

**Participatory Behavior
in Participatory Design**

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Abstract*

Participatory design must be more than the formality of having users present or even engaged in “dialogue.” Participatory design is a communicative process prone to miscommunications like those in cross-cultural settings. While team members may belong to the same general culture, their varying occupational and social contexts are subcultures that bring different background assumptions, conventions of conversation, and semantics. Communicative failures may go undetected because mechanisms of conversational repair are among these differences. Team members may mistake failures in participatory behaviors for failure of participatory design. We identify conversational behaviors that reveal unshared assumptions among design team participants.

Introduction

Social responsibility in participatory design begins with the communicative process between designers and prospective users. How is genuine communication—rather than lip service or token participation—achieved? “Participation” is an elusive state that is not achieved by mere co-presence nor by dialogue in and of itself. The quality of interactions among the design team—whether sitting around a table or observing at a site—is an essential feature of successful participatory design. The process can be diverted and fall short of its goals because of communication disjunctures that arise from lack of shared background and shared context, in both surface features and semantics of the design conversation and in conventions of discourse.

The participatory approach to system development is based on valuing the complex and holistic domain knowledge that participants apply in their daily work practices, some of which can be called “background knowledge.” It entails the proposition that communication among team members should be maintained throughout the design process. A central issue is the ability of users to express their competencies in designing their future tools and in the critical utility of their unique domain knowledge (Bødker, et al., 1988).

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Participatory behaviors in software design

Miscommunication problems in the software development process are widely acknowledged but have not been systematically examined on a conversational basis. The roots of the problem lie in social dynamics observable in a variety of conversational mechanisms. Parties to the process and observers describe the problem in vernacular terms (Bell & Hardiman, 1989). These complaints arise even when the best efforts are made. When they are not made, it can be due to the software engineers' reluctance to face interactions that require considerable social skill, design methodologies that overlook the importance of users' deeper knowledge of the task context, and design tools that do not provide a framework for communication (Frolich & Luff, 1989).

Participatory design can be viewed as a form of cross-cultural communication (cf, Gumperz, 1971, 1977). From this perspective we would look for participants to bring many unstated expectations to bear at several levels of the design conversation, and to be confused about how some of these expectations are being met. These include expectations about role, authority, and the meanings both of terms used in conversation and of the mechanisms by which the conversation proceeds. Clients, users, designers, and software engineers use conversational styles specific to their professional environments. These environments develop self-referential behaviors, knowledge bases, vocabularies, and systems of meaning and status. At the same time, generalized rules of politeness lead conversants to avoid exposing others' misguided assumptions and mistakes (Goffman, 1959, 1976; Levinson, 1983).

The problem of mistaken assumptions and miscommunication has been acknowledged and prescriptive approaches have been offered, particularly in the field of knowledge elicitation (Cf., Diaper, 1989). Other suggested solutions have involved structured dialogue schemes (e.g., Finkelstein & Fuks, 1989) that attempt to force conversants into even more alien conversational patterns. The problem is that the difficulties in the software design process are not readily accessible to any of the participants, although they may be able to describe their sense of it. Another way of saying this is that the participants are uncertain (or mistaken) about the communities that normally give rise to assumptions of implicitly mutual knowledge (Clark & Marshall, 1981). Structured communications systems do not address this problem; rather, they presume shared worlds and cut conversants off from the mechanisms that enable them to find natural ways of achieve shared understanding.

Failure of mutuality in understanding

Research on end-users and their tasks, their interaction with applications programs, and their on-line communications has been abundant. But the area where user and designer/programmer meet, the social interaction between designers and users, is almost entirely neglected. The behavior in those situations is so backgrounded as to be almost invisible. Yet this interaction produces all the knowledge generated about tasks and environments (Wynn, 1990, 1991).

Because users and designers almost by definition come from different backgrounds and work environments, to varying degrees they will fail to share contexts which not only produce the meanings they deploy in speaking but also guide their sense of appropriate conversation. Thus we suggest there is every possibility that "participants" in participatory design will experience uncertainty

about what to say and in how much detail. They will also lack the context for knowing how their contribution is perceived. As a result, the user participants in particular may hedge their bets and play a safe, non-disclosing conversational game. They are capable of doing this over many meetings.

Group and status differences

Status differences among design team members arise in a wide variety of settings and they apply especially to domains of knowledge, the relative value of different kinds of knowledge, command of special vocabularies, sources of humor and taste, along with the more obvious (and easier to deal with) standard sociological measures of income and education.

Even if we ignore or deny perceived differences in status, we must acknowledge the importance of belonging to particular groups and in this case, professional groups. At a workshop held in May of 1991 at NASA Ames on the proposal for a National Software Exchange for High-Performance Computing, it was interesting to note that for many of the “users”—physicists and mathematicians—“programming” was seen as a dispreferred activity. “Physicists don’t program,” was a statement made by more than one of the speakers, complaining that students had to develop their own code for operations in physics they needed to do. Even more telling was the corollary that since this is not a proper activity for physicists, it should not be expected that the code be particularly elegant or reusable. The bind was that nobody who was “supposed to be” writing code had adequately addressed these applications. Thus professional boundaries for appropriate skills and knowledge often become laden with value and social significance.

