

On practice, technology and mediation

or

How new media change the way we do and see things in practical domains

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Exploring the nexus between practice and mediation

- **Question: What happens in an established domain of practice when practitioners are required to switch to a different medium for doing work?**
- **Field experiments in two different project settings:**
 - **Learning to use a computer music software to compose musical structures**
 - **Learning to use VCR as a support to judicial decision-making in the criminal trial**
- **Two-year-long studies of processes of design and innovation**
 - **participant observation, ethnography, reflective intervention**

Practices as mediated worlds

- **Practical knowledge is mediated by a web of objects and tools whose features and functionalities depend upon the media in which they are embedded**
- **Practices are technology-mediated domains of activity**
- **Technologies are culturally pervasive mediating systems, not just instruments for accomplishing tasks**
- **When we engage in a familiar practice we enact the mediation but we don't see it**
- **But what does it mean that a practice is 'mediated'? And how can the mediation be revealed?**

Medium and mediation

- A medium is a means of inscribing and transmitting a message (a ‘carrier’) or a genre of communication (a ‘format’)
- **Cultural mediation** (Vygotsky 1962; 1978)
 - material mediation (tools, artifacts, material substratum)
 - semiotic mediation (signs, codes, languages, symbols)

All human activities are tool- or sign-mediated.

“One can only do, think and say what the medium allows one to do, think and say” (Hayles 2002)

Material and semiotic mediation

- **Computer-music system: learning to make a tune by using a software program**
 - ***Semiotic mediation*: switching from conventional staff notation to numeric values (mode of representation)**
- **VCR in judicial decision-making: learning to use the videos as holders/carriers of legal evidence**
 - ***Material mediation*: switching from paper transcripts to video-tapes (type of material carrier or substratum)**

Both cases raise questions about objects and their descriptions

Making musical in the digital (1)

Having the experience of the switch: the elusiveness of the interface

- “Oh, why did (the computer) do that? I don’t understand the sequence of events!”
- “One of the things that bothers me is the messy screen, having all that junk on the screen...there are too many things floating around here...suddenly there are all this things happening, and I get confused!”
- “Some of what you did I don’t want to know, some I want to know, but...I don’t even know what I need to know to understand what you did yet”
- “I know what I want the system to do, but ...only in terms of what I know already!”

(data from a conversation between the musician and the programmer)

Making music in the digital (2)

Splitting the note apart

- ✓ “The system requires two separate parameters to define pitch and duration. In standard music you have only one symbol – the note – that contains both the pitch and the duration...Something interesting happens conceptually when you rip apart the two parameters that are locked into one symbol. You begin to realize that you can manipulate them separately, which you can't do when you've got the score sitting there. Well, you could do it, but you don't think of doing it” (*musician*)

Multiple representations

- ✓ “The input and output representations need not be confined to list structures. An important aspect of the system is its *capability for multiple representations* (my emphasis in italics). One should be able to input musical motives in conventional staff notation form, for example, and then be able to manipulate the resulting data structure utilizing the procedural capabilities of the system. (*programmer*)

Multiple representations of a rhythmic structure

(from Bamberger & diSessa 2003)

