Mixing Disciplines

in Teaching Participatory Design Practices

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ABSTRACT
In this workshop, we will explore new and alternative ways of teaching participatory systems development and design practices at the university level in inter- and multi-disciplinary contexts. We will bring up questions around, and challenges and opportunities of, developing boundary-crossing university education, focusing on PD practices for systems developers and designers.

The workshop will build on our experiences from jointly developing and teaching the interdisciplinary course *Work Practice, Design and Development of Software* (WPDDS) over the past three years. Depending on the interests of the workshop participants, we will choose and explore a few of the questions raised, comparing experiences and sharing ways of making interdisciplinary teaching of Participatory Design practices work.

Keywords
Teaching PD, teaching as developmental teamwork, developing interdisciplinary university courses, ethnography, work practices, systems development, systems design.

MIXING DISCIPLINES BY DEVELOPING TEAMWORK
We who are organizing the workshop have worked for 3-6 years developing bachelors' and masters' programs for systems designers. These are educational programs where we combine Computer Science and Human Work Science. Where these disciplines meet, overlap and mingle, something new evolves. We try to focus on this multi-disciplinary arena, rather than on each discipline in itself, by working with problem-based learning and by referring to the education as a unified program: *People, Computers and Work*.

Yet we feel that we are only beginning to discover how inter- and multi-disciplinary approaches can enrich the teaching of system design, and contribute to the development of reflective design practices.

The specific experience we want to share and discuss is the successful development and teaching of a project course, combining ethnographically informed work practice studies, participatory design and development of software. Just putting two courses together did not work out. We had to do much more. Some of the main problem areas we came up against, and had to do something about, we will be bringing to this workshop as questions to explore;

We found we had to

- change the software development paradigm
- change the layout of the course and the projects
- change the student group size
- change the supervision in order to supervise the interdisciplinary projects, i.e. we had to teach each other about our disciplines
- revise our own ideas about what ethnography can bring to design, and vice versa

The experiences of teaching the course raised further issues. The dynamics of co-operation in ethnographic studies differs from that in software development. There is more than one way that ethnographic studies can contribute to participatory design and use-oriented software development. A reflective attitude and the situated adaptation of methods are important in both disciplines.

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We all experienced this inter-disciplinary adventure as enriching and challenging. We want to share our experiences with others and hear more about similar experiences in teaching interdisciplinary courses in the area of participatory design and systems development.

WORKSHOP GOALS AND ORGANIZATION

The aim of the workshop is to bring together researchers, teachers and other practitioners with an interest in this area in order to share experiences and ideas. One of the goals of the workshop is to develop a supportive and mind-broadening network for the future.

Position papers (1-3 pages) on the workshop topic are optional but most welcomed. Position papers received at the latest by November 20th will be made available to all then known participants a week before the workshop, on a special website.

Preferred limit on participants: 20. After a round of introductions, we plan to split up into two discussion groups, with an inter-disciplinary two-some of workshop coordinators in each, then rejoin and compare outcomes during the last half hour of the workshop.

After the workshop, we will post a summary of the discussions and suggestions on the same web-site as the position papers. Position papers and workshop summary will also be published in a Blekinge Institute of Technology report series on development of educational methods (in English), a report which all participants will receive a copy of no later than January 2001.

One of the outcomes we hope for, which will also be made available on the web-site, is a list of relevant literature and articles about new and pedagogically interesting ways of setting up and carrying through interdisciplinary education for future systems developers.

ORGANIZERS

We, the four women who are organizing this workshop, are all from the Blekinge Institute of Technolocy in Sweden, where we are involved in the development of, and teaching in, an inter-disciplinary masters' program called *People, Computers and Work* (the Swedish acronym for this is *MDA* - the MDA program).

The Blekinge Institute of Technology (until recently known as the University of Karlskrona/Ronneby) in Southern Sweden was founded in 1989. It is a young and small, but rapidly expanding university, with approximately 3,500 students and 300 employees.

The main emphasis in both research and teaching is on *IT in use* - i.e. on information technology and how it is used. In teaching, problem-based learning is emphasized. Students work in projects, often in collaboration with businesses and other organizations in the region. Cross-disciplinary course modules and co-operative projects are offered, involving students and staff from different subject areas.

Gunnel Andersdotter is a Ph D student at the department of European Ethnology at Lund University. Her research concerns the everyday work and life of software designers creating systems for mobile telephone communication. As a lecturer at the department of Human Work Science, she has been teaching ethnography within the *People, Computers and Work* program.

