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Usability News is a free web newsletter that is produced by the Software Usability Research Laboratory (SURL) at Wichita State University. The SURL team specializes in software/website user interface design, usability testing, and research in human-computer interaction.

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Preliminary Examination of Global Expectations of Users' Mental Models for E-Commerce Web Layouts

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Summary: Preliminary results of an online global survey to investigate user expectations of standard e-commerce web objects are presented. The web objects included Back to Home, Advertisements, Internal Links, External Links, Shopping Cart, and Help. Participants were asked to position each object on a blank web page in the location where they would expect it to be found. Comparisons of the responses from users from four geographical areas worldwide show that, in general, participants had similar expectations on the location of the web objects. Implications for designers of international websites are discussed.

INTRODUCTION

According to NUA Internet Surveys, a greater percentage of websites are now being published outside of North America than within the United States and Canada. Yet, few studies have considered how differing cultures and pre-established conventions may affect user expectations for websites from different regions of the globe. To address this need, we sought to understand if different regional cultures and conventions do, in fact, help shape users' layout expectations for typical e-commerce websites. Knowledge of users' mental model for the characteristic location of objects on a website should aid in a site's accessibility and overall appeal.

Any expectations that users develop will depend to a large degree on their prior experiences. That is, users may apply previous web experience browsing local and multinational sites, as well as software analogous tools, to infer how typical web page objects are arranged. The two questions addressed in this study are: (1) "What are the current layout expectations for e-commerce websites?" and (2) "Are there any regional differences in the expectations of users for the location of web objects for a typical e-commerce web page?" Knowing these answers should help web developers configure web page objects in a layout that more closely conforms to regional expectations.

METHOD

Participants

A total of 258 participants (179 males, 79 females) were examined. Most (94%) of the participants were reported to be under the age of 55. The most common (26%) age-range was 26 to 30 years. Of the participants, 95% reported using the Internet for more than four years. A plurality of the participants (33%) used the Web 7 to 14 hours per week. They also reported using the Internet primarily for work/business (66%). Most of the participants reported to be either employed as a web designer (34%) or as a usability expert (21%). Only 16% of the participants were college students.

In order to determine if participants visited a specific website domain substantially more than other sites-which could bias them towards that particular design-they were also asked which websites they typically visited most. The results indicated that no one site was visited more to any substantial degree. The sites visited mostly ranged from news-related sites, such as CNN or BBC, to search engines. In fact, after excluding search engines, the most commonly visited website (bbc.com) was specified by only 8 participants as being their most visited site.

Procedure

Participants completed an online survey that examined their mental model for the location of certain web objects. After answering a demographics questionnaire, participants were presented with a depiction of a browser window that contained seven horizontal and six vertical grid squares. Participants were asked to move tiles that represented each of the selected objects where they expected them to be located on a typical e-commerce web page. The tiles could be placed horizontally or vertically. The tabulation was accomplished by simply adding the number of times participants selected each square for each web object and then dividing this number by the total number of times the particular tile was placed on the entire browser grid. The web object tiles represented were:

- Back Links ("back to homepage" link);
- Ads (advertisement banners);
- Internal Links (a grouping of links that internally connect web pages within the same site);
- External Links (grouping of links to web pages that are external to a website);
- Cart (link to a shopping cart, basket or trolley);
- Help (a "help" link)

The tiles were also of different sizes, depending upon which web object they represented. This was to approximate their actual size on a web page. The advertisement banner occupied three squares, internal and external link web objects occupied two squares, and the Back to Home, Shopping Cart (Shopping Basket) and the Help links occupied one square. The participants were presented one tile per web object.

RESULTS

The percentage with which each grid was selected for each web object was categorized (see Table 1). Each shade represents a specific range of percentages for the number of times each square was selected as an expected location for a particular web object. Each color indicates the percentage of times a particular square was selected by participants.

