

Supporting Appropriation Work: A Workshop Report

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Abstract. A significant amount of research in the field of Computer-Supported Cooperative Work has been done to understand the mutual shaping of collaboration technologies and work practices. The outcome of such research helped improving the design of information systems as well as improving the related design processes with regard to a better technology-practice fit. Nevertheless, the approaches to support the related activities focused on design work and designer activities. With a workshop at the European Conference on Computer-Supported Cooperative Work in 2005, we opened a forum for research that focuses on supporting ‘appropriation work’, the activities that users engage in to shape and make sense of the technologies that are provided to them from different design arenas. The workshop established a broader research focus on technological and non-technological approaches to support users in reflecting and re-designing the use (and non-use) of collaborative technologies.

1 Introduction

The CSCW community was always aware of the fact that not only designer’s skills contribute to successfully putting collaborative technologies into practice. It also requires user activities, and these should be addressed:

<...> a CSCW system should provide facilities supporting users in appropriating, exploring, modifying, negotiating etc. - cooperatively and yet distributed - ‘community handbooks’ that are openly incomplete and inconsistent. Providing support for distributed cooperative

appropriation, circumvention, modification of the system is, perhaps, the toughest challenge in designing computer systems for cooperative work. (Schmidt 1991)

However, research regarding ‘appropriation’ of CSCW systems developed in two main directions. Studies on the evolving use of CSCW systems (Orlikowski 1992, Robertson 1998, Karsten and Jones 1998, Pipek and Wulf 1999, Dittrich et al. 2002, Hansson et al. 2003, Törpel et al. 2003, Karasti and Syrjänen 2004) described ‘appropriation’ as a phenomenon or process to improve the understanding of the critical success factors of the use of collaborative tools. On the one hand the studies clarified the importance of the user’s contributions to the successful establishment of collaborative technology, and stressed the notion that appropriation often goes beyond the intentions and expectations that have been associated with the original design of a collaborative technology. On the other hand most of the research maintained an analytical perspective on the phenomenon of appropriation, and did not give advice on how to stimulate or support appropriation activities.

Several prerequisites for supporting user activities have been developed. Regarding approaches with a technological focus, concepts of (re-)designing technologies during use (to make CSCW systems ‘tailorable’) have been developed. The research trajectory here started with the introduction of ‘tailorability’ as a requirement for collaborative technologies (Trigg et al. 1987, Henderson and Kyng 1991). The “architectural” perspective then explored tailorability to develop concepts and examples for very flexible software systems, which could be tailored to their use scenarios (Maclean et al. 1990, Malone et al. 1992, Morch 1997, Stiemerling and Cremers 2000). Object-Orientation (Morch 1997) and Component-Based Systems (Stiemerling and Cremers 2000) have been explored to increase the flexibility of software artefacts, other approaches addressed issues of analyzing, separating and composing tailoring entities along the typical functionality of CSCW systems (Malone et al. 1992, Teege 2000).

The “user-interface” perspective explored how tailorable software should present itself to the tailors. Henderson and Kyng (Henderson and Kyng 1991) distinguished three levels of tailoring (choosing between predefined alternatives, constructing new artefacts from existing pieces, and reprogramming the artefact) that require different levels of expertise regarding the supporting technology. Obviously, ordinary groupware users cannot be expected to acquire programming skills to be able to tailor an artefact accordingly. Several approaches, some inspired by Nardi’s (1993) work on end-user programming, aim at developing tailoring environments that provide simple concepts and interfaces for end-users (MacLean et al. 1990, Malone et al. 1992, Stiemerling et al. 1997, Teege 2000, Liebermann et al. 2005).

Approaches to support collaborative tailoring (e.g. Kahler 2001, see overview in Pipek and Kahler 2005) stressed the social dimensions of tailoring work, but still suffered from several weaknesses:

- They still maintain a ‘designer’ perspective by focusing on tailoring *one* tool, while the users at the workplace face the challenge of orchestrating the diversity of tool infrastructures, interdependencies and restrictions. (Robertson 1998, Dourish 2003, Pipek 2005b)
- They focus on supporting altering tool configurations and settings, but not tool *usages*. The latter does not necessarily involve altering a tool (see example of using a comment field of a helpline’s database in Orlikowski 1996).
- They often support only indirect user-user-interaction (e.g. by providing shared configuration repositories) instead of direct communication (e.g. for negotiation and sensemaking).

Latest research approaches tried to combine these two research traditions of ‘tailoring/end-user development’ and ‘appropriation studies’ to provide concepts to improve appropriation support (Dittrich et al. 1998, Dourish 2003, Pipek 2005a) and that allow users an active and collaborative reflection of their use of CSCW systems.

2 Workshop Course and Results

The workshop attracted more than 30 researchers from areas like Human-Computer Interaction, Psychology, Work Sciences, etc. The diversity has been present in the submissions, and it is present in the extended position papers that we present in this special issue.

21 researchers found their way to the conference site in Paris, France. After an introductory discussion the workshop participants divided up into four discussion groups that focused on ‘Appropriation and Ubiquitous Computing’, ‘Affordances for Appropriation’, ‘Organisation of Use vs. Design/Appropriation Processes’, and ‘Simple systems and social structures’. A final discussion about future research agendas concluded the workshop.

This special issue collects the position papers of the workshop as extended versions of the original submissions. This allowed the authors to integrate the results from the workshop discussions into their argument.

In addition, the group discussing the topic of ‘Simple systems’ also provided a discussion report that concludes this special issue.

