

Editor's note: The seven installments of the mini-course presented in the weekly ASIT newsletter referred to here will be combined into 3 articles for the TRIZ Journal. Part 1 appeared in October 2004 and Part 3 will appear in December 2004.

New Product Development Mini-Course, part 2

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In the July issue of the TRIZ journal, you can find a review on my new e-book, "How to Develop Winning New Products Ideas Systematically." Read the review at <http://www.triz-journal.com/archives/2004/07/07.pdf>, and buy the book from <http://www.start2innovate.com>

Many people have written to me asking about the difference between the ASIT Premier course and the new e-book about New Product Development (NPD). Read the review of the course and associated book at <http://www.triz-journal.com/archives/2003/04/e/05.pdf> or order them directly: [Click here.](#) After giving it much thought, I've decided to write a 7 installment mini-course to help you appreciate the basic principles behind the NPD tools and principles. This article is composed of installments 3 and 4 of the mini-course.

The NPD mini course

Installment 3

The closed world of winning products

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In our previous meeting we saw that in order to enhance our creativity we need to inject constraints into our thinking task.

But we must inject the right kind of constraints at the right dosage or they may be harmful to the thinking process.

Today we'll learn about the Closed World principle, which defines the kind of constraints that will help you enhance your creativity and develop winning new product ideas.

Please review the following list of highly successful - breakthroughs at their time - products, product categories and brands:

- Multi focal glasses
- Stereo system
- Hotmail
- Ikea
- Mineral water
- Dell computers
- Diesel engine

At first glance there seems to be nothing in common regarding all these products: they relate to different fields; most of them are physical products, but Hotmail is a software product; Dell computers and Ikea are pure business ideas; the diesel engine and multi focal glasses are scientific inventions.

But a closer look reveals a totally different picture.

In multi focal glasses the lens is polished differently, but no new element is added.

In the stereo system, some parts (e.g. the speakers) are duplicated, but no new part of a new type was added.

Hotmail eliminated the client mail software and used an exiting application - the web browser - to read mail.

Ikea removed the assembly process of furniture and transferred it to its customers.

The inventors of mineral water removed any kind of flavoring elements and showed that plain water can be a successful product.

Dell computers got rid of conventional distribution channels and sold computers directly to the customers.

In the diesel engine there is no ignition and therefore it uses a much cheaper gas.

Do you get it?

All these products were developed from their predecessors without adding any new type of elements, and in some cases even by eliminating parts and elements.

This important observation led me to formulate the fundamental principle of new product development, called the Closed World principal:

In developing new product ideas one should avoid adding any new *types* of elements to the existing *product world*

I suggest that you read it again.

Please pay attention to the underlined words "types" and "product world".

We are allowed to add new elements but not new *types* of elements

The product world includes our baseline product and its immediate environment.

Here is a little puzzle that will show you why the closed world principle often not only does not confine our thinking, but actually broadens it. Look at the following little puzzle:

Which is the odd one out?

- 1) 13
- 2) 17
- 3) 19

In my workshops I get very interesting suggestions, among which include:
Number 17 is the odd one out because the digits are made up of straight lines; the number 19 is the odd one out because the number 9 is a closed shape.

All these answers are based on a narrow view of the problem world as containing only the numbers 13, 17 and 19.

Take another, broader, look at the puzzle statement and you'll notice that there are actually 6 (not just 3) numbers in the puzzle: 1, 2, 3, 13, 17, and 19. Of these 6 numbers, the number "2" is obviously the odd one out since it is the ONLY even number.

Many people get a little mad at me when I present this solution. They claim that it is a general convention to view the sign ")") as indicating that the number to the left of it is just an index, not part of the game.

So tell me, what is creativity all about, if it is not about breaking conventions? And, paradoxically, the Closed World principle, by forcing us to view the environment as part of the game, helps us change the game.

I must tell you an anecdote here. In one of my classes at the university, I handed out a booklet with home exercises to my students at the beginning of the semester. In one of the classes, after teaching the Closed World principle and ASIT's emphasis on the environment of the problem, I gave the students the "13, 17, 19" puzzle.

At the next class meeting I saw that one of the students was eager to show his answer, so I let him speak.

"The odd one out is 13," he said. I was a bit disappointed as I had anticipated the "2" answer, but let him continue. "It's 13 because the puzzle appears on page 13 of the booklet".

I was amazed! I had never paid attention to that! This student was simply applying the principles I had taught him, and managed to find a solution that nobody had found before. He got a nice bonus mark!...

The lesson we learn is that on many occasions we pay attention to the objects that we perceive as part of the problem or as relevant to the situation, and ignore other elements that may be just as important and sometimes critical to the development of new ideas.

Consider anti dandruff shampoo. Now it seems obvious, but at the time everybody was fixated to think that shampoo treats the hair, and forgot about the environment - the skull.

The NPD mini course
Installment 4
The repeating patterns of winning products

In our last discussion we talked about the underlying principle of ASIT - the Closed World condition.

Constraining ourselves to develop new product ideas within the closed world of our product provides us with an important leap forward to our creative ability. But ASIT does more for us.

ASIT provides us with tools that guide us step by step to search for promising ideas within the Closed World!

At the core of these tools are the six innovation patterns. These have emerged from my historical analysis of product development trends, which in turn grew out of research by the Russian engineer, Genrich Altshuller. My research indicates that most successful product innovations fit into one of these six patterns. I'll briefly discuss two of these patterns in this e-course, and I now introduce you to one of them... In fact, I'll let you discover it yourself.

Below you'll find a description of three consumer products from different fields. Try to identify the common patterns underlying their development from their predecessors.

Product #1: The Nintendo DS

Nintendo is about to release a new product: The Nintendo DS. DS is short for double screen. One screen shows, for example, a car race, and the other screen shows the racing course and game related information (this one is also a touch screen).

Product #2: Gillette disposable razor

Gillette is a company that has made innovation its middle name. In fact, innovation is so important to Gillette that the company knowingly cannibalizes its own products when they launch new ones.

Here's a passage from the company website:

The Good News twin blade men's disposable razor, introduced in 1976, became the top-selling disposable razor in the U.S. that year and has remained number one since then. The line has been improved and broadened several times, including the 1984 launch of Good News Pivot, which features a moving cartridge head that automatically adjusts to facial contours.

As you see, Gillette met with success when they introduced the twin blade.

Product #3: The six-pack bundle

This was one of the great marketing ideas of its time. Instead of buying beer in separate units, the manufacturers forced people to purchase beer bottles in bundles of six.

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Did you note the repeating pattern?

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In all these cases, a component of the product is reproduced, but the new copies are different from the original in some important way. The aim is to go beyond a mere quantitative change (for example, a double-bin trashcan that holds twice as much garbage) and achieve a qualitative change (a double-bin trashcan that allows users to separate their garbage into disposable and recyclable goods).

Consider the Gillette double-blade razor. Simply adding an extra blade to provide one more shaving surface isn't an example of Multiplication as defined in ASIT, but adding an extra blade at a slightly different angle, which raises whiskers so the other blade can cut them cleanly, certainly illustrates this pattern.

This is ASIT's Multiplication pattern.

ASIT's Multiplication tool is based on the pattern depicted above, and is just one of the six tools I identified in my research. Following these tools will help you develop winning product ideas that will wow your market and awe your competition.

See the December 2004 TRIZ Journal for the next 3 mini-lessons