Conversational usages are clear indicators of membership in groups. They are deployed tactically and strategically. That is, choice of a particular referent (Schegloff, 1972) implies deictic assessments of the other’s perspective and possibility of understanding, along with Gricean assessments of what is sufficient to the purpose of communicating to that particular person. What is assumed about the hearer depends on an assessment of membership. At the same time, strategically, choice of referent also indicates membership—being of a class of person who is familiar with such-and-such and refers to it by such-a-term. The vernacular phrase “name-dropping” describes grossly the phenomenon of using terms to communicate more than semantically.

Consequences

Lacking a complete framework for talking in a foreign domain means that distinctions will be rudimentary. Lacking a conversational format for pursuing these distinctions, given the social constraints described above, means that communication may be perceived when it is not actually present. These misperceptions may occur in two different ways:

1. Subtle aspects of the speaker’s production may carry a meaning for the hearer that the speaker does not intend. The hearer can thus assent to one sense of an utterance and the speaker will think the hearer has assented to a finer distinction than was understood.
2. Conversely, the speaker might use a term that is generic but that the hearer understands as highly specific.

As we have tried to suggest, however, the hearer in either case might not want to risk being socially inappropriate—threatening his own or the others’ “face” (Goffman, 1976; Levinson, 1983)—in order to explore terms, because membership discrepancies will be implied in doing this. The effects of an overly structured, subdued, or narrow conversational framework go still further: social roles place heavy constraints on conversational strategies and outcomes. Once a dysfunctional framework is in place, certain conversational acts and repair modes become inaccessible. The outcomes are thereby limited because what the repair modes accomplish is the opportunity to converge and to open up creative discourse so that fuller design possibilities can be accessed.

We suggest that repair behaviors may be attempted in subtle ways that will show up in video and even tape recordings of sessions but that may not be “taken up” so as to become effective. Uptake of conversational strategies and attempted turns is one way in which *de facto* power is exerted in groups. That is, while higher-status participants dominate frequently with more output, they also dominate subtly and continually by acknowledging and affirming attempts to speak by others and by “taking up” the content of particular utterances and ignoring that of others. Indeed, the cry of powerless people in groups is often “That’s what I said from the very beginning!” What they said from the beginning is not heard until someone with more status finally comes to the same realization, possibly forgetting that someone else had ever said it—or more to the point, never having noticed. Protocols should also disclose include conversational repair acts such as clarification, explanation, disclaimer and apology (Schegloff, et al., 1977).

Toward a solution

In this paper we have outlined the premises and approaches for work that address the miscommunication problem. These matters raise issues for future investigation, including identification in actual practice of the mechanisms we hypothesize here. Accordingly, we propose addressing this problem in the following ways:

1. Apply conversation analysis to naturally-occurring discourse in design teams, then reflect results into design process by reviewing the prior interaction with the team members;
2. Create program for awareness on the part of designers to be on guard for inauthenticity in participatory design communication (cf., Holmqvist & Andersen, 1991);
3. Identify characteristics of software tools that increase mutuality of understanding among team members (cf., Novick & Douglas, 1992); and
4. Identify systematic misconceptions associated with participants’ backgrounds and team roles.

