

Usability Testing at Macmillan USA

by Christine Nelsen Ryan and Sandra Henselmeier

As indexers write their indexes, the question of usability always seems to be lurking somewhere. We can double-or-triple post entries, provide cross-references, code concepts, and perform all of those myriad tasks to prepare indexes, but the final question is: Will this index serve the informational needs of its users? Indeed, this is a crucial question to answer and one that ultimately influences the professional indexer's work.

At Macmillan Computer Publishing (part of Pearson Technology Group), we decided to find out how usable our indexes are. Like other professional indexers, we work hard to provide entry points to information we believe readers will want to access. While we cannot anticipate the needs of every user, we do our best to keep the users in mind throughout the indexing process.

This article explains the initial work done on usability testing. We got off to a positive start and are using the information as a base for future usability testing. Little information has been published on this topic, and we invite *Key Words* readers and other interested people to join in the discussion. If you have ideas you want to share on this topic, please let us know.

Christine Nelsen Ryan, former indexing manager at Macmillan, decided that the usability questions needed to be answered, so she, with the encouragement of Lisa Wilson, director of editorial services, planned a strategy for implementing the usability tests.

Wilson wholeheartedly supported the project: "Usability testing is a way for us to further develop our indexes and our indexes. To provide the best product, suited for the appropriate audience, we have to go outside the department and the company. The usability tests augment the internal indexing audits conducted by our management team by providing us with additional feedback on our product, the back-of-the-book index. Usability testing is a way for us to determine how well we are doing and if we are truly serving the reader the way he or she expects to be served by the index. Our usability tests are a work in progress. As we continue to move forward, I expect that these

tests will provide invaluable information and possibly help develop new processes and ideas for creating the best indexes in the business."

Ryan observes, "Our goal was to create and implement a set of tests for four different books. Our primary concerns were to gather information on usability testing, practice creating tests, and decide the mechanics of giving a test (for example, how much space we need, how much time it will take, and so forth). The reason for starting this project was to find a way to get feedback from our users and see if our ideas about how readers look up information in computer books were correct."

She contacted Sandra Henselmeier, a Macmillan indexer, to help with the initial planning. Ryan had attended a usability testing session conducted by Dick Evans at the 1999 annual ASI meeting and was impressed with his ideas. Henselmeier telephoned Evans to discuss usability testing, in general, and the project to be conducted at Macmillan. Evans provided valuable information, along with his enthusiasm and encouragement. [*Editor's note:* Dick Evans has promised an article on usability testing for a later issue of *Key Words*.]

We formed a general strategy for conducting the usability tests:

- decide which books to test,
- develop a usability test for each book,
- develop the observer's role in the testing process,
- decide who the participants would be,
- develop the participant's role in the testing process,
- develop questionnaires to gather information,
- develop post-test discussion session, and
- develop a plan to implement the usability testing.

Decide Which Books to Test

Ryan learned in Evan's usability testing seminar that usability testing is particularly effective with books that will have multiple editions published. In this situation, you can use specific feedback to make subsequent editions better. For this reason, *Upgrading and Repairing PCs*

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seemed like a natural choice. We publish a new edition annually, and, at the time of testing, material was about to go into indexing for this year's edition.

Upgrading and Repairing PCs is a high-end book. We believe that beginning-level audiences use indexes differently than do our high-end readers, so we also decided to test *How to Use Excel*. The *How to Use* books are four-color, figure-heavy, and without much indexable text. We thought it would be interesting to see if readers used the index as much to find information in this type of book or if they relied more heavily on the table of contents (TOC). We also thought Excel was a good subject choice because we publish several books on Excel every time a new version is released.

The last two books, *Sam's Teach Yourself C in 24 Hours* and *Sam's Teach Yourself Web Publishing in 21 Days, second edition*, were chosen because they were mid-level books on subjects that we publish frequently. In addition, we wanted to see if issues surfaced in programming book indexes that were different from issues encountered in other indexes, such as applications book indexes.

Developing a Usability Test for Each Book

In his seminar, Evans discusses several different ways to test the usability of an index. The method we chose was to give each participant a list of questions and ask him or her to write down where the answer to each question could be found in the book.

