Audio Preview Cues: Interaction Aides for Exploration of Online Music and Beyond

mc schraefel

U of Southampton and U of Toronto,
Southampton, UK; Toronto, Canada,
mc @ cs.Toronto.edu,
mc @ ecs.soton.ac.uk

Maria Karam, Shengdong Zhao

University of Toronto,
Dept of Computer Science, Canada
mkaram @ dgp.toront.eud
sszhao @ dgp.Toronto.edu

Abstract

We present a light weight mechanism called *preview cues* that allows non-experts to explore an audio collection by providing supporting information (analogous to the use of tooltips) at the point of interest.

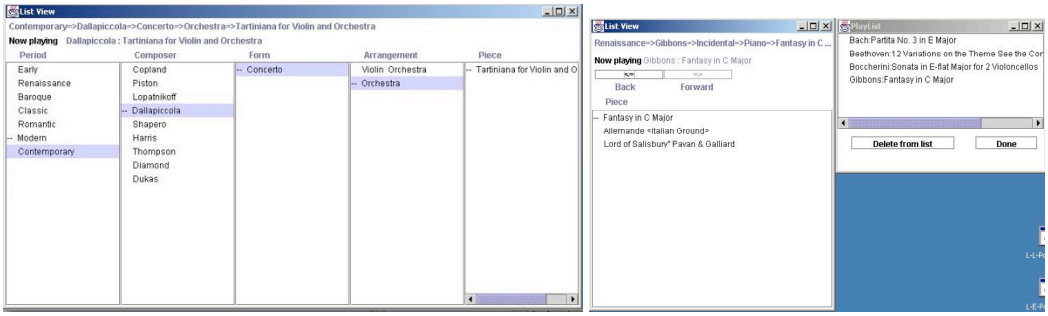

Figure 1: Spatial Multi-Column Layout (left) Single column view with collected tunes (right).

1 Introduction

Preview cues is a novel mechanism that allows people to explore large collections of loosely structured audio without relying on previous expertise about that domain. The approach, called "preview cues" provides a lightweight preview mechanism that allows people to explore an audio collection by providing supporting information (analogous to the use of tooltips in visual interfaces or Earcons in audio interfaces) at the point of interest.

2 Related Work

Auditory preview cues are related to but distinct from both Tool Tips and Earcons. Tool tips are generally employed as text, which appears when a user brushes (mouses over) an unlabelled icon for a specific command in the tool bar of an application. The text describes what the icon command invokes when clicked. Similarly, earcons are highly structured non-speech auditory cues in which the associated auditory cue represents one specifically defined UI event, such as the selection of a particular tool (Brewster, 1993). More recently, Terry and Mynatt have proposed Sideviews (Terry & Mynatt, 2002) previews for graphics applications in which an artist can preview multiple versions of a filter on an image, rather than a seeing a preview of only one filter setting, as is common now. Preview cues are similar to tool tips and Earcons in that they provide additional information about a UI marker, but they are also broader: they do not need to be so semantically specific. That is, rather than defining a specific command, or as with Sideviews a set

of explicit states, preview cues, suggest a potential *range* of values associated with a given area of a domain.

3 Evaluation

In order to see how preview cues might benefit existing Web pages for audio content exploration, we evaluated two interfaces types, and tested two conditions in each type, counterbalancing 24 participants. The study was gendered balanced and ranged in ages from 18-54. The interface types compared a single column (temporal context, Web-like) view with a multiple column (spatial context) view of the domain hierarchy (Figure 1, above); the audio condition compared when in the hierarchy a cue is available (at each point in the hierarchy; only at the final level of the hierarchy). This yielded a total of 4 interface conditions.

4 Results

A detailed overview of the results is available at (schraefel, 2002). In brief, the preferred interface style (50%) was the spatial layout; it was also the most efficient: users made significantly fewer random clicks/selections with this interface; performance however was also improved in the temporal early interface over temporal late, though there was a negative correlation between age and both duration of use and number of actions (clicks, brushes, adds), which was not present in the spatial layouts. All participants reported that preview cues made the process of discovering music enjoyable. Many participants commented on how the preview cues made finding new music "easy." Comments like they "wished [a certain music store] used this to let shoppers find new tunes," were common. Participants were frequently reluctant to stop playing with the spatial interfaces in particular. Participants who had no previous experience of this domain, and reported having had "no way" of accessing it before, reported that they discovered new music to enjoy.

5 Conclusion

Preview cues improves Web-style information access and, combined with a spatial layout, significantly improves access to information that had previously been not only inaccessible but effectively undiscoverable to many. Several design heuristics fall out from the work:

- exploration of structured domains representing music can be improved by adding preview cues to the elements of the domain, whether the hierarchy is represented temporally or spatially
- this effect can be significantly enhanced if a spatial layout is used.
- the negative effect between age and temporal representation of hierarchy can be nullified by using a spatial layout.

References

Brewster, S. A., Wright, P., Edwards,. (1993). *A.D.N. An evaluation of Earcons for use in auditory human-computer interfaces.* Paper presented at CHI '93.

schraefel, m. c. (2002). *An Evaluation of Preview Cues for Exploration of Information Hierarchies* (Technical No. CSRG-462). Toronto: Dept. of Computer Science, University of Toronto.

Terry, M., & Mynatt, E. D. (2002). *Side views: persistent, on-demand previews for open-ended tasks.* Paper presented at the UIST.