Of the participants, 61% reported residing in USA and Canada (North America), 12% reported residing in the United Kingdom, Australia, Hong Kong, Ireland, New Zealand, and South Africa (Commonwealth) (Note: India and Canada are also commonwealth countries, but for this study will not grouped with Commonwealth countries), 17% reported residing Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Portugal, Russia, Sweden, and Switzerland (Europe), and 8% reported residing in India for the majority of their life. Unfortunately, the current lack of participants from individual countries did not permit a separate layout expectation analysis for

most geographical regions. This may limit the accuracy of the results for example, European regions, since there are significant cultural difference between these countries-such as France and Greece. In addition, several regions are not included in this study because of the lack of participants-such as the Middle East and the Far East. As the number of global participants increases in the future, a breakdown of the layout expectations for each respective country will be possible. Nevertheless, as seen in the figures below, the participants in all of the discussed regions had distinct mental models for the location of the examined web objects.

Table 1. The darker the shade of blue, the greater percentage a particular square was selected.



As seen in Figure 1, participants from all regions expected the "Back to Homepage" link to be located at the top-left of an e-commerce web page.

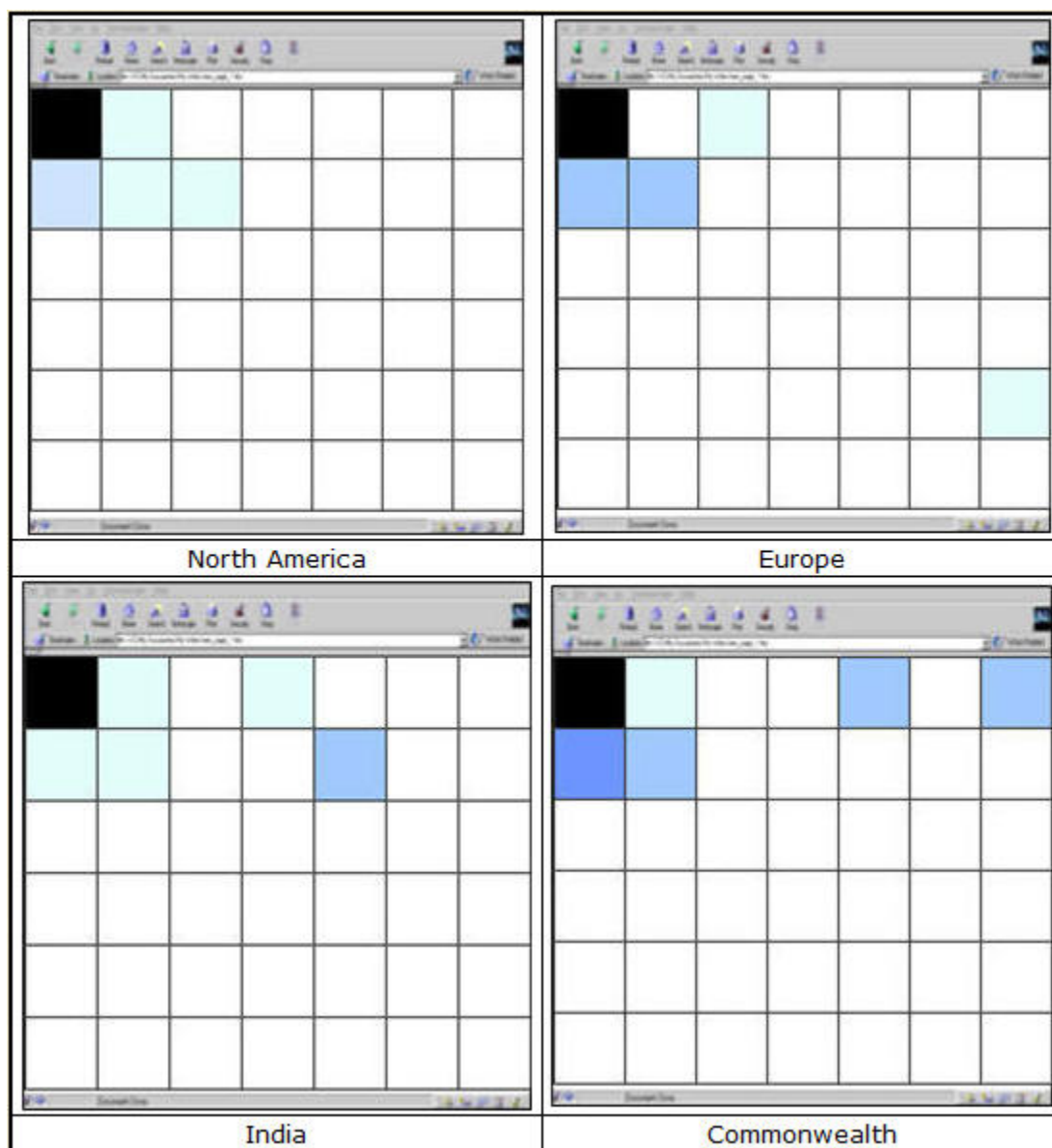


Figure 1. Expected locations for the "Back to Homepage" link

As seen in Figure 2, participants from all regions generally expected banner ads to be located at the top of an e-commerce web page

