



Public information and communication technologies: Improving access or creating new barriers?

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Public information communication technologies (PICTs) are a new way of doing business, allowing people to access information, money, and various products in a convenient and timely fashion. PICTs, including information kiosks, automated banking machines and ticket/fare dispensers, are increasing in popularity as businesses and government become familiar with the many services and benefits that PICTs can provide.

Although designed to increase the efficiency and convenience with which information is shared and transactions are completed, the development of PICTs has occurred largely without the consideration of the access requirements of people with disabilities. Lack of access to a PICT renders the information or transaction functions useless. Inaccessibility of the PICT can occur when technology features make operating or interacting with the PICT difficult, or barriers in the environment leading up to a PICT create navigational challenges. These barriers can prevent many people in society from effectively using PICTs.

Who has difficulty accessing PICTs?

The 2001 Statistics Canada Participation and Activity Limitations Survey identifies that 12.4% of Canada's population report having a disability; while for those 65 years of age or older, the prevalence is as high as 40.5%¹. However, the number for whom PICTs may not be accessible is much larger if we consider the potential difficulties faced by many others in addition to those with disabilities. Older individuals with decreased eyesight or people who are blind will have difficulty reading screen instructions in small font. Parents

pushing baby strollers and individuals using wheelchairs might not be able to reach a PICT located at the top of a few stairs. People who are short in stature and those with upper limb arthritis may have difficulty reaching or manipulating buttons or touch screens. People for whom English is a second language or individuals with learning disabilities may have difficulty following complex written instructions. These numbers represent a considerable percentage of the population for whom the technology may not be useful.

Lack of access to a PICT has consequences for many. Individual users may become frustrated and avoid using the PICT of a particular business owner. City planners may find that some individuals opt out of living in a particular neighborhood that is not accessible. Business owners may lose customers if their technology is not accessible. Government agencies who want to share some type of information may have difficulty doing so.

Occupational therapists believe that the environment can alternately constrain or facilitate the performance of desired occupations²; they are also knowledgeable in the concepts of universal design. Universal design refers to the "design of products and environments that are usable by all people, to the greatest extent possible, without the need for adaptation or special equipment."³ Occupational therapists are thus committed to ensuring that environments are inclusive of as many people as possible. Occupational therapists are key professionals to be involved in the identification of inaccessible technologies and the development of solutions to promote access.

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Researchers Gary Birch and Christine Flegal assess an underground parking meter machine.



How can we test for accessibility?

Use of an environmental audit to identify the main issues of inaccessibility is one concrete way of identifying the barriers related to a specific PICT. The Public Information and Communication Technology Assessment Tool (PAT) is a paper and pencil questionnaire designed for use by any individual or group who is interested in determining the accessibility of PICTs; it also provides key references on how to make PICTs more accessible. The PAT is one key deliverable under a large SSHRC¹-funded project entitled New Technologies and People with Disabilities Research Alliance (Principal Investigator – Deborah Stienstra, University of Manitoba). The PAT was developed by the authors: Jacquie Ripat, an occupational therapist, James Watzke, an environmental psychologist and Gary Birch, an expert in the technology needs and issues of people with physical disabilities. Consultation from individuals with disabilities has occurred throughout its development.

There are three parts to the PAT. Part 1 of the questionnaire examines the accessibility of the environment leading up to the PICT. Part 2 addresses the accessibility of the environment immediately surrounding the PICT (less than two metres from the PICT) and identifies barriers and facilitators that exist close to the PICT. Part 3 assesses the PICT itself and its various components such as the height of the PICT, the layout of the keys, and the presence or absence of audio output. The completed questionnaire can provide an indication of the overall accessibility of the PICT, or alternatively can provide an indication of how accessible the PICT is for individuals with a specific disability (e.g., learning disabilities, mobility impairments or visual impairments).

Who should use the PAT?

People who may benefit from the use of the PAT include individuals, business owners, disability advocacy groups, students, researchers, city planners and those involved in the PICT industry. Occupational therapists may want to use the PAT score to advocate for more accessible PICT design within a particular environment. Disability advocacy groups may wish to determine how accessible PICTs are in a defined community for one particular user group. This would allow a

¹Social Sciences and Humanities Research Council of Canada

community to develop a baseline PAT score, by which they can measure changes in PICT accessibility in their defined community of interest and compare their community with others in terms of PICT accessibility. This information could then be used to lobby for changes to improve accessibility. Business owners may complete the questionnaire to determine the overall accessibility of a PICT in the business and to identify changes that could be made to the PICT and its environment to increase accessibility for customers. The results from the administration of a PAT will provide communities, city planners and/or PICT manufacturers with ideas on how to improve the PAT score (i.e. what they need to do to make their location and PICT more accessible).

What should be done with the information?

Education and information are crucial for addressing access issues around PICTs. Users with disabilities require information on what technology exists to meet their needs and ways in which they can advocate to their communities, elected government and industry representatives. Communities require information about accessibility, universal design and the needs of all of their current and future members. Governments require information and education in order to support access through development of standards and procurement policies for accessible PICTs. Business owners require information on the needs of people with disabilities, and need to view people with disabilities as a new emerging market for their businesses. Advocacy efforts can be directed to PICT manufacturers to create more accessible PICTs. Design that considers the broadest range of physical, cognitive and affective abilities of intended users will have the effect of making it accessible to more people. The PAT is one tool that can be used to provide this needed information, to ultimately contribute to the development of more accessible and inclusive communities.

When will the PAT be available?

We are currently testing the usability and reliability of the PAT. Once complete, we will revise it and conduct another set of pilot studies with the tool. Another primary task is to finalize the “scoring” procedures of the tool, so users can have con-

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vidence that a given PAT score (a higher or better score) does indeed mean a given PICT is more accessible. It is anticipated that the tool will be available for public use in the Fall of 2006. Future plans include development of a portable electronic version of the PAT, creation of an online database where assessments of PICT accessibility can be collected so that more information about a given community is available to interested parties, and development of an educational companion CD that provides more specific actions that individuals can take to improve PICT accessibility. Individuals who are interested in learning more about the PAT are encouraged to contact the authors at: ripatj@ms.umanitoba.ca, james_watzke@bcit.ca or garyb@neilsquire.ca.

References

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