We devised test questions in two different ways. One was to read the body of the book and find topics that should definitely be in the index, and then simply write down a question such as "Where can you find information on the relationship between program scope and block scope?" Another way was to look through the index and find entries that we thought might be confusing to the reader. For example, indexers often discuss readers' understanding of cross-references. To test use of cross-references, we included questions that would cause a participant to look up a main entry that had a cross reference to another entry.

In phrasing the questions, we tried to emulate real-life situations when possible, and we also tried not to use the exact vocabulary used in the text. For example, on the *How to Use Excel* test, instead of asking, "How do you split screens?" we asked, "How do you view the beginning and the end of a long document at the same time?"

Developing the Observer's Role in the Testing Process

The observers, Macmillan indexers, conducted the tests, recorded the information, conducted post-test discussions with the participants, and wrote written reports of each participant's test results. The observers attended an orientation meeting that explained the purpose and methods for the usability testing process. Among the topics discussed were

- the books to be tested and the tests created for them;
- the participants' questionnaires to be used before and after testing;
- the configuration of the testing room, explaining where the participants and observers will sit;

- learning what is expected of the participants;
- assuring participants the tests and results will not be part of their personnel files, that the testing is purely voluntary;
- explaining the tests to the participants and what Macmillan hopes to learn from them;
- explaining the "thinking out loud" technique for gathering information during testing;
- assuring participants they will take tests at their own individual pace;
- mentioning that it is okay to ask questions anytime during the testing process;
- explaining what will be done with the testing results;
- explaining that the observer's job is to extract information, not provide prompting;
- in the testing room, each observer will focus his or her attention solely on the participant and not engage in either conversation or laughter with other occupants;
- observers will not laugh at jokes told by someone else, which could make participants feel uncomfortable and that the observer might be laughing at them; and
- conducting the post-test discussions with participants.

Developing the Participant's Role in the Testing Process

For the initial testing, the participants were volunteer Macmillan employees because for the initial round of tests, our goals were primarily to learn as much as possible about testing and work as many kinks out of our testing system as possible. In the future, we hope to be able to expand this program and bring in participants who are part of the target audience for our products.

Originally, we had decided to offer a participants' orientation session but realized that this would be too time-consuming. Instead, Ryan sent a company global e-mail explaining the usability testing project and asking for volunteer participants.

The memo explained that the indexing department was working on a testing system for evaluating and improving our indexes and that we needed volunteers to give us about 60–90 minutes of their time. As an incentive, we offered a free movie pass and refreshments to anyone who volunteered. The e-mail was sent to the entire company, and within an hour, 28 people had responded. We decided that was all we could handle for the first round of tests.

Once people responded, Ryan sent each volunteer the "Pre-Usability Testing Questionnaire" along with the orientation memo.

Developing Questionnaires to Gather Information Participants' Pre-Usability Testing Questionnaire

Purposes:

- to ascertain participants' attitudes toward topic of book to be tested,
- to ascertain participants' knowledge of topic,
- to ascertain participants' positive and negative attitudes toward using indexes, and
- to ascertain how often participants use indexes.

Participants' Post-Usability Testing Questionnaire

Purposes:

- to ascertain participants' attitudes toward the indexes they tested for usability,
- to ascertain participants' observations during usability testing,
- to ascertain how participants use indexes, and
- to ascertain participants' ideas for improving future indexes.

Developing Post-test Discussion Sessions

- These sessions are to be conducted immediately after the participant completes the usability test.
- After the test and while participant is taking a break, review the participant's Post-Usability Testing Questionnaire and look for items to bring up for discussion. Be as positive as possible.
- When the participant returns to the testing site, begin the discussion by encouraging the participant to express whatever is on his or her mind.
- During the discussion, remember that the discussion is a two-way conversation with the participant taking part and perhaps asking the observer questions.
- Begin with general questions about the usability test.
- Move to specific questions when appropriate.
- Review items on the Post-Usability Testing Questionnaire and ask participant to clarify any ambiguities.
- Focus on problems and difficulties. If appropriate, ask the participant what he or she would do to address them.
- Ask the participant for ideas and/or comments about the testing process.
- If appropriate, leave the lines of communication open with the participant, should the individual, upon future reflection, gain insights to be passed along to the observer.
- Examine other appropriate topics.

