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Ontological Sketch Modelling (OSM): Concept-based Usability Analysis

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Abstract: OSM is a novel approach to usability analysis and design that focuses on the quality of fit between the concepts the user is working with and those represented within supporting systems. It focuses not on tasks and procedures but on ontology - that is, the conceptual objects (entities and their attributes) that are embodied in a system, and the mismatches between those concepts and the ones brought to the system by its intended users. This full-day introductory tutorial will lead attendees through the essential concepts and procedures necessary to perform an OSM analysis, using familiar and readily available examples. Exercises will take the form of individual and small-group working. Participants may be HCI practitioners or researchers with an interest in semi-formal analytical approaches. At the end of the tutorial participants will have learned what OSM is and how to apply it to the analysis and design of real-world systems.

Keywords: usability analysis, usability design, ontology, Ontological Sketch Modelling, OSM

1 Aims

This full-day tutorial is an introduction to Ontological Sketch Modelling (OSM), a novel approach to usability analysis and design that focuses on the quality of fit between the concepts the user is working with and those represented within supporting systems. The tutorial will combine introduction to the theoretical background and the practice of application with practical exercises. The exercises will lead attendees through the essential concepts and procedures necessary to perform an OSM, using familiar and readily available examples. The exercises will be primarily paper-based; however, we will also introduce a dedicated tool for representing OSM descriptions in XML. At the end of the tutorial participants will have learned what OSM is and how to apply it to the analysis and design of real-world systems.

The objectives of the tutorial are as follows:

1. To introduce participants to the theoretical background to OSM and how it differs from other analytical approaches to usability evaluation.

2. To familiarise participants with the practice of performing an OSM analysis, and how to apply OSM to real-world systems.

3. To introduce participants to a dedicated OSM representation tool, dubbed OSMosis.

Participants may be HCI practitioners or researchers with an interest in semi-formal analytical approaches. Experience of usability inspection methods or more formal evaluation techniques will be useful but not essential. Exercises will take the form of individual and small-group working.

2 Brief Overview of OSM

Ontological Sketch Modelling (OSM) (Blandford & Green, 1997, 1998, 2001; Blandford *et al*, 2002; Connell *et al*, 2003) is a novel approach to usability

analysis and design. OSM models the differences between designers' and users' views of a system in order to identify any potential misfits between those views. It focuses not on tasks and procedures but on ontology - that is, the conceptual objects (entities and their attributes) that are embodied in a system, and the mismatches between those concepts and the ones brought to the system by its intended users. The scope of an OSM analysis is wider than just the interface, encompassing other aspects of the system-user environment such as domain, device and context of use. The end result is a set of potential usability issues which are grounded in the ways in which device representations of domain concepts match (or fail to match) users' understanding of those concepts in a particular context.

3 Tutorial Content

The aim of the tutorial is to lead participants to identify and analyse system and user entities, domain and device concerns and user expectations. We shall first introduce the essential concepts of an OSM analysis, then allow participants to apply these to real-world tools and applications.

The tutorial will be organised into four phases:

1. The first phase will introduce the background to OSM, briefly comparing it with other methods and explaining its origins. We will introduce the essential concepts of an OSM analysis, namely entities, attributes, actions and relationships. This will be done with reference to real-world tools and objects. Following an introductory example, participants will be asked to identify and apply these concepts to a simple desktop tool (a drawing application).

2. The second phase will introduce the procedures of an OSM analysis. Participants will follow up the previous exercise by completing a more thorough analysis of a simple tool such as a central heating controller. At this point we will introduce OSMosis, our OSM representation tool; participants with suitable computer access will have the opportunity to transfer their paper representations to the tool and judge the quality of the tool output for its ability to aid the identification of system-user misfits.

3. The third phase is an extended exercise in which participants will complete a full OSM analysis of a system such as a prototype e-commerce site. Participants will analyse the site for its ability to address the expectations and knowledge of likely users; this will involve interviewing each other as users. The output from the analysis can again be used to assess the potential of OSM to identify usability issues in terms of potential system-user misfits.

4. Finally, we will sum up what has been presented, and emphasise ways in which participants can use what they have learned to analyse other systems, applications or tools. We hope that by now it will have become apparent that OSM has the potential to identify usability issues which are wider than the more usual concern with tasks and interface widgets. We also hope that participants will have enjoyed themselves!

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