PROJECT

got-it?

http://got-it.r2d2.uwm.edu/

Final Report

June 2009

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Project Scope

The Got-it? Website was designed to be a central place on the Internet to collect consumer feedback about assistive technology devices (ATDs) and to present the collected product ratings to website users. The aim of the project was to develop a prototype of an accessible web-based data collection methodology and reporting system to generate meaningful consumer feedback about assistive technologies (e.g., grab bars, transfer benches, anti-slip products).

The potential users of the Got-it? Website are vast, including anyone who is looking for information from users of assistive technologies. Some potential inquirers include: people with disabilities, family members and friends of people with disabilities, and service providers such as rehabilitation specialists looking for technologies to recommend to clients with various functional impairments. Additionally, researchers and users of ATD can tap the review data to identify population needs.

Background

Overall there was a need for a system to gather information to help inform the choices of consumers and clinical professionals for recommending and purchasing ATDs to enhance the quality of life and functional abilities of individuals with disabilities. It has been reported that the most common source of payment for ATDs is by the individuals themselves or other family members in the household (Carlson, 2006). Many consumers looking to purchase ATs for their specific needs find it difficult or impossible to make informed decisions of the best technologies available for them, which is often due to a lack of useful information available in their selection process. Specifically, individuals need to evaluate factors such as accessibility, quality, usability, and reliability of products, which may be difficult without considering input from previous or current users of the technology (Raskind, 2006).

Professionals making recommendations for individuals with disabilities also find it difficult to make informed recommendations for clients when the viewpoints of current or past users of the technologies are not readily available. Although manufacturer marketing information for products is usually easy to find, this information can be biased and may be irrelevant when evaluating important design and function features for individuals with disabilities. Furthermore, manufacturers are not likely to point out the limitations or negative aspects of their products, which is often the information most useful when selecting or recommending appropriate ATD. This critical information may only be available from real users who have current or past experience with a given technology.

The Got-it? project performed an extensive search of ATD outcomes websites and other websites directed towards consumer feedback, and discovered that very little unbiased product information is available for ATD consumers. Websites often have "comment" opportunities for products, but many of these are hosted on manufacturer or distributor websites.

Non-commercial sites also have set-up for reviews, but they are limited in other ways. One site, the *Spinal Cord Injury Peer information Library on Technology* (SCI PILOT, 2006) documents consumer experiences acquiring and utilizing all types of AT, including narrative reports of users. *Wheelchair Junkie* (Smith, 2006), a bulletin board for individuals who use wheelchairs,

also provides a narrative format, which is used by over 4,500 registered users. One excellent website, *USA-Tech Guide* (USA Tech Guide, 2006), provides consumer reviews for wheelchairs, cushions, standers and scooters. It provides summative data on durability, ease of use, whether it met expectations, and the overall rating in addition to posting consumer narrative feedback. Interestingly, it collects and displays this feedback data by "end-user", "caregiver", and "clinician" feedback categories.

These sites, however, all focus on member groups, types of ATDs, or do not integrate any standardized review methods beyond a comment field. This is a significant lost opportunity because ATDs will continue to be increasingly used in society as the baby boomer population ages. Plus ATDs are becoming much more accepted in the mainstream. A well designed website should a) collect ATD user comments, b) include a standardized assessment, and c) collect data that can compare the outcomes of AT and other related interventions.

Website Development

The Got-it? Website is hosted at http://got-it.r2d2.uwm.edu on a virtual machine within the R_2D_2 web space at UW-Milwaukee. Both the product data and user data for Got-it? are stored and served from a secure and dedicated MySQL instance on a different virtual machine. The Django content management system executes database access and application logic through a Python 5.4 language module running in the Apache2 web server, with the main benefit to users of direct and simple URLs. The Web pages themselves are implemented in validated XHTML 1.0 Transitional, supplemented by CSS and Javascript via the JQuery Javascript Library.

The website consists of the following pages: Welcome, Product Listing Page, Specific Product Category Listing, Rater Demographics Survey, Product Rating Survey, Bathroom Safety Goals Survey, Frequently Asked Questions, Contact Got-it?, About R2D2, Got-it? Staff, Disclaimer, Privacy Policy, and Accessibility Statement. See Appendix 1 for screen shots of the Got-it? Website, Appendix 2 for equivalent text descriptions, and Appendix 3 for HTML copies of the Got-it? Website.

The Got-it? rating system is unique because it allows users to rate specific criteria related to good design, such as safety, comfort, ease of cleaning, and portability. The scale for questions to elicit comments and scores was based on a comprehensive analysis of ATD outcome assessments. The Got-it? Website also collects demographic and disability information so that future implementation could allow product ratings to be sorted for relevant user types. Got-it? also includes a safety goal section that is used to document outcome data related to the help or interference an AT provides.

Pilot Research Study

An IRB application entitled "Accessibility and Usability Testing of Got-it?: Assistive Technology Consumer Product Evaluation Website" was submitted to the UWM IRB office in April 2009, and it was approved shortly thereafter. The intent of the study was to collect data to help evaluate the accessibility and usability of the pilot website of Got-it?, in order to improve data entry and information extraction for website users.

Research participants who used and evaluated Got-it? were recruited through email correspondence and personal invitations from the staff and affiliates of the R2D2 Center, Independence*First*, local Senior Centers, and an Occupational Therapy course at UWM. Data collection occurred wherever participants had their own personal computers with Internet access. All data collected was anonymous and stored on a secure server.

