PROTOTYPE USER INTERFACE FOR STUDYING THE EFFECT OF SUGGESTED TAGS AND AUTOCOMPLETE ON TAGGING BEHAVIOR

Chris Holstrom
University of Washington Information School
cholstro@uw.eu

Abstract
We built a prototype social tagging UI that can toggle on and off suggested tags and autocomplete features. We ran a pilot study to determine the suitability of the prototype for studying how these UI elements affected tagging behavior. We did not find a significant effect for these UI elements in the pilot study, but we did find prototype utility. This paper reports on the design of the prototype and makes suggestions for designing adaptable user interfaces for social tagging experiments.

1. Introduction

Social tagging allows users to tag entities like web pages and images and then use their tags and community tags to find entities. We built an adaptable user interface to understand how suggested tags and autocomplete UI elements affect tagging behavior, specifically the number of tags and the number of novel tags that users provided when tagging photographs. We expected these UI elements to increase the total number of tags but decrease the number of novel tags because the UI elements would make it easier to enter widely used tags.

2. Related Work

Previous studies on social tagging and folksonomies observed some effects of UI elements on tagging behaviors. Suchanek, et al. (2008) found "that the matching rates are roughly twice as large if suggestions are shown." Suchanek, et. al. also found that users were much more likely to use clickable suggested tags than to type in non-clickable suggested tags because of ease of use. Sen, et al. (2006) found that "viewing community [suggested] tags indirectly impacts a user's tag applications by changing a user's personal tendency." This result agrees with Suchanek and suggests that users who see suggested tags are less likely to use novel tags. Kipp and Campbell (2006) found that taggers arrive at consensus keywords or tags for a resource. Halpin, et al. (2007) found that users of del.icio.us, which supported recommended and popular tags and autocomplete, "developed some consensus about which tags best describe a site and those tags are used most often."

Autocomplete has been studied both generally and specifically in the domain of social tagging. Specific to social tagging, Naaman and Nair (2008) found that "the autocompletion feature for searching through the suggested tags list was welcome, especially in this mobile context. Several users commented on how suggested tags, via the autocomplete mechanism, reduced their tagging work and cut down on cumbersome text entry." More broadly, Hyvönen and Mäkelä (2006) found that autocomplete leads to standardization of vocabulary, fewer typing errors, and faster text entry. In contrast, Tam and Wells (2009) found that autocomplete does not always increase text entry speed because of the additional cognitive load of interacting with the autocomplete UI.

3. Design and Methods

To test these assumptions in a controlled experimental setting, we built a prototype tagging UI using JavaScript, PHP, HTML, CSS, and MySQL. Each participant in a pilot study (n=20) was presented with a series of 16 photographs from Flickr's 100 Best page in a random order. The autocomplete and suggested

tags features were toggled on and off, as shown in Figure 1. The pilot study did not find a significant effect for the UI elements, but the design of the tagging UI proved promising.

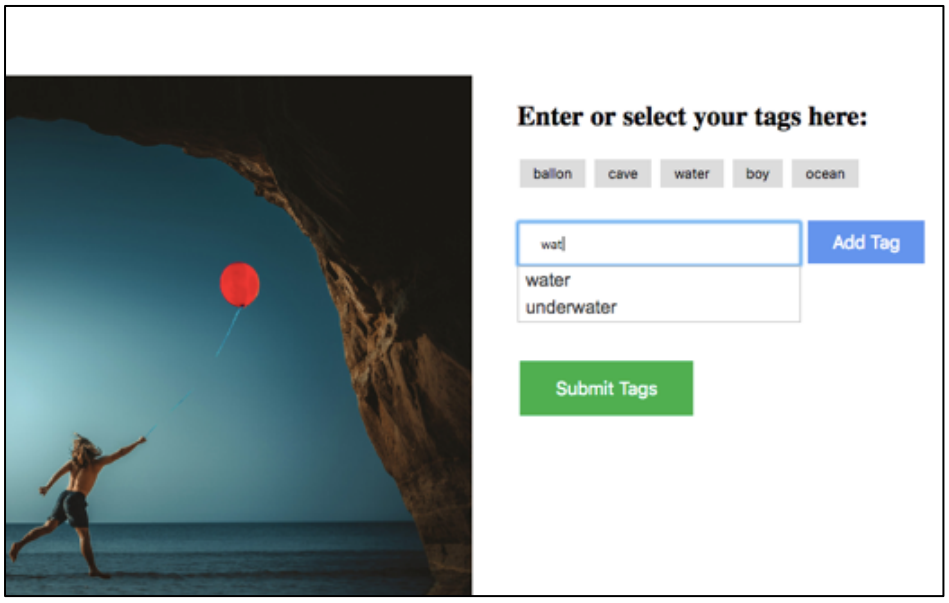

Fig. 1. Screenshot of the prototype tagging UI with suggested tags and autocomplete turned on.

