U-SIT And Think News Letter - 70

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. **H**euristic **I**nnovation is an extension of **USIT**.

Subject Keys

PD = Problem definition

H = **Heuristics**

T = **Theory**

M = Metaphors

A = Analysis

BH = **Brain hemispheres**

Dear Readers:

. Last month's launch of the new web site, www.u-sit.net, had its problems. Apologies are extended to early book purchasers.

. "Two Brains are Better" begins a short series on using both cognitive hemispheres as tools for innovation.

Please work the simple, 30 second problem presented in the introduction before reading further in the discussion.

Mini USIT Lecture – 70

Two Brains Are Better

I'd like to begin this mini-lecture with a short, simple problem to be solved in 30 seconds. The results will be the subject of discussion to follow.

You'll need paper, pencil, and a watch with a second hand, or you can guess time expired in seconds. Give as many answers as you can and note the time interval between their occurrences. List your rationale for each answer and your assumptions. Write the numerical answer as it comes to mind. You can add your rational and assumptions later, after the 30 second period has lapsed.

Got your stuff together? The problem is on the line following the next paragraph.

Now look at your answers and mark them L, I, or LI, depending whether you think your answers were obtained with logical thinking (L), intuition (I), both (LI), or, if you have no idea, use a question mark (?). Also note any assumptions you made in reaching your answers. These may have been consciously made assumptions or, apparently, subconsciously made assumptions that you now deduce.

There are five birds on a wire. If you shoot one of them how many are left?

In "Two Brains Are Better" we will examine how both brain hemispheres are involved in problem solving, their contributions, and techniques for using them as tools for innovation.

One-sided introspection

Convincing ourselves that we can engage both of our brain hemispheres in problem solving is not difficult as a gedanken experiment (thought experiment) but may be difficult as a real-time

demonstration. In this mini-lecture we will perform real-time problem solving and associated introspection to find evidence of thinking by both hemispheres. However, at the outset we confront a two-faceted problem.

Fortunately, it is to our advantage that we readily understand conscious thinking, its use of language, and its preference for logic. Such understanding is the logical hemisphere at work. We, as problem solvers, are adept in exercising our logical hemispheres.

The intuitive hemisphere, on the other hand, understands language but does not communicate using language. It gives us no conscious access to it through words, spoken or written. That is one facet of our problem. Another facet is that introspective analysis of how we solved a problem will necessarily involve the logically-thinking hemisphere. Introspection occurs at the expense of no conscious response from the intuitive-thinking hemisphere. Remember these caveats as we proceed.

It came to mind
An amazing event in problem solving is the instant an idea surfaces to the conscious – like when the first number came to mind for the number of birds remaining after one was shot. We can not see it forming, we have no warning of its approach, when, of a sudden, there appears an idea. Sometimes it seems to make an attempt to surface and is noted as a fleeting glimpse of a possible idea. This is a common experience when trying to remember someone's name.

In the case of the bird problem, we are interested in the number and our rationale for the number. Rationale is a logical explanation. In this case, it is generated because the problem was presented as three problems: How many birds remain? What is your rationale? What assumptions did you make? Answering these questions evince our cognitive hemispheres at work.

Logic, intuition, or both?
Let's compare answers to the bird problem. Actually, you can compare; I have only mine to examine.

Five birds
Here are my answers:

There are five birds on a wire. If you shoot one how many are left?				
No	Rationale	Assumptions	Time (sec)	L, I, LI
1	4 flew away	Hearing birds flew away. Dead bird was unable to flee.	1	I
5	1 dead + 4 deaf	Deaf birds were not disturbed.	+2	I
5	5 decoys	No deaths or disturbance from fear	+5	L,I
0	Shot didn't kill any	5 flew away.	+15	L

(1) The answer one, with four birds fleeing, came to mind so quickly that I labeled it intuitive thinking.

(5) Deaf birds came to mind soon thereafter, again, intuitively. It may have resulted

from my past experience as an interpreter for the deaf – a subconscious association. It may also have resulted from subconscious application of the contrarian heuristic – the opposite of hearing is deafness.

(5) The answer five for decoys came rather quickly but may have been influenced by logic (it was not as spontaneous as the first two). Even the assumptions came to mind quickly for the decoys. This answer seems to have been seeded by the previous one with deaf birds. It may also have been influenced by the subconscious application of the heuristic to take things to extremes – from deafness to no ears.

(0) The last answer did not come quickly. I simply applied the heuristic of taking things to extremes. This entailed logical reasoning to start on a new thought path.

In the remaining time I became interested in the assumptions I made and thought of making. I lost track of time and my 30 seconds were up.

Most of the assumptions came to mind later and seemed to require concentration on logical analysis. I found myself looking for plausible reasons for the answers coming to mind.

While thinking of the rationale and assumptions I used, I wondered why am I assuming that the birds are alive? Later, past the allotted time, I thought of balloon birds with one bursting on being shot. That brought games to mind. In each case I had vague, mental images of birds on a wire. Until now, I never gave any thought to what they may have been shot with, or how far away they were, or whether it was daylight or night, or what kind of birds they were. I did imagine the shot one falling off of the wire and decided he was still "left", meaning, he hadn't flown away. My parting thought was a question to myself, wondering if one could write a rationale for each number, 0 through 5, as plausible answers?

At this point, I noticed how the problem was growing as new questions came to mind: from 5 birds on a wire to fear of noise, flight ability, decoys, balloons, games, weapon, ammunition, marksmanship, visibility, species, and probable fatality of a shot. Mental images formed with each new question. Where were these questions (problems) coming from? Was it from one or both cognitive hemispheres?

Problems ⬅➡ Unanswered questions
I started to answer this question and stopped – a subconscious interruption. The idea came to mind that logic is suddenly in control both in posing and answering questions as I write. Was the interruption of thought caused by the intuitive hemisphere? Of course, I don't know, but an interesting aspect of questions became evident. Namely, that verbalized questions require logical thought to organize their features and then to render them grammatically. Intuitive inquisitiveness should not suffer such time consuming preparation. An intuitive question should be spontaneous. Perhaps it is.

For this discussion, intuitive inquisitiveness will be defined as spontaneous curiosity. Curiosity may be indicative of the intuitive hemisphere at work. Curiosity implies a question, but not necessarily a thought-out, logically-expressed question – it seems to originate from the subconscious.

Spontaneous curiosity causes us to take a second look when the first glimpse leaves uncertainty.

In this case, there is no time or need of plodding logic to phrase a question. The glimpse (question) and second look (answer) are over before logic is even called upon. Here we have a plausible example of our intuitive hemisphere posing and resolving a question.

Look again at the fifth paragraph back (in Arial font). Some of it was summerized, in the next paragraph following it: *"...as new questions came to mind: from 5 birds on a wire to fear of noise, flight ability, decoys, balloons, games, weapon, ammunition, marksmanship, visibility, species, and probable fatality of a shot."* I suggest that these are examples of spontaneous curiosity and support the deduction that they are the works of the intuitive hemisphere.

Furthermore, that the answer "1" and its rationale, "hearing birds flew away", were spontaneous, having no obvious dependence on logic, is an example of spontaneous intuition solving a problem independently of the logical hemisphere. The example of a glimpse and second look is also.

This small set of examples suggests that problem solving can be intuitive, logical, and both. It would be interesting to hear your results and comments on this demonstration.

------------------------ More analysis in the next mini-lecture ------------------------

Ed Sickafus, April 2007

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
2. See also "Heuristic Innovation", and register for multiple 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/
	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_67	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.