

User Group Profiles in User-Centered Design

User group profiles describe the characteristics of product users, that is, the people who use a product. For example, for a web-based office product, characteristics defined for user groups include details on:

- Demographics
- Job responsibilities and tasks
- Frequency of use (for example, daily, a couple times per week, once per month, once per year)
- Hardware (for example, laptop or desktop, processor speed, monitor resolution)
- Environment (for example, shared office, private office, shared public terminal, home)
- Software (for example, operating system, browser version)
- Computer experience
- Web application experience (for example, do they recognize clickable elements)
- Task knowledge (i.e., how well do they understand the task that they are doing, as opposed to understanding the application itself)

Sources of information when developing user group profiles for a new product include general market research, customers of competitors' products, focus group sessions, and interviews with and observations of prospective users. User group profiles for an enhancement of an existing product might be based on surveys, focus groups, contextual interviews, and usability tests of the current version of the product. [2]

The first task in developing user group profiles is defining user groups. Typically there are several categories of users for a given product. For example, a web-based application that handles human resource (HR) management data (employee records, compensation, benefits, etc.) might have the following user groups: HR managers, HR specialists, HR administrative assistants, non-HR managers, non-HR administrative assistants, employees, and retired employees.

Generally, user group profiles are not developed for all user groups, rather they are developed for the primary user groups and for user groups that designers don't know well. Because many designers start out with little or no knowledge of accessibility issues, adding accessibility considerations to user group profiles is particularly important.

Example of User Group Profile: Retirees

Background : HRWeb is a Human Resources (HR) Management web-based application used by Acme Insurance. HRWeb handles HR management such as employee records, compensation, and benefits management. User Groups for HRWeb include: HR managers, HR specialists, HR administrative assistants, non-HR managers, non-HR administrative assistants, employees, retired employees.

Demographics : Acme Insurance currently has 2,580 Retirees active in the HRWeb database. They range in age from 57–96. 60% are male, 40% are female. Most live throughout the U.S.

Notes about age-related considerations:

- Age-related macular degeneration (AMD) is the most common cause of blindness and vision impairment in Americans aged 60 and older. More than 1.6 million Americans over age 60 have advanced AMD. [1]
- Cataracts are the leading cause of blindness in the world. Cataracts affect nearly 20.5 million Americans age 65 and older. [1]
- Vision changes in the elderly often result in increased susceptibility to glare [1] and decreased contrast acuity.
- Neurological symptoms in the elderly are common, such as decreased cognitive or intellectual functions including impairment of memory, deterioration of mobility, decreased sensory input, (visual, auditory) and autonomic nerve system imbalance. [2]
- Decreased muscle mass, bone density and lubrication of the joints cause stiffness of the joints, osteoporosis, fractures of the hip are common and bone/joint functional impairment. [2]

Implications for design include:

- Using larger fonts
- Making font size scaleable
- Using high color contrast
- Ensuring that customized color settings work well
- Including instructions on customizing fonts and colors in browser settings
- Making link targets larger, for example, navigation bars and lists of links
- Ensuring that all functionality is available via the keyboard (not requiring a mouse)

Environment

According to the 2000 U.S. census: 24.3 % of households with people over 65 had computers in their homes. [3]

Some of the Acme retirees use a computer at home. Some use a computer at the local library, senior center, neighbor, or their children's house. Most of the retirees who use a computer at home are comfortable with the way they have the workstation, chair, and desk space set up. Acme retirees reported that distractions at home include phone calls, interruptions by a spouse or grandchildren, and background noise such as television or radio in the next room. 25% of the retirees using the computer at home have a dedicated line for that purpose. Those who have only one phone line mentioned being interrupted so someone else could use the phone.

Many Acme retirees who use a computer other than at home have problems concentrating because of background noise, and a few complain of glare on the monitor because of overhead fluorescent lights.

Work-Related Computer Experience

About 20 percent of "wired seniors" said they first got Internet access for reasons related to work or school. [4]

Most of the Acme retirees had some computer experience as part of their jobs at Acme Insurance. Of those who retired in the last 15 years:

- 5% used a Windows-based computer at work for 11-15 years
- 30% used a Windows-based computer at work for 6-10 years
- 40% used a Windows-based computer at work for 0-5 years
- 25% did not use a computer at work

Work-Related Web Experience

Although many Acme retirees had some computer experience before they retired, less than half had Web experience. Of those who had computer experience:

- 15% used the Web for 3-5 years before retirement
- 25% used the Web for 1-2 years before retirement
- 60% did not use the Web before retirement

