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APPROPRIATION IN THE DEVELOPMENT OF INFORMATION SYSTEMS FOR VOLUNTARY ORGANISATIONS

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Abstract

This paper describes two action research projects in co-located voluntary organizations, where both projects could be characterized as process failures. Our main focus is on the mechanisms of appropriation. The analytic framework as well as the basis for the action research projects, have been informed by activity theory. In particular we describe how ICT-based systems enforce structural discipline, how designers may misconceive the design task when designing for voluntary organisations, how the tension between use value and exchange value influences the use and thus appropriation of ICT in voluntary organisations, and finally what the possible impact of a lacking common conceptual basis may be. It is concluded that voluntary organisations exhibit unique features that should be taken into account in the design of ICT based support.

Keywords: Voluntary organisations, appropriation, failed process, action research, participatory design, activity theory.

1 INTRODUCTION

Voluntary organizations are increasing in number. Defying classification as commercial or statutory organizations due to their different mechanism of resource allocation (Butler & Wilson, 1990), they assume different forms. For researchers who study ICT and organizational issues, they pose an interesting challenge due to their different conditions of leadership and financial procurement. Furthermore, the mechanisms affecting groupware may also differ. Although they formally are organizations, the individuals making up these organizations often associate and disassociate in ways making it more sensible to speak of them in terms of communities. In this paper we thus do not take the organizational construct for granted, but instead analyze these communities of volunteers as components in collective activity (Engeström, 1987).

Developing and implementing ICT in voluntary organizations is a challenge, both because it is difficult to generalize experiences with information systems and collaboration support in general (e.g. Grudin, 1994), and because most studies of ICT supported collaborative work are carried out in settings with traditional wage labor, though with a few exceptions (e.g. Schuler, 2002).

This paper describes two interesting cases in co-located voluntary organizations in which we as researchers engaged in action research. The first case is an annually recurring music festival, one of the largest of its kind in the world, which started to use ICT in an increased scale. The backbone is their ability to annually summon thousands of volunteers for the preparation and production of the big event. The second case describes the implementation of a tool for collaborative writing in a voluntary organization that is a hybrid between merchant community, social movement, and cultural association.

The two cases share the double nature of action research as being both ICT development and research. Furthermore, from the perspective of ICT development both projects could be seen as failures, which made it difficult for us to report the cases - we didn't want to expose our less than perfect design efforts. These "failures", however, have been a rich source of data. Whereas lots of work has been done on system and design failures (Lyytinen & Hirschheim 1987, Dalcher & Drevin, 2003) it is a problem that researchers are still reluctant to report failed action research, especially when they have themselves been acting as designers or process consultants. In the present paper we revisit these two design failures as basis for studying the mechanisms of appropriation.

The two cases share some interesting similarities. Firstly, they were practically both "one shot" projects, meaning that we did not have the possibility for a lot of iteration in design. Secondly, both cases did show a great deal of heterogeneity despite a seemingly shared ethos or object. In particular we looked at how ICT-based systems enforce structural discipline, how designers may misconceive the design task when designing, how the tension between use value and exchange value influence the use and thus appropriation of ICT, and finally what the possible impact of a lacking common conceptual basis may be. It is concluded that voluntary organizations exhibit unique features that should be taken into account in the design of ICT-based support.

1.1 The Festival Case

The Festival Project (Bertelsen, 1996a; 1996b; 1998) was a cooperation project in the mid nineties, between a group of researchers and a voluntary organization producing an annual music festival, accommodating around 100.000 people over four days, with live acts at almost 10 different scenes. Researchers sought to validate a collection of development tools, whereas the Festival organization was motivated by a need to find ways to make the most of ICT-based systems in the production of the annual event. The project focused on collaboration support for pre-production (i.e. the planning and preparation activities), and for the transfer of information from pre-production to the actual production in the week before and during the festival. Upon the initial investigations, mainly based on interviews, a number of design workshops involving various action groups were planned, aiming to clarify the

suitability of various design solutions. Right after the first workshop, however, the Festival management, for reasons that at the time seemed hard to understand, enforced a radical reduction of the scope of the project. Moreover, when the final report was sent to people who had contributed, the Festival management claimed that to be a breach of mutual respect and in contradiction with the reality of the Festival – this seemed even harder to understand. In retrospect, it may be easier to understand the management's resistance to the project. Firstly, the design activities threatened to become so interesting that the activists would spend too much time on them. Secondly, some of the proposed technical solutions would force political decisions, e.g. about access to information, to be made explicit. Thirdly, the participatory design based research activities, together with the suggestions of the final report, possibly created expectations about introduction of overly expensive technology throughout the organization.

