U-SIT And Think News Letter - 07

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:

- Yes, I missed an issue of this newsletter, if you are counting on weekly installations. Unfortunately, I can't maintain a weekly schedule (although I'll try) and I am sure to miss an extensive period in this quarter.

1. USIT – How to Invent: the USIT textbook.

2. USIT – an Overview

3. Mini USIT Lecture – 07

air | paper | ink

USIT **Analysis** of a Problem

Continuation of the publisher's problem – "Ink on newsprint is messy. Fix it!"

Recap: Ten intuitive solutions were listed in Mini-Lecture_06. The list summarized ideas that had occurred from the initiation of the example problem.

ML-07: We move now to the analysis of a problem. Analysis is divided into two parts: 1) visualizing how the system was intended to operate (your best guess), and (2) visualizing how it is operating (your best analysis). The first (1), called the "Closed-World diagram", displays intended functional connectivity of the selected objects using their most important functions. The second (2), called the "Qualitative-Change" graph, uncovers attribute trends that contribute to the unwanted effect of the problem. One portrays ideal intent, the other actual performance – an informative comparison.

The Closed-World diagram: The closed world refers to the minimum set of objects selected in the well-defined problem. Objects names are placed in boxes and the boxes connected in a hierarchy of functional importance with one function allowed per object – its most important function.

Laboring through the thought process of identifying and ranking functions is enlightening, sometimes surprising, always useful, and thought provoking when forced to select one.

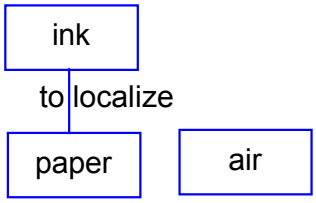
Newsprint: Obviously newsprint, consisting of ink patterned onto paper, has the purpose of communicating information. Readability requires color contrast while intelligibility requires sharply defined characters. However, newsprint has not been selected as an object of this problem (by me, although others may have).

Air: In the original design, air was assumed as the ambient medium of initial paper storage, of the printing process, and of final cutting, folding, stacking, and shipping. It had no designed functionality to paper or ink.

Paper: Paper has one main function, bonding ink where it is initially placed on the paper; i.e., "to localize" and maintain a predefined shape. It also must provide color contrast with ink from the time of printing to the time it is discarded.

Ink: The main function of ink is to retain its as-applied shape in its applied location until it is discarded. It must also provide color contrast with paper, and it must bond to paper.

A closed-world diagram of the main functions just described is shown below. Ink is more important than paper: if there were no ink, there would be no need of paper. The most important function of paper is to localize ink. Air is an "environmental" object with no designed functional connectivity to ink or paper.



Mini-Lecture _08 will present the Qualitative-Change graph. The closed-world diagram and qualitative-change graph were adopted from SIT (now known as ASIT, by Dr. Roni Horowitz). The history of USIT and its relationship to SIT are discussed in the textbook "Unified Structured Inventive Thinking – How to Invent" as well as other examples of these two tools for analyzing a problem. Tests, with examples, of object hierarchy are also discussed.

4. Classroom Commentary

Problem analysis obviously is personal judgment; no two of us will produce the same analyses for a given problem. That is as it should be. The goal of USIT analysis tools is to encourage each problem solver to extend personal capabilities to the limit. Don't be afraid of making mistakes. You will make corrections later through library research and through discussions with knowledgeable experts. These discussions will be far more profitable when you have extended your thinking first. Extending your analysis means to reach fundamental phenomenology as best you can.

5. Problem-Solving Tricks and Related Miscellany

6. Feedback

7. Q&A

8. Other Interests

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

To be creative, U-SIT and think.