Betty Bergqvist holds a Bachelor's degree in Computer Science from Växjö University. She worked as a software developer for a telecommunication company before she started teaching at the Blekinge Institute of Technology. Betty is currently responsible for, and main coordinator of, the *Work Practice, Design and Development of Software* course within the *People, Computers and Work* program.

Yvonne Dittrich, who has a Ph.D. in Computer Science from Hamburg University, is an assistant professor in the department of Software Engineering and Computer Science. Since April 1997, she has been a senior lecturer within the *People, Computers and Work* program. Yvonne's current main areas of interest are software development as work, ethnomethodological studies of software development practice, using ethnomethodological and qualitative research in the context of participatory design [1,2].

Sara Eriksén, with a Ph.D. in Informatics, is an assistant professor in the department of Human Work Science. Her current research project, which is financed by the Swedish Council of Work Life Research, concerns everyday IT management, i.e. the continual support, design and development of IT in use in public service one-stop shops and on-line public service systems [3].

ACKNOWLEDGMENTS

We thank the students of the *People, Computers and Work* program over the past three years, who, during the second year of their education, with great enthusiasm, creativity and perseverance, have helped us explore this area and design and develop the *WPDDS* course.

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Participatory Design of Internet Environments and Web-Enabled Products and Services

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ABSTRACT
The Internet is becoming ubiquitous in the everyday work and home lives of people throughout the developed world. Designing web-enabled products, services, and environments with active participation of the intended users presents new opportunities and challenges. This workshop is intended for those who are interested in exploring strategies, techniques, dilemmas and exigencies associated with the participatory design of interactive web sites and applications. The experiences and perspectives of Sapient's Experience Modeling group will provide the starting point for our discussion.

KEYWORDS
Internet, online interactions, interactive products and services, local/global.

BACKGROUND
Today it is almost axiomatic that a user perspective is necessary for the successful design of interactive experiences and web-enabled products and services. However, there is great deal of variability in what is thought to be required to provide such a user perspective and to what degree direct user participation is essential. The workshop presenters have been exploring this issue together since Sapient's acquisition of Elab in October of 1999. At that time the experiences of Sapient's existing user research group, Elab, and Xerox PARC's Work Practice and Technology group were joined through the creation of the Experience Modeling discipline at Sapient. The Experience Modeling group has been involved over the last year in the design of internet business strategies, brand positionings and interactive web sites for numerous clients in the financial services, manufacturing, retail, entertainment and public sector markets. The day-to-day realities of providing a user perspective on the design of commercially viable internet-enabled products, services and environments informs our deliberations and reflections.

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ISSUES OF CONCERN
Issues to be explored include:

- Identifying the user within distributed communities of users
- Understanding the tradeoffs in adopting local verses global perspectives in the design of interactive web sites
- Recognizing connections between online and offline interactions
- Creating of online and offline experiences that reflect regional and cultural differences and interests
- Supporting continuing design and personalization of the interactive experience
- Designing internet interactions that support the creation of public, private and community spaces
- Monitoring online interactions for research purposes and as integral to the web application
- Balancing the interests of clients, consumers, users, colleagues, and the larger society

In addition, we will review the participatory research and design tools and techniques we've developed and elaborated over the last year in relation to our positioning as the Experience Modeling research group within Sapient Corporation and will solicit descriptions of tools and techniques that workshop participants have found useful.

WORKSHOP ORGANIZATION
The workshop will include presentations by the workshop presenters and interactive explorations with workshop participants of the most pressing issues for participants. Workshop participants will be asked to bring their own experiences, issues and questions to these explorations.

PRESENTERS
Meg Armstrong and Carrie Yury are senior researchers in the Experience Modeling group at Sapient Corporation. Before becoming part of the Experience Modeling group they were researchers at Elab where they helped develop innovative, ethnographically-based tools and techniques to inform product design, brand positioning and business strategies. Jamie

Haruch is a senior experience architect in the Experience Modeling group. Prior to joining the Experience Modeling group he was a senior user researcher at Sapient where he brought a user perspective to the design of e-commerce web sites. Jeanette Blomberg is Experience Modeling director at Sapient and Professor of Human Work Science at the University of Karlskrona/Ronneby. Before joining Sapient she was a founding member of the Work Practice and Technology group at Xerox PARC where her research focused on social aspects of technology production and use, ethnographically-based design, and participatory and work-oriented design.