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4 References

- Dittrich, Y. (1998): How to make Sense of Software - Interpretability as an Issue for Design, Dep. of Computer Science and Business Administration, University of Karlskrona/Ronneby, TR 98/19, Ronneby, Sweden, 1998, 9.
- Dittrich, Y., Eriksen, S. and Hansson, C. (2002): PD in the Wild; Evolving Practices of Design in Use. in Participatory Design Conference, (Malmö, Sweden, 2002), CPSR, 124-134.
- Dourish, P. (2003): The Appropriation of Interactive Technologies: Some Lessons from Placeless Documents. *Computer Supported Cooperative Work (CSCW) - The Journal of Collaborative Computing*, 12 (4). 465-490.
- Hansson, C., Dittrich, Y. and Randall, D. (2003): "The development is driven by our users, not by ourselves" - Including Users in the Development of Off-The-Shelf Software. in 26th Information Systems Research Seminar in Scandinavia (IRIS 26), (Haikko Manor, Finland, 2003), IRIS Association.
- Henderson, A. and Kyng, M. (1991): There's no place like home: Continuing Design in Use. in Greenbaum, J. and Kyng, M. eds. *Design at work: Cooperative Design of Computer Systems*, Lawrence Erlbaum Ass., Hillsdale, NJ, 1991, 219-240.
- Kahler, H. (2001) *Supporting Collaborative Tailoring*, PhD Thesis, Department of Communication, Journalism and Computer Science, Roskilde University, Roskilde, 2001.
- Karasti, H. and Syrjänen, A.-L. (2004): Artful Infrastructuring in two cases of community PD. in Participatory Design Conference (PDC'04), (Toronto, Canada, 2004), CPSR, 20-30.
- Karsten, H. and Jones, M. (1998): The long and winding road: Collaborative IT and organisational change. in *Int. Conference on Computer Supported Work (CSCW'98)*, (Seattle, WA, USA, 1998), ACM Press, 29-38.
- Lieberman, H., Paternó, F. and Wulf, V. (eds.) (2005): *End User Development*. Kluwer, Dordrecht, NL, in press.
- MacLean, A., Carter, K., Lövfstrand, L. and Moran, T.P. (1990): User-Tailorable Systems: Pressing the Issue with Buttons. in *Int. Conference on Computer-Human-Interaction (CHI'90)*, (Seattle, WA. USA, 1990), ACM Press, 175-182.
- Malone, T.W., Lai, K.-Y. and Fry, C. (1992): Experiments with Oval: A Radically Tailorable Tool for Cooperative Work. in *Int. Conference on CSCW (CSCW'92)*, (Toronto, Canada, 1992), ACM Press, 289-297.
- Morch, A. (1997): Three Levels of End-user Tailoring: Customization, Integration, and Extension. in Kyng, M. and Mathiassen, L. eds. *Computers and Design in Context*, MIT Press, Cambridge, MA, USA, 1997, 51-76.
- Nardi, B.A. (1993): *A small matter of programming. Perspectives on End-User Programming*. MIT Press, Cambridge, Massachusetts, 1993.
- Orlikowski, W.J. (1992): Learning from Notes: organizational issues in groupware implementation. in *Proceedings of the 1992 ACM conference on Computer-supported cooperative work*, (Toronto, Ontario, Canada, 1992), 362-369.
- Orlikowski, W.J. (1996): Evolving with Notes: Organizational change around groupware technology. in Ciborra, C.U. ed. *Groupware & Teamwork*, Wiley, Chichester, 1996, 23 - 60.
- Pipek, V. (2005a): *From Tailoring to Appropriation Support: Negotiating Groupware Usage* Faculty of Science, Department of Information Processing Science (ACTA UNIVERSITATIS OULUENSIS A 430), University of Oulu, Oulu, Finland, 2005, 246.
- Pipek, V. (2005b): *Negotiating Infrastructure: Supporting the Appropriation of Collaborative Software*. *Scandinavian Journal on Information Systems*. (submitted).

- Pipek, V. and Kahler, H. (2005): Supporting Collaborative Tailoring. in Lieberman, H., Paterno, F. and Wulf, V. eds. End-User Development, Kluwer, Dordrecht, NL, 2005, to be published.
- Pipek, V. and Wulf, V. (1999): A Groupware's Life. in European Conference on Computer Supported Cooperative Work (ECSCW'99), (Copenhagen, Denmark, 1999), Kluwer, Dordrecht, Netherlands, 199-218.
- Robertson, T. (1998): Shoppers and Tailors: Participative Practices in Small Australian Design Companies. Computer Supported Cooperative Work (CSCW), 7 (3-4). 205-221.
- Schmidt, K. (1991): Riding a tiger, or Computer Supported Cooperative Work. in Proceedings of the Second European Conference on Computer-Supported Cooperative Work, (Amsterdam, NL, 1991), Kluwer Academic Publishers, 1-16.
- Stiemerling, O. and Cremers, A.B. (2000): The EVOLVE Project: Component-Based Tailorability for CSCW Applications. AI & Society, 14. 120-141.
- Stiemerling, O., Kahler, H. and Wulf, V. (1997): How to Make Software Softer - Designing Tailorable Applications. in DIS '97, (Amsterdam, 1997), ACM Press, 365-376.
- Teege, G. (2000): Users as Composers: Parts and Features as a Basis for Tailorability in CSCW Systems. International Journal of Computer-Supported Cooperative Work, 9 (1). 101-122.
- Törpel, B., Pipek, V. and Rittenbruch, M. (2003): Creating Heterogeneity - Evolving Use of Groupware in a Network of Freelancers. Special Issue of the Int. Journal on CSCW on "Evolving Use of Groupware", 12 (4). 381-409
- Trigg, R.H., Moran, T.P. and Halasz, F.G. (1987), Adaptability and Tailorability in NoteCards. in INTERACT'87, (Stuttgart, Germany, 1987), 723-728.