Metadocuments as Communicative Artifacts to Enable Use of a Research Digital Library in Undergraduate SMET Education

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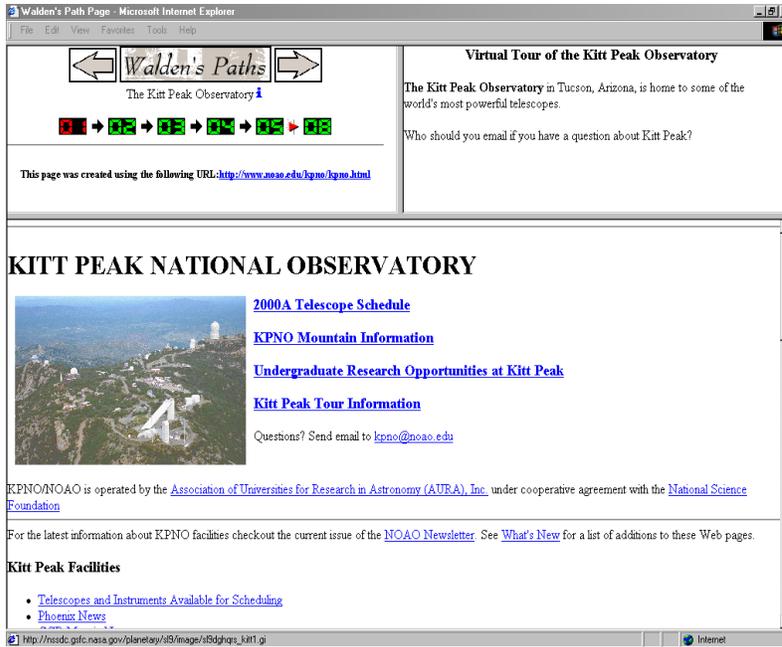**Hugh Wilson (wilson@bio.tamu.edu)**

Documents are often used for a variety of purposes by audiences other than those targeted by their authors. All contexts of unintended use cannot be determined apriori. Such reuse is more beneficial if the documents are recontextualized to address the goals, knowledge and assumptions of these accidental audiences. Walden's Paths is a tool that employs metadocuments to superimpose structure over unconnected documents to facilitate their reuse via coherent presentations.

Introduction

Documents (digital or otherwise) are often used for purposes that their authors did not envision. These may include use by unintended audience, use in unintended settings, unintended use (for example, use of sections or parts of the document) or combinations of these. Documents can be reused for illustrative, argumentative or informative purposes, among others. In order to achieve one's goals with reused documents, it is beneficial to establish the larger context in which the document is being used, as the original document may not deal with the current aspect of use or the current audience. In order to cover all possible cases of document reuse we need a dynamic, flexible means for reorganizing documents in varying contexts without modifying their original meaning, and yet using them in the defined situation. This recontextualization aids in creating a homogenous presentation or narrative from a set of diverse, previously unconnected documents.

Walden's Paths Project (http://www.csdl.tamu.edu/walden/) enables users of digital document collections (for example, the WorldWide Web) to exploit these documents by reusing them for previously unintended audiences in an academic setting. Authors of paths (usually teachers) overlay a linear, directed meta-structure over the Web documents and recontextualize these by adding explanatory text to achieve their curricular goals. Paths do not modify the structure or content of the Web resources that they include. The creation of a path over pre-organized content (for example, books, Web pages) to reorganize and associate related information serves to facilitate easy retrieval and communication. Walden's Paths Server displays the information that the path points to in conjunction with the annotational text added by the author of the path.
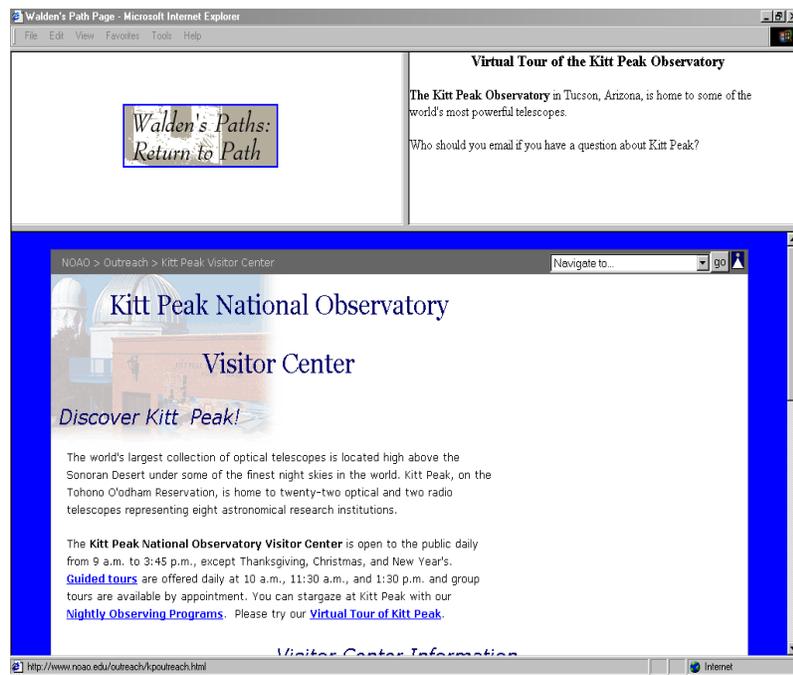
The System

The Walden's Paths Server can be accessed from any standard Web browser that supports frames. Figure 1 shows a page from a path about the Kitt Peak National Observatory. The browser window is split into three frames. The bottom frame (content frame) displays the Web page that the path refers to, as it would appear when viewed without the Walden's Paths interface. The top two frames help enunciate the material displayed in the content frame. The top-left frame (control frame) displays widgets for navigating along the path and displays reader's location on the path. Readers may click on the linked URL to view the page in the content frame without the Walden's Paths interface. The top-right frame (annotation frame) contains the contextualizing text added by the author. The annotation may

Figure 1: Sample page on a path

serve a variety of purposes including being a pointer to other Web resources, a question that the students may be expected to answer or points to be noted in the document below.

Path readers may navigate the path solely by clicking on the forward and back arrows (in other words, visiting the pages as intended by the path author) or by visiting pages in the order of their choice by clicking on the page numbers. A reader may follow any link from the document displayed in the content frame to explore the space related to the path. When the reader "leaves" the path, a "Return to Path" image replaces the contents of the control frame as shown in Figure 2. After exploring the space the reader may return to the location on the path where the exploring began with a single click of the mouse on this image.

Authors create paths using the "Walden's PathAuthor", a platform-independent, stand-alone authoring environment and save them on local disks. Authors may gather resources for inclusion in the path at work, where they may have faster network connections. The resources can then be organized and annotated in the absence of a network connection, presumably at home or while traveling. The author must "publish" the locally stored paths via the "PathPublisher", a Web-based application, before the viewers can access them. The PathPublisher copies paths to the author's publicly accessible Web directory, which can be accessed via the Walden's Paths Server

Figure 2: Sample off-path page

For more information check:
http://www.csdl.tamu.edu/walden