User Friendly: Dialectic development of technology-enhanced learning environments

Danny Choriki, Ellen M. Cooney, Heather Larson, Mari Millary
Graduate Center of the City University of New York

Danny Choriki (Graduate Center of the City University of New York), From Chalkwriter to Webwriter: Barrier and Voice in the Management of Change in Education Technology.

Ellen M. Cooney, (Nassau Community College and Graduate Center of the City University of New York), Technology-enhanced Teaching Initiatives: Embracers and Resistors

Heather Larson (Graduate Center of the City University of New York), Older People's Environmental Extension into Cyberspace.

Mari Millary (Graduate Center of the City University of New York), A Study of Critical Thinking and Adaptation to Technology.

This session is intended to bring an actor network analysis to the process of web design and software design. To enhance the activity of participatory design of technology, we will assist design participants in the consideration of all the "actors" involved in the dialectic process of design and application. In addition to a theoretical analysis, each member of the "user friendly" team will bring project experience and data for discussion. "User Friendly" would be appropriate for a panel as well as a workshop.

Activity theory is a model of artifact-mediated and-object oriented action. Actor network theory--a tool for social studies of technology-- helps us to identify all of the people and things that influence what people do. For instance, an artifact (computers and software are artifacts) determines its use to some degree. But then again, those artifacts are constantly interpreted and revised. In addition, the dynamics of politics, economy, industry, people's motivations and skill sets determine usability.

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Some useful concepts for describing the context in which Internet participation develops were offered by Etienne Wenger and Jean Lave. Wenger popularized the concept of "Communities of Practice" (1996) referring to people who are gathering around shared interests and activities. According to Suchman, learning normally occurs as a function of the activity, context and culture in which it occurs: hence it is "situated" (1991). Furthermore, as newcomers gain experience and expertise, they are able to participate more fully in the community. Thus, "as the beginner or newcomer moves from the periphery of this community to its center (by gaining know-how), they become more active and engaged within the culture"(Lave, 1991). According to Gibson (1979) "the ability to select and abstract information grows as (experience does)." In Cyberspace, experience and practice lead to greater freedom for movement, to expression, to engagement with others and to the development of an understanding of self--and personal potentialities--within a situation.

Danny Choriki discusses the processes involved in the Management of Change in Education Technology. Cuban (1986) points out in his discussion of the implementation of educational technology in schools that teachers are usually blamed for the failure of innovation in educational technology. He goes on to argue that these projects are typically designed with the technology as the focus and teachers are expected to adapt. In Project Tell: PC's in the Classrooms Initiative, (Birenbaum, et al, 1994) we examined the context of teachers work environment as technology was being introduced. A number of barriers to technology adaptation were identified. Most important is the need for clearly stated educational goals and for different technologies designed to integrate into the daily work lives of teachers and their different styles and needs.

Cooney examines the adaptation process of teachers at a community college, which has supported ventures to bring computer-enhanced learning into individual course curriculum. Hardware, software and training are provided for teachers in their efforts to integrate computers and telecommunications in their curricular and classroom activities with a focus on active learning and enhancing students' critical thinking

skills. The current initiative examines academia as a dialectical environment through survey, self report and town hall meetings as well as student impact studies that provide data to assess why some faculty embrace technology enhanced learning and why others resist the same.

Heather Larson's contribution provides a proposal for investigating how people of different ages create what (Madonado-Lugo ; 1996) called environmental extensions. Extending is the act of attempting to put oneself out in the world and become more engaged in society. Activities in which people extend themselves in Cyberspace include the creation of personal Web pages and correspondence via e-mail. Currently, older adults are the most rapidly- growing constituency of Internet users (Third Age Media, 1998), and it might be hypothesized that is that as people age, (given adequate resources and training) they will gradually increase their active participation in Cyberspace. Data from interviews and geographical logs will provide important information for researchers, designers, and policy officials concerning user access as they "age-in-Cyberspace".

Mari Millary brings an analysis of co-constructed technology processes in the workplace. A dialectic process of adaptation to a new computer technology is described among workers in two public transportation facilities located in a working class suburban borough of a large metropolitan city in the U.S. The process of adaptation is conceptualized in terms of critical thinking within activity systems. The critically thinking workers are dialectically engaged with embedded and intersecting spheres of socio-cultural and technological context. This study shows an association between indicators of critical thinking and adaptive computer use patterns.

