3 USER-CENTRED DESIGN (UCD)

1 - WHAT IS UCD?

A major response to designs failing to gain approval and acceptance has been to consider as its cause the insufficient knowledge about users, their capacities, needs and desires. As a result, a range of methods for testing prototypes and involving potential users in the design process has been developed in the field of user-centred design (UCD) (1). The focus of UCD therefore is on the usability of a design, placing the user at the centre of the product design process (2). UCD involves the user in every phase of the development process for anything designed to provide support for users (3). Variables to be considered in this context are:

- Time spent with users.
- Number of occasions users were consulted.
- If users were involved throughout the whole process/in all phases of the development.
- If in the overall prioritisation the users "voice" had equal weight (or, even better, if they were directly involved in the prioritisation).
- The quality of the actual engagements.

2 - PHASES OF THE UCD PROCESS

The general phases of the UCD process, though there can be variations, are the following:

- **Specify the context of use:** Identify the people who will be supported by the product, what they will use it for, and under what conditions they will use it.
- **Specify requirements:** Identify any requirements or user goals that must be met for the product to successfully support the user.
- **Create design solutions:** This part of the process may be done in stages, building from a rough concept to a complete design.
- **Evaluate designs:** Evaluation - ideally through usability testing with actual users - is as integral to UCD as quality testing is to good software development.

These phases can be summarised in two main phases: Analysis and implementation.

Analysis

The analysis phase involves requirements elicitation and understanding of the context of use. The needs and competences of all stakeholders need to be analysed and the different incentives, capacities, needs and goals of the user need to be understood. Designers need to be aware of the context of use of the product: The user attributes, the tasks that need to be completed, and the conditions under which the product will be used (3).

Implementation

The implementation phase involves the building and evaluation of the product.This process should draw on established state-of-the-art practice, experience and knowledge of the participants and be iterative including multiple redesigned prototypes that are tested by users. Feedback should be collected on the developing design and end users should be involved (3).

3 - PARTICIPATORY DESIGN WITH THE AUTISTIC COMMUNITY

Participatory design is a design approach where all stakeholders are involved throughout the design process, which has been used with autistic people to co-develop digital technologies to support autism (4). Druin (5) proposed a taxonomy of user participation within the process. According to this framework, users can have one of the following roles in the design process: users, testers, informants, or partners:

USERS: Interact with technology only after it is completed

TESTERS: Have limited input in the design process, but are allowed to interact with technology before its completion and large-scale deployment

INFORMANTS: Much more involved in offering opinions on the design of technology and are involved in the design process at various points, as determined by researchers.

PARTNERS: Active participants and equal stakeholders throughout the design process.

Where ever possible autistic people should be design partners in the development of digital support for autism. The BETA project has developed a UCD Support (UCDS) scale to help think about the level of the involvement of the user in the design of digital support for autism – see the resource page.

References

(1) Designing for-and with-vulnerable people (article)

(2) The UCD process

(3) UCD basics

(4) Human-centred design for interactive systems - ISO

(5) User-Centered Design

(6) Reflections on the role of the 'users': challenges in a multi-disciplinary context of learner-centred design for children on the autism spectrum (article)

(7) Interaction Design: Beyond Human-Computer Interaction (book)

(8) The usability engineering lifecycle (book)

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