1.2 The Collaborative Writing Tool Case

With the aim of supporting a regional learning process, researchers in participation with voluntary practitioners configured and implemented an ICT service for collaborative writing and documenting in a voluntary organization with regional learning as one of its main aims. The vision was described as “200 citizens writing at least one article each, with assistance from each other”. The project has also been described elsewhere at greater length (Zander, 2005, Wallin et al., 2004a, Wallin et al., 2004b). The project actors agreed that the aim was to increase the regional visibility inside the region as well as outside, spawn regional initiatives from good ideas originating from the writing process, and create the means of a sustainable process through the production of a concrete, physical book. In joint agreement with the community-based organization, our research group thus undertook an action research project, influenced by participatory design, which aimed to support the regional learning process in the micro-region with ICT support. After investigating the setup and focus of the project, a collaborative writing tool was configured to suit the needs of the micro-region. This tool was based on an ASP (Application Service Provider) service, had extensive functionality, required no programming skills in order to customize, and most importantly, it had already a user base of 5000 people involved in regional learning efforts. The main design challenge was to accommodate for cooperation with peer review, commenting and joint authorship for a writing activity outside the physical meetings. Negotiating the life-experience and reflection of living in the region meant that different viewpoints and perspectives were revealed, which called for good communication and feedback on the written material and of other media contents. A core group of voluntary users were given licenses, and the deployment strategy was to increase the number of licenses as the use took off, and to increase the scope of functionality as the competence in the user group developed. As the analysis will show, the expected use never took off – the tool was rejected.

2 THEORY

2.1 Voluntary Organisations

While the sphere of commercial organizations allocates resources by price on a given commodity, and statutory organizations are controlled by hierarchy and planning, voluntary organizations allocate resources by givings (Butler & Wilson, 1990). These givings could be goods-in-kind, “time” (i.e. unpaid participation in activities), or money. The separation between these three segments should not be seen as discrete; rather as a continuum, a triangular two-dimensional conceptual space, where each pure organizational form is located on an edge. Historically, the voluntary organizations have changed from being regulated by government during the last century, to be in a competitive situation where they have to position themselves in relation to other voluntary organizations, or diminish in importance (ibid). At the same time, although governments and market actors give resources to the voluntary organizations, they are also sometimes requesting something in exchange, blurring the

boundary between giving and service production. This, and other trends, cause a professionalisation of the organizations, i.e. goods-in-kind and money are increasingly given in relation to unpaid participation (ibid). Also, activities and commodity exchange still cross all three sectors, and thereby integrating rules, division of labor and tools from outside in voluntary social practice. Anyway, the idiosyncratic circumstances of voluntary organizations make it believable that we can expect to find new mechanisms of IT use in this organizational context.

2.2 Appropriation

Activity theory insists that tools mediate all human activity, and thus form an integral part of any study of human learning and development. Tools may be either mental or technical (Vygotsky, 1978). Activity theory also emphasizes the importance of studying learning processes where higher mental functions are formed, and where activity is developed through appropriation of tools.

It is a fundamental proposition in activity theory that human activity is always oriented to an object (Leontiev, 1978). The subject successively transforms the object through mediated action, but in this action the subject is also transformed. Over time, it is possible that tools enter and exit the activity, either because new aspects of needs arise, or due to external pressures. When a tool is understood and fully accommodated in the activity, we may with Leontiev's words say that the tool is appropriated. In more activity-theoretical terms; a subject has appropriated the tool once the historically learned skills and higher mental functions are reproduced by the establishment of solid relations between the subject and the tool, the operations fixed in them, and consequently also the objects in the world (Leontiev, 1977, pp. 417-419). The human species' developmental results are thus materialized in the properties of individuals, not by genetic inheritance but by cultural-historical processes (ibid). When new tools are appropriated, new possibilities to affect and be affected by the object are thus attained. Exactly how this process of appropriation takes place (which conflicts will be arising, which properties and relations will be changed in the appropriated activity, etc.) is determined by the specific situation.