The panel or workshop will include a discussion of various qualitative and quantitative methodologies used to assess effectiveness of the four projects, and possible research methods for capturing content, structure, and communication flow in cyberspace or technology-enhanced settings. Examples of how actor network analysis influenced design and policy will be discussed in all projects. Participants will be invited to bring their own project concerns for group discussion and analysis

Community Informatics: Participatory tools for social inclusion and active citizenship

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This workshop aims to link Community Informatics into the broader participatory design discourse. In keeping with the "Bringing in More voices" theme of PDC 2000, this workshop seeks to investigate methods by which local community ICT initiatives can and/or do maintain and deepen knowledge about design issues in local communities. From a Community Informatics perspective, the 'system' belongs to community members rather than an organisation or professional experts. In this context, the inclusion and active participation of local citizens in the design, development and implementation of civic attempts to bridge the digital divide is seen as an essential component in complementing the expertise of system designers (Schuler & Namioka, 1993).

To this end the workshop will explore participatory and inclusive practices and methods that not only encourage citizens to utilise ICTs as tools to underpin and develop social networks in local communities (Schuler, 1994) but also encourage them to participate as mutual partners in the design, development and implementation processes. By synthesising Participatory Design and Community Informatics techniques ICTs can be utilised to assist the processes of capacity building and community development Within this framework there should be scope to examine a wide range of issues that exist for communities in the network society. Such options include political work, policy development, engagement with business and other institutions, and, perhaps most importantly engaging with other communities into a larger "network of networks".

Building on the "Designing Across Boarders - the community design of community networks" session hosted by Doug Schuler at the 1998 PDC/CSCW conferences in Seattle this workshop will encourage practitioners, users, academics and policy makers to examine processes that facilitate active citizenship and civic participation through the use of ICTs. A number of brief scene setting presentations will start the workshop, which will then be opened up to informal introductory comments on submitted abstracts, discussion, networking and depending on time and the number of participants - a participatory design game may be introduced. Participants are requested to submit extended abstracts of 1000 - 1500 words in length outlining their work, interests, research, etc. in this area to Peter Day - p.day@btinternet.com. All extended abstracts will be made available on a web site and participants are requested to read them before attending.

As part of a process of developing this subject area the facilitators intend to pursue publication of papers arising from the workshop, perhaps in the form of a special edition journal. However, just as important as this is the exchange of ideas and information that a workshop such as this enables. The mutual sharing of experiences and knowledge will hopefully provide insights and contacts that can assist us in shaping a more inclusive and participatory approach to the Network Society.

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Workshop facilitators:

Peter Day is a lecturer at the School of Information Management, University of Brighton. He is a former chairperson of the Sussex Community Internet Project and a member of the Brighton and Hove Community Information Network steering group. Contact: p.day@btinternet.com

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Doug Schuler is a faculty member of The Evergreen State College where he concentrates on Computers and Society issues. He is the author of "New Community Networks: Wired for Change" and is one of the co-founders of the Seattle Community Network. He is currently setting up the Public Sphere Project for CPSR. Contact: douglas@scn.org

Participatory Design with Children: Techniques, Challenges, and Successes

Allison Druin[1,2], Houman Alborzi[1], Angela Boltman[1,2], Sue Cobb[4], Jaime Montemayor[1], Helen Neale[4], Michele Platner[1], Jessica Porteous[1], Lisa Sherman[1], Kristian Simsarian[3], Danae Stanton[4], Yngve Sundblad[2], Gustav Taxen[2]

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ABSTRACT

In this workshop, we will explore the various methodologies developed to work with children in participatory design experiences. We will discuss the roles children can play in the technology design process as well as the challenges that go along with each. The workshop will conclude with some hands-on experience with participatory design methods to be used with children.

Keywords

Children, Participatory Design, Cooperative Inquiry, Design Partner

A VOICE FOR CHILDREN

"I'm bored!" "That's fun!" "Why do I have to do that?" These are all important thoughts from children. When adults get the chance to spend time with children, they soon find out that young people have their own likes, dislikes, curiosities, and needs that are not the same as their parents or teachers. Yet, it is common for developers of new technologies to ask parents and teachers what they think their children or students may need, rather than ask children directly. This may in part be due to the traditional power structure of the "all-knowing" adult and the "all-learning" child, where young people are dependent on their parents and teachers for everything from food and shelter, to educational experiences. At times, these relationships may make it difficult for children to voice their opinions when it comes to deciding what technologies should be in schools or at home. In addition, we as designers of technologies have our own biases and assumptions about children. Some of us may be parents of our own children, but all of us were once children ourselves with special memories of what we liked and didn't like about the world [4, 7].

