Developing Methods and Tools for Online Experiments

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Overview of Talk

- Background
- Our online experimental tool and methods
  - Experimental Web site
  - Data collection tools
- Future areas of research
Background

- Interdisciplinary student research group at University of Washington
- Research related to Web site design’s effect on use

Research Area

- Effect of hyperlink wording on browsing behavior, comprehension, and perception of a Web site
…and how do we test this online?

Experiment Requirements

- Must be online, naturalistic browsing study
- Record user behavior
- Deliver a survey
- Format collected data in multiple ways
- Keep data anonymous yet give participants reward
Challenges of Online Experiments

- Reliability of collected data
- Recording user behavior unobtrusively
- Capturing all desired information
- Ease of use for the non-technical

Our Method

- Participants: engineering students
- Materials: experimental Web site
- Procedure: students browsed site where and when they liked
- Pilot test (spr. – sum. 2003) and then “real” experiment (aut. 2003 – spr. 2004)
Creating the Experimental Web Site

- Naturally occurring site (slightly modified) about American Samoa
- Single code source, with dynamically generated hyperlinks
- Controlled presentation of 5 conditions
- Usable from everywhere

UW Web Study Instructions

Before beginning the study, please imagine the following scenario:

“In your new job as Park Ranger, you are getting ready for the tourist season in American Samoa. You decide to explore the Web site on American Samoa (associated with this study) so that you will be able to answer questions about the islands.”

Please note the following steps:

- Spend at least 15 minutes browsing the site and getting acquainted with the information.
- When you are done browsing, please click on the “Proceed to Survey” link. The survey will include questions about the information in the Web site.

Continue
**Manu'an birds**

The Manu'a Islands are famous for local culture and spectacular beaches, and they are an important part of local history. The wildlife is also special. There are two kinds of birds living in Manu'a that do not occur on Tutuila.

The most beautiful of these is Manu'a’s only parrot, the agapornis, or blue-crowned lory. It is a lovely bird with long, silky, blue plumage and a bright blue beak. It is often seen in the villages, where it is a favorite with the children and adults.

Another special bird of Manu’a is the unique sparrow, the lesser Fi’a fokolili. It is a small green bird with a white breast and black wings. It is often seen in the fields, where it feeds on grains and seeds.

**The spotless crane** is a small black bird that is extremely rare and has only been seen twice on the island.
Collecting Data

- Answers from surveys and link-clicking recorded
- Combination of PHP scripts and standard Web server logs
- Data collection was transparent to user
- Data in multiple formats possible
Examples of Collected Data

- Specific links clicked
- Link location on page
- “Back” button use
- Multiple browser windows use
- Sequence of pages browsed
- Time on page

Some Results from Pilot Test

- Tools worked!
- But some problems:
  - Participants had misperception about their browsing purpose
  - Participants tended to click from top to bottom of navigation menu
Redesign of Web Site

- Reworded the experiment’s scenario to encourage browsing for learning
- Randomly ordered the navigation menu’s sections and links

Some Results of Final Trial

- Generic-Informative and Generic-Intriguing link wordings increase number of links clicked
- Gen-Inf increases number of pages visited
- Gen-Inf increases comprehension of material
Future Work

- Study other online experiment tools
- Use our tool to study other research questions
- Continue developing experimental tool

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