

## **The Effects of Lower-literacy on Mental Models to Support Website Navigation**

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A mental model is a structure of understanding how something works based upon knowledge which is already known or derived from what is known about related concepts. When a user navigates a website, they use their knowledge of previous web experiences and other websites to help build a mental model of the current web site. This mental model helps the user with making decisions in selecting links and navigating through content, and cohesion and comprehension of the website on a whole. The better the user understands the content and organization of the site, the more reinforcement of a valid model they will have to aid in their activities.

Users who have lower-literacy skills engage in website activities differently than users with higher literacy skills. They do not scan text like most users and often skip over large blocks of text. The activity of searching is difficult because correct spelling is often necessary for search engines with less flexibility and comprehension of many results at once may be overwhelming. They also tend to satisfice rather than exploring all of their options, often missing more appropriate options. (Summers, 2004)

Recently in testing a site which acts as a portal of resources for people interested in going to college (with a particular target of people who have little experience with college), we noticed distinct differences between participants who had higher-literacy skills versus those who did not<sup>1</sup>. These lower-literacy participants had a harder time understanding terminology they are not familiar with which distanced them from the content. Several of the participants had difficulty finding topics concerning “going to school outside of the U.S.”, which were categorized under a label called “Study Abroad”. Although a widely accepted term for that topic, it is in many ways “old-fashioned” and perhaps even inaccessible to lower-literacy populations.

In other scenarios, several lower-literacy participants fixated on words such as “admissions” and “planning”. They immediately chose links which contained those words even if they were not related to the task and even more appropriate links (which did not contain those exact words) had been previously viewed. Designing usability tests involving lower-literacy participants proves especially difficult since scenarios can be difficult to word and these participants often fixate on keywords to search for “the answer” rather than comprehending the content and making a selection.

Additionally, many of the lower-literacy participants had difficulty making distinctions between content available under certain topics. Some of this confusion may have been from cross-linking content over similar categories, but it was clear that they were “poking in the dark” with no clear sense of where they were going or what directions they could take. The test website was subjectively straightforward and well-organized (with a few exceptions), however it was clear that some of the lower-literacy users were not grasping the organization of the content and did not have a concept of what the site was trying to offer. The lower-literacy users did not seem to have the comprehension necessary to help build a mental model of the site, which would in effect help them make better choices while navigating. Without making a connection with the content, users “cannot create mental models and comprehend [content]” (Hasselbring, 2005). Without a model to help understand the site, participants were returning to the same section of

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<sup>1</sup> Rating of users’ higher- or lower-literacy abilities were derived from available information such as educational background, income, communication skills, and treatment of vocabulary during testing.

links over and over and over again without recognizing the content and remembering how they got there.

This is a difficult issue, because how do you accommodate both higher-literacy and lower-literacy users, especially when your site *must* contain some level of terminology because it is identifiable to those who have some kind of exposure to the domain. How can you close an educational divide when education is the barrier?

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