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However, as we know, personal impressions may not be enough to make important decisions about the development of new technologies for today's children. Young people are fast becoming tomorrow's power-users of everything from the Internet to multimedia authoring tools. Our children are having technological experiences before the age of five, that we adults didn't have until we were in college (if that). On the other hand, children are still children that must go to school and depend on their teachers and parents for learning and living in this complex world. In addition, as we know, young children have a more difficult time verbalizing their thoughts, especially when it concerns abstract concepts and actions [5, 6]. While children can be extremely honest in their feedback and comments concerning technology, much of what they say needs to be interpreted within the context of concrete experiences. For all of these reasons, a child's role in the design of new technology has historically been minimized. In the HCI community, we have a short but rich history of developing shared paths for communication between diverse users and technologists. However, this history of shared communication is even shorter and less developed for our children as users, testers, informants, and partners in the technology design process. With the emergence of children as an important new consumer group of technology, it is critical that we support children in ways that are useful, effective, and meaningful for their needs. This means bringing them into the technology design process.

CHILDREN AS DESIGN PARTNERS

Over the years, our research has involved children as active research partners [3]. From the creation of collaborative sto-

rytelling software [2], to room-sized interactive experiences [1], children play an essential part in our technology design teams, along with educators, computer scientists, psychologists, engineers, and artists. To establish these partnerships, we have developed various participatory design techniques we have come to call "Cooperative Inquiry" [3]. These techniques include observation and note-taking procedures, low-tech prototyping, and "stickie-note" brainstorming. While similar techniques have been used with adult design partners, we have had to adapt our methods to address the many challenges of working with children in labs and schools in different countries. Perhaps our greatest challenge has been in adapting these methods to work within the power structure, time, and space of diverse schools. >From working within the constraints of the school day, to educating teachers and parents on our methods, it is not easy to accomplish a design partnership with school children. However, despite these challenges we have found rewarding outcomes in both the development of new technologies and important learning outcomes for all design partners.

WORKSHOP GOALS

To address the many issues of children as participatory design partners, this workshop's goals will include:

1- To understand the many roles a child can play in the technology design process.

2- To become familiar with the various methodologies of working with children in participatory design

3- To understand the challenges and rewards of working with children as design partners

WORKSHOP ACTIVITIES

This workshop will begin with a discussion on the various roles children can play in the technology design process. Following this, a short presentation will be given on the various methods that can be used in participatory design with children.

Workshop participants will then be encouraged to explore some of these methods. "Participatory Design Stations" will be set up around the room for different groups to try different methods. Workshop participants will rotate throughout the room until they have been to each station. The workshop will end with "participatory design war stories"—a discussion of the challenges of working with children in large groups, in schools, between countries.

WORKSHOP PRESENTERS

The workshop will be led by Allison Druin, from the University of Maryland and the Royal Institute of Technology (KTH), Sweden. She has been working with children in developing new technologies for the past 15 years and for the last five years has been focusing on developing new participatory design methods for children. She will be joined in leading this workshop by her interdisciplinary team from the University of Maryland, Jaime Montemayor, Houman Alborzi, Angela Boltman. Michele Platner, Jessica Porteous, Lisa Sherman. In addition, Yngve Sundblad and Gustav Taxen, collaborators from the Royal Institute of Technology (KTH), Sweden, Kristian Simsarian from the Swedish Institute of Computer Science and Danae Stanton, Helen Neal, and Sue Cobb from the University of Nottingham will discuss their extensive experience in adapting these participatory design methods over the past 2 years for the KidStory Project in Europe.

ACKNOWLEDGMENTS

Our methods could not have been developed without the generous support of the European Union's, i3, Experimental Schools Environment initiative for the KidStory project. In addition, the National Science Foundation's Digital Library initiative has been a sponsor of our work. Finally, our partnerships with children in New Mexico, Maryland, Sweden, and England have taught us more than we could have ever imagined and for this we will always be grateful.

