Designing for and with a Community of Designers: Minority Disciplines and Communities of Practice

Michael J. Muller

Lotus Development Corporation

55 Cambridge Parkway

Cambridge MA 02142 USA

+1 617 693 4235

mullerm@acm.org

ABSTRACT

This "work in progress" describes our research into the diversity of working relations and identities of designers at Lotus Development Corporation. Designers are an example of a *minority discipline* – that is, a discipline whose members are often isolated in their work teams among coworkers with different training, backgrounds, and career paths. The research will be used to develop social and technological bases for a community of practice through which designers can support one another and their work.

Keywords

Design, designers, community of practice, minority discipline, double-knit organization, disarticulation

INTRODUCTION

For a number of years, the Lotus Research group has contributed design practices and design concepts to Lotus Development Corporation and its products (e.g., [7, 12]) – as well as a host of technology concepts and prototypes. We have recently begun to support a community of practice for Lotus designers. While this project is in the requirements stage, it draws on some theoretical and practical work from earlier projects around communities of practice [10]. Because the work involves designing for and with an internal community of designers, it presents interesting problems and opportunities for participatory design.

ELECTRONIC COMMUNITIES

Lotus designers work in a number of locations. The largest numbers are in Cambridge MA USA and Westford MA USA. However, there are also designers in the US states of Georgia and Kentucky, and also in Israel – in fact, one design team has members in Westford, Kentucky, and Israel. Designers in Lotus Professional Services (a consulting arm of Lotus) may work from customer sites anywhere in the world. Thus, the community of designers

spans multiple locations, countries, and time zones. The technological aspects of our support for the design community are therefore informed by research and practice with electronic communities.

Electronic communities have been studied in HCI and especially CSCW for several years. Schuler [14] and Carroll and associates [2], for example, have described the structure and dynamics of existing electronic communities. The field is mature enough to have several collections of important papers (e.g., [11, 21]). But how are communities shaped? Clement and Wagner noted that communities may sometimes benefit from selected degrees of disarticulation (i.e., partial or complete isolation or delimitation) from other, similar communities, or from a broader social realm [3, 17]. Fanderclai described some of the rich interactions and constructions of knowledge that can occur in a *delimited* electronic community [6].

Communities of Practice

One type of delimited community that has attracted increasing interest in both management science research and commercial offerings is called *communities of practice* (e.g., [1, 8]. Briefly, communities of practice are usually described as diffuse, largely voluntary social networks that exist horizontally in organizations or associations [4]. Their members work on their own individual projects or teams, and have few recognizable shared goals. However, the members of a community of practice have common methods, procedures, and knowledges, and have a need to share information, resources, and expertise with one another. Communities of practice have been theorized as sites of exchange of perspectives and information [1], and of mutual learning [8]. Communities of practice have also been described as crucial resources for the success of knowledge-dependent organizations [13, 15]. There is increasing interest in constructing delimited electronic spaces to support communities of practice.

McDermott [9] makes a cogent case for the kind of community of practice that we think will be of value to Lotus designers. In his model of the "double-knit organization," McDermott argues that many workers have two kinds of allegiances:
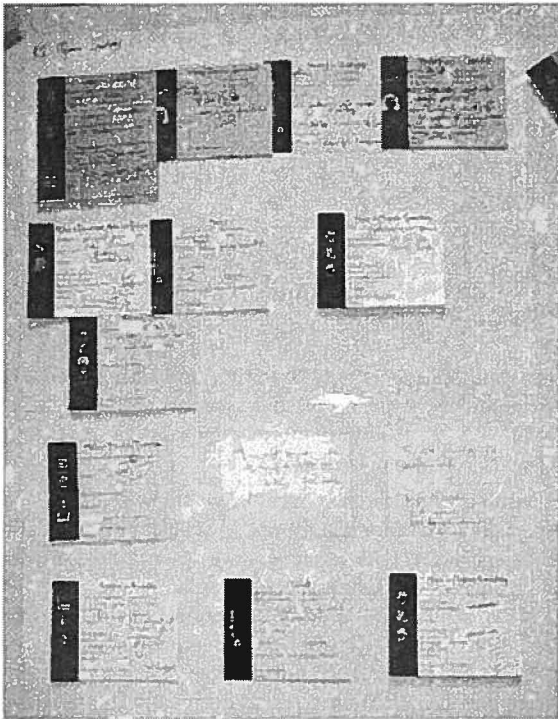
Figure 1. Activity flow during the design, administration, and analysis of a customer survey.
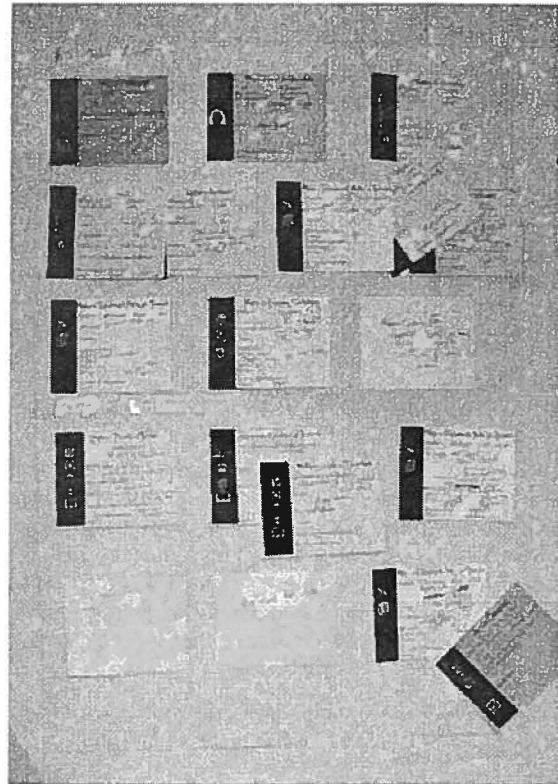