1.1 Clickable Suggested Tags

Based on Suchanek's finding that users were more likely to use clickable suggested tags, we designed our suggested tags to look like buttons and to "feel" interactive by changing shade on mouseover. Participants reported that the suggested tags UI was intuitive, and all of the pilot study participants used the clickable suggested tags at least once.

1.2 Click-separated Tags

A recurring design question for social tagging UIs is whether to make tags space-separated or comma-separated. Comma-separated tags avoid run-on words like `redballoon` but require users to learn to use commas. Space-separated tags allow simple entry but result in run-on words and inconsistent uses or dashes and underscores. We avoided this tradeoff by implementing "click-separated" tags, in which users entered a single tag (with or without spaces) and clicked "Add Tag." None of the 1738 tags entered in the pilot study used run-on words, dashes, or underscores, suggesting that click-separated tags are an intuitive design.

1.3 Controlling Experimental Conditions use a Pseudo Latin-squares Design

We choose a variant on a Latin-squares design to balance the study's factors: autocomplete (on and off) and suggested tags (on and off). To allow participants to access the UI without a unique login ID, we set the initial condition randomly when participants first accessed the UI: `$condition=rand(1,4);`. This approach did not produce equal representation of initial conditions. Pre-assigning participant IDs would be more complicated, but would ensure equal representation and better support a balanced Latin-squares design.

1.4 Randomly Ordering Photographs

To avoid a covariate effect of photographic content, we presented the same 16 photographs to participants in random order. However, we found that the content of the photograph had a significant effect on the number of tags submitted: $X^2(15, N=20) = 33.78$, $p < 0.05$. This finding suggests that establishing a corpus of similarly interesting entities might be more important for social tagging studies than a robust ordering

mechanism.

4. Conclusion

We built an adaptable tagging UI to study the effects of autocomplete and suggested tags on tagging behavior and ran a pilot study. We found: 1) clickable suggested tags were intuitive and readily adopted, 2) click-separated tags is a viable third solution to the design debate between comma-separated and space-separate tags, 3) using a random number to establish the initial condition for a Latin-squares design is suboptimal for small sample sizes in particular, and 4) experiments should focus on finding and validating equally interesting entities to tag in addition to presentation order.

References

Halpin, H., Robu, V. & Shepherd, H. (2007). The Complex Dynamics of Collaborative Tagging. *Proceedings of WWW '07, the 16th International Conference on World Wide Web*. Banff, Alberta, Canada, 8-12 May 2007: 211-220.

Hyvönen, E. and Mäkelä, E. (2006). Semantic Autocompletion. In *The Semantic Web – ASWC 2006*: 739-751.

Naaman, M. and Nair, R. (2008). ZoneTag's Collaborative Tag Suggestions: What is This Person Doing in My Phone? *IEEE Multimedia*, 15(3).

Kipp, M. & Campbell, D. (2006). Patterns and Inconsistencies in Collaborative Tagging Systems: An Examination of Tagging Practices. In *Annual General Meeting of the American Society for Information Science and Technology*. Austin, Texas, US, November 2006: 3-8.

Sen, S. K. Lam, A. M. Rashid, D. Cosley, and D. Frankowski. (2006). tagging, communities, vocabulary, evolution. In Proc. of the *ACM CSCW*, 2006: 181-190.

Suchanek, F., Vojnović, M. & Gunawardena, D. (2008). Social Tags: Meaning and Suggestions. In *CIKM'08*. Napa Valley, California, US, October 26–30, 2008: 223-232.

Tam, C. & Wells, D. (2009). Evaluating the Benefits of Displaying Word Prediction Lists on a Personal Digital Assistant at the Keyboard Level. *Assistive Technology*, 21, 105-114.