Researchers targeted older adults, people with physical and sensory disabilities, and UWM OT students and faculty and staff as participants, including people who own or have used at least one type of bathroom safety product or who are interested in learning more about bathroom safety products.

For the study, participants were asked to:
1. Document their implied consent via an online form
2. Complete a demographic survey about themselves in surveygizmo®
3. Explore the Got-it? website
4. Document the things they explored on the Got-it? website and any initial feedback about the Got-it? site
5. Create a new user login on the Got-it? website
6. Navigate Got-it? Web pages to display existing product rating information
7. Add product evaluations to the Got-it? Website
8. Complete a survey about the accessibility and usability of the Got-it? Website

The survey, as seen in Appendix 4, was located at: http://www.surveygizmo.com/s/120949/got-it-accessibility-and-usability.

Research Study Results

Thirty-five participants used the Got-it? Website and completed a survey to indicate accessibility, usability, efficiency, effectiveness, and usefulness. Participants represented the age groups of 18-24 (65%), 25-34 (17%), 35-49 (6%), 50-64 (9%), and 65-79 (3%). Both genders were represented within the sample, with 71% being female. Participants with and without functional difficulties completed the survey, including people with balancing (34%), standing (14%), grasping (11%), hearing (11%), seeing (11%), and walking (11%) difficulties.

Overall, the following results were documented:
- 87% of users felt website navigation was clear and easy.
- 83% of users felt their overall use of the website was somewhat or very easy.
- 76% of users indicated they were satisfied with their overall experience with the Got-it? Website.
- At least 64% of all users felt registering (70%), logging in (85%), finding products (69%), entering product ratings (79%), entering safety ratings (64%), and navigating the website (68%) were extremely or very easy.
- At least 48% of all users felt registering (63%), logging in (75%), finding products (48%), entering product ratings (57%), entering safety ratings (50%), and navigating the website (53%) were extremely or very quick.
- Users indicated they would likely visit Got-it? in the future to (a) learn about products before purchasing AT (74%) and (b) share information about products (67%).

The Got-it? Website and study results were presented at the 2009 Rehabilitating Engineering and Assistive Technology Society of North America (RESNA) Conference in New Orleans, LA on June 26, 2009 (Lemke et al., 2009).

Future Improvements

Based on the results of the study conducted, comments and suggestions provided by participants, and input from the project team, the following improvements are suggested for future enhancement of the Got-it? Website:

- Enhance the number of products and types of products contained in the database
- Implement an easy way to view ratings for multiple products on one page for comparison
- Implement an easy way to drill down to see individual ratings for a product that has ratings from several different users
- Implement a method to sort the rating data based on user selected criteria, for example for users of a particular type such as users who are blind
- Implement mechanism for users to indicate if a rating was helpful so the order of user ratings are shown in the order of usefulness so users see the most useful information first
- Create alternative text descriptions for all graphics on the website, and create protocol and instructions to make process clear and easy for users who upload pictures
- Display the type of rater that provided a rating, for example if the rater is a caregiver, friend, user, etc.
- Develop an interface for users to update product descriptions and information with more detail, to post comments for other users to read, and to add new products to the database
- Encourage users with similar profiles and goals to share solutions and experiences in Got-it? user forums
- Create ordered lists of products for users with rankings of products used by people with similar profiles
- Implement a comprehensive full-text search facility to allow users to pinpoint suitable products
- Move the Got-it? code base in its virtual machine to an up-to-date hardware to measurably improve response times, while implementing 'Ajax' JavaScript on the pages to update particular fields without the need to wait for whole WebPages to reload
- Move the Got-it? Website to a public domain that can be found using common search engines such as Google.com
- Add mouse-over definitions for the terms users are asked to rate (e.g., durability) so it is clear what users are rating
- Add a page with links to other relevant AT and disability websites, with the possibility of allowing users to add links to the page (a disclaimer and link checking would be needed).
- Add a "cancel" button on the registration page that takes users back to the home page
- Conduct further data analysis evaluating the bathroom safety goal questionnaire
- Implement features that were conceptualized but not implemented during this development phase, including: verification of users before ratings are displayed, sorting of data by demographic information
- Verify product manufacturers are listed instead of distributors
- Consider implementing video upload for products

- Add visual and text anchors to both sides of all rating scales; Consider adding cumulative visual indicator such as arrow starting from left side of scale and pointing to rating point
- Consider adding bold line between different products on rating page to help discern between different products
- Consider adding square surrounding product ratings to help them stand out
- Rater demographics survey: add "Other" category to employment status question; change low vision category to "Sight: low vision (e.g., severe astigmatism, cataracts); add Behavioral/psychiatric category
- Bathroom safety goal survey: underline "main" in first question; underline "other bathroom safety goal" in second question; change second question to check boxes so user can select more than one reply; change "Thinking about the **main** safety goal you selected above or used this product to achieve, please answer the following questions to larger font, consider adding link to help when user answers "I do not understand the question"
- Change bathroom safety goal question phrasing: "Did an expert technology evaluation service by someone…", "Did training and set up services by an expert help or…", "Did expert technology repair, technical…", "Did any personal assistance you receive…", "Have any of your physical skills changed to help or interfere with your bathroom safety goals since the time you started using this product", "Have your cognitive or thinking skills changed to help or interfere with…", "Have your overall attitudes or emotional state changed to help or interfere…", "Have your communication skills changed to help or interfere…", "Has your hearing changed to help or interfere…", "Has your vision changed to help or interfere…"

Funding

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