

Book Review: Breakthrough Thinking with TRIZ, Second Edition.  
By Larry Ball

Reviewed by Ellen Domb, editor@triz-Journal.com

Loose leaf notebook, 80 pages. Available from the Products and Services page of the TRIZ Journal as a free download for individual study, or in a printed version in full color for \$24.95.

<http://www.3mpub.com/TRIZ/>

The purpose of most book reviews is to tell the reader whether the book is worth buying and reading. As reviewers recognize the value of time, more emphasis is placed on whether the reader's investment of time will be worthwhile. *Training Magazine* even designates books as "Pass", "Borrow" or "Buy" !!! The TRIZ Journal will continue to review free books, because we know the value of our readers' study time.

The first edition of Larry Ball's *Breakthrough Thinking* was published as a long article in the March, 2001, issue of the TRIZ Journal, and has been among our most popular downloads. It has been translated into Spanish and into Japanese, and has been of great help to many teachers and students of TRIZ.

**Here's the short version of the book review: if you liked the first edition, you'll like this even more. If you didn't see the first edition, go look at the free download of this edition.**

Here's the longer version of the book review:

Larry Ball has been teaching TRIZ for 10 years, and he has learned a lot about what makes it hard for students to learn TRIZ. Inconsistency in vocabulary and inconsistency in the use of tools are among the leading causes of students' frustration. Larry has deconstructed some of the classical tools of TRIZ, and reconstructed them in a way that smoothes the students' pathways through the problem solving process.

Each step has a hierarchy of questions, and the output of each question is the input to the next question. This step-by-step method will be very easy for readers to follow. Common images replace abstract language (and make the vocabulary fit well with Six Sigma training systems, too.) For example, problems are defined in terms of dependent variables (outputs) and independent variables (inputs) and the positions of the knobs that control the values of the inputs. The "knob" metaphor is carried throughout the book, and Larry makes it quite clear, in a way that many Six Sigma books do not, that knobs can have continuously variable positions, binary (on/off) choices, multiple choices, or can become removed, if the input is no longer necessary to achieve the output.

The function analysis method is compatible with both Su-Field analysis and TOP methods and will be easily understood by users of TechOptimizer™, Ideation Workbench™, and CREAX Innovation Suite™. The steps for creating a "long form" of a function definition are very clear, and the examples are well-illustrated and easy to

remember. Larry's method of teaching the long form of function definition, then letting the student use the short form (long=describe the function with a sentence, short=use one or two words) makes a lot of sense to the reviewer, who has frequently struggled to help students develop good function statements. In this book, the function statement is the key to the entire sequence of problem solving steps, so he invests extraordinary care in detailing the steps to create good function statements.

### **Who is the audience for *Breakthrough Thinking with TRIZ*?**

Short answer: Teachers, students, and practioners of TRIZ. Everybody except absolute beginners.

Longer answer: Absolute beginners should take a class, or read one or two other books first. Larry has condensed so much information into such a compact presentation that *Breakthrough Thinking with TRIZ* will give everyone who knows something about TRIZ a lot to think about. Don't try to read *Breakthrough Thinking with TRIZ* straight through—pick a topic, and explore it in depth, and see if it changes your ideas about things you've been wrestling with for years! TRIZ teachers in particular will find this book a treasure-trove of new examples and illustrations, as well as refined processes and methods. (Contact Larry directly for permission to use material from the book in your courses.)

Larry Ball has done a service to the TRIZ community by “packaging” his work into this format. We are interested in the experiment—will people read the free version, then buy the printed version, or will they just keep the free version? Please let us know what you think of the format, as well as the book!