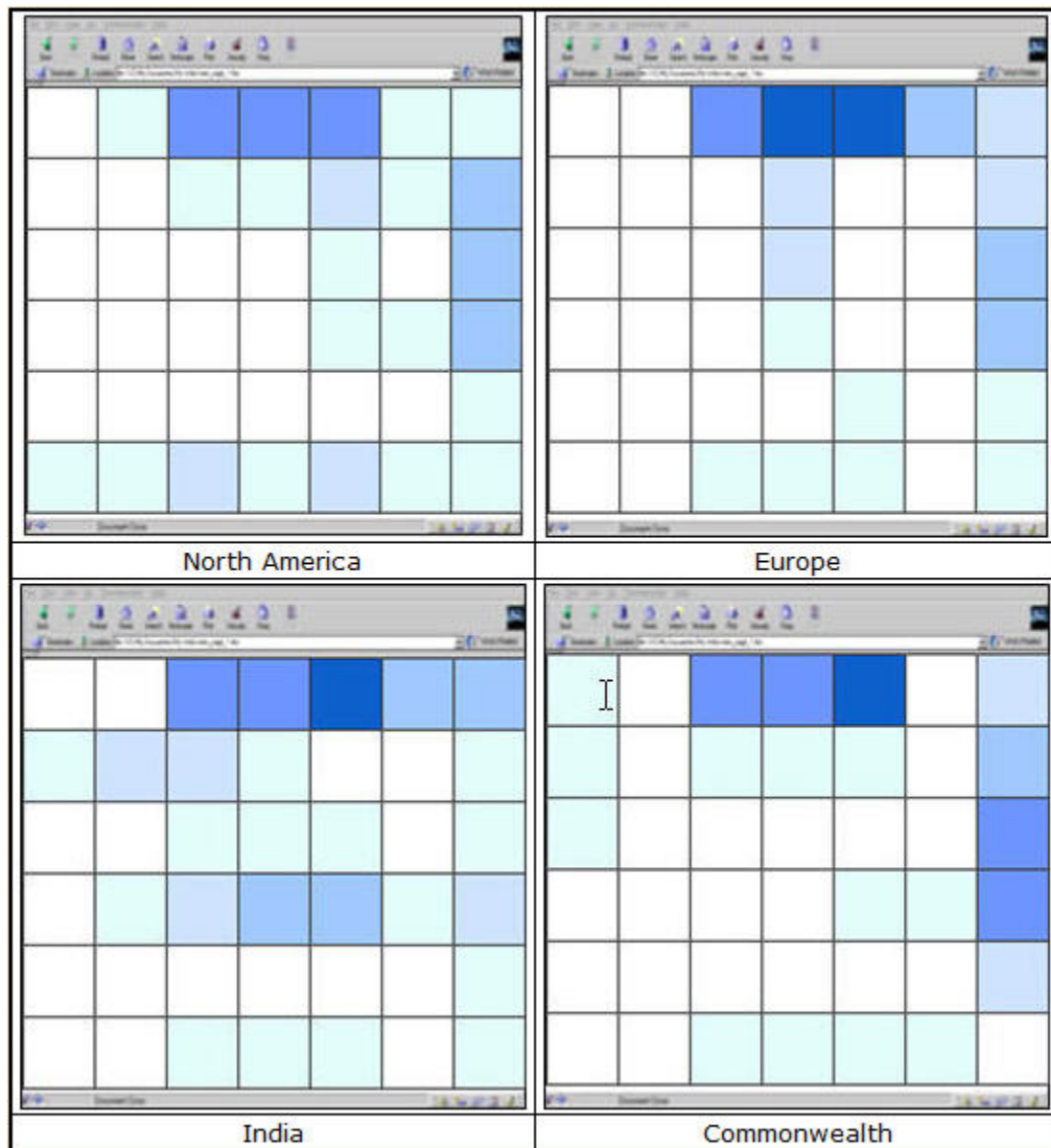


Figure 2. Expected locations for banner advertisement links

As seen in Figure 3, participants from all regions generally expected links to internal web pages to be located at the left or right side of an e-commerce web page.

