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The Development of a Computer Design Tool for Virtual User Trials: Data Collection Methods

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Abstract

There are clear gains to be made by integrating the user within the design process. User trials are a commonly used technique in ergonomics evaluation, whereby users are selected to be representative of the user population. They evaluate the product, workplace, or system against a predetermined set of evaluative criteria (performance, preferences) and thus some judgement can then be made as to the suitability of the design, and recommendations made accordingly. However, user trials are expensive and efforts to involve older and disabled consumers are often hampered by a lack of understanding of their additional requirements (access, pacing, transport needs, ethical concerns). Also, many designers work by themselves and do not always feel they have the skills (or support) to work with these user groups.

This paper reports on the collection of data towards the development of computer based simulations of user trials. These virtual user trials will involve the use of a multivariate database of older and disabled ‘individuals’ and their ‘behaviours’ by accessing it during computer design work. The percentage accommodated by a design can be predicted based on criteria for task success (reach, vision) set by the designer. This can be used for preliminary work and to test some of the physical aspects of a design, allowing the more discerning involvement of users.

This pilot study compares the collection of the following data using traditional measuring techniques and CODA (a real-time motion capture system): anthropometry, joint constraints, reach envelopes, posture analysis, kitchen task capabilities and behaviours. It will inform procedures for the data collection with 100 older and disabled adults in the next project phase.