Figure 2. Activity flow during design of a product feature.

- **Organization/Team:** The first kind of allegiance may be found in formal organization charts or product plans, in which workers are organized into departments or multifunctional teams, with well-defined responsibilities for delivering products or other outcomes following detailed requirements on a well-understood schedule.
- **Community of Practice:** The second kind of allegiance is more difficult to find in the formal or explicit structures of organizations. Workers often maintain informal networks of communications with other people who do similar kinds of work in other organizations.

McDermott argues that these two types of allegiances are *not* equivalent to a matrixed organization, because the two kinds of structures have different time-courses, dynamics, accountabilities, and responsibilities.

The Problems of Minority Disciplines
Communities of practice are likely to be especially important to workers in what I will call the *minority disciplines*. Workers in minority disciplines tend to be the sole practitioners (within their team) of their domain or specialization. In software teams, typical minority disciplines may include design, usability, and documentation.

In McDermott's analysis, workers in these disciplines are often professionally isolated, without co-practitioners with whom they can compare experiences, request advice, or offer a second perspective. In deeper terms, workers in minority disciplines may have no one who shares their vocabulary, methods, or rules of analysis or evaluation. In contrast with their majoritarian co-workers (e.g., software engineers, quality assurance testers, etc.), workers in the minority disciplines often have to look *outside* of the team or organization to find colleagues who share their background and perspective. McDermott argues that communities of practice will be particularly important for the effectiveness of these minority disciplines over time.

COMMUNITY OF PRACTICE FOR DESIGNERS
We have begun a participatory analysis of the work of designers at Lotus. So far, our activities have included the following:

- **Informal ethnographic interviews** at designers' sites (usually offices) – a total of eight so far, supplemented by informal discussions as designers' meetings
- **CARD sessions** [12] for participatory analysis of typical activity flows in the designers' work (e.g., Figures 1 and 2) – a total of five so far

- **Scans of relevant technologies** in areas of what is coming to be called "communityware" as well as more conventional design support

Anticipated activities in our on-going work include the following:

- **Future workshop**, using asynchronous collaboration tools, to develop a set of community-based requirements
- **Participatory design** (using designers' expertise) of social practices and technology environments for designers' collaborations (specific participatory method to be determined collaboratively at a later date)
- **Speakers series** to bring the design community together, and to provide a setting of *design content* in which we can periodically conduct community governance of the developing supports for the community

Results So Far

Lotus designers often work in the circumstances of a minority discipline. For reasons of organizational effectiveness, they are often assigned as members of product teams. They usually are physically co-located with their product teams. Some designers may go weeks without speaking with another designer outside of their teams. Indeed, when asked about collaborative activities with other designers, roughly half of the informants immediately talked about collaborative activities with their software teams. Some informants candidly stated doubts about the usefulness of collaborations with designers who were not on their teams; others have found ways of engaging in such collaborations, and value them highly.

Diversity in Designers and Design Activities

Designers described themselves and their activities in different ways. At least four self-descriptions have come to light:

- Graphic designers
- Interaction designers
- Product designers
- Usability specialists

Not surprisingly, designers' activities tended to correspond with their self-descriptions. Although the informants worked on different products, it was easy to see the overall structure of an interaction designer's work would articulate with the overall structure of a usability specialist's work. In fact, we were forced to modify the CARD materials to create representations of well-understood design-related activities that were carried out by someone *other than* the designer who was informing us. For example,

- An interaction designer indicated the point in her activity flow at which her product team delivered a prototype to a usability specialist for a formative evaluation. She had clear expectations of what the results would be, and of how she and her team would use them.
- A usability specialist explained that she had received a relatively complete design from a product team, and that her task was then to provide usability results in as influential a format as possible.
- A product designer in a consulting organization narrated a pre-sales product-design flow, in which she developed "hands-off" prototypes for demonstration purposes, and then worked with a team to develop "hands-on" prototypes that could be distributed to the client for informal evaluation.