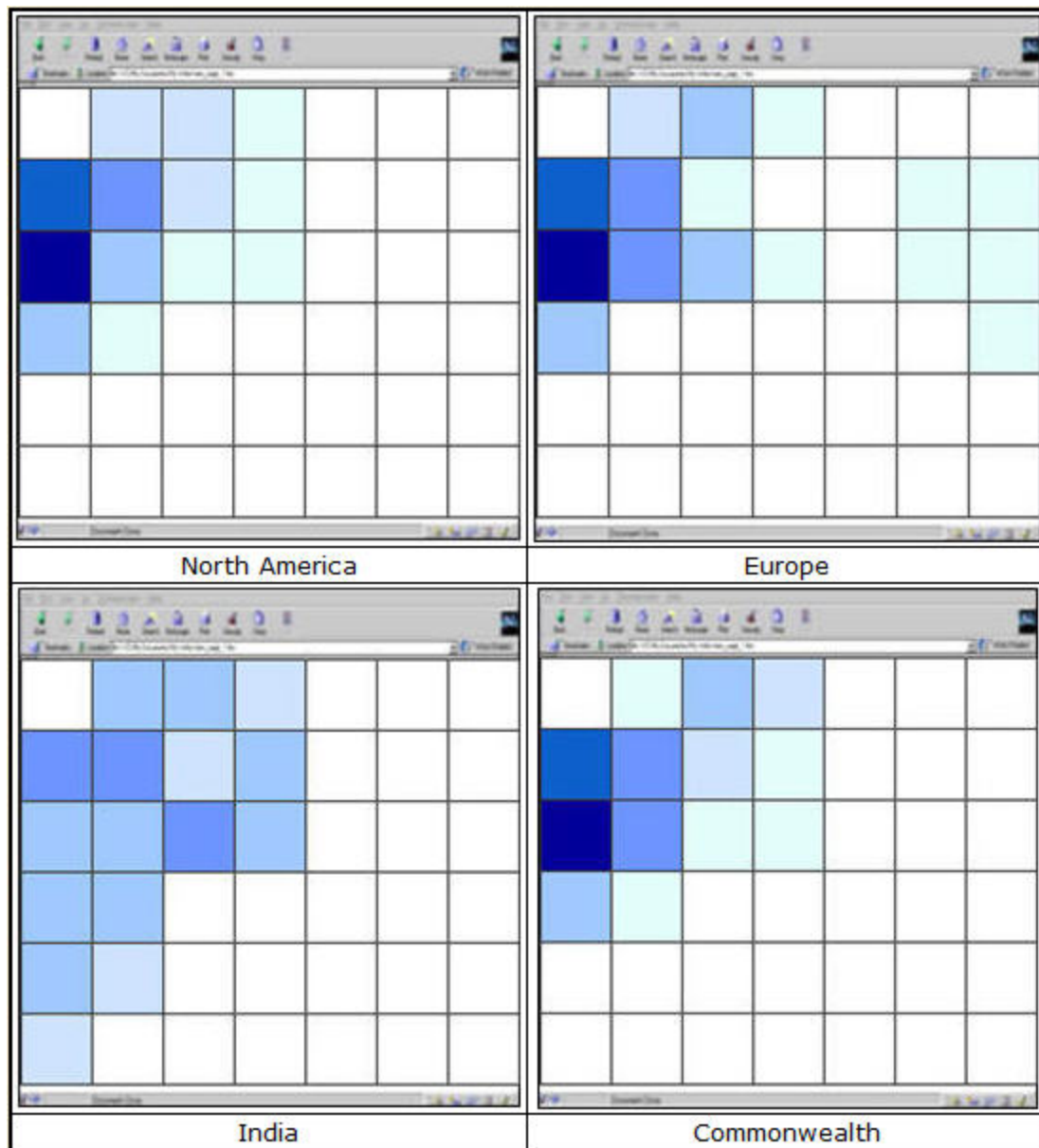


Figure 3. Expected locations for links to internal web pages

As seen in Figure 4, participants from all regions generally expected links that are external to a site to be located on either the left or right side of an e-commerce web page.

