

Indexing workshops for technical writers

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Technical writers, who are often expected to provide indexes for their publications, benefit from courses that focus on the principles underlying good indexes. Structured around practical, interactive exercises, workshops that create learning situations that engage their interests are successful in helping technical communicators develop basic understanding and skills.

The responsibility for the indexing of technical documents usually falls on the writers of those documents. Although the principles of indexing are conceptually difficult, writers are often expected to produce these indexes with little, if any, training or experience. The technical communicators whose task it is to create indexes, the technical editors responsible for index quality, and the technical communication managers are frequently unaware of the existence of indexing norms and standards. As Pat Booth (2002) notes, technical communicators 'can benefit from the same initial training as people who are intending to become full-time indexers'.

Indexes and related tools help ensure that technical publications achieve their objectives – reducing customer support costs, increasing sales and ensuring customer satisfaction. Only when the user locates an answer does all the investment in high-quality documentation pay off. The technical communication community has put much effort into convincing engineers and management of the value of technical communication, and new standards have been developed for technical publications. These standards need to include indexing and related tools for searching and navigation. The training and support needs to be there to assist technical writers in learning and developing indexing and related standards.

This article presents some of the background research on adult learners and on principles of task orientation that have been used by the author in designing workshops on indexing technical documents. It also includes anecdotal results and suggestions for workshop design and future development.

As new documentation media develop, such as XML, technical communicators need to be able to adapt indexing principles for use within the new media. Extending indexes into these emerging media means exploring new possibilities while also meeting users' needs to find answers quickly and easily. And within existing media, such as PDF and online help, indexing principles also need to be applied with some thought.

Teaching indexing to technical writers brings a number of challenges. Although generally not expert indexers, they are professionals whose knowledge and experience need to be recognized. Many participants, although keen, arrive with some false notions about indexing. Some may feel shy because of previous learning experiences, or because they don't know the other participants. In addition, 'people need

to engage in real tasks' (Carroll, 1998: 9). And, of course, their time is at a premium.

Background

In the mid-1990s, I developed an indexing workshop for technical writers, basing the design on theories about how adults learn and how people learn to use computers. I delivered the workshop to two different audiences:

1. embedded indexing to the Society of Technical Communication Eastern Ontario Chapter, and
2. strategies for indexing print and online documentation to SIGDOC (Special Interest Group for Documentation, Association for Computing Machinery).

The workshops were similar in basic approach and material covered.

In the embedded indexing course I initially asked participants to embed an index using Microsoft Word or FrameMaker. However, this exercise failed because the air conditioning was turned off in the building (it was a Saturday) and the room temperature (with all the computers turned on and the afternoon sun streaming in) became too warm for participants to work effectively. I had anticipated that actually embedding an index would add 'practical value', but the participants indicated that they had gotten most of what they needed out of a previous exercise in which they had created an index using file cards (see below).

The second workshop focused on extending back-of-the-book indexing principles into emerging online media. It presented examples of online indexes and included an exploration of the relationship between hypertext links and index structures. Participants were particularly intrigued by an exercise in which they tried to represent a 'hypertext web' visually by placing lengths of coloured wool on a printout of an online document in order to represent the hypertext links. They then labeled the type of relationship that each hypertext link represented and looked for patterns in the relationships, from which they could create rules or some systematic way for defining hypertext links. For example, the phrase 'information is extremely personalized' is hypertext-linked to a short description of 'collaborative interface agents', which are semi-intelligent systems that assist users with daily computer-based tasks. The relationship would be

that collaborative interface agents are ‘a type of’ service for personalized information. In library science terms, the ‘type of’ relationship represents a hierarchical structure. The sample text for this exercise was drawn from a web presentation of Nicholas Negroponte’s book *Being digital*.¹ Participants also undertook an exercise in which they envisaged possible index/search ideas. They enjoyed creating new models using, for example, index terms to augment a search facility in online help.

I recently ‘overhauled’ the workshop, focusing it on basic indexing skills that technical communicators can then apply to different media and replacing all the original samples in the exercises. Much of the preparatory work involves putting together stimulating exercises that address specific principles and that can also be accomplished within tight time constraints. The embedded-indexing exercise is no longer included as it seemed of marginal value in helping participants understand indexing principles.

The basic indexing workshop is given in a one-day format that fits in nicely with conferences and chapter education programs of the Society for Technical Communication (STC). Sadly, there is insufficient time for either the hyper-text linking or the creating new index/search tools exercises, but a new workshop is being planned that focuses on design issues in indexing and on searching and navigation facilities in online and emerging media.

Adult learners

I worked for a number of years in the Planning Department of Algonquin College of Applied Arts and Technology in Ottawa, assisting with the development of continuing education. During that time, I also took a number of professional workshops at Carleton University on creativity and innovation, project management and strategic planning. The workshops consisted of short presentations followed by group exercises and debriefings. I was struck by how fast participants learned – and by how tired I was at the end of the day. In developing my indexing workshops, I sought to employ the same powerful adult education techniques.