In previous research, we considered the question of heterogeneity in communities of practice, and the potential consequences for an intentionally democratic software support system that would not privilege one group's needs over the others [10]. We do not know yet if the community of designers is so diverse as to require diverse and even disarticulated resources (e.g., as advocated in [3]). We will be looking carefully at the extent to which the different designers' practices share common language, perspective, and resources.

Desired Shared Resources

Many of the designers were interested in sharing resources. One designer with a background in library science suggested not only that designers share bibliographies, but also reviews of references within those bibliographies. Other designers were concerned to know about useful courses. Many designers in relatively centralized or co-located design organizations were interested in pooling their contact lists; other designers who were more isolated saw less use in this kind of shared resource.

Several designers argued strongly for shared "tool tips," referring to the increasingly sophisticated software tools that designers use. We plan to investigate whether designers are also interested in sharing particularly useful database structures and forms templates that have helped some designers to use design documents (specifications) as design rationale documents that became the defining *documents of record* for a series of products. Similarly, we are interested to see if the personas (i.e., imaginary users, as described in [5]) developed by designers on one project will prove to be of value to designers on other projects.

Team Interactions

All of the CARD-based activity narratives featured intense interactions with the designers' development teams. However, each designer (or each team?) had her or his own style of interaction. As noted above, some designers had fashioned database structures to coordinate their team's work. Other designers had developed personas to help their teams think concretely about users' experiences. We anticipate actively exploring how well one designer's team-relation techniques work for other designers.

CONCLUSION

While we have confidence in the results obtained so far, we have not yet consulted enough designers. We are particularly lacking in designers who work remotely from Lotus's Cambridge and Westford locations. We may have to develop variations on the CARD technique that work at a distance. By the time of the conference, we anticipate having a solid set of requirements, and having some preliminary answers to the questions that we have posed about transfer of ideas and practices from one team to another.

REFERENCES

[1] Armstrong, A., and Hagel, J., III (1996). The real value of on-line communities. *Harvard Business Review*, May-June 1996.

[2] Carroll, J.M., Rosson, M.B., Cohill, A.M., and Schorger, J. (1995). Building a history of the Blacksburg Electronic village. In *Proceedings of the First ACM Symposium on Designing Interactive Systems*.

[3] Clement, A., and Wagner, I. (1995). Fragmented exchange: Disarticulation and the need for regionalized communication spaces. In *Proceedings of ECSCW'95*. Dordrecht: Kluwer.

[4] Community Intelligence Labs (1999). Communities of practice: Issues. http://www.co-i-l.com/coil/knowledge-garden/cop/issues.shtml.

5] Cooper, A. (1999). *The inmates are running the asylum: Why high tech products drive us crazy and how to restore the sanity*. Sams.

[6] Fanderclai, T. (1995). MUDs in education: New environments, new pedagogies. *Computer-Mediated Communication* 2(1), 8.

[7] Gruen, D. (2000). Panel: Stories and Storytelling in the Design of Interactive Systems. To appear in *Proceedings of DIS 2000*. New York: ACM.

[8] Lave, J., and Wenger, J. (1991) *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

[9] McDermott, R. (1999). Learning across teams: The role of communities of practice in team organizations. *Knowledge Management Review*, May/June 1999.

[10] Muller, M.J., Carotenuto, L., Fontaine, M., Friedman, J., Newberg, H., Simpson, M., Slusher, J., and Stevenson, K. (1999). Social and computing solutions for voluntary communities of practice: Designing CommunitySpace. In *Proceedings of IEEE WET-ICE* conference. Palo Alto CA: IEEE.

[11] Muller, M.J., and Friedman, J. (2000). Electronic communities: Places and spaces, contents and boundaries. (Workshop). In *CHI 2000 Extended Abstracts*. Position papers may be found at http://www.lotus.com/research.

[12] Muller, M.J., Lafrenière, D., and Dayton, T. (2000). *Card games for participatory analysis and design: Variations on a theme*. Tutorial at CHI 2000. Den Haag: ACM.

[13] Roberts-Witt, S.L. (1999). Practical taxonomies: Hard-won wisdom for creating a workable knowledge classification system. http://enterprise.supersites.net/kmmagn2/km199901/featureb1.htm

[14] Schuler, D. (1996). *New community networks: Wired for change*. New York: ACM Press.

[15] Seybold, P.B. (1996). Communities of practice -- A critical success factor for information age businesses. http://www.psgroup.com/snapshot/1996.ess496.htm

[16] Smith, M., and Kollock, P. (1999). *Communities in cyberspace*. New York: Routledge.

[17] Tellioglu, H., and Wagner, I. (1997). Negotiating boundaries: Configuration management in software development teams. *Computer Supported Cooperative Work* 6, 251-274.