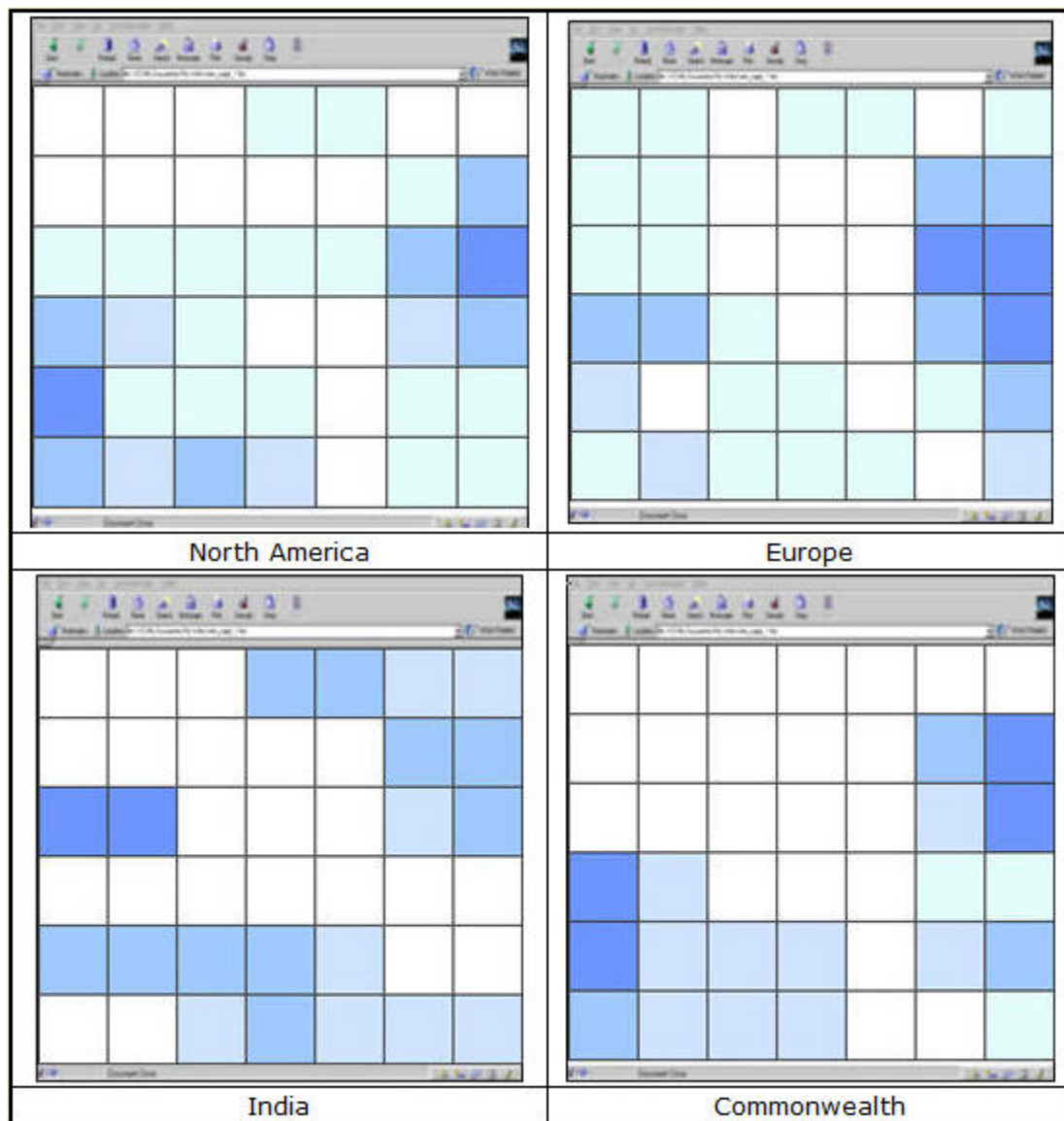


Figure 4. Expected locations for links external an e-commerce web page

As seen in Figure 5, participants from all regions generally expected the shopping cart (basket or trolley) link to be located in the upper-right corner of an e-commerce web page.

