

# **Capturing Transient Knowledge in Design and Innovation Processes**

**Giovan Francesco Lanzara**

Department of Organizations and Political Systems  
University of Bologna  
Via de' Bersaglieri 6  
I - 40125 Bologna  
Tel. +300512092734  
Fax. +39051234036  
Email: [lanzara@spbo.unibo.it](mailto:lanzara@spbo.unibo.it)

**The 6th Social Study of Information Technology Workshop  
In Celebration of Claudio Ciborra  
London School of Economics and Political Science  
March 27 – 28, 2006**

## **QUESTION**

**What kinds of knowledge making phenomena are involved in the practice of designing new systems?**

**How do agents build coherence and construct meaning in ever shifting, evolving situations?**

**Highly ambiguous; messy; ever changing**

**Processes: design – innovation – organizational change**

**Design Situations ....**

- ✓ where some kind of transformation of materials is taking place
- ✓ where new understandings must be developed and old ones must be relinquished

**How do agents get to know (make) new things when at the outset they do not even know what is to be known (made)?**

**And how will agents know that what they have found (made) is the thing they didn't know?**

*(Meno's problem)*

## **ANTECEDENTS**

**Shifting research interest from static to dynamic views of knowledge**

<b>Static</b>	<b>Dynamic</b>
<b>ASSET COMMODITY STOCK PACKAGE REPERTOIRE COMPENDIUM CODE BODY OF KNOWLEDGE</b>	<b>KNOWLEDGE IN ACTION KNOWLEDGE CREATION CONVERSION PROCESSES ON-GOING ACCOMPLISHMENT ENACTMENT KNOWING IN PRACTICE KNOWLEDGE IN THE MAKING TRANSLATION PROCESSES EVOLVING CAPABILITIES AND ROUTINES</b>

**Fluidity, indeterminacy, unstructuredness**

**Knowledge as something which is continually “at stake”**

**But even in the dynamic perspective:**

- ✓ **Linear, sequential, cumulative process**
- ✓ **performance nexus: usability**

## **MY FOCUS**

**Processes and activities by which people construct new knowledge, independently of whether it is effectively used**

**How to capture the process of making knowledge**

**How to describe the concrete phenomenology of the making**

**Dissipative structures**

## **Definition**

**TRANSIENT KNOWLEDGE** is knowledge

- ✓ **emerging during a transformation**
- ✓ **associated to the making of something**
- ✓ **made, used for a while, and then discarded or re-structured**
- ✓ **embodied in artifacts, tools, routines, and arrangements of various kinds**
- ✓ **closely connected to *local* practices and activities (bounded in space and time)**

## **Argument**

**Transient knowledge plays a critical role in processes of design and innovation in which new knowledge is built:**

- ✓ **provides temporary structure and meaning**
- ✓ **gives direction to activity**
- ✓ **reveals process-related features which are not visible in the outcomes of the process**

## **TRANSIENT vs DURABLE KNOWLEDGE IN DESIGNING**

- **Economic value of durable knowledge: increasing returns to investment**
- **More easily and economically communicated and carried across time and space**

**More durable states of knowledge are achieved through transient states, and transient states emerge when established knowledge is subject to doubt, revision and reframing.**

### **DILEMMA**

**If change must be produced, on the one hand the durability of old practices and structures has to be discontinued, although they are still necessary to hold on to something safe and solid; on the other hand new tentative arrangements are being designed and tried out for the purpose of innovation, thereby inducing instability. Therefore, on the one hand durability is rejected and transiency is produced by a variety of designs, experiments and explorative moves; on the other hand, and at the same time, transiency is contrasted and durability is pursued by tentatively casting some structure on indeterminate, shifting situations.**

**Fear and fascination in front of the unknown**

# **METHOD**

**How to capture such an elusive phenomenon?**

**Participant observation and reflective intervention in qualitative case studies**

**On-line observation and tracking of design and innovation processes**

**Close-to action; visiting the field on a daily basis**

**Keeping a log of the design process: events, actions, activities, verbal behaviours**

**On-going conversations; back-talk**

**Reflective experiments: testing, evaluations, project assessment**

**The reflector: mirroring effect**

**First illustration**

**DESIGNING BY ‘FOR INSTANCES’**

**A music teacher and a programmer developing a computer music system to be adopted as an educational tool**

**Designing a software procedure to play music with the computer**

**Iterated cycles of making, testing, evaluating, discarding**

**Three versions of a procedure:**

- 1. GTUNEBLOCK (numerical input)**
- 2. TUNEBLOCK GRAPHICS (windows and icons)**
- 3. PITCH AND TIME GRAPHICS (waveforms as analogues)**