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Experiments in Building Participatory Learning Communities on the Internet: Language Learning and Teaching, Collaborative Dictionaries, and Municipal Services

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THEMATIC STATEMENT

The concept behind this submission is to share a related body of work that is being discussed by an interacting network of people. Davydd Greenwood, Carla Shafer, and Bob Parks are linked through the Cornell Participatory Action Research Network and have been interacting for some time about interactive uses of the internet to create collaborative intellectual communities. Each has independent projects in this field, but are also engaged in a dialog about them. Carla Shafer is the CEO of Municipal Exchange, a webpage provider that focuses on the construction of participatory websites for the purpose of enhancing collaboration in all kinds of communities, including municipal and county governments, as well as websites like PARNET.ORG. Richard Brecht and Catherine Ingold are respectively the Director and Deputy Director of the National Foreign Language Center Project Director for LangNet and co-directors of the LangNet project. LangNet is a FIPSE funded initiative to create internet-based teacher and learner resources that are evaluated by boards of national experts in language pedagogy. Davydd Greenwood is the program evaluator for the LangNet project and Carla Shafer has just become the provider of web application design and services for LangNet. Bob Parks has a long history of work on participatory building of dictionaries and other reference devices on the internet, including a long period of work supported by IBM. Thus, this interacting group has a number of central themes that link it and yet also diverse experiences. We would like to share these in a 4 paper session that leaves time for both demonstration and interaction.

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ABSTRACTS:

Carla Shafer, "Social Change: the missing link in star schemas and OO models?"

The objective of this presentation is to define and demonstrate a "learning application" and then illustrate through stories how social change needs to become part of our definition of a network application. In this paper, I will tell the story of my experience in developing PARnet, and how my vision for it changed from a shared information "collection" --> documentation of the current status of social thought --> need to capture history and allow for complexity of interpretation --> a tool for generating social knowledge. Show how the site's failures have been both technical and social. I will point out how the same failure is common to many network applications that aim to elicit a high level of participation. ...and this genre is huge, ranging from commercial Web sites, to Intranets, to educational applications. I will suggest that the failure is not necessarily the result of not including users in the design process, but may be because we mistakenly fix the design process itself in time and space -- a thing we do at the beginning of a contract with participants that exist at that moment of time.

Bob Parks, "The Participatory Glossaurus Process"

The "Participatory Glossaurus Process" defines a method of structuring and representing knowledge claims in electronic environments. The project focuses on the task of defining terms of discourse and marking a range of agreements and disagreements about terminology, conceptualization and theory building. The internet provides both syncronous and asyncronous modes of communication, but we don't yet know what impact computer mediated representations of knowledge may have on the quality and viability of these modes of communication for knowledge aggregation. Computer mediated communication environments may promote consensus through communication, but may also promote exploration of differences, and may precipitate conflict and controversy. Methods of knowledge representation suitable to a knowledge building community must preserve and respect differences while identifying and facilitating agreements. Both visual and textual methods of knowledge representation are explored. In the initial phases of the project, participants will use and critique the available software environments, in a participatory design process. The results, we hope, will be a new form of interactive knowledge development and publication.

Richard Brecht and Catherine Ingold, "Using the Internet to Link Expert Communities to Teachers and Learners for Learning Languages: The LangNet Project and Its Promise for the Future"

The LangNet project is a program of the National Foreign Language Center in Washington and has received substantial funding from the federal government to link editorial boards of language teaching experts with each other on teams and to collectively create a site with a searchable database providing access to fully evaluated learning and teaching resources for all people anywhere who can link to the internet. The development of both the editorial board structures through alliances with language teaching professional groups and of the structure and software strategy for the project have required unprecedented innovations from all participants. We want to present a "state of the project" report and enlist the PDC members in conversations about ways to improve it and deepen our thinking about it.

Davydd Greenwood "Formative Program Evaluation on the Internet: How to Evaluate a Virtual Project in a Participatory Manner"

As the evaluator to the LangNet project, it has been my responsibility to try to both oversee the project's execution and ongoing redesign and to contribute group process observations as well as technical advice to the project directors. In the process of doing a participatory evaluation of participatory, internet-based project, I have found myself stepping beyond the edge of the state of the art in formative program evaluation in a complex partnership with the participants and yet responsible also for monitoring and helping the staff calibrate their efforts. The participatory evaluation of participatory information technology projects presents new challenges I would like to discuss and to receive advice about.

Enabling Communities: Communication and Cooperation in and on Knowledge Landscapes

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ABSTRACT
This workshop will unite researchers and practitioners from as different fields as virtual organizations, local community networks, virtual communities, computer science, business administration, social and political sciences. The shared interest addressed in this workshop is the management of knowledge in more informal, lesser organized settings, viewed as the collaborative building, usage and extension of a shared knowledge landscape. Especially organizational and/or technological measures to motivate and improve knowledge sharing and collaborative learning will be discussed.