1. onsets - 2. durations - 3. ratios - 4. metric grouping

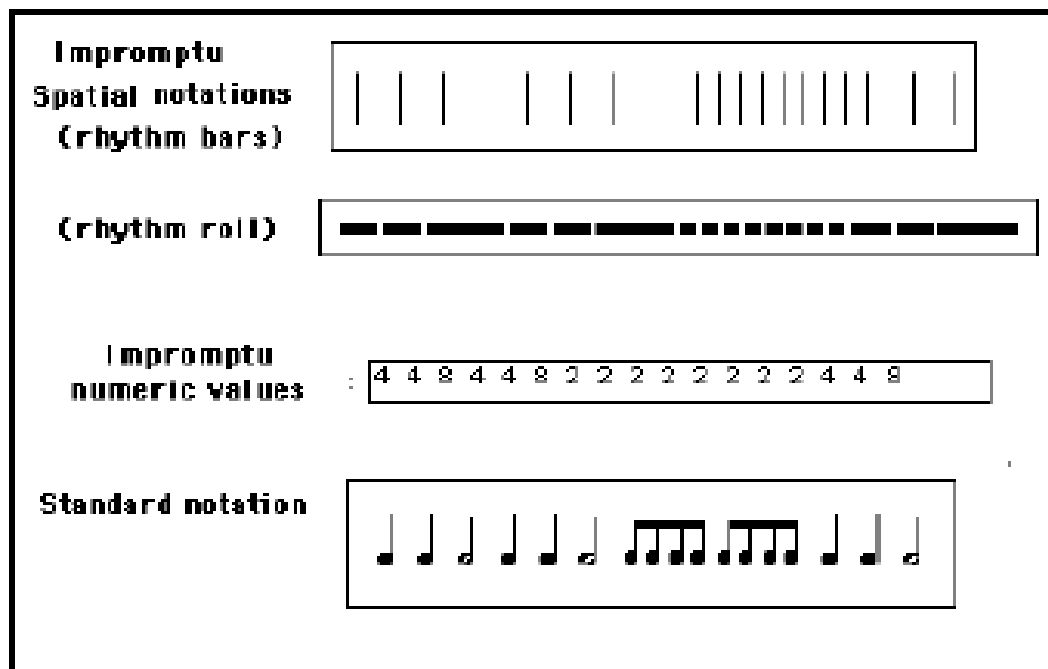


Figure 9. Multiple representations.

Using videos in judicial decision-making (1)

Experiencing displacement

- “I could not fix the relevant points...and I told myself that I could never ground my decision on something so elusive, so evanescent” (judge)
- “One cannot intervene in the medium when the videotape is used. Labelling is not possible in the visual medium, therefore finding the interesting or salient passages in the document becomes difficult and time consuming” (public prosecutor)
- “The VCR is too suggestive. When I watch it I tend to get lost in it. It captures my attention and I feel like I am wasting time” (judge)

The enigmatic elusiveness of visual images

Loosing the ‘felt path’: selectivity, mastery, time

Using videos in judicial decision-making (2)

Can nonverbal cues become legal objects?

- “The personal perception that a judge can have of nonverbal cues visible in the videotape, such as the defendant’s bodily gestures or facial expressions, are not univocal and, in any case, there is no way they can be used to formally support a verdict” (judge)
- “It is not true that the judge, even without the VCR, does not evaluate the reliability of a witness or a defendant also based on the nonverbal ‘mode’ of their declarations. He does it by noticing the pauses, the attitudes, the signs of embarrassment or shame, the glances.... through many signs that he interprets based on his professional experience and sensibility. However, he will never write these things in the verdict, but these data will become a part of the tacit background of his verdict” (judge)

“What is there?”

Making music in the digital	Using videos in judicial decision-making
What is a tune made of?	What kind of document is the videotape?
What is a musical object?	What is a proof?
How should we represent the ‘stuff’ of music?	How should we represent the ‘facts’ of the trial?
What is musical composition in the digital medium?	How can we use visual images to make a judicial decision?

Re-mediating the practice

- ✓ Coping with strangeness: perception-driven sensing and knowing
- ✓ Shifting ontologies: “what is there?” (mutable entities)
- ✓ Fictional knowledge: multiple representations
- ✓ Re-weaving the texture of the practice
 - ✓ integrating the medium into the domain
 - ✓ re-connecting the circuits
 - ✓ re-establishing the smooth flow of activities

Extending the concept of mediation

- Mediation is a *phenomenon* underlying our practical engagement with the world (doing, thinking, and being)
- Mediation always involves a transformation, a rearrangement of human activity through material and symbolic means (unfolding through several forms of transactions and transitions)
- The idea of mediation could be extended to larger societal, institutional and organizational arrangements
- Layers of mediations in space and time among different domains bring forth multiple *assemblages* and multiple realities

- What's the difference between *virtual worlds* and *mediated practices*?
- Are they just *differently mediated worlds*?