



U-SIT And Think News Letter - 42

Updates and Commentary

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Unified Structured Inventive Thinking is a problem-solving methodology for creating unconventional perspectives of a problem, and discovering innovative solution concepts, when conventional methodology has waned.

Dear Readers:

- News from South Korea: Yong-Taek Park has translated the ebook, “Unified Structured Inventive Thinking – an Overview”, into Korean. It is available free at http://ktriza.com/www/usit/register_form.htm. Ms Chang-suk Shin wrote the web script for making this translation accessible. They have provided a nice service for the Korean-speaking community of problem-solvers. ... Congratulations!

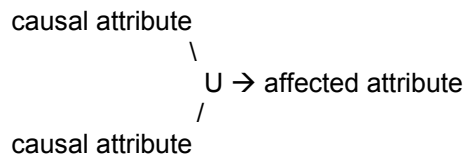
3. Mini USIT Lecture – 42

USIT – a Method for Solving Engineering-Design Type Problems

I. Continuation of Plastic Heuristics

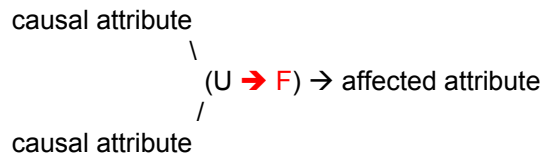
In the last mini-lecture I discussed the value and power of using abstract heuristics for simplification (and avoidance) of cataloging specialized heuristics. “Abstraction removes the bias of specific wording that ties a specialized heuristic to its field. Thus specialized heuristics from many fields may be cataloged under one abstract heuristic.”

Our generic abstract model for an unwanted effect is

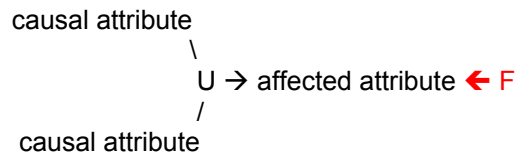


The three strategies for solving a problem, i.e., resolving an unwanted effect, can be portrayed using this model. Utilization converts the unwanted effect into a function; $U \rightarrow F$. Nullification counters the unwanted effect; $U \leftarrow F$. Elimination annihilates the unwanted effect: $U \rightarrow (_)$. Of course, attributes play critical roles in these three strategies. Many possibilities are discussed in, “Heuristics for Solving Technical Problems” (HSTP). (See USIT resources in (8).)

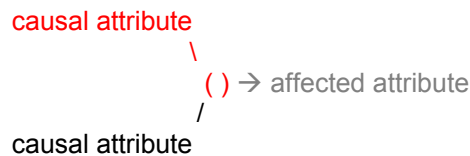
Utilization takes advantage of the affected attribute:



Nullification introduces a counteracting function:



Elimination can be achieved by “disconnecting” or “turning off” a supporting attribute:



“Disconnecting” versus “turning off” may suggest different focal points in the generic model. Disconnecting a causal attribute may focus your attention on the link between the attribute and the unwanted effect, whereas, “turning off” may cause consideration of the attribute itself.

Can you think of specific heuristics that fit any of these three strategic models? Please share them with the other readers of these newsletters. Send your ideas to Ntelleck@u-sit.net.

II. Continuation of Left-brain Right-brain Participation in Solving Technical Problems Using Plastic Heuristics

A demonstration/exercise was given in the last newsletter for experiencing the creative ability of one’s brain(s) in finding a plausible association of two seemingly unrelated attributes. Initial pairs of attributes were randomly associated to reduce (but not eliminate) the influence of LB’s logic in their pairing. Then they were creatively associated into triplets. This demonstration was concocted with the intent of hampering LB’s logic in hopes of giving RB more influence in the ensuing creativity. (See Section 7. Feedback)

As you execute the demonstration yourself you immediately realize that LB is doing a running commentary as it logically tests and analyzes the results. I found, as I read to myself (i.e., listened to LB), that each attribute evoked a mental image in some form. Presumably this is RB’s doings. For me, the creative exercise began with the realization of this image. Furthermore the mental process of interacting two attributes was also a graphic process. To my surprise, pH evoked three

different images almost simultaneously, a cartoon of H^+ ions in a solution, litmus paper, and the indicator dial of a pH meter. Some attributes brought to mind mathematical expressions along with graphic images; aspect ratio, loudness, friction, humidity, and reflectivity are examples. It seems to me that graphic images and mathematical expressions both are metaphors that spark ideas.

This demonstration/exercise in associating randomly paired attributes into triplets raises the question of relevance to technical problem solving. Relevance happens as soon as two attributes are identified as being related in a specific problem; either related as a supporting pair of an effect or one being identified as casual of the other's condition. Note that an effect causes an attribute's condition.

