

Panel: Universal Designs versus Assistive Technologies: Research Agendas and Practical Applications

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INTRODUCTION

The special interest group hosting this conference recently changed its name, from "computers and the physically handicapped" (SIGCAPH) to "access" (SIGACCESS). The change reflects the need to encompass research and development which considers disability access to Information and Computing Technologies (ICT) in all its forms. This ranges from traditional Assistive Technologies (AT) specially made for people with disabilities, to Universal Design (UD) of standard/mainstream products for the whole population. In both AT and UD there exists a wealth of funding, research, and projects. Although the knowledge base grows with each year, there has been limited influence on the UD of mainstream ICT.

THE LACK OF PRACTICAL APPLICATIONS OF UNIVERSALLY DESIGNED ICT

Consider an individual's search for ICT for education, employment or entertainment. People who use powered wheelchairs can access brick-and-mortar electronics stores via accessible parking, curbscuts, ramps, automatic door openers and so on. Wheelchair users, and people who are blind, visually impaired or otherwise disabled would most likely be offered willing help to assist with their shopping if they asked for it. Such changes to the built-environment, and more positive corporate customer relations, have been greatly facilitated by civil-rights laws over the last fifteen years. However, the chances are practically zero of them finding UD'd mainstream ICT in those same stores (i.e. containing UD features which make ICT usable

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without vision, usable with limited vision, usable with limited physical manipulation capability etc.).

To illustrate further, consider also the case of DVS (Descriptive Video Service) which is a UD solution for access to multimedia. DVS, invented in the mid 1990s, provides an additional audio track for blind and visually impaired persons to follow the visual events on movies and television. DVS can be added as a part of any standard DVD release as an additional language track. The 2005 DVD release of the movie "Ray" (about the life of musician Ray Charles) was released with DVS. However, the DVS version of the DVD was *not available* in regular stores; it could only be purchased online, for a 25% higher cost, additional shipping costs, and without inclusion of the bonus features supplied to sighted customers. This is an example of a UD solution seemingly being packaged using an AT mentality / business model. This one example is illustrative of a big issue faced by people with physical and sensory disabilities: there is still a great deal of marginalization with respect to ICT in education, employment, and entertainment. AT is generally more expensive and harder to obtain than the equivalent mainstream ICT, but AT solutions for ICT are much more prevalent than UD. This situation exists despite recent UD-type legislation which has given a greater impetus for manufacturers to incorporate access features into standard products and continued promotion of UD by a good number of disability organizations as the most desirable option for lowering costs of technology access.

It would be fair to say that UD is not on the 'radar' of most consumers. The same should be said for general usability – consumers rarely seem to care, and some seem to take it as a badge of honor that they can master difficult to use products. Most consumers go out shopping for items based on cost, aesthetics, and the number of functions. UD approaches in non-ICT arenas (e.g. OXO "good grips" kitchen utensils) have been successfully marketed as 'just good design'. The widespread successful promotion of the intersection of usability, accessibility and UD of ICT remains somewhat elusive, however.

PROBLEMS IN THE PRACTICAL APPLICATION OF UD SOLUTIONS FOR ICT

In this arena, it may be that one of the most important failures is when products with UD features are not recognized and used as such. Take the modern OS which typically has both usability

improvements and specific accessibility features. These accessibility features are tremendously underutilized, as Microsoft recently discovered and moved to address. It can be said that the best UD is invisible to the consumer.

AT solutions have a weak but well-focused delivery mechanism, which includes special companies and linkages to professionals who work with people with disabilities. UD has no such infrastructure. This gives AT a marketing edge. To this day, when someone asks about a phone that has talking menus for use without vision, the first (and often only) replies point to AT phones which are designed exclusively for people who are blind (i.e. they have no screens). This market irony has specific implications for the research agenda, research funding, and policy.

More and more the concept of UD is finding its way into policy, but there has not been widespread adoption of the concept by industry. Low uptake of UD in industry seems to have more to do with corporate culture and the lack of well-crafted arguments to convince corporate stakeholders and decision-makers. Furthermore, there seems to be a reluctance on the part of many UD advocates to facilitate UD's bureaucratization, which may be the only practical mechanism for an organization to digest such an innovation.

PANEL DISCUSSION AIMS

This panel includes experts with experience in AT and UD. They will be presenting from viewpoints of academia, government funding, and industry consulting. The panel members will present their arguments around past, current and future intersections of policy, the academic research agenda and practical application by industry. The primary aim of the panel session is to encourage dialogue and participation from the SIGACCESS membership to discuss and debate these issues around the research agenda as it applies to practical application of UD versus AT. These issues concern the SIG membership, as demonstrated with its recent name change.

PANEL MEMBERS

Julie Jacko

Julie A. Jacko, Associate Professor of Biomedical Engineering at Georgia Tech, is the author or co-author of over 100 research publications including journal articles, books, book chapters and conference proceedings. She is the Director of the Laboratory for HCI and Health Care Informatics. Her research activities focus on human aspects of computing, and specifically universal access to electronic information technologies. She has led extensive research projects concerning the IT access needs of people with visual impairments, funded by the National Science Foundation, the National Institute on Disability and Rehabilitation Research (NIDRR), and the Intel Corporation.

Bill Peterson

Bill Peterson directs the Department of Homeland Security's (DHS) Section 508 Program Management Office. Mr. Peterson came to DHS after spending over 8 years at NIDRR where he served as one of the principal scientific program managers for national and international programs in the areas of biomedical and

rehabilitation engineering. While at NIDRR, he managed the agency's \$20 million Rehabilitation Engineering Research Center (RERC) program and served as program officer for numerous projects pertaining to technology and engineering. He is the founding co-chair of the Interagency Committee on Disability Research, Subcommittee on Technology where he served from 1996 to 2005. He was the Department of Education's liaison to the Access Board from 1997 to 2005 where he served on a number of committees and was involved with numerous rulemaking activities pertaining to physical and electronic accessibility.

Jim Tobias

Jim Tobias is the Principal of Inclusive Technologies, a consulting firm focusing on access to ICT. He has worked in the field of technology and disability for 25 years. Beginning at Berkeley's Center for Independent Living, he has worked as a rehabilitation engineer with schools, hospitals, private organizations, companies, and state and federal agencies. He worked for ten years at Bell Labs and Bellcore, providing telecommunications and disability consulting for Bell companies and other ICT industry clients, before leaving to found Inclusive Technologies. He specializes in the UD of business practices: market research and analysis, product development and management, and UD in organizational strategies.

Chris Law (moderator)

Chris Law is a member of the Information Systems research faculty at the University of Maryland, Baltimore County (UMBC). He is a human factors and UD expert with over 10 years of academic and consulting experience in the UK, USA and Canada. He has worked extensively on the UD of electronic product and website interfaces; and on modifying standard usability evaluation methods for inclusion of participants with disabilities. He currently focuses on investigating the practical aspects of UD implementation by examining the intersection point of academia and industry, and in particular, the types and quality of design standards and guidelines the UD field has employed as a means to convince industry to take on UD.

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