documentation in reporting. Third, the application of ad-hoc tools and methods in the project is instructive to researchers who work on the usability studies of health information systems.