That was almost obvious. Actually, the more important question is, do attribute associations contribute to creative problem solving? This may not be so obvious. We are examining this question in three stages. These stages require your own effort to do the exercises and careful introspection of your mental process. The stages are:

1. Do randomly associated pairs of attributes generate creative associations of a third attribute? This was the subject of the last demonstration.
2. Do logically associated pairs of attributes generate relevant associations of a third attribute? This is the subject of the demonstration to follow. The goal in this exercise is not to solve a problem but to identify plausible root causes of its unwanted effect.
3. Do logically associated pairs of attributes from an unwanted effect generate creative associations of a third attribute that sparks solution concepts? This will be looked at in a later lecture.

To be logically associated, we need to select pairs of attributes that comply with our model of attribute-attribute interaction through contacting objects.

Try these:

1. The *vapor pressure* of a liquid coating and the *absorptivity* of the substrate it coated led to premature drying of the coating and its subsequent cracking. Does this pair of attributes bring to mind a third attribute in a causal relationship? More than one triplet may be found.
2. Cellophane *tape*, pulled from a *spool* and cut to length, becomes unmanageable as it coils back on itself and sticks to itself or to one's *hands*. Do you see plausible pairs of causal attributes? Do they lead to associated triplets?
3. Two things are difficult to engage when in a view-obstructed area. Do you see plausible pairs of causal attributes? Do they lead to associated triplets?

Notice the difference in these three exercises. The first gives specific contacting *attributes*, the second gives specific contacting *objects*, while the third gives neither in an attempt to be more generic or ambiguous. Which of these, if any, make it easier to throttle logical criticism of left-brain and give right-brain more freedom?

It is my experience that if I start with specified attributes, LB's bent for logical reasoning maintains a biased state of thinking that challenges the logic of each idea proffered: and similarly when starting with specified objects. LB now maintains a watchful eye on all concepts put forth in order

to maintain an object-centered bias. Neither of these biases is wrong per se. In both cases useful concepts are found. The issue is that these two types of bias limit the scope of ideas that can pass their filters. RB's ideas may go largely unnoticed during such filtering. Evidence of this, for me, occurs for example in comparing the number and scope of results of the third exercise above (3) with the results of the first two (1, 2).

7. Feedback

In the last newsletter, NL_41, a demonstration/exercise was given for experiencing the creative ability of one's brain(s) in finding a plausible association of two seemingly unrelated attributes. Rich Kucera tried the exercise and sends an interesting report on his experience:

Great newsletter, explains a lot. With the table, I drew a blank. Then I came up with multiple triplets on "loudness & humidity", then the others started working. I would take whichever one worked first from the list, then the others would "defrost". I wonder if this has to do with the "introspective" quality of mind you were explaining. ("introspective" was the word I was grasping for before). There seemed to be some resistance at first—i.e. I drew a blank--but then the ice broke after going with the first one that worked.

Thanks, Rich

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(The above quote was cut&pasted from Outlook Express. The black bar on the left came with it. Does anyone out there know how to remover the black bar?)

8. Other Interests

1. Have a look at the USIT textbook, "Unified Structured Inventive Thinking – How to Invent", details may be found at the Ntelleck website: www.u-sit.net (Note; not www.ic.net)
2. [USIT Resources](#)

Publications	Language	Translators	Available at ...
1. Textbook: Unified Structured Inventive Thinking – How to Invent	English	Ed Sickafus (author)	www.u-sit.net
2. eBook: Unified Structured Inventive Thinking – an Overview	English	Ed Sickafus (author)	www.u-sit.net
	Japanese	Keishi Kawamo, Shigeomi Koshimizu and Toru Nakagawa	www.osaka-gu.ac.jp/php/nakagawa/TRIZ/
"Pensamiento Inventivo Estructurado Unificado – Una Apreciación Global"	Spanish	Juan Carlos Nishiyama y Carlos Eduardo Requena	www.u-sit.net
3. eBook "Heuristics for Solving Technical Problems – Theory, Derivation, Application" -- HSTP	English	Ed Sickafus (author)	www.u-sit.net
"Heurísticas para Resolver Problemas técnicos – Teoría Deducción Aplicación"	Spanish	Juan Carlos Nishiyama y Carlos Eduardo Requena	www.u-sit.net
4. U-SIT and Think Newsletter	English	Ed Sickafus (Editor)	www.u-sit.net
	Japanese	Toru Nakagawa and Hideaki Kosha	www.osaka-gu.ac.jp/php/nakagawa/TRIZ/
	Korean	Yong-Taek Park	www.ktriza.com .

Please send your feedback and suggestions to Ntelleck@u-sit.net and visit www.u-sit.net

To be creative, U-SIT and think.