According to activity theory, appropriation always takes place in concrete action, not in unspecific exposure to the tool. However, sometimes its appropriation may be socially determined in macro settings. A web of activities may give rise to actions in a sequence, or in an anticipated sequence, that is not compatible with the artefact to be appropriated. For example, one of the participants in the collaborative writing project might have been tempted to join a controversial mailing list, but he refrained, because other participants engaged in other sub-activities disapproved. What is controversial in such a case is evaluated by norms existing in the specific part of the voluntary organization. The appropriation may however also be determined concretely in the local interaction within an action, for example if the mailing list is awkward to subscribe to, and thus does not allow for automation and abbreviation of information-subscribing tasks. This gives us the methodological guidance that we should define the particular activities, and then investigate whether macro patterns mediated by rules determine the appropriation process, or if the internal dynamics of the activity such as internal properties of the tool or the subject is the determinant.

Drawing on Pipek (2005), we can contrast the concept of appropriation with "adoption", commonly used in information systems as denoting processes of new technologies being introduced in situations of use. Whereas the adoption perspective treats the artefact to be adopted as a closed entity, the concept of appropriation in activity theory stresses the process of interpenetration between subject and tool. In this process users transcend the intentions of the designers, and actually even themselves in their role as tailors or co-designers by interpenetration also of the unconscious, and they form a relation between the using subject and used artefact where both are changed. Two artefacts appropriated in different activities are thus often different and may be incommensurable, due to different interpenetrations.

3 RESEARCH METHOD

The method applied in this paper is synthetic in the sense that we have aimed to analyse differences and similarities between the two cases. Furthermore, we have used insights from each case in order to generate an enriched understanding of the other case. In particular we have applied contradiction analysis (Bertelsen, 1996a) in order to get deeper into the collaborative writing case. The main theoretical frame of reference used in this synthesis has been activity theory. Pragmatically, because previous writings on the two cases had been based on activity theory, but also because this theoretical framework provides a good set of concepts for the discussion of appropriation.

The two projects were both action research projects. The social dynamics of design and dissemination of interactive technologies are so complex that well-planned experimental design was not an option; in addition the issue of accessing the object of interest (the processes of design and use) is so intricate that interested engagement, at least at the level of consultancy, is required.

The projects took place almost ten years apart, and were not coordinated with each other. Despite the absence of coordination, the resulting data are not incommensurable, due to the shared methodical, ontological and epistemological underpinnings of the projects.

Both projects were based on participatory design, and aimed to simultaneously change as well as contribute to the construction of new theoretical insights. Intervening in practice is seen not so much as a problem of disrupting the object of study, but as a strength of putting theories into the acid test of practical validity and relevance. Carried out through workshops, observations of the praxis, and co-design activities, an artefact was created in each project. The researchers also participated in the organizational implementation of the artefacts, and monitored the (from their interventional perspective unsatisfactory) development, or rather non-development, of the use of the artefacts.

The processes generated a lot of data. In total, 50 hours of interviews, more than 20 project meetings and workshop sessions, etc. and resulted in a large number of papers, theses, and student reports. Our methods followed the tradition of PD and activity theory, but differed in some aspects and are thus space-consuming to present. We therefore recommend our other publications (Zander, 2005, Bertelsen, 1996a;1996b;1998).

4 ICT SYSTEMS ENFORCING STRUCTURAL DISCIPLINE

Recent developments in activity theoretical action research have adopted perspectives on multiplicity and heterogeneity from north American thinking (e.g. Engeström 1996). As pointed out by Star (1989), heterogeneity is an important concept in understanding computer-mediated work. In most situations relevant for design, individuals that are fundamentally different work together in groups on the same object, and they may act on and understand the object differently; but still the object maintains its identity across the various perspectives. According to Bertelsen (1998) this heterogeneity is increased to a fundamental heteropraxiality in the design of ICT – users and designers are fundamentally different and this difference is an important driving force in the process.