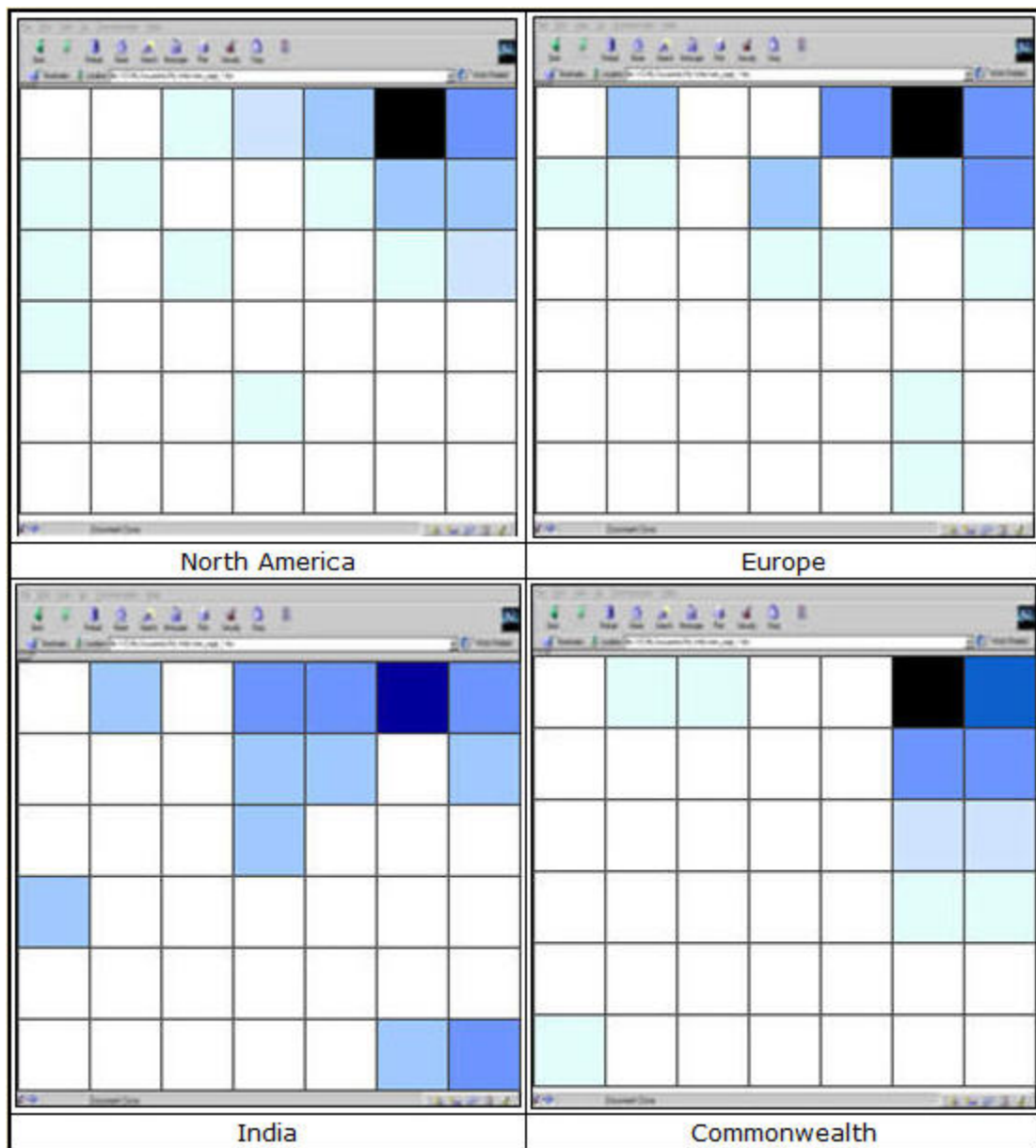


Figure 5. Expected locations for the shopping cart (basket) link

As seen in Figure 6, participants from all regions generally expected the "Help" link to be located in the upper-right corner of an e-commerce web page.

