

A Situated Cognition Perspective on Learning on Demand

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What does it mean to say that learning is a process of knowledge construction, that it is highly tuned to the situations in which it takes place? Two interpretations, at least, are important: The *neurophysiological view* is that perception and action arise together, so one's knowledge is always a new way of coordinating ways of talking, seeing, and moving, within ongoing interactions (Clancey, 1993). In this sense learning is tuned to situations because our perception of what constitutes "a situation" is arising within a newly organized, adapted response. The *social view* is that use of tools occurs within social interactions, so the idea of a task is enlarged to "participating as member of a community of practice" and not just fixing the margins on a paper (Lave and Wenger 1991). Both perspectives complement a strictly cognitive, information processing analysis of manipulating representations. We ask "coordinating what interaction?" and "what social purposes motivate the demand?" One effect of this shift is to view individual motivation as inherently social and then to consider how tool design can foster organizational learning (for sharing and accumulating methods).

People are continually faced with new computer systems that they must learn outside of the classroom. A wide variety of sources are available to support learning on demand today:

- on-line help (indexed by topic)
- examples of how a system can be used (e.g., word processor documents)
- an on-line script or "tutorial" for introducing features

- reusable artifacts (e.g., clip-art, stacks and buttons in Hypercard)
- menu descriptions (e.g., "balloon help")
- reference manuals
- bulletin boards

We could proceed at this level, exploring how technology like "coaching systems" can be applied. This is certainly worth doing. However, considering the larger framework of social interaction is useful before launching into tool design. Learning on demand might be approached by investigating what *social uses* people are making of software today. Consider these social activities:

- A researcher uses a chart to explain to the lab director how project time is allocated, to justify a salary increase.
- A secretary uses a table format in a word processor to summarize an investigation of video hardware, which a researcher had requested.
- A consultant brings a simulation program on a laptop computer to a meeting to show a client what kind of tool they might use in their design projects.
- A researcher prints colored block diagrams to show another researcher how a programming language was used in a previous project.

The point of these examples is that it is difficult to separate individual curiosity or desire to learn from participation in a social setting. In such examples we find people developing their social identity by influencing rewards, promoting personal

involvement in a project, demonstrating competence and contribution, and enhancing a group's status.

This analysis suggests that we not focus our investigation of learning on demand on an individual's interaction with a workstation. Instead we can study tool characteristics that enhance or frustrate an individual's actions within a group. We can investigate how tools influence what conversations occur, and how artifacts are shared and adapted to develop a genre. As a simple example, do people in a group use "stationery" or templates when writing new letters or files, or start from scratch? Consider what happens when someone creates an artifact (eg., a hypercard stack summarizing a research project), which is not used or commented on by colleagues. In a larger sense, "learning on demand" involves constructing goals and values with colleagues. What tools might encourage such conversations to occur?

To proceed in this way, we should study what's happening in groups today—how is individual learning of computer tools embedded in social actions? What are the speech acts involved in creating representations, such as spreadsheets and diagrams, and sharing them? By this view, promoting new uses for tools goes beyond teaching how to use a tool's features for local tasks. Learning on demand can help people formulate what they are attempting to accomplish within a group, make transparent individual contributions, and establish a culture of building on each other's work.

References

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