We know that adults:

- have trouble sitting through long, tedious lectures;
- can be shy about learning something new;
- like to have fun while they learn;
- want recognition, warmth and personal attention;
- wish to interact socially;
- wish to be treated with respect;
- bring considerable professional and life experience to the learning context;
- have their own personal and professional goals;
- wish to make choices whenever possible;
- want learning to be relevant to what they do.

The above list was summarized from the work of Gary Winters (1989), who runs a workshop entitled ‘Train the trainer: delivery and coaching skills’. Winters describes how adults learn through a complex cycle of working through problems and integrating them into their general knowledge:

1. applying: actively experimenting in realistic situations;
2. experiencing: incorporating past experience of participants;
3. processing: discussing experiences; sharing reactions and observations;
4. generalizing: establishing principles, conclusions, concepts or theories.

It is also known that different types of activities result in remarkably different rates of retention:²

- 10 percent of what we read
- 20 percent of what we hear
- 30 percent of what we see
- 50 percent of what we see and hear
- 70 percent of what we say
- 90 percent of what we say as we perform a related task

Thus, the more learners are actively involved in the learning process, the more they retain.

Task orientation and the minimalist movement

In the 1980s, John Carroll undertook ground-breaking research into how people learn to use computers, focusing particularly on developing more effective computer documentation. He drew on foundations established by John Dewey, Jean Piaget and Jerome Bruner (Carroll, 1998: 1). He found that people learned through doing real work, much as Winters describes the ‘adult cycle of learning’. Carroll’s research profoundly influenced modern technical documentation as other researchers built upon and re-interpreted his work.

Because Carroll’s first computer manuals were somewhat shorter than the traditional manuals of the day, the movement became known in the technical communication world as *minimalism* (no connection with the art movement of the same name). Minimalist design emphasizes encouraging and supporting work on realistic tasks, learning by doing rather than by reading, and engaging the learner and evoking positive motivation toward meaningful activities (Carroll, 1998: 3). In short, learners need to be given meaningful work right away. This builds motivation and a sense of relevance.

Learning complex tasks

Indexing involves making many choices at many levels within the context of both the audience’s needs and the subject matter under discussion. In addition, the index itself forms a complex structure. Minimalists have made some useful observations about learning complex tasks that can be applied to learning indexing.

- Providing instruction in only small discrete tasks (e.g. creating *see* cross-references) can impede learners from grasping the broader context and reasoning involved in complex problem-solving.
- Learners need to understand the context (e.g. print or online; user guide, tutorial, or reference manual) and the

multiple spaces (e.g. audience, subject matter, index structure) in which they are working.

- Instruction needs to build progressively through doing a series of tasks – possibly starting with conceptual understanding and moving to interrelated problems.
- Learners resist comprehensive explanations and prefer information directly related to the task at hand.
- Instruction should be focused on practical issues related to users' goals.
- Encourage and guide exploration.
- Use rich case studies or scenarios.
- Employ interactivity (trying something out and seeing what happens).
- Identify and examine misconceptions (for finding, diagnosing and correcting errors).
- Develop varying analogies, metaphors and examples for looking at a single issue (summarized from Mirel, 1998).

Workshop format

The workshop takes a practical, hands-on approach, with short presentations, exercises and discussion. It goes 'backwards' through the indexing process – from end results to the specifics involved in creating an index (see Fig. 1). The underlying structure of the workshop follows the learning cycle outlined by Winters – applying, experiencing, processing and generalizing. As various principles of

indexing are discovered or used by the participants, these principles are written on a flip-chart for reference and for a final summary at the end of the day.

Participants first do usability tests of indexes to establish the basic principles behind an effective index. Next, they become familiar with the basic rules of indexing through editing a draft index. Finally, they put their learning to the test in writing a draft index. By the end of the process, they are able to apply indexing principles to print and online documents, to evaluate the quality of an index and to create an effective index. Through presentations and discussion they come to understand the issues involved in embedded indexes, print and online formats, and single-source indexes.

James Anderson (2002: 2) uses a similar process, having students examine a variety of information retrieval databases – from back-of-the-book indexes to large abstracting and indexing services – looking at features such as subject scope and domain, display media, indexable matter, content analysis methods and specificity of indexing terms.

The ideal number of participants is about 16. Most of the time is spent doing exercises, generally in pairs, followed by debriefings. This number allows each participant, or pair of participants, the opportunity to present their results at the conclusion of each exercise. Working together is fun and the participants can share their ideas as they work. By working in pairs, using real material and doing real tasks, they can achieve the highest level of retention (90% of what they say as they perform a related task). During discussions, the participants are encouraged to share their knowledge, problems and solutions with the group. The discussion also allows the instructor the opportunity to explore any misconceptions that may have occurred during the exercise and to turn these into learning opportunities. The instructor acts as facilitator, coach and technical resource person.

Handouts include a workshop outline, exercises with sample materials and file cards, a copy of the overhead slides used for the presentation portions of the workshop, and a guidebook to indexing technical documents specifically written for the workshop. This guidebook is similar to the overhead slides, but includes some different examples and provides a written explanation.