Keywords
Knowledge Management, Collaborative Learning, Communities, CSCW, CSCL

DESCRIPTION
The metaphor of "knowledge landscapes" reflects many aspects of knowledge management, knowledge sharing and collaborative learning: Different kinds of knowledge have different degrees of visibility (depending on the position of the observer), knowledge in a special area can be seeded and grown, different ways to reach a knowledge level can have different degrees of difficulty (scouts may find easier paths and shortcuts), pioneering teams may challenge unknown territory collaboratively with an expedition, etc. Observers may become active and even change the landscapes themselves by building new "sights" and new "parks" or extending existing ones. The more self-organized structure of these activities makes participation a central collaboration principle.

Computer- and network-based knowledge representation and processing is envisioned as one of the most thrilling application areas in computer science. Now, with computers finding their way into almost all organizations and most households, and with the Internet and the WWW as a shared infrastructure, technology has reached a level of maturity that may make visions happen.

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Knowledge management as a discipline in computer science or in the economic sciences has always been investigated from the perspective of knowledge as a valuable resource for organizations and their goals. Which aspects of knowledge management change when knowledge is seen as a resource for a more informal community of cooperating entities, as we encounter it in virtual organizations, communities of practice, communities of interest, local community networks or even society as a whole? We anticipate the discussion of the following questions:

- Knowledge Sharing: What are the dynamics of knowledge sharing? Why do people share knowledge? What organizational or technological measures improve knowledge sharing? How can the demand for knowledge be measured and visualized?
- Collaborative Knowledge Building: How can we support the collaboration in the knowledge production process?
- Knowledge Scouting: How can knowledge resp. its representations (documents, books, experts, etc.) be reviewed, evaluated, highlighted, recommended and connected by individuals and/or groups?
- Supporting the casual user: How can we improve tools in a way that they are prepared for the casual users, who do not want to spend excessive amounts of time on navigation and landscape forming?
- Bridging divides: What divides hinder equal-righted usage and design of knowledge landscapes? How can the gaps be bridged or narrowed?

We believe that these issues have to be discussed in the context of three new challenges the shift to "lesser organized" settings poses:

- Mass: Some of these lesser organized settings might come with huge amounts of users for the knowledge landscapes.
- Heterogeneity: The users and their uses are much more heterogeneous (interests, abilities, intentions, etc.) than those in organized settings.

- "Wobblity": Activity and dedication of individual users may vary largely across time. Fluctuation in "knowledge landscape projects" is much more usual than in organized settings.

We will welcome problem descriptions as well as presentations of concepts, tools and solutions within the fields addressed.

WORKSHOP PLAN

After a short introduction, participants from a more technical perspective will give short presentations of new methodologies, technologies and tools. Then practitioners will give short overviews on tool deficits or organizational problems they consider important from their practical experience in their work. Each presentation will be followed by a short discussion to estimate problem relevance to others. In a final discussion on steps to improve tools we will conclude the workshop. It is planned that a report on the results of the workshop will be published.

CONVENORS SHORT BIOGRAPHY

Volkmar Pipek

received a masters degree in computer science in 1996. Since 1997 he works with the Research Group Human-Computer-Interaction and Computer-Supported Cooperative Work (ProSEC) at the University of Bonn. Until 1998 he worked in the POLITeam project on organisational issues of collaborative computing, especially concepts for participative groupware development and introduction and user qualification. In 1999 he co-organised and taught in a distance learning project on "Computer Science & Society". Now he is project manager of the OlViO-Project which works on bringing together knowledge management and distance learning for virtual organizations. His research interests span issues like knowledge management, CSCL, CSCW, Electronic Democracy, Community Networks and Participatory Design, his focus lies on developing tools for collaborative discussion/ decision support for design processes. He was co-organiser of the workshop "Beyond Knowledge Management - Managing Expertise" at the ECSCW'99 conference, and is member of the programme committees of the first German CSCL conference. He chairs the information systems group at the Working Group "GeoMed - Mediation in Urban Planning" (associated with the German Society of Geography) and is a member of the_network, an informal research and activism network for community informatics. He wrote several national and international publications on decision/discussion support for community networks and is co-editor of a forthcoming book on Expertise Management.

Peter Mambrey

received his M.A. in Political Science, Sociology, and Ethnology from the University of Bonn and his PhD in Social Science from the University of Duisburg. He worked as an assistant of members of the German Parliament, as researcher for the University of Bonn and since 1979 for the GMD – German National Research Center for Information Technology, actually as senior scientist. His main research areas are Participatory Design, Technology Assessment, Computer Supported Cooperative Work, and Community Informatics. He worked as advisor of ICT for the German Bundestag, several Federal and State ministries, and private companies. His mayor research interests lay in the field of social science informatics, since 1992 he teaches Politics and Communication at the University of Duisburg. He is member of several program committees (DIAC 2000; HOIT 2000), Co-Chair of the PDC 2000 and author and editor of several books and articles (http://orgwis.gmd.de/~mambrey). Since 1998 he chairs the IFIP WG 9.1 "Computers and Work".