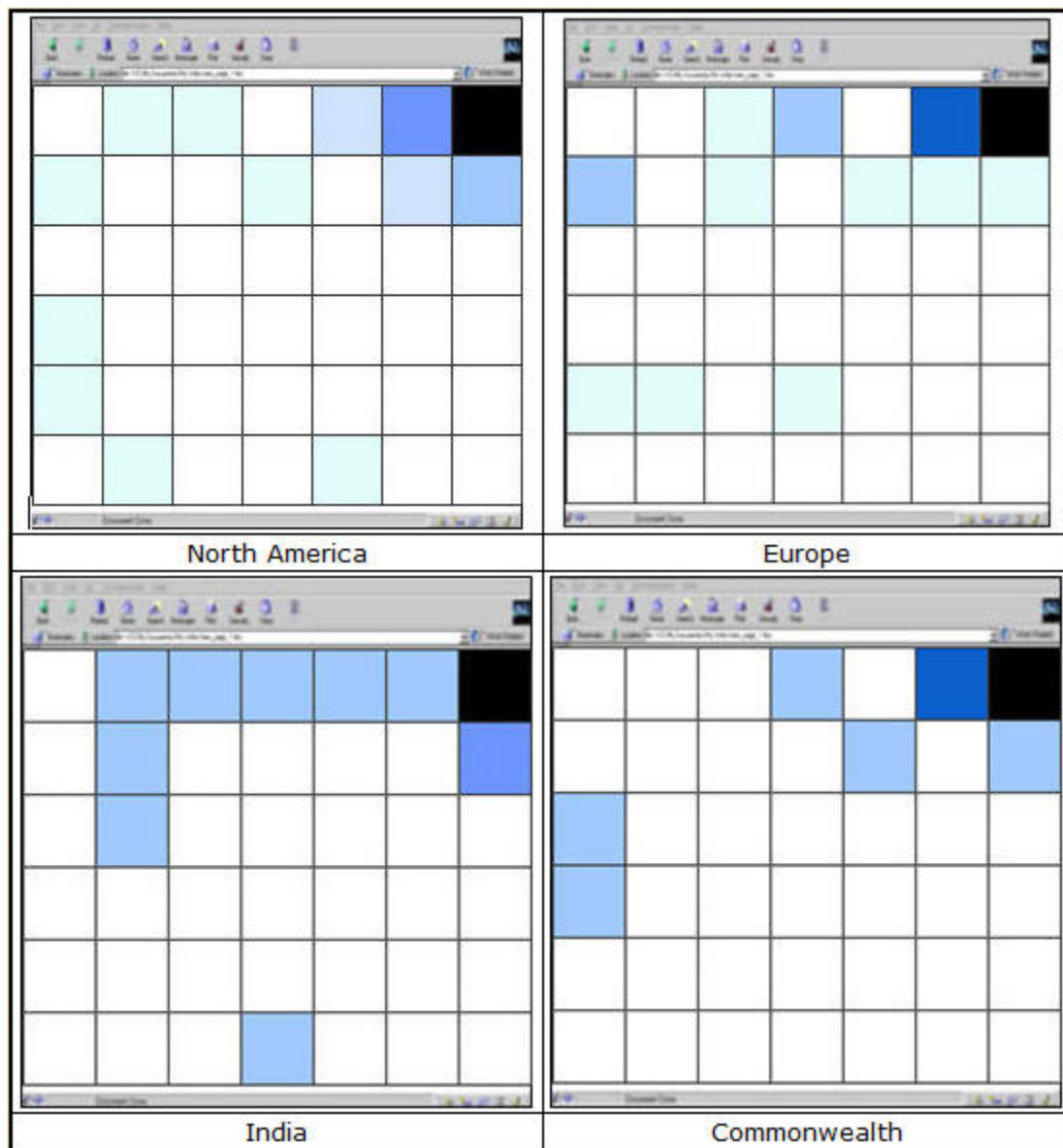


Figure 6. Expected locations for the "help" link

General Findings

This study examined user expectations regarding the location of common e-commerce web objects. From these results, it is suggested that relatively common expectations have been formed for the locations of certain e-commerce web objects, which underscores the need to place them in their expected location. Participants from all geographical regions covered in this study generally expected the following:

- Back Links to be located at the top-left of the page
- Ads to be located at the top of the page
- Internal Links to be located at the left side of the page
- External Links to be located at the left and right sides of the page
- Shopping cart (basket or trolley) link to be located at the top-right of the page
- Help Link to be located at the top-right of the page

These findings are consistent with previous surveys that examined user expectations regarding the location of typical web objects (e.g., Bernard, 2002, 2001, 2000). Moreover, of those who responded, 76% of the participants reported that their expectations for the locations of common e-commerce web objects is generally the same as where they would prefer the objects to be located, again supporting the argument that website layouts should attempt to conform to user expectations.

It is interesting that participants from all the geographical regions examined had similar expectations. It is therefore possible that the influence of multinational websites and cross-regional web browsing have significantly shaped the web page layout expectations of typical web users. Indeed, examining websites that non-U.S. participants reported as their most visited site revealed that 64% of these sites were designed for an international audience, 7% were international sites that were customized to their country, and 28% were websites that were chiefly intended for their specific regional audience. If this consistency holds true over time, then the need to construct web layouts for specific regions will be less important. However, with the exception of India, this preliminary study currently does not compare the expectations of users from individual countries. Thus, differences in expectations between countries may exist but are not apparent in this study. As more data is gathered, we will be able to present the web object location expectations for persons of other regions, including individual countries. We will also be able to increase the accuracy of the presently recorded regional expectations.

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