

Gathering Information Rich Customer Needs for Inclusive Product Design

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Abstract

This work presents a framework for the gathering and analysis of information rich customer needs, with the goal of informing inclusive product design practice. The goal is to be able to provide information and experience to designers so that they can better understand the needs of exceptional users and include those needs in the early stages of design, making inclusive products cheaper and easier to design, produce and use.

The framework provided by this research enables designers to collect and classify the customer needs produced during elicitation activities, and connect those needs with the users' functional capabilities, the statements' categorizations, and other information, making the needs useful for informing inclusive design. The interconnected data set is used to examine comparisons between user types and user experience and other aspects of user functionality to provide evaluations for the surrogate experience.

The research findings detail how functional capability metrics from the occupational therapy field were added into a motion restriction simulation study to enhance the available data and enable future correlation searches. It also discusses how a recent customer needs ontology is modified and successfully applied to the sets of needs gathered for six different manually operated household products. Both the customer needs and the needs classifications are examined and compared across multiple aspects of user activity and experience. Additionally, similar work done for my Masters Thesis is also reexamined and compared. This provides information on the variations and similarities in the customer need data across different aspects of interest to design. Most importantly, validations of the collection methods and the provided surrogate experience has been performed.

The conclusion is that, using this framework, we can gain significant insight into exceptional users, even from a limited data set. By identifying so much interconnection, many aspects of inclusive design can be investigated. Some of that additional investigation was performed and more is suggested. Future developments of the framework, the simulation suit, the ontology, and the use of the collected information are discussed.

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