Generative Tools for Accessing Experience

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ABSTRACT
In response to feedback from participants in the workshops we conducted at the four previous PDC conferences, we will provide hands-on experience with more of the methods we use to uncover emotional components of the user experience. We will introduce participants to two methods: Projective Expression through Image Collaging and Cognitive Mapping. Our intent this year is to have people experience two very different methods in order to stimulate a discussion of the similarities and differences between them. We also plan to use the workshop as a forum for further exploration of the applications of such techniques.

Keywords
Participatory design, projective, image, collages, cognitive mapping, generative

PROCEDURE
The workshop will begin with a short presentation of different generative tools being used today to access user experience. We'll share our mindset about the necessity of respect for the user that is inherent in these participatory methods. We will show how these methods and tools have been used very early in the design development of many types of products, interfaces, systems, and spaces. We will also discuss the situations and places in the design development process where we have found these tools and methods to be particularly appropriate and effective. We will provide a brief explanation of how to use the methods in conjunction with other methods (both traditional as well as participatory). In addition, we will share a few of the newest applications of the generative tools in the domain of collaborative visioning workshops.

The remaining two-and-a-half hours will be a learning-by-doing experience in which the workshop participants make image collages and cognitive maps. Half the participants will be given an Image Collaging Toolkit and half will be given a Cognitive Mapping Toolkit. The user experience under investigation, one that all participants can relate to, will be the same for both groups.

After the making phase, participants will each be given the opportunity to present their collage or map to the other participants. After all their presentations, we will engage in a group discussion comparing the methods/toolkits. For example, Which was easier? Which was more fun? Which revealed the most insight into people's feelings about the experience? Which revealed the most about people's understandings of the experience? Which method led to the most creative thinking? Which method worked best for the experience we were investigating?

We would like to end with a group discussion about other uses of generative tools such as image collaging and cognitive mapping. As time permits, we would also like to extend the discussion to ideas about new additions to the toolkits, as well as ideas about new situations of use for generative tools.

PARTICIPANTS
Because of the number of toolkits that are needed for hands-on experience, it will be necessary to limit the number of participants to about 15. People with any kind of background are welcome.

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DESIGNING DIGITAL ENVIRONMENTS: BRINGING IN MORE "CHOICES"

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ABSTRACT
Workshop will focus on comparison of designing methods and approaches in collaborative digital environment with human psychology. Competing theoretical frameworks; discrepancies between actual processes, practices and theory; new ideas, reflections, thinking; the impact of digital collaborative technologies on virtual workplaces of students and schools, educational technologies, designing, group working and culture.

Keywords
Digital environments, Network, Collaborative Design, web-based design, interface design

SUBJECT
"An ideal interface design for a collaborative digital environment for the people such as students, lectures, case studies, galleries/examples." and "What Is Next?".

GOALS
As computing technology continues to evolve, new applications, interaction techniques and a new way of communication come into use. Digital environment bringing more voices by using computer technology and communication technology together with the designed virtual spaces. The language of the virtual spaces coming from the human psychology and cognition. The well-designed interfaces for collaborative workplaces is a kind of a circle/ connection for design and use of computer technology.

User interfaces can give the possibilities of new varieties of multiple interaction techniques on web. Increasingly, computers can communicate with each other and connect us to other computers, to other people.
Another goal is to meet and to develop new ideas and new relationships, to explore the way of thinking of different culture, different people. So A well-designed User interface of a web-site can give a real opportunity to bring more people in the interactive collaborative digital environments. People's attitudes changes to digital environments as they find new benefits, such as personal and social value.

We need to understand how human-computer interaction includes new directions for the design of virtual collaborative environments to bring more choices.

FORMAT
Three/Four design teams will be formed.

REQUIREMENTS
- Strong design skills,
- Communication and relational skills
- Familiarity with the use of computers and an interest in design

RECOMMENDED BOOKS
Johnson, S., *Interface culture : how new technology transforms the way we create and communicate.* Harper Edge, New York, 1997.

Sudweeks F., McLaughlin M. L., and Rafaeli S. (eds.), *Network and Netplay Virtual Groups on the Internet*, MIT Press, USA 1998

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