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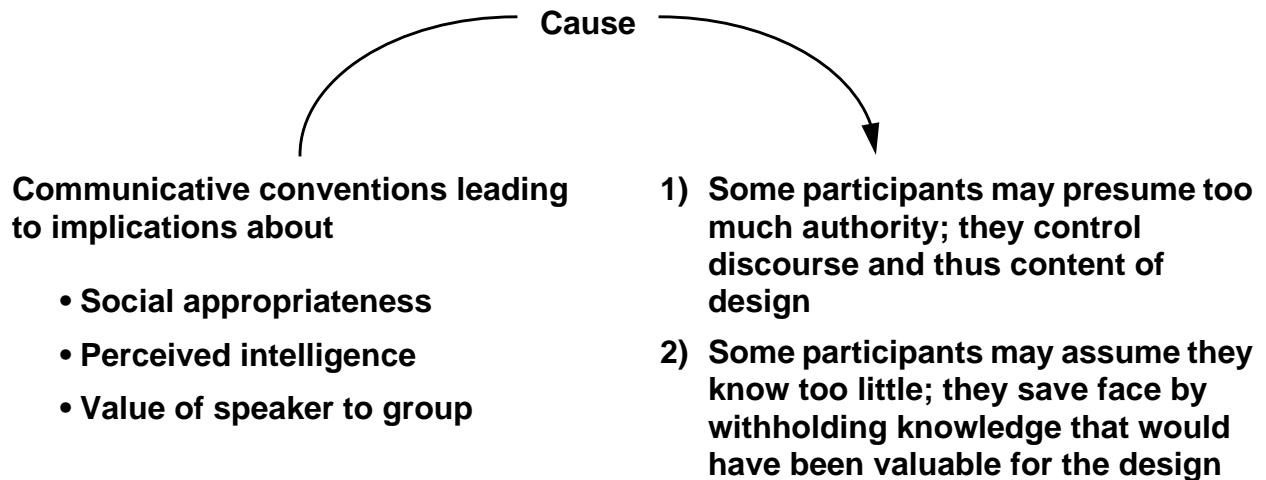
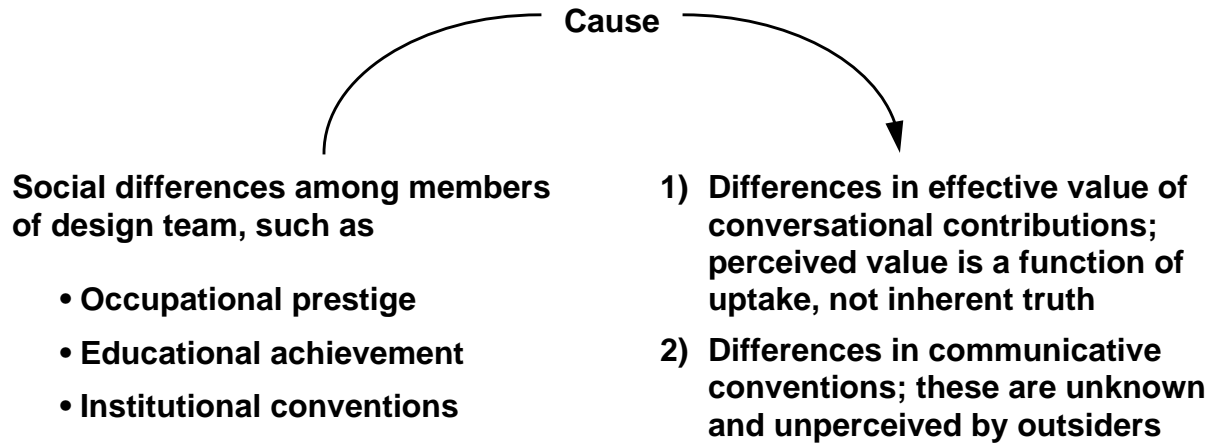
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ABSTRACT

Participatory design must be more than the formality of having users present or even engaged in “dialogue.” Participatory design is a communicative process prone to miscommunications like those in cross-cultural settings. While team members may belong to the same general culture, their varying occupational and social contexts are subcultures that bring different background assumptions, conventions of conversation, and semantics. Communicative failures may go undetected because mechanisms of conversational repair are among these differences. Team members may mistake failures in participatory behaviors for failure of participatory design. We identify conversational behaviors that reveal unshared assumptions among design team participants.

Premises

- **Social responsibility begins with quality of communication**
- **Participatory design achieves empowerment of all participants only if communication is genuine; the appearance of communication is not enough**
- **Genuine communication is not just exchange of words; there must be actual mutual understanding**
- **Mutual understanding breaks down where background assumptions and social conventions are not shared**



Example

While believing in participatory design as a technique, software engineers in a design team might assume that technical knowledge is more important than domain knowledge. They readily lecture people about every technical reference that comes up. They make sure that the other participants stick to the topic at hand.

Thus, the participatorily designed system may be suboptimal because

- 1) The user-participants assumed that their organizational observations would be irrelevant to the design and they avoided talking about technical subjects to avoid making mistakes
- 2) The software engineers assumed that all the relevant information had, in fact, been brought out.

Problems

- Team members cannot just pay lip service to participatory equality; the whole set of conversational behaviors must support equality of value of contributions
- Most mutuality-maintaining communicative behaviors are beyond the conscious control of most system designers; their professional training tends to make them skilled at talking within a deep professional context of fine distinctions about computing

Consequence

Participatory design is peculiarly susceptible to miscommunication caused by lack of mutuality because the point of participatory design is to bring together persons from different worlds

Hypothesis

Mismatches among design team's conventions are revealed in specific conversational acts and meta-acts and can be recovered from the form and logic of the naturally-occurring discourse

**Clues for unperceived
miscommunication**

- **Disclaimers and pre-apologies**
- **Use of same terms in slightly different semantic contexts**
- **Attempted turns that never succeed**
- **Consistently different turn-lengths for different classes of participant**
- **Differences in gaze-lock patterns**
- **Unresolved or conflicting conversational strategies**
- **Topics offered but not taken up**
- **Inconsistencies in humor (e.g., not laughing at the same jokes)**
- **Patterns of interruption or utterance completion**

Toward solutions

Possible remedies for miscommunication caused by lack of mutuality among members of the design team:

- 1) Apply conversation analysis to naturally-occurring discourse in design teams; reflect results into design process**
- 2) Create program for awareness on the part of designers to be on guard for inauthenticity in participatory design communication**
- 3) Identify characteristics of software tools that increase mutuality of understanding among team members**
- 4) Identify systematic misconceptions associated with participants' backgrounds and team roles**