Engineering Effective Learning Toolkit

by Harold D. Stolovitch and Erica J. Keeps
reviewed by James D. Russell

The *Engineering Effective Learning Toolkit* provides a systematic, step-by-step approach for analyzing, designing, and producing a learning program and verifying its effectiveness regardless of its format. According to the authors, the 14-step process that has evolved over the past 20 years is based on sound instructional design (ID) principles, which is not surprising, considering the backgrounds and experiences of the authors.

The material in the *Toolkit* is also the basis of a five-day workshop that they have conducted for numerous organizations worldwide. The audience is new course developers, experienced practitioners, and managers of training. The package can be used as a self-instructional manual for the beginner or as a textbook for a course to train instructional designers.

This book is well written, easy to read, and simple to comprehend—even for a beginner. In addition, the 370 pages are accompanied by a CD-ROM. The outline format and bulleted lists make the content easier to follow than dense narrative text. The chapters, arranged by steps in the ID process, are clearly organized, and each has a consistent format that makes the book easy to follow. After the introduction to each step, the purpose and result are stated. Activities are listed, along with job aids. The approximate time required and resources necessary are stated along with caveats and tips for each step. At the end of each chapter a fictitious but realistic case study allows the reader to see the results of each step.

Steps

The book's chapters correspond to each of the 14 steps in Stolovitch and Keeps' process. They identify the reason for performing that step (purpose), the output of the step (results), the process (activities), the approximate time required, the people and materials required for that step (resources), the things to be aware of and to watch out for during that step (caveats), and helpful hints to facilitate performance of the step (tips).

Step 1. Project Plan. The process begins with the generation of a document that specifies what is to be produced, including the scope of the learning program, its objectives, the target population, and the estimated number of work days to complete the design and production of the instructional materials.

Step 2. Learner Analysis. The authors' design focus is a learner-centered approach, so one of the first steps identifies the relevant characteristics of the target population. A learner analysis interview questionnaire identifies the important questions to be answered about the learners.

Step 3. Context Analysis. The second of three analyses identifies the conditions under which learning is to occur. Factors to be considered include where the learning will take place, what resources learners will have available, and any administrative factors that might be involved. Techniques for gathering such data include surveys and questionnaires, structured interviews, and focus groups.

Step 4. Task Analysis. According to the authors, this is "the most critical step" in a learning program (p. 47). This analysis rightfully focuses on performance rather than content. The text focuses on two task analysis methods: hierarchical and procedural. An "if…then" job aid assists the user in choosing the appropriate analysis method(s).

Step 5. Analysis Document. This document pulls together the previous steps—the learner analysis, the context analysis, and the task analysis. The result of this step is a summary report that includes the project plan. A job aid provides a possible format for the report. A completed example is included as well.

Step 6. Performance Objectives. The authors recommend a standard three-part format for stating objectives. Sample verbs are provided in one of the job aids and are a big help to beginners. Other job aids help developers convert each task in an analysis to an objective, and then cluster the objectives.

Step 7. Criterion Tests. The *Toolkit* includes a helpful job aid that describes the advantages and disadvantages of various types of test items, that is, matching, short answer, and essay. Another job aid helps users select the appropriate type of item for a given objective.

Step 8. Document Design. The document design pulls together information from the previous steps. The result is a "blueprint" for the lesson, including instructional methods, strategies, the delivery system, media, and learning events. Templates assist the user in these design decisions.

Step 9. Implementation Plan. The output of this step is a detailed procedure for using the learning program being developed. It is complete with an implementation timeline and action calendar. A job aid helps the user identify many important implementation considerations.

Step 10. Prototype Production. The next step is to produce all the instructional components in accordance with the specifications in the design document. The authors advise, "Start with the core or central component of the program. Then, as you proceed, build the supporting components" (p. 197). As is the case throughout, excellent guidelines and examples are provided.

Step 11. Expert Verification and Revision. This step is a validity check that locates inaccuracies and content gaps. The content should be accurate, up to date, job relevant, and complete. The chapter includes forms for both subject matter expert review and learning design review.

Step 12. Learner Verification and Revision. The authors claim—rightfully—that this is the most important step in the entire process. In it, the learning materials are tried out with actual learners. The chapter includes data recording sheets and a job aid with "if…then" guidelines for revisions.

Step 13. Final Production. In ID, nothing is really "final." However, this step addresses "the production of a finished learning program ready for dissemination and implementation" (p. 293). The chapter provides production guidelines, job aids for print and screen display specifications, and a production checklist.

Step 14. Long-Term Monitoring and Maintenance. I was pleased to see that the authors included this usually forgotten step in their instructional systems process. The materials should be monitored to verify their effectiveness, currency, and ongoing relevance over time (weeks, months, or years). A program delivery summary report is included with key questions to assess the ongoing effectiveness of the learning program.

Appendices

The book contains a number of helpful appendices. For example, one includes five techniques for gathering information systematically during ID. They are surveys and questionnaires, observations, structured interviews, focus groups, and critical incidents. For each technique a description, procedures, and helpful tips are provided.

A valuable glossary is also included (containing approximately 100 entries). The definitions are helpful for the beginner to explain new terms and for the experienced designer because there are few standard terms in our field.

Summary

The *Toolkit* provides a thorough description of this systematic 14-step process for preparing effective instruction. Designed to be used as the reader develops learning materials, it is filled with informative charts, helpful tips, and job aids. An example lesson is developed throughout the book to demonstrate each step in the process. The informative resource can assist even the beginner in designing a module, lesson, or unit of instruction.

The process is based on principles and techniques of the "founding fathers" of the ID field, even though they are not cited in the book. One of the few shortcomings of the book is that there are no footnotes or references, just a Resources section.

I also encourage users of the *Toolkit* to practice actually developing instruction while using the book rather than just reading it as a textbook. It would be helpful to have an experienced designer assess beginners' work; however, the book includes excellent checklists for self-feedback. After beginners finish the *Toolkit*, I recommend they read as many of the books listed in the Resource section as possible.

Any experienced instructional designer could use the *Toolkit* as the text for a course to teach beginners. The book could also be used as a self-instructional guide. Given its simple but thorough presentation of time-tested information, I urge you to go ahead—try it out with your employees or colleagues!

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Reviewer Bio

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