U-SIT And Think News Letter - 65

Updates and Commentary

Unified **S**tructured **I**nventive **T**hinking is a problem-solving methodology for creating unconventional perspectives of a problem, and discovering innovative solution concepts, when conventional methodology has waned.

Dear Readers:

. The discussion of intuition-logic struggle, begun in NL_63, is continued here. Please have your paper and pencil at hand and note your ideas as they occur.

. If you have not seen it yet, the "Second TRIZ Symposium in Japan" has been announced. For more information visit …

http://www.osaka-gu.ac.jp/php/nakagawa/TRIZ/eTRIZ/

3. Mini USIT Lecture – 65
5. Heuristics for Solving Technical Problems

Continuation of "The Intuition-Logic Struggle"

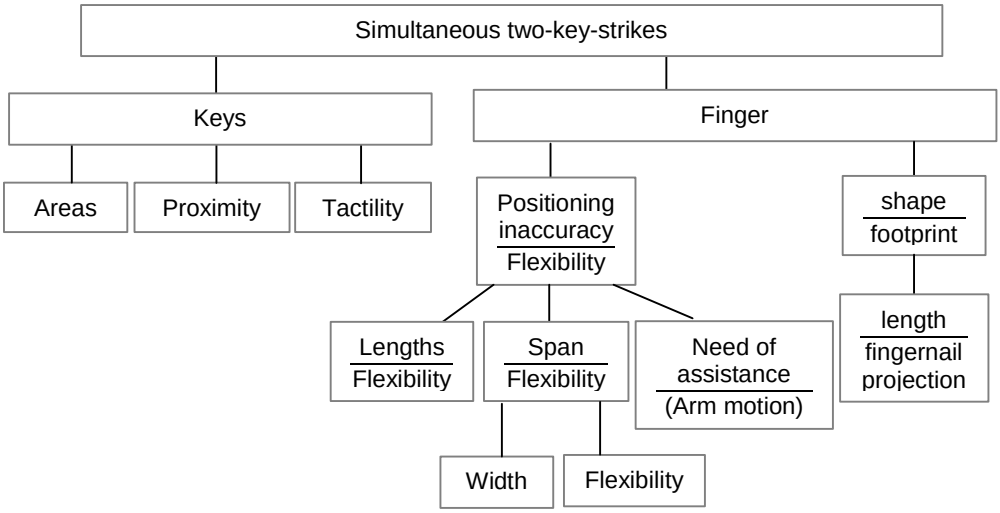
Since the last mini-lecture (NL64) you have had a chance to try your hand at developing a new perspective within the plausible root-causes diagram for the unwanted effect of simultaneous two-key strikes. I trust that this has been an informative exercise for you. I'll begin this lecture showing you my attempt. We understand that this is not an exercise in deciding right from wrong. It is an exercise in discovery by seeding individual minds. Consequently, we should expect interesting differences, all of which are usefull – the motivation for organizing "fresh-eyes" teams in industry.

Analysis of simultaneous two-key strikes
My attempt at plausible root cause analysis of simultaneous two-key strikes is shown in the figure on the next page.

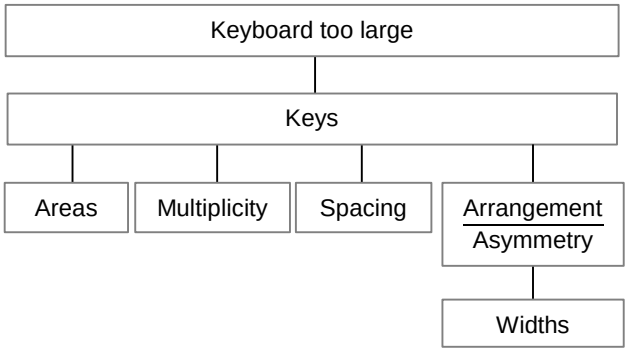
This analysis brought to light the plausible cause of two, vertical-key strikes being a result of fingernail extension of a finger's footprint.

15. Decrease the chance of catching an upper key with a fingernail by increasing the trapezoidal slope of a key (reduce its top area).
16. Decrease the chance of catching an upper key with a fingernail by embossing a small, raised landing pad atop a key.

These ideas caused me to reflect on key shape, which recalled the original OAF diagram. On examining the diagram again I thought to look at key arrangement. The Keys-section of the diagram is repeated here (second figure on the next page).



Modification of the keys-section of the OAF diagram for the keyboard too large unwanted effect.