Observations

Overall experience

In general, in delivering the workshops I found that:

- encouraging participants to roll up their sleeves and delve into relevant work engages them immediately;
- participants love to talk and share their ideas and experiences;
- engaging participants in problem-solving using real examples helps them to grasp difficult concepts;
- a technical audience prefers to use non-technical materials so that they can focus on the principles separately from content;
- a good room environment (temperature and air quality) and a light lunch help participants endure a mentally and physically demanding day.

1. Introduction

- welcome
- workshop objectives and learning methods
- print and online indexes – similarities and differences

2. Usability test

- exercise: conduct a brief usability test of 'how to' and reference books (each pair of participants tests a different book)
- discussion: what makes effective indexes work well and what causes problems

Break

3. Edit an index

- presentation: headings, subheadings, double-posting, cross-references, problems, checklist
- exercise: edit a draft index
- discussion: specific issues arising from the exercise

4. Create an index

- presentation: analyzing a text

Lunch

5. Create an index (continued)

- exercise: create a draft index for an article (using file cards)
- discussion: specific issues arising from the exercise

Break

6. Index formats (discussing issues and sharing tips)

- embedded indexes (with a short presentation for Microsoft Word and FrameMaker)
- online indexes
- single-source indexes
- topic maps

7. Review of indexing principles

- review of indexing principles established during the workshop
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Figure 1. Sample schedule for a one-day workshop

Exercise 1: usability testing

The participants had difficulty understanding computer books that were outside their own particular specialties. More general 'how to' books (e.g. *Drawing with children*, *Path of the paddle*) and reference books (e.g. *Trees of Canada*, *Cosmos*) work much better, while still being similar to technical publications in purpose and structure. In addition, participants enjoy selecting and reviewing books on subjects that interest them. While I try to use books with indexes that are as good as possible, finding interesting, readable books that fit the 'how to' or 'reference' mold, and that also have great indexes, can be quite a challenge. *Cosmos*, which won ASI's H.W. Wilson Award for indexing, is a rare find. (Sadly, its fine index is rendered almost unreadable by the run-in format.) Nonetheless, participants gain enormously from examining both the strengths and weaknesses of real indexes.

The participants find that workable indexes must be comprehensive, include lots of synonyms and use reader-appropriate terminology. And they come to feel deeply about the significance of these needs. Thus, the usability exercise establishes the basic indexing principles that are developed and implemented through the rest of the workshop.

Exercise 2: editing an index

In the editing section, I include in the presentation both generally agreed-upon rules of indexing and some problems to resolve. Each item is illustrated with an example from a real index. Problems include an excessively long list of subheadings, a subentry that has too many reference locators, and circular cross-references.

The participants are provided with a realistic first draft of an index to edit. The draft index was written for a free government booklet entitled *Safe boating guide*. They appreciate having a copy of the booklet available so they can look things up in the text as necessary. As with the usability section, about equal time is allowed for the exercise and for discussion.

Exercise 3: creating a draft index

For this section, I provide a condensed book chapter on how to study and rehabilitate cranes in the wild (permission granted from author). The participants use file cards to write the entries (in pairs or individually, depending on preference). They like working with file cards because they can sort them into alphabetical order as they go along and they are able to see the index as it emerges. Since most technical writers are familiar only with embedded indexing, being able to see the index as they write it is a new and exciting experience.

Conclusions and thoughts for the future

At the end of the day, I feel most of the participants are capable of producing 'acceptable' indexes – indexes that

show a significant improvement over many of the indexes that I see in technical publications. Nancy Mulvany (2002: 14) believes that only 5–10 percent of the students completing her indexing courses have the particular 'mental quirks' that enable them to go on to become excellent indexers. The one thing I can say for certain is that by the end of the workshop, participants appreciate how difficult it is to create a good index. And they return home knowing that they have worked hard.

The technical indexing field is moving towards the broader issues of 'navigating and finding' in online publications. Examples include hyperlink structures, expanding-topics lists and assisted online searches. Innovations, such as mini-indexes at the beginning of chapters, are appearing in print publications. 'Topic maps' can provide the underlying architecture for XML-based documents. Such innovations involve people from different fields who need to get up to speed on indexing principles and need to acquire the skills to apply these principles creatively in new publishing environments. Teaching techniques based on discovery, real problems and sharing can provide a basis for training and 'inspiring' indexers of the evolving future media.

Notes

1. An OBS Cyberspace Extension of *Being digital* by Nicholas Negroponte, available at: <http://archives.obs-us.com/obs/english/books/nn/bdintro.htm> [accessed 19 March 2003]
2. I do not know the original source. The list commonly appears in material about training: e.g. How people learn, in *JHPIEGO TrainerNews* (April 1999), available at: <http://www.reproline.jhu.edu/english/6read/6issues/6jtn/v2/tn921rn.htm> [accessed 19 March 2003]

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