We argue that a similar heteropraxiality is generally present in relation to voluntary organizations as such. As seen in the two cases pointed to in this paper, voluntary organizations tend to be based on the engagement of people who may be gaining a lot of personal identity and gratification from the voluntary work, but who at the same time are at least equally much involved in other trajectories of life. This aspect of voluntary work means that the activity in question benefits from highly engaged people, who on the other hand could reorient their interest if something more interesting showed up. This potential problem was one of the main reasons why management in the Festival case chose to reduce the scope of the design project. In a similar but less problematic manner, the reason why the collaborative writing project was a success (at least in terms of producing a book, which is interesting to buy), but the collaborative writing support system was not, is due to the fact that the basis for

motivation of most of the people writing the book w-re located outside the regional learning effort although their actions contributed to it. This higher degree of heterogeneity and multiplicity in voluntary organizations is a basic strength, even though it also accounts for the fragility of such organizations (as seen in relation to the Festival project).

ICT-based structures can embody rules to a very complete, but also completely inflexible way. Consequently, CSCW systems can, with their coordinating possibilities, also be used to enforce the setting to stay in or converge towards monopraxiality. In the collaborative writing case, this was exactly what was needed for regional learning. However, this need was not recognized in the beginning, due to the fact that heteropraxiality was not taken into account.

ICT systems tend to objectify organizational structures in a way that may be in conflict with the nature of voluntary work. In general, design processes require explication of the rules, thereby working against openness and heterogeneity; potentially creating resistance against the design effort. Whether this conflict leads to some sort of organizational breakdown or to a more disciplined situation where all the volunteers work along the same ethos is an open question. In the Festival case the ability of ICT to reduce discipline was a problem; e.g. groups could become much more autonomous in relation to management. In addition the possibility that the design project *per se* was becoming too interesting was equally problematic. In the Festival case, it was a major problem that the ICT project became a basis for the volunteers to formulate that they needed information, which “politically” was problematic to give them. The stability of the organization was based on the idea that everybody owned the organization, and to the extent that some were not fully informed about every detail due to technical limitations of the paper-based routines. The design project was a thread to the organization because it was likely to make the hidden decisions explicit.

To sum up this far, CSCW systems can be designed for monopraxiality, for heteropraxiality, or for changing the activity system in the direction towards hetero- or monopraxiality. E.g., the book-writing organization was based on the assumption that a degree of monopraxiality was needed when the borders of the community being created were a socially negotiated construct. If regional development and creation of social capital should be able to grow stronger without attracting new number of volunteers, it will be at the expense of other modes of praxis, because there is a limited amount of human labor. This was a possible challenge for the collaborative writing tool, but that was not directly addressed. Instead, the design effort in the collaborative writing case focused on supporting a process where all users were partaking in collective activity directed to a common object, regional learning by book writing. It turned out that although several efforts were directed towards the common completion of the book, the organization was marked by a very high degree of heteropraxiality (Zander, 2005). The CSCW system for regional learning was thus never appropriated, because it was designed without taking the heteropraxiality of the collaborative writing project into account.

5 DESIGNERS MISCONCEIVE THE PURPOSE OF DESIGN

Above we discussed problems arising from the difficulty of understanding the complexity of the relevant web of activities, in which design takes place. Another problem is that designers may fail to understand the intentions driving the design project; they misconceive the purpose of design.

An important lesson learned from the two projects is that designers risk misconceiving the task at hand in design for voluntary organizations, despite participatory influences. In the Festival case the designers failed to see that the information, which some of the groups missed, was missing because management had decided that it was too problematic having information about arrivals to airports, hotels, and the like flowing uncontrolled around in the organization. Similarly, the designers understood computers as effective tools that could be introduced to improve quality of work, whereas management basically understood computers as a reward for particularly hard-working volunteers.

In the case of the collaborative writing group, developers thought that the purpose was to improve the outcome of the regional learning project, but in reality there was no such shared purpose. Thus, the

chairman was the only person in the community-based organization who understood the concept of regional learning. Adding to the problem is the discourse on learning and development. Who is publicly against learning and development? The consensual mode of discourse may obscure the fact that users' commitment is rather shallow, or that they are even resisting the concrete learning and development efforts.

Consequently, as the design activities were targeted the regional learning effort, the resulting ICT support failed to support the book project as understood by the contributors. Apparently, embracing a framework which focuses on goal-orientation and object-orientation does not guarantee that all relevant purposes are understood.

6 USE VALUE VERSUS EXCHANGE VALUE – AND SIGN VALUE

From the point of view of the analysis of commodity in critical political economy, capitalism is fundamentally marked by a ubiquitous contradiction between use value and exchange value (Marx, 1962). This contradiction is adopted as primary in the systemic structure of human activity, as described by Engeström (1987) in his version of Leontjev (1978) activity theory, and is also seen as a fundamental dynamic force in that context. This section discusses the contradiction between use value and exchange value, and how it drives appropriation and non-appropriation. Our comparative analysis of contradictions shows that the use-exchange value contradiction is behind much development in the two cases.

Bjerknes and Bratteig (1988) reported that the rationale and needs of acquiring computers and computer systems may conflict, and denoted the conflict as epaulets vs. utensils. On the one hand they can be as essential means in order to reach the goals of voluntary work. On the other hand, they can be used instead of wage, i.e. granting a volunteer possession of a resource, which can also be used for non-voluntary activities. Perhaps even more importantly, they can be used to signify importance, prior notable achievements and status, in relative difference to other individuals. This is what Baudrillard (1981) call the logic of sign value, a concept we borrow as a theoretically elaborated notion of the phenomenon of epaulets. Sometimes the logic of sign value is synchronized with use and exchange and the opposition is concealed, sometimes the value logics openly clash in activity (*ibid*). This is an additional source of development in our cases, as is shown below.

In the Festival project, it became clear that the quality and efficiency of work in one area could have been improved by introducing a computer. However, the Festival management rejected this idea, because the person who was responsible for the considered area had a paid job at the Festival. From a use value, and productivity perspective, computers could transform work by increasing efficiency and reducing the need for skilled staff, thereby decreasing the need for employed staff. Yet at the same time, management would like some other voluntary actors to have computers– enabling them to increase their sign values in the community. This contradiction between ICT as a useful means of making festival work more efficient, and the allocation of computers as a sort of reward system penetrated the design process as a major obstacle until it was discovered (Bertelsen, 1996a). The same pattern could however not be seen in the collaborative book-writing case, where primary contradictions between use value and exchange value gave rise to other conflicts though.

Commodity production in voluntary activity creates tension. In the book project, some of the goals of collaboration and learning activity would obviously have been met if some results of the production object, the book, had been put online. Indeed, it was a working hypothesis of the research group that once the regional learning organization had acquainted themselves with the possibilities of collaborative authoring and publishing, this would trigger collaborative web publishing. This expectation, however, contradicted the editor-in-chief's explicit opinion, which stated that the book materials should be exclusive for the physical book. The transition towards elements of web publishing did not happen. Instead, a second round of activity analysis showed that the objective of the writing activity was to create a book with a high exchange value (i.e. could be sold on a market), even

if this would require some trade-offs in learning. The explicit wish to earn money for the organization did not seem to be primary – the need was very much motivated of increasing the success image of the regional learning organization, where success seems to be measured in terms of units sold. There were, however, also other relations to social norms. Several actors emphasized that those without Internet connection should not be excluded from the circle of readers, and norms like “there is nothing such as when something is printed” was articulated. The higher rank of printed media is strongly related to the relatively high expenditure of resources required to print material in contrast to making it public on the net. Because resources are spent, control and interest are focused on the physical good, at least in the local regional movement studied. The utility of learning support and regional visibility over the Internet contradicts the production of a sellable book. All this forms a web of constantly re-produced rules and relations to other activities, which maintain the existence of contradictions, and in this case, the dominance over use value, which seems vague in contrast. This is only one of several accounts of the concrete contradictions of use value and exchange value in the book project. It should be noted that the account above of the regional learners’ attitudes could be wrong in terms of its prediction – perhaps a hybrid model of book production existed, which transcended this particular moment of opposition, i.e. by giving high use value and high economic and sign value in the outcome of production. An alternative analysis of the book project would be to understand it in terms of boundary objects (Star, 1989), thus emphasizing that the collaborative book project maintained its identity, while the contributors understood it in very different terms and contributed accordingly.

Another aspect of the conflict between use value and exchange value concerns the choices of technology supply. While wage labor organizations in many cases prefer installation of proprietary software because of its alleged reduction of man-hours due to support of the owner of the proprietary license, voluntary organizations tend to have relatively high possession of man-hours compared to economic resources. It is typical for voluntary organizations to keep down their (monetary) costs of administration (Butler & Wilson, 1990). This makes them as an abstract group open to the appropriation of open source software and freeware, and hostile to being locked-in of proprietary technologies with license fees. Other institutional pressures may also be present, but they are beyond the scope of this paper; here we will elaborate on the conflict between use value and exchange and sign value in the book case.

A proprietary software service was used in the book-writing project. The reasons to choose it were manifold. It had functions (use values) not easily obtainable in other alternatives, it was associated to a valuable community of regional learners and experts, which could be seen as an interface to other activities, thereby making this interface a use value component. On the other hand it also had a considerable economic cost.

One of the interviewed collaborative writers emphasized that if collaborative technologies should be introduced into the regional learning organization, they should not be proprietary. This particular person never acquired a license (he was not part of the core editing group), but he was negatively inclined to adopt a tool, which he thought was unfeasible for the regional learning community, even if he saw the usefulness of the functionality. At the same time, he saw the risk that the vendor could disappear from the market. This is a severe breakdown in usefulness. Thus, his reluctance is formed by economic as well as use constraints. The chairman of the voluntary organization had also been in contact with another learning region within the same EU regional project, and this region was heavily and exclusively using open source software. In this case the use value and the economic value stand united, yet opposed, in the same artefact – the Composer, and in order to get appropriated into the book-writing activity, it must subdue the rule of very low cost in voluntary organizations.

By analysis of the breakdowns in the two cases, we can draw three conclusions. Firstly, it is evident that the contradiction between use value and exchange value exists in voluntary organizations, despite the fact that they only indirectly are related to the market. Despite forces from both directions, they are not appropriating everything benefiting exchange values, nor everything that increases use value.

Secondly, the form of contradictions could be phenomenally different. Yet, all the three instances investigated are driven by the same mechanisms. Thus, the solutions will probably also be phenomenally different.

Thirdly, these contradictions could definitely constrain appropriation of ICT. A dominant view of ICT as sign value makes it less interesting to appropriate rationalizing technology. Insisting that book should be a sellable object negates advanced usefulness of the web. Furthermore, conflicts between open source software and proprietary technology splits the user community in two camps, making groupware appropriation cumbersome.

7 THE LACK OF A COMMON CONCEPTUAL BASIS

In the cultural historical activity theory approach to human development it is a basic tenet that human development and learning is tied to the development of a sound and complete conceptual basis (Gal'perin, 1969, Vygotsky, 1978).

In the two cases we have seen significant breakdowns related to the orienting basis for action. Analysis of the developmental direction of the actions of the book-writing project indicates that the original inspiration of the book project, another book about a local community, played a significantly larger role than instruments from the regional learning movement.

Individual mastery of actions of regional learning requires repetition of the actions, and it is best acquired with the pairing of concrete regional developmental actions with (human or non-human) instruction of general concepts applicable on regional learning (Gal'perin, 1969). These conditions are contradictory in the case of strategic actions within the scope of the book project. In that case, strategic actions consist of the actual initiation of the book project, sanctioning it internally and externally, and deciding on the pedagogical strategy. In order to fulfill these conditions for mastery, it would be necessary for a regional learner to launch a number of separate book-writing projects, paired with understanding of general methods of analysis, and that was not an option available or desirable to the editor-in-chief. This, paired with a high focus on keeping the projects low-risk, caused the project to choose relatively simple and lucid paths toward solutions, if possible, also at the cost of lower gains for the local community. Seen from this perspective, it makes more sense to create a book that is similar to the tradition of local community cultural documentation, than to be innovative and explorative in topics. In the case study, the environment of the local community is not turbulent and models that could be applied five years ago are still perceived as valid. That speaks in favour of keeping the goals of the book project closely aligned towards existing, material, tangible models of previous actions that are possible in a perceivable way, which in turn call for clear concepts for all actors.

Non-strategic actions in the book-writing project included recruiting new writers, supporting each other, possibly re-negotiating the scope of the book (which actually was very limited), taking photos, making the layout, and writing articles (which was carried out only once by most authors). The non-strategic actions of the regional learners were in some cases allegedly repetitive, but not supported by general methods, only by a set of concrete situations where they could act supportively to the book-writing process. Additionally, the planning of an article for a learner had the character of a one-shot non-repetitive action, impossible to learn by iteration. Remember that the collaborative writing project was not a learning project, which aimed to increase literacy per se. However, as discussed in a previous section, the regional learners were in many cases motivated by "hidden" activities rather than the collective activity of book writing. For instance, a half-finished list of articles, constructed to identify similar topics to those articulated did rather alienate some participants, because the list did not fit their motives. A general method of regional learning must accommodate these challenges and provide a tangible start of these actions.

In Engeström (1987) inspired terms, the established activity – "classical" regional development - was challenged by the inspiration from regional learning projects (taking the role of a more advanced

model activity) in the creation of a new vision of regional learning in the regional learning project. The composer tool to be used in the book project as well as the ideal object of regional learning resulted from this vision. However, this new ideal object was to be realized in a new activity developed from the established by introducing the new tool to mediate the book writing. By looking at this figure (figure 1) it becomes clear that the object in the new activity is not necessarily the same as the ideal object.

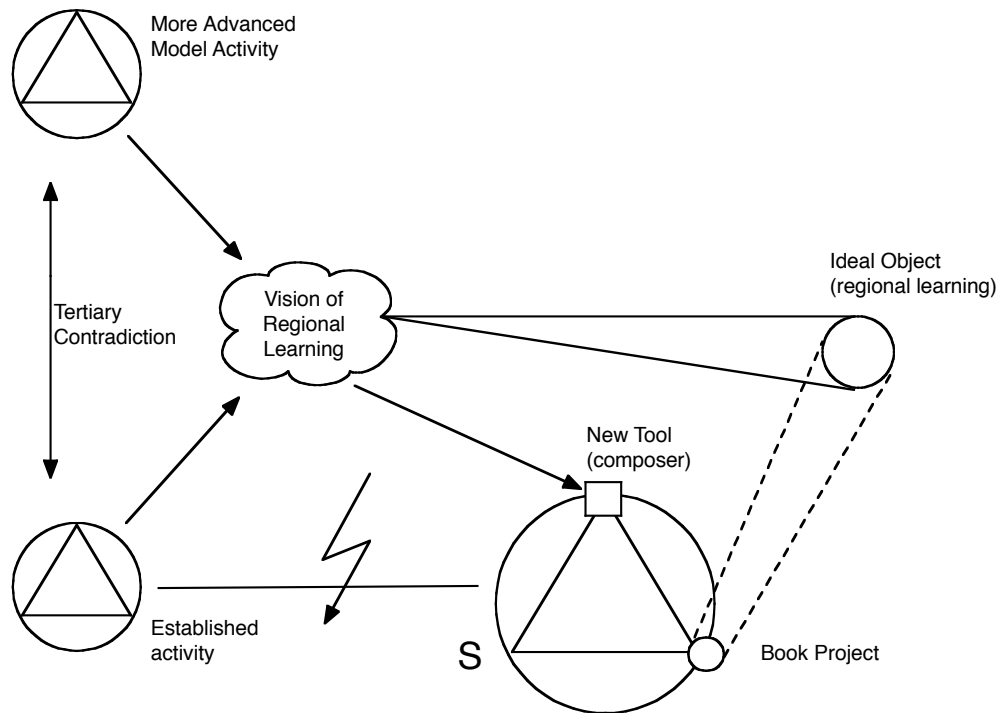


Figure 1. New models challenging established activity

There is a subtle similarity between the discrepancy between collective book writing as envisioned by the regional learning project and the actual writing actions fitted into the lives of the participants on one side, and the contradiction between design artefacts and design situations as seen in the festival project (Bertelsen, 1996a). In the book project the vision was not harmonically shared, but the participants were able to contribute in part, by writing chapters that would fit into other aims (e.g. the maintenance of a real-estate history database), whereas in the festival project established participatory design methods did not fit with the strong division of the festival year into incommensurable phases. However, as described elsewhere in relation to the festival project (Bertelsen, 1996a, 1998), we don't have to limit the analysis to the mere observation that there seems to be a (secondary) contradiction between the tools (conceptual of technical) and the current situation. According to activity theory, one action can contribute to, or be part of, several different activities. Thus, collective action can be coordinated even though the actors do not participate in the same activity, and even though they do not share the basic concepts. In understanding the mechanisms behind coordinated action without shared activity the studies of boundary objects by Star (1987) are illustrative as well as very operational seen from the point of view of practical action. In this perspective the festival planning support tool would be envisioned as an infrastructure that would support the shared ethos of the festival, and at the same time accommodate for the heterogeneous purposes set by management, planning, stage groups etc., including the possibility of deliberately but silently limiting the flow of sensible information.

Similarly, the design of the supporting infrastructure for the regional