Keys arrangement caused me to notice that ten keys in the QWERTY section are wider than the letter keys. Why? That question caused me to note that if they were all the same size and two redundant keys in the bottom row were eliminated, a smaller footprint trapezoidal shape would result. Could it be that the wider keys, and redundant keys were added to fill out a rectangular shape?

17. Eliminate redundant keys and give the outside columns of keys widths that produce a smaller area trapezoidal footprint.

As I typed “outside columns” it caused me to look at the keyboard and note the frame again. The frame has an exposed boarder all the way around its perimeter. Why? My fingers don’t make contact with it. It serves no purpose that I can see, other than display the manufacturer’s logo.

18. Reduce keyboard-frame size to the footprint (perimeter) of the bordering rows and columns of keys.

My keyboard, if reduced to a borderless QWERTY section, would be only 61% of its present width. I like that idea. Probably, I could then find a number of things I have lost on my desk. [☹ ➔ ☺]

Reality of problem solving
The reality of structured problem solving is that intuition and logic play complimentary roles. We outline our effort and rationalize our ideas using logic. This entails graphic and verbal metaphors. Elements of these metaphors seed our subconscious, which is eager to pursue every thought provoking seed for intuitive fruit.

In the keyboard exercise, I got eleven intuitive solution concepts before exercising the logical plausible root-causes tool. Once the tool was brought into use, I got an additional 7 ideas. Did the tool do this? I doubt it, as explained earlier.

Developing the plausible root-causes diagram was an intense exercise. It involved searching for a phenomenological basis of rational for each idea tested. For example, "position accuracy" was tested (in my mind) in several different wordings before being settled upon. Each test wording seeded the subconscious and raised further considerations for rationalization. Intuition offered test wordings. Logic made the final selection.

Logical problem-solving strategy with intuitive execution
On reviewing (logically) the keyboard problem exercise it appears that subtle intuitive strategies were at play. Once the artifact was selected for improvement, the computer keyboard, it intuitively became a single object with only two interactions: fingers-keyboard and keyboard-desk. I never even thought of keyboard-computer interaction, until writing this paragraph.

It never occurred to me either to consider object minimization, to which I am usually very sensitive. Also, I was well into the problem before thinking that the selected unwanted effect might be a convolution of others.

A major component of USIT's logical strategy is searching and analyzing two-object points of contact. It is assumed that there is a reason for every contact of two objects, i.e., to support one or more intended functions. We don't need to know *a priori* the reasoning of the designer for a given contact. On the contrary, we use this approach to spark our imagination along lines of logical relevance of a contact to enable us to apply our own understanding of the implied phenomenology. In this way, we encourage our subconscious (or hope to) to stay on track, so to speak. We identify the functions at a point of contact in images and words. These are the metaphorical seeds for our subconscious. We then delve deeper into our own understanding by polishing our interpretation through OAF diagramming.

Points of contact are themselves metaphors. For example, two flat surfaces in contact are treated as a point of contact. This may not be a good mathematical representation but it is an effective metaphor for sparking creative thinking. All we need to identify is what possible functions can exist at the interface of two surfaces in contact. Then select seemingly relevant ones. If you wish to think of the interface as an infinite set of points, okay; but you often find that each of these points performs the same function. Simplification encourages elimination of this redundancy and consideration of a single point as representative of the others.

Object → Function ← Object
As noted before, the unwanted effect of the keyboard being too large led naturally to two, two-object points-of-contact for consideration. Just out of curiosity, to see if we learn anything, let's consider the keys themselves. If they are taken as the problem situation, what unwanted effects could be invoked? (Yes, the question itself is a problem to be solved.)

----- This lecture topic will be continued. -----

This is a convinent place to pause. Can you think of other points of contact for analysis of the keyboard being too large?

7. Papers and essays

The following materials can be read by clicking on their titles. Links are also available on the USIT website (www.u-sit.net/Publications)

1. "Injecting Creative Thinking Into Product Flow"
2. "Problem Statement"
3. "Metaphorical Observations"

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 at www.ic.net)
2. USIT Resources Visit www.u-sit.net and click on Registration.

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/
	Korean	Yong-Taek Park	www.ktriza.com/www/usit/register_form.htm
"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.
Mini-lectures from NL_01 through NL_62	Spanish	Juan Carlos Nishiyama y Carlos Eduardo Requena	www.u-sit.net click on Registration

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

To be creative, U-SIT and think.