Conducting a Usability Test Dry Run

After the strategy had been planned and the supporting documents written, we conducted a dry run for the usability testing to work out any problems or surprises that might arise. Ryan arranged for two Macmillan employees, Carol Bowers (project editor) and Rebecca Mounts (freelance coordinator), to be trial participants. We were the trial observers. The participant's Pre-Usability Testing Questionnaire was administered, then the usability test, then the participant's Post-Usability Testing Questionnaire, and finally, the post-test discussion session. The usability-testing process for both trial participants was completed as planned and without problems.

After the successful dry run, we believed the usability-testing process was ready for implementation.

Conducting Usability Testing

Index usability testing was conducted from March 21–23, 2000. The indexes of four books were tested: *How to Use Excel* (0672315386), *Sams Teach Yourself C in 24 Hours* (067231861x), *Sam's Teach Yourself Web Publishing in 21 Days, second edition* (0672317257), and *Upgrading and Repairing PCs, eleventh edition* (0789719037).

Observers were assigned to the 22 participants.

At the usability testing sites, the room was configured so that each observer/participant pair was seated at a table. If the room size did not accommodate all of the observer/participant pairs, then some were assigned to nearby empty offices for testing.

Before the testing began, all observers and participants gathered in the main testing room. Christine Ryan conducted participant orientations, explaining the process and answering questions. The topics discussed included

- introductions of observers and participants;
- distribution of free movie coupons to participants taking part in the testing project;
- the texts and the usability tests and why the participants' participation is important to the Indexing Department;
- a list of questions and a book that were given to participants who were asked to find the answers to those questions by using the index, TOC, glossaries, or whatever method they thought would be most useful;
- assuring participants that the testing results will not be placed in their personnel files;
- instructing participants that they may ask questions at any time during the testing process;
- the "thinking out loud" technique so observers can record the thinking process of the participants; through this technique, participants verbalize how they look up information, including problems or concerns that arise;
- the Post-Usability Testing Questionnaire and the observer-participant post-test discussion sessions; and
- questions from participants about the testing or other concerns.

After the participants' orientation session, the usability testing began. Each observer had read the participant's Pre-Usability Testing Questionnaire and was prepared for questions that might be asked. The observer recorded what the participant looked up and in what order and noted what (if any) aspects of the index the participant found difficult to use. Once the usability testing was completed, the participant responded to the items on the Post-Usability Testing Questionnaire, took a short (10 minutes or so) break, then returned for the post-test discussion session. While the participant took a break, the observer read the Post-Usability Testing Questionnaire and his or her own notes taken during the usability testing, for the purpose of preparing questions or topics for discussion. Once the participant returned from break, the two-way conversation began about the usability test.

Summary of test experience

- Participants took an hour to an hour-and-a-half to complete the test.
- Observers were surprised at what participants looked up. We did not see too many overwhelming patterns, but several observers commented that participants searched for terms they would never have thought of including in the index. In order to create indexes that are as useful as possible, we will have to think of as many entry points as possible and not exclude terms because we think it unlikely the reader would look it up. People took very different approaches to

finding information. Some liked to find a general area of the book and narrow down by skimming pages. Others did not want to have to read pages at all and wanted the index to take them directly to the information.

- We were curious about how participants would handle "see" and "see also" cross-references. We found that "see" references were not a problem. Participants understood what they were for and how to use them. "See also" references, on the other hand, were confusing to some. For example, if they saw "Web pages. See also Web sites," some expected to see "Web pages" as a subentry under "Web sites."
- We were also curious if participants would understand that the locators on a first-level entry with several subentries usually point to a definition or general description of the topic. The participants were about half-and-half on this. When a question specifically asked where a definition could be found, some participants went straight to the pages the first-level locators pointed to while others skimmed the subentries looking for something that said "definition." Some expressed frustration when they went to the first-level locators and found a passing mention instead of a full definition or description.
- One comment that participants made repeatedly was that the first-level entries in bold type greatly enhanced the usability of the index. Given this response, we should consider changing the design of any indexes (such as the Complete Idiot's Guide series) that use Roman fonts for all entries.
- Finally, the greatest improvement that can be made for future tests would be improving the test questions. Many were too vague and could be answered by numerous passages in the book. Others were unclear and misunderstood by participants. Because our books are often purchased to solve problems, there should be more questions that deal with real-life scenarios and problems as opposed to questions that just ask where the definition of something is. For future tests, it would be beneficial to consult subject experts such as acquisitions and development editors and be sure that the information being asked for is something that a typical user might actually want to find. Also, someone should check to make sure phrasing of questions is technically accurate.