Frequency of Use: General Use of Web

According to the Pew Research Center, 15% of people over age 65 report that they use the Web. A higher percentage report that they have been online at some time:

- 15% of people over age 65 report that they use the Web
- 34% of 60-64 year olds report that they have been online
- 23% of 65-69 year olds report that they have been online [4]

On a typical day, 69 percent of wired seniors use the Web, compared with 56 percent of all users. The five top uses of the web by senior citizens are: using e-mail, looking up hobby information, seeking financial information, reading the news and checking weather reports. [4]

Of the Acme retirees who used computers in the workplace before retirement, most still used the computer on a regular basis. On average:

- 5% used the Web 10-20 hours a week
- 25% used the Web 7-10 hours a week
- 30% used the Web less than 7 hours a week
- 40% did not use a computer at all

Frequency of Use: HRWeb

Frequency of use of HRWeb varies greatly across the Retirees user group. Only 30% of retirees use the web-based application, the rest interact through mail and phone calls to HR. Of those who do use HRWeb:

- 30% use it once a year, at tax time
- 50% use it about once a month, primarily to check the status of their retirement savings account balance
- 20% use it a couple times per week, to check or change investment options

Note: Users in the retiree group are more likely to have poor memory. Therefore, even some who use the application frequently will benefit from design that does not rely heavily on memory, particularly short-term memory.

Hardware and Software

1.3 million seniors age 64-69 access the Web using high-speed access (cable, ISDN, DSL). Three million users age 55-64 used high-speed connections. [5]

Of the Acme retirees:

- 80% primarily use a desktop, 15% primarily use a laptop, and 5% use both
- 30% have Windows 98, 30% have Windows 2000, 15% have Windows XP Home Edition, 20% have Windows ME, 5% use Mac OS
- 80% use Internet Explorer 4.0 or higher

A high percentage of people in this user group have difficulty using the mouse, especially for small targets close together (such as a list of text links and groups of option buttons or checkboxes). Some use keyboard shortcuts when they can.

An informal survey of Acme retirees who use HRWeb showed that some have difficulty using some aspect of the current application due to their functional limitations (mostly vision-related), yet only a few have software modifications to help them address the problems:

- 3 had large fonts selected in their operating system, but not the browser (in all three cases, someone else had set the OS for them and they didn't know that they could also set it in their browser)
- 2 had set the text size to largest in the browser but not in the OS
- 1 had screen magnification software

References

1. Age-related vision loss. Lighthouse International. (formerly at http://www.lighthouse.org/vision_loss/age_related_vision_loss.html)
2. Age-Related Disease. American Society of Anesthesiologists. Yung-Fong Sung, M.D.
3. Home Computers and Internet Use in the United States: August 2000. US Census Bureau.
4. Pew Internet and American Life Project. Pew Research Center. April 2003.
5. Nielsen/NetRatings. December 2002.

Personas

Overview

The purpose of personas is to create reliable and realistic representations of your key audience segments for reference. These representations should be based on qualitative and some quantitative user research and web analytics. Remember, your personas are only as good as the research behind them. Effective personas:

- Represent a major user group for your website
- Express and focus on the major needs and expectations of the most important user groups
- Give a clear picture of the user's expectations and how they're likely to use the site
- Aid in uncovering universal features and functionality
- Describe real people with backgrounds, goals, and values

Questions to Ask During Persona Development

The following questions and areas of discussion will help you construct a snapshot of the visitors:

Define the Purpose/Vision for the Site:

What is the purpose of the site?

What are the goals of the site?

Describe the User

Personal: What is the age of your person?

What is the gender of your person?

What is the highest level of education this person has received?

Professiona: How much work experience does your person have?

What is your person's professional background?

Why will they come to the site? (User needs, interests, and goals)

Where else is this person getting information about your issue or similar programs or services?

When and where will users access the site? (User environment and context)

Technical: What technological devices does your person use on a regular basis?

What software and/or applications does your person use on a regular basis?

Through what technological device does your user primarily access the web for information?

How much time does your person spend browsing the web every day?

User Motivation: What is your person motivated by?

What are they looking for?

What is your person looking to do?

What are his needs?

Elements of a Persona

Personas generally include the following key pieces of information:

- Persona Group (i.e. web manager)
- Fictional name
- Job titles and major responsibilities
- Demographics such as age, education, ethnicity, and family status
- The goals and tasks they are trying to complete using the site
- Their physical, social, and technological environment
- A quote that sums up what matters most to the persona as it relates to your site
- Casual pictures representing that user group

References

- *Communicating Design: Developing Web Site Documentation for Design and Planning*, by Dan Brown, 2007