*“The procedure the programmer makes is basically a “for instance”. He makes a version of it. I have to come along and play with it in order to push it one way or another to see what else can be done with it, but out of that, whole ideas come out that were not there at all before. A ‘for instance’ is necessary before one can think. It’s precisely because it doesn’t work right that it suggests a new possibility”.*

**A ‘for instance’ evokes an “AS IF...” world**

**A provisional network of objects, relations, procedures, representations, mappings and meanings takes shape around the ‘for instance’ and supports the activity**

**Emerging domain of practical knowledge: unstructured, poorly coherent, unstable, shifting, conjectural, tentative**

Second illustration  
**SHIFTING STORIES**



**Multiple and shifting stories that people tell to recount and make sense of evolving situations in music curriculum innovation**

**Stories of the system's demo to the Music Faculty**

- 1. A CONTROVERSY about the system: having an argument**
- 2. A LEARNING experience: exploring the potential; developing the thing together**
- 3. A POLITICAL COOPTATION: who gains and who loses in academia**

**Stories stem from the complex interaction of distinct sources:**

- **observer's theories**
- **previous stories**
- **incoming events**
- **back-talk**

***“Yes, the stories are all different, but they are all true!”***

**Each story is a coherent, self-contained universe that includes and interprets the demo in different ways**

- ✓ **plausible, contextually valid**
- ✓ **casting some temporary, makeshift coherence onto a flow of events**
- ✓ **making sense of what is going on**
- ✓ **positioning and re-positioning the demo within a plot**
- ✓ **new features are accrued, while old ones are obliterated or recombined**
- ✓ **events get extended in an evolving string of descriptions**
- ✓ **instant historical revisionism**

Third Illustration  
**DRIFTING ARRANGEMENTS**

**VCR and the Courtroom**

- ✓ Re-design of courtroom procedures and layout
- ✓ On-line management of courtroom operations
- ✓ Gaps and synchronicity requirements

**VCR technology perceived as a *perturbation*, an “*alien creature*” in the courtroom activity system**

**VCR produces a cognitive displacement that the actors try to contrast by designing makeshift arrangements**

**Problem: How to obtain an accurate videotaped replica of the trial hearings**

1. reactive coping (local patches)
2. design probes (testing; mapping; grafting)
3. repertoire (functional integration; VCR as ‘connectable’ object)

**Trying to deal with the new system**

**Building up and testing tentative layouts and micro-routines**

**Generating sedimented layers of drifting arrangements**

Discussion  
**THE DYNAMICS OF TRANSIENT KNOWLEDGE**

**Common pattern**

- ✓ Making a thing to work with / making a place to stand on
- ✓ Doing things
- ✓ Accruing/Liberating/Deleting features
- ✓ Re-shaping

**TRANSIENT CONSTRUCTS**

**Embodied hypotheses**  
**Versions**  
**Having ‘commerce’ with them**  
**Manageable loci of stability**

**REFERENCE ENTITIES**

**‘Fixes’ to ‘hold still’ the meanings**  
**‘Pitons’ to pull oneself up on a cliff**

**TRANSITIONAL OBJECTS**

**Anchoring**  
**Reassuring**  
**Travelling into new worlds**

**Tension between fixedness and reconfigurability**

**Moving on: re-shaping - shift in use of materials – shift in mode of description and meaning**

**Boundaries/ Trespassing**

*“(The old system)...works very well. It does everything that I want done. But you see....it does everything that I want done because that is what I know how to do. ...I don’t even know what else is possible. Well, I think I know what I want the system to do, but....only in terms of what I know already!”*

**SUGGESTIONS**

## **Things to look at when we study processes of design and transformation**

- ✓ **Knowing as making things**
- ✓ **Scaffolding**
- ✓ **Hybrid assemblages**
- ✓ **Reconfigurable orderings**
- ✓ **Unfolding plots**
- ✓ **Conservative cycles**
- ✓ **Forgetting and remembering**