Recommendations From Participants

On the participants' Post-Usability Testing Questionnaire, we asked this question to obtain their ideas for improving the testing procedure: "This first round of usability testing has been a learning experience for us! Do you have any suggestions on improving how we conduct future tests?" Following are the responses:

- I thought it went well; the idea of talking out loud is interesting. Hope that it gave insight!
- Test was very good. Perhaps throw in a couple of more obscure references that are there but not as readily apparent.
- One participant questioned the usefulness of items often seen in indexes:
 - Listings
 - Dialog boxes as a main entry with names of specific dialog boxes as subheadings: dialog boxes listed according to their names as main entries is enough because readers look for the specific names.

- Dialog boxes, commands, buttons, and other items: these do not need to be listed under “dialog boxes” or “commands” but should be listed under the concept they’re used for.
- Perhaps a section on the test that’s more difficult. Also, it would be great to have non-editors take the test—the average Joe at Borders.
- Perhaps have participants develop their own questions to more closely reflect how they would use the index in a “real” setting.
- Future participants could help develop test questions.
- Have users of various knowledge levels take the test.
- They suggest a topic and levels of knowledge. We provide books that more or less match.
- For a particular topic, they develop a list of questions to critique indexes for the purpose of buying books.

Recommendations From Observers

- On the Pre-Usability Testing Questionnaire, ask participants to describe how they look up information in an index. An observer can look for use of nouns, verbals, phrases, use of TOC and glossary, and other items noticed.
- Provide different index formats for the same book to ascertain which characteristics help readers look up information more easily. For example, a usability test could be done on the printed index. Another test could be done on a chapter indexed with only first- and second-level entries. The same chapter could be indexed with concepts containing specific entries for commands, dialog boxes, keyboard shortcuts, and other pertinent items. The same chapter could then be indexed with first-level entries for generic terms such as dialog boxes, commands, and listings. The idea would be to see if readers look up information first by the specific dialog box or command name or go immediately to the generic name and then look for a specific name in the second-level headings. Other indexes could be developed to test other concepts.
- Get subject experts to help compose tests. Find out from acquisition editors (AEs) what the “hot topics” are that users will most want to have covered in the index.
- Include questions not covered in the book. Tell participants ahead of time that not everything is in there; that way we, might get a better idea of how long they’ll try to find something before giving up.

Recommendations for Improving Indexes

These recommendations summarize what we learned from participants

In the next issue of *Key Words*. . .

- **Indexes in Classic Cookbooks**
- **SoCal Medical Indexing Panel Discussion, Part I**
- **Term Selection and Index Structure**
- **Key Words Annual Index 1999**

by observing them during the tests, reading what they wrote on their Post-Test Questionnaires, and recording their comments during the post-test discussions. These initial conclusions we already know, and we practice them as consistently as possible. Their inclusion here is mainly to reinforce how essential these tasks are to creating good indexes.

- Include more double- or even triple-postings.
- Use adjectives where appropriate.
- Use verbals to describe actions being done.
- Include more concepts.
- Make first-level entries bold in all indexes.
- Include synonyms as cross-references to words that readers may not be familiar with. For example, nesting may not be familiar with some readers. A quick dash to the dictionary provides these potential synonyms:

embedding. See *nesting*
hierarchies. See *nesting*

Future Usability Testing

A usability testing committee is planning future tests that will include testing users at various field sites.

Christine Nelsen Ryan (cln_ryan@yahoo.com) worked for Macmillan USA, first as an indexer then as manager of indexing; she recently moved to New York and now works as an editor for Frommer's Travel Guides.

Sandra Henselmeier (shenselmeier@iquest.net) is an indexer for Macmillan USA, part of Pearson Technology Group, based in Indianapolis. i

New ASI Contact Info

As part of the switch to the new management company, we have some new contact information for you, active as of now. The old address and phone will have forwarding arrangements once they are no longer active, but you should contact ASI through the new phone, address, etc., listed below. The new contact information will be included in all new ASI material, and is also on the Web site.

American Society of Indexers
10200 West 44th Avenue, Suite 304
Wheat Ridge, CO 80033
Tel: 303-463-2887
Fax: 303-422-8894
E-mail: info@ASIndexing.org

