Artifacts Program

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The Artifacts program offers PDC participants an opportunity for interactive discussions that are focused around an "artifact" — that is, around an object (technical or representational) that plays a role in the participatory work in the project to which it refers. Traditionally, many conferences, including past Participatory Design Conference, have included posters and informal demonstrations for to go beyond formally delivered papers and addresses. At PDC'94, we have broadened this approach to include displays of — and interactions with — *artifacts in use*. An Artifact, then, may be a set of illustrations, or a piece of technology — but crucially, it is an object that is used as part of a project or the explanation of a project. An Artifact may also be a representation (or a set of representations) of ideas or practices in actual work settings. Because the concepts of practices and processes are so important to what PDC'94 was trying to accomplish with the Artifacts program, we asked authors to include an explicit plan for how PDC participants would interact with each artifact and with its authors. Or, to use different language, we asked authors to help us understand how the they and other PDC participants would co-create the Artifact and its meaning at the conference.

As with much of the field of participatory design, the concept of Artifacts is not unitary. We have attempted to avoid imposing our own views of what Artifacts "should" be, or of how an Artifact "should" be used. We have, in fact, enjoyed our own mutual education across our divergent views in the preparation of this part of the PDC'94 program. Our focus became the clarity with which authors explained their work and, in particular, how their work could contribute, in process and practice, to the life of the conference.

The resulting set of Artifacts is (desirably) diverse. Some are historical, showing a representation-based approach to documentation that has been used to support clarity and community within a inter-institutional work group, and within a certain segment of the participatory design community. Some are technology-focused — but always with a clear sense of how the technology serves its constituency, or how the technology as an object of inquiry and reflection could be used to raise questions about work practices and/or multiple constituencies. Still others are relatively traditional illustrations of ideas or domains, but usually with an emphasis on participation and interaction. Subject matter ranges from concrete to abstract, and from research to practice to product. Each bears witness to its author's creativity and to her or his service to the communities of stakeholders in the Artifact.

In *PDC'94: Proceedings of the Participatory Design Conference.* R. Trigg, S.I. Anderson, and E.A. Dykstra-Erickson (Eds.). Chapel Hill NC USA, 27-28 October 1994. Computer Professionals for Social Responsibility, P.O. Box 717, Palo Alto CA 94302-0717 USA, cpsr@cpsr.org.

This year's PDC continues the tradition of trying to bring our concerns for interaction, participation, practice, and process into material form at the conference. Earlier in this introduction, we noted that each Artifact experience would be co-created by its author(s) and other conference participants. In the same spirit, we invite PDC participants to co-create the Artifacts program with us, through usage, and to reflect with us (at the conference, or afterwards) about how our community might use Artifacts at future conferences.

ARTIFACTS REVIEW COMMITTEE

We thank the members of the Artifacts Review Committee for their insightful analyses and wonderful suggestions, on a very tight review schedule:

- Tom Dayton, Bellcore, Piscataway NJ US
- Margaret B.W. Graham, Xerox PARC, Palo Alto CA US
- Elizabeth B.-N. Sanders, Fitch, Worthington OH US
- Ellen A. White, Bellcore, Piscataway NJ US

ARTIFACTS

William L. Anderson (Xerox Corporation). The Wall: An Artifact of Design, Development, and History.

Melissa Cefkin (Institute for Research on Learning) and Brigitte Jordan (Xerox PARC and IRL). Using Video-based Interaction Analysis in the Workplace.

Johannes Gartner and Sabine Wahl (Vienna Technical University). Working Time Lab: Supporting Participatory Design in the Organizational Planning of Shift Models. (text not available at time of printing)

Michael J. Muller (U S WEST Technologies), Jean Hallewell Haslwanter (University of Technology), and Tom Dayton (Bellcore). Updating a Taxonomy of Participatory Practices: A Participatory Poster.

Elizabeth H. Nutter and Elizabeth B.-N. Sanders (Fitch). Participatory Development of a Consumer Product.

Diane Sonnenwald (Riso National Laboratory). Boundary Spanning Roles in the Design Process.

Dag Svanaes (University of Trondheim). Participatory Design of End-User Programming Tools in a Micro World.

Carol Traynor, James Pash, and Marian G. Williams (University of Massachusetts at Lowell). Bringing Users into the Discussion of an Unfamiliar Technology.

Tuomo Tuikka and Kari Kuutti (University of Oulu). MOI-tool: A HyperCard-based Tool for Creating Demonstrations of Cooperative Systems.

The Wall: An Artifact of Design, Development, and History

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In 1989 a Xerox engineering team entered into a participatory system design and development project with the Cornell University Library. The aim of this project was to evaluate the feasibility of using digital scanning technology to reformat brittle books. The work also moved into the bookstore where the project explored the use of scanning and printing systems to support the printing of custom course materials. The project lasted approximately three and one-half years, and during that time the team kept a time line of the project on a set of foam core panels. This set of panels became known as "the wall" and was used to mark project milestones, important visits to the customer and to the development team, trips and presentations by team members to conferences and to Xerox research centers. In addition, panels were constructed showing the layout of the customer's work area and setup of computer hardware and other work tools and materials.

The entire wall (almost 12' of panels) is displayed, and it documents the history, development, and practice of an innovative engineering experiment in collaborative development. In addition to keeping the work visible, the wall had a marked effect on the morale and spirit of the team. The role of such artifacts on developing and maintaining team spirit is often overlooked. Engagement of conference participants will grow out of explaining and describing the documents and other artifacts posted on the wall, as well as conversation about what these documents and the wall itself actually represent.

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Using Video-based Interaction Analysis in the Workplace

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VIDEO-BASED INTERACTION ANALYSIS

Interaction Analysis is a method for investigating the interaction of human beings with each other and with the physical objects in their environment. It allows for the analysis of work and training practices in the physical and social context in which they occur and offers participants the ability to closely study actual work and learning practices.

INTERACTION ANALYSIS LABORATORIES IN THE WORKPLACE

In 1992 we initiated a project at the Xerox Customer Administration Center (CAC) in Dallas during which we started up an Interaction Analysis Lab or IAL (a process for the collaborative analysis of video recordings of work practices) in the workplaces we were studying. We introduced Video-based Interaction Analysis (VIA) to workers, trainers, and first line managers. With permission, we videotaped many aspects of work in the CAC: people responding to customer inquiries, attending meetings, taking computer--based training courses, listening to lectures, and engaging in on-the-job learning. We made these tapes available to workers, trainers, and lower level managers for collaborative analysis under our guidance. These joint sessions, known as the Interaction Analysis Laboratories or IALs, became a powerful tool for reflecting on the actual processes of work, learning, and socialization as they occur in the CAC.

THE ARTIFACT

In our artifact submission we provide several examples of the use of VIA at the Dallas CAC. The display includes a three-panel poster which describes the broader project within which IALs were conducted, and offers illustrations of how VIA contributes to understandings of work practices in the environments in which they occur. The artifact also includes two videotapes: The first offers footage of work and training in progress — here, a Customer Service Administrator at her cubicle with a trainer providing on-the-job training. The second tape shows the IAL in which the first tape was shown and analyzed. Run simultaneously, the two video tapes offer conference participants a chance to see how video-based analyses of work and training practices have been appropriated and can be effectively used in workplace settings.

IMPACT

In the series of Workplace IALs (WIALs) within the Dallas project, participants discussed a great variety of topics including facility design, difficulties in navigating through computer systems, the compatibility of computer systems with other support materials, training techniques, work practice inconsistencies, and social interactions on the job. These sessions have resulted in changing work processes, clarifying misunderstandings for new hires, brainstorming for technology design, reevaluating the design of training programs, and increasing job satisfaction when people noted where a job is well supported and well done. We believe that this method, when used appropriately, can significantly contribute to collaboration and empowerment in the workplace.

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Working Time Lab: Supporting Participative Design of the Organizational Planning of Shift Models

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SHIFT SCHEDULES

Shift schedules fix the distribution of working hours. They are primarily defined by shifts and rosters. The development of "good" rosters is difficult but important. Shift schedules differ in their effects on employees (e.g., income, well-being) and the company (e.g., costs). They strongly influence work practices (e.g., information flow, possibilities for cooperation) [1]. The number of employees doing shift work is high and in some branches still growing [2].

DESIGN OF SHIFT SCHEDULES TODAY

Shift scheduling is difficult and expensive. The number of requirements and constraints is very high (e.g., by law, company, groups concerned). They are often ill defined and partially conflicting. The solution space is very complex (huge, sparse, discrete).
Caused by this complexity and the costs for actual planning currently only a few persons are involved in the design of a new schedule and they only search for admissible solutions [3]. These features are common in organizational planning (e.g., long term job-shop planning). Most existing computer systems for this task concentrate on automation which makes participation extremely difficult, reduces the number of requirements considered and leads to simplistic plans.

OUR APPROACH AND OUR SYSTEM

The design process should take place in a facilitated group of representatives of groups concerned (e.g., employees) using the supporting system. Fig. 1. shows the setting:

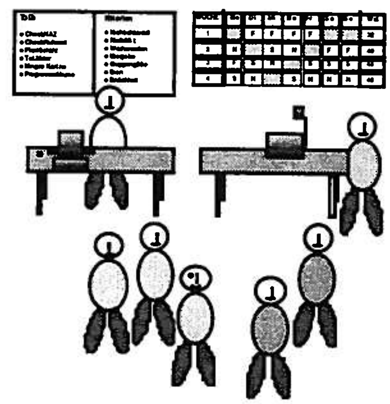

Figure 1: The setting of design process.

The roster, analysis data, etc. are displayed by an overhead projector that every participant can follow and influence the planning process. Other facilitation tools are used to coordinate work within the group (e.g., To-do-lists).
This approach is based on three elements, namely **cyclic design**, **tools which aid manipulation**, and lastly **tools which facilitate overview**. Typically design is done within a few number of meetings as time is needed to discuss the proposed schedule with other groups concerned.
The facilitated design process concentrates on **cyclic refinements** of prototypes and requirement lists. This reflects the problem that designing shift schedules is both: a reflexive learning process on the actual prototype and a reflexive learning process on requirements.
The basic idea of computer support is to provide users a powerful workbench of tools with as little restrictions to the design as possible. **Tools for manipulation** are tools for direct manipulation and indirect manipulation (e.g., fill in shifts in the following way). The latter one is a very powerful tool for quick and dirty design, the first one is needed for tuning. Basic model features (e.g., number of groups of shift workers) can be changed at any time.
It is nontrivial to keep the **overview** over features of shift schedules (e.g., for 12 groups). Designing by hand makes excessive counting and checking necessary. Currently several representations have to be written by hand. The system aids overview by different representations, checking (e.g., laws), counting (e.g., number of night shifts), graph-

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ical representation of features, etc. These features support refinement.

CONCLUSION

The system was developed in cooperation with an industrial partner, who uses up to 80 different schedules. It is used for real planning by small groups of planers especially for the difficult planning of stand-by duty. Future plans include further education for shift workers and shop-stewards.

The approach and the system described above improve the design of shift schedules efficiently and effectively. They support participative design within a facilitated group and allow to consider and to learn about requirements. In this way they help to improve working conditions and support considerations of work practices. This approach may be useful in other areas of organizational planning too.

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Updating a Taxonomy of Participatory Practices: A Participatory Poster

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In 1992, all conference participants at CHI'92 were invited to contribute to a "participatory poster" that surveyed participatory methods (Muller, Wildman, and White, 1992). The resulting 22 practices were summarized and published as part of the introduction to the 1993 participatory design issue of *Communications of the ACM* (Muller, White, and Wildman, 1993).

There are several reasons to repeat this activity:

- The participatory design community has continued to develop and refine its practices.
- There are indications that participatory methods are applied differently in different countries and contexts (Hallewell Haslwanter, 1994 submitted).
- Kensing and Munk-Madsen (1993) have begun to analyze participatory methods in terms of their relationship to more formal software engineering methods
- Certain critiques have been developed regarding how to make usability methods usable for the software development lifecycle (Dayton et al., 1993; Dray et al., 1993; Hefley et al., 1994; Hix, Hartson, and Nielsen, 1994; Olson and Moran, 1993).

We will provide an updated version of the 1993 summary in poster form. Each method will be described using a template ("profile of practice"). In keeping with the critique of Olson and Moran and the analysis of Kensing and Munk-Madsen,, these templates will emphasize the following components of a method description:

- object (materials) description
- process description (what is done?)
- participation description (who participates, and why?)
- statement of how the method can be integrated into the software development lifecycle

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We invite all PDC'94 conference participants to correct and update the poster, by adding the names of their current practices to the poster, by filling in blank templates, and by correcting any errors in our descriptions of the practices.

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Participatory Development of a Consumer Product

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DETERMINING U.S. CONSUMER PERCEPTIONS

The Harmon/Kardon Festival 500 is a top-of-the-line stereo system with CD, tape deck, tuner, and TV input components. Designed by Ashcraft Design and initially sold in Europe, Festival has a unique appearance and a functionally integrated surface.

Fitch Inc. and Harman Consumer Group (HCG) have a long-term relationship in developing hi-fidelity consumer and professional products. HCG requested that Fitch investigate the U.S. consumers' perception of the Festival 500. At a later time, HCG requested Fitch to redesign the display interface interaction for operating stereo components.

In order to determine the U.S. consumer perceptions of the Festival 500 stereo system, Fitch held investigative sessions with groups of potential owners.

SESSION ACTIVITIES

As the first activity of the group session, people described the pictures they had taken of music sources in their homes, and discussed music and stereo preferences.

In the room where the sessions took place, multiple stereo systems were displayed along with Festival, but were covered.

Sequentially, information about each covered stereo system was provided and then the system was revealed. Participants gave their reaction and discussed the probability of buying the system immediately after it was revealed.

Festival was the last stereo system to be revealed. The moderator then demonstrated how to operate the Festival interface. The participant group was told that two new people would be joining them in about 10 minutes, and that they needed to tell the new people about Festival, including demonstrating the interface. This resulted in participants determining priorities about system features, deciding what to tell, what not to tell, and how to present the system and its interface.

The second group of two new participants were brought in, and the first group presented and demonstrated the system to the new people. The new people asked questions and discussed their impressions of the system.

The last activity was to have the participants define the ideal shopping and buying experience. Multiple images and descriptors related to shopping and buying music were pasted individually on Velcro-backed pieces of poster board that were prepared prior to the session. Each participant built a collage by selecting the images and terms that best described the ideal shopping and buying experience. People then presented their collage to the others in the group and discussed out loud what images and descriptors they chose and why.

USABILITY TESTING THE NEW FESTIVAL 500 INTERFACE

The Festival interface area includes an on-screen display operated by seven keys and a remote. The front view of Festival was scanned into the computer enhanced to look as realistic as possible, and the new proposed interaction sequence for the interface was prototyped onto the computer simulation. The computer simulated keys on the front panel and remote were programmed to act similar to the keys on the actual Festival system.

A usability study was conducted to determine the ease of use of the newly designed Harman/Kardon Festival program interface.

EXPLORATION

During the Exploration phase, participants explored the actual Festival system and computer simulation freely.

MANIPULATION

The Manipulation phase consisted of participants using the computer simulation to complete goal-oriented tasks. A goal-oriented task requires the user to problem-solve multiple activities to eventually reach the end goal.

EVALUATION

The participants and moderator discussed the product interface in detail during the Evaluation phase. General likes and dislikes, as well as specific interface details, were discussed.

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Boundary Spanning Roles in the Design Process

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Design teams increasingly include participants from different domains who come to design situations with specialized knowledge and unique individual and social patterns of work activities, language usage, and personal beliefs. They must collaborate and mutually explore and integrate one another's domain and specialized knowledge so that they can come to a working understanding of how the artifact will best support the various goals and constraints that emerge from its functional contexts. However, it may be difficult for participants to collaborate and mutually explore one another's domain due to the uniqueness of each domain. This uniqueness creates boundaries that separates participants through differences in knowledge, language, expectations, motivation, and perceptions of quality and success. Design participants need to span these boundaries. Previous research has illustrated the importance of boundary spanning activity to high project performance (e.g., Allen, Lee, & Tushman, 1980).

A basic question therefore is: what boundary spanning roles and strategies may help design participants explore one another's domain to improve the quality of the design process and design outcomes? To address this question, boundary spanning and design literature and participants' behavior in an actual design situations were analyzed to discover boundary spanning roles that emerged to help participants explore and integrate knowledge from different domains.

The design situation analyzed took place in Scandinavia; its goal was to create a new sensor to be used for environmental purposes. The design team included 27 participants with on-the-job expertise and technical degrees in nine different domains. Over a 3-month period, semi-structured interviews were conducted with 24 participants. The average interview lasted two hours and during each interview, the participants described their design tasks and the nature and content of their work-related interaction. 154 such interactions were described; 134 of which were reciprically-mentioned (i.e., participant A described interacting with participant B and participant B described interacting with participant A.)

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Boundary spanning roles that emerged in the field study spanned organizational, task, discipline, individual, and multiple boundaries. Roles that span organizational boundaries include the inter- and intraorganizational stars, inter- and intragroup stars, and sponsor. Roles that span task boundaries include the inter- and intratask stars. Roles that span disciplinary boundaries include inter- and intradisciplinary stars. Roles that span individual differences include mentor and interpersonal star roles. In addition, two roles span multiple boundaries. The agent role facilitates interaction and helps negotiate differences among design participants irrespective of organizational, task, disciplinary, or individual boundaries. The gatekeeper role distributes relevant external information to all design participants. Design participants may assume one or more of these roles and may change roles during the design process.

This research further characterizes the 13 boundary spanning roles using a means-end representation (Rasmussen, Pejtersen, & Goodstein, 1994). Goals and constraints; priority measures used to determine criteria for achieving goals and constraints; general strategies and activities that may be used to achieve goals; physical activities and processes that may be used in the general functions; and actors, tools, and language constructs that may participate in, or be used during, the physical activities have been identified for each role.

These results are being used to create educational workshops and information systems that support boundary spanning in design (Sonnenwald & Pejtersen, 1994).

ACKNOWLEDGMENTS

This material is based on work supported by the National Science Foundation under Grant No. INT-9301720.

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Participatory Design of End-User Programming Tools in a Micro World

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INTRODUCTION

The controlled design experiment reported on here was aimed at comparing three design methodologies, two from the "Scandinavian School" and one traditional. Three design groups (N=5,3,3)each used a different design methodology to solve the same design task. The methodologies were 1) an engineering approach, 2) a linguistic approach, and 3) a participatory design (PD)approach.

The participants were from the same school class (N=11, age 16-17, 6 boys and 5 girls). They had little or no prior experience with computers, and no programming experience. Three design groups were formed on random, and the design processes ran in parallel over a period of 20 weeks. All groups used a Macintosh IIcx computer.

THE ARTIFACT

A number of running prototypes were produced before and during the experiment. The submitted artifact is a collection of these 17 prototypes with some additional information. The artifact also includes a recorded demonstration for each prototype with a spoken introduction. These demonstrations form a 30 minute automatic presentation of the project. Most of the Norwegian text has been translated into English to ease understanding.

THE MICRO WORLD

The micro world used in the experiment consisted of very simple non-figurative interactive squares (on a computer screen). One such "widget" with its corresponding State Transition Diagram is shown in figure 1. It initially appears as a single black frame on a white computer screen. When you press on it; the frame is filled with black. When you release the mouse button; it returns to its initial state.

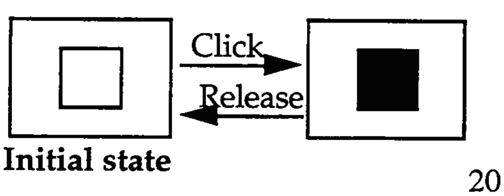

Figure 1. An example from the micro world.

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This micro world can hold widgets consisting of one, two or three squares that can be either white or black. The design space for such widgets is surprisingly large.

The design task given to the groups was to build an easy-to-use software tool that enables ordinary end-users to specify the behaviour of widgets in this micro world.

THE DESIGN METHODOLOGIES

The engineering approach was the base-line design methodology of the study. It consisted of first letting a programmer (the author) construct four software tools directly from requirements specification without user involvement of any kind. The design group evaluated these prototypes, and specified an improved version of their favourite.

The linguistic approach consisted of first letting all participants try out examples in the micro world while thinking aloud. Four software tools were built that make use of the metaphors and linguistic constructs found in the verbal protocols from these sessions. The rest of this approach was similar to the engineering approach.

The PD approach consisted of letting the design group work with the design problem for a couple of hours, imposing on them as few ideas as possible. This brainstorming lead to an initial design that was prototyped and then tested out in the following session. Modifications and extensions were added to the next version, and this iteration was repeated until the group was satisfied with their result.

EARLY RESULTS

Considering the participants' minimal knowledge of computers, their design work was surprisingly advanced.

Both the linguistic approach and the PD approach gave valuable insight into their understanding of the problem domain. Their way of describing and reasoning about behaviour was very different from what would be expected from a computer-science perspective. The PD approach was an order of magnitude more cost effective than the linguistic approach in making this understanding explicit.

I found that running prototypes had a very strong effect in closing the domain. An important consequence for participatory design is that care should be taken not to expose the participants to existing solutions too early in the design process.

Bringing Users into the Discussion of an Unfamiliar Technology

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INTRODUCTION

Our research concerns enabling users to make good decisions about whether and how a new technology should be introduced into their workplace. We are currently working with teachers at public high schools [ref]. Teachers are often not consulted about the new technologies, and when they are consulted, they are often unable to judge whether a new technology should be adopted as a teaching tool because they lack sufficient computer knowledge. Our aim is to develop techniques for empowering such teachers to make informed decisions about whether to adopt a technology. In particular, we seek to involve them in the discussion from the earliest design sessions. The artifact described in this paper has been created for use at one of those early design sessions.

MOTIVATION

The artifact emerges from a project begun by a group of social scientists at our university who were gathering toxic waste data to assist community activists working to improve local neighborhoods. They began using paper maps, but found the maps increasingly frustrating to use as the quantity of data grew. They eventually adopted a Geographical Information System (GIS). Under the aegis of our university's program to transfer technology to public schools, we are working with the social scientists to offer their databases to teachers at local high schools for incorporation into interdisciplinary curricula.

The teachers are familiar with the use of simple paper maps in the classroom, but are unfamiliar with large mapping projects and with GIS. The artifact described below was created to allow them to participate in the discussion of whether a GIS is an appropriate tool for use in their classrooms. In the context of a discussion about curriculum, it serves to illustrate the limitations of paper maps and to enable teachers to talk about the appropriateness of GIS in their own language and in terms of their own workplace needs. If a group of teachers chooses to adopt GIS as a teaching tool, we engage them in the participatory design of a customized application.

In *PDC'94: Proceedings of the Participatory Design Conference.* R. Trigg, S.I. Anderson, and E.A. Dykstra-Erickson (Eds.). Chapel Hill NC USA, 27-28 October 1994. Computer Professionals for Social Responsibility, P.O. Box 717, Palo Alto CA 94302-0717 USA, cpsr@cpsr.org.

THE ARTIFACT AND ITS CONTEXT

The artifact consists of two tightly-coupled parts: a set of paper maps, some with acetate overlays, and a corresponding series of brief GIS demos. All show different views of known and suspected toxic waste sites in the city of Lowell, MA. The artifact demonstrates the limitations of paper maps for selecting subsets of data, mapping data accurately, updating data, showing change over time, and focusing on a geographic area.

The artifact is used in a preliminary design session. The focus of the session is on the appropriateness of the toxic waste data for incorporation into curriculum. The paper maps are used to motivate discussion of the types of activities the teachers might have their students perform. In the course of that discussion, the limitations of paper maps, noted above, become clear. The demo then shows the ease of basic mapping activities with a GIS. The demo is not a GIS tutorial. Rather, it is a group of examples that present GIS as a possible tool for accomplishing the teachers' curriculum goals. GIS terms, like "buffer zone" and "address matching" are avoided. Thus, the discussion can move from paper maps to GIS without a change in terminology.

ACKNOWLEDGMENTS

This research is supported in part by U.S. Department of Education grant number R117E30237, *Improving the Success Rate of Adapting Technology for the Classroom.* We extend thanks to J. Nicholas Buehler, Linda Hart, Sarah Kuhn, and Linda Silka.

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MOI-tool: A HyperCard-based Tool for Creating Demonstrations of Cooperative Systems

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INTRODUCTION

MOI-tool is an Apple Macintosh HyperCard based application which adds functionalities to HyperCard. These additional functionalities include network support and exploratory cooperative interface functions which can be used to build a demonstration of cooperative systems. We have used a concept of mechanism of interaction (MOI) (Schmidt, Simone, Carstensen, Hewitt, & Sørensen, 1993) as an incentive in building the tool. Mechanism of interaction can be defined as a device for reducing the complexity of articulating distributed activities of large cooperative ensembles by stipulating and mediating the articulation of the distributed activities. It is possible to create certain kinds of computerized mechanisms of interaction with our tool for demonstration purposes. The MOI-tool can also be used to build a networked "application" which mimics the outlook of some real network application used in coordinating and organizing cooperative work (e.g. a multi-user calendar) and which has the necessary functionality to demonstrate just those capabilities of the real application.

NEEDS OF PARTICIPATORY DESIGN PROCESSES

The rationale behind this work has come from participatory design. Both the experiences of the authors as designers and the available literature on participatory design indicate, that one of the most difficult tasks in design is in helping the future users participating the process to envision what the system will or could do. One of the suggested techniques is to use different prototypes, simulations and mock-ups to mimic the becoming system, and there are good tools for building interface demos, for example. The demos developed with these tools have a major drawback, however: they are for individual use only, and the demonstration of the connections between work tasks embedded in the future system or its potential to help in co-ordinating, integrating, etc. between the actions of participants is difficult. Thus a very essential feature of multi-user systems cannot be illustrated.

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MOI-tool is built to help in this difficulty. It is a software tool which allows easy creation of demonstrations for a variety of CSCW applications. MOI-tool can be used to build individual screen interfaces for two or more workstations and to link the behaviour of different user interface objects like fields, buttons etc. on different screens to demonstrate certain essential features of some CSCW applications.

PURPOSE AND APPROACH

The tool has both research and practical purpose. The research purpose is connected with the primitive operations created for the tool and their relationship with the notations, describing mechanisms of interaction used in cooperative work. Due to experimental and explorative approach the tool can be used as a test bench and mirror for theoretical ideas.

The practical purpose is to support quick and easy creation of demonstrations of cooperative systems in multiple workstations for instance to the need of participatory design. The demonstrations should work in a way sufficient enough to support discussions with users, furthermore users should better understand how proper application could help them in their work.

The tool has been under constant development and is now ready to be commented by scientific community.

ACKNOWLEDGMENTS

Contribution of Eero Alamikkela, Jouni Kokkoniemi, Tuomo Lalli and Petri Paajanen has been valuable for the development of MOI-tool. This work has been done in the Finnish part of the ESPRIT project 6225 COMIC, funded by F. C. T D. (Tekes).

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