Guiding Medical Informatics Researchers in Human Factors and Usability Study Reporting

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Abstract In this workshop a tool is presented to support researchers in consistent reporting on relevant study aspects concerning Human Factors and Usability studies of health information technology (HIT). The tool was developed by means of a Delphi study on a framework of good practices concerning the reporting of Health Information Technology design, development and usability evaluation studies. Each item in the tool will be discussed as well as the Tools application for authors in composing short papers on usability and human factor studies for conferences. This workshop will disseminate use of the research reporting Tool in future publications on these kinds of studies and will stimulate further thoughts and reflections on the explicit and judicious use of current best practices in conducting Human Factors and Usability evaluation studies of health information technology.

Keywords Human Factors; Usability; evaluation studies; guidelines; Human Engineering

Introduction of the topic

In the field of healthcare, usability design and evaluation of interactive Health Information Technology (HIT) is now widely acknowledged as being critical to system design and successful system implementation [1]. As a result, numerous publications touch on important usability and Human Factors (HF) issues contributing to successful system (re)design efforts, high user-friendliness and usability, and efficient and acceptable HIT. However, scientific journals provide researchers only limited space to publish their results and often have standards in what is to be reported and what not. Though publication standards exist for evaluation studies in health (informatics), such as STARE-HI [2] and SQUIRE for quality improvement studies [3], they do not cover specific study (design) aspects which are considered significant in appraising the published usability and HF studies on HIT and the resulting evidence. Without clear considerations on what to report on in usability and HF studies in healthcare researchers may depict incomplete results and readers may miss important study details. This severely inhibits the appraisal of outcomes, generalizability of study findings and
meta-analysis of usability and HF studies. Hence, to promote usability/HF studies in Health Informatics (HI) and in building up an evidence base on good HIT systems evaluation, design and implementation, publications on these studies need to be guided towards consistent reporting on relevant study aspects recognised by the HI community.

In a collaborative effort between research team members of HITLAB (Amsterdam) and CIC-IT/Evalab (Lille), a writing aid has been constituted to support the publication of studies focussed on HIT design, development, and usability/HF evaluation, called: ‘Tool for the Reporting of Usability and human factors Evaluation of HIT (TRUE-HIT). The framework on which the developed tool is based, was validated by a Delphi study approach with three rounds to gain overall consensus on items considered relevant in a scientific publication concerning usability/HF studies of HIT [4]. It provides a checklist of principles to follow for comprehensive and unambiguous reporting of these evaluation studies. Its objective is to reduce variation, improve on the publication reporting quality and proper indexation of these studies. The framework and following research reporting Tool will be published in the beginning of 2015. By fostering research and exchange of information on usability/HF studies, HIT design, evaluation and implementation may be guided by evidence and best practices.

1. Aim of the discussion

The workshop targets senior and junior HI researchers involved in usability/HF studies on HIT in a broad sense, including usability-oriented socio-technical studies. The aim of this workshop is to present and discuss TRUE-HIT's application. Content and purpose of the Tool's items will be discussed and explained with active engagement of the audience. Focus will be on implementing each item in a scientific paper. Expected feedbacks deal with difficulties and advantages of using the Tool in scientific reporting.

A specific focus will deal with reporting on usability/HF studies in conference proceedings. Proceedings are a valuable source of usability data on various kinds of HIT. However they are often limited in terms of number of pages (e.g. 5 pages for MIE): writers are compelled to make drastic decisions in selecting data they want to report on. This leads to an intentionally incomplete report on the study's background (e.g. method, system evaluated) and results. How to adapt TRUE-HIT to the reporting (and/or reviewing) of usability studies in conference proceedings will therefore be discussed with the audience. The feasibility and the usefulness of this transposition will be questioned and several tracks will be addressed: for instance adapting the guide according to the type of study (“methodological paper”, “usability data paper”).

2. Plan of the discussion

The workshop will start with a presentation underpinning the issue of the poor reports of usability studies and the consequences for developing an evidence base for making decisions on HIT design and implementation. Then TRUE-HIT will be introduced. To help participants become aware of quality deficits of usability studies and to stimulate the discussion, a set of actual publications will be compared to the items in TRUE-HIT.

Participants will be asked to answer a short questionnaire to get information on the difficulties they already faced in reporting and/or reviewing a usability/HF study of HIT. Those difficulties will be shared with the audience to launch the interactive
discussion. The presenters will orientate the discussion on how they think the audience could apply TRUE-HIT in their reporting/reviewing practice: which advantages they anticipate and which difficulties do they think they might face when applying the Tool.

In the second part of the discussion, participants will be introduced to the specific topic of reporting a usability/HF study of HIT in conference proceedings. Instances from the literature of papers not adhering to TRUE-HIT will also be presented to support the discussion. Then the presenters will launch the discussion on the application of TRUE-HIT in conference proceedings guided by questions (e.g. “is a standardized unique tool possible? if not, what kinds of reports must be distinguished and how to adapt TRUE-HIT to guide reporting according to type of studies?” During the discussion, participants will be asked to sort the items from the Tool in several categories: mandatory items whatever the type of publication, secondary items (e.g. reporting depending on the aim of the paper), useless/less relevant items for proceedings. The discussion will end with a synthesis of the findings.

3. Expected results

The main results expected from this workshop are the feedbacks from the audience in terms of:

- Insights into anticipated advantages and difficulties in applying the actual usability and HF research reporting tool to scientific papers
- Insight into the potential need for adaptation of the tool for proceedings.

As for the first type of expected outputs; once the remarks from the participants in the workshop are analysed, they will be used to provide recommendations to users of TRUE-HIT how to apply the Tool. The results from this workshop will serve to develop a ‘short version’ of the tool that will provide reporters and/or reviewers with a list of mandatory items and secondary items a conference paper on an academic Usability research study need to report on. The development and the final form of the short version of the guide will be eventually published to be shared with the HF researchers in the HI community with the ultimate aim to improve the completeness and the quality of usability studies’ reports in conference proceedings.

Endorsement

The EFMI Working Group on Human and Organizational Factors of Medical Informatics and the IMIA Working Group on Human Factors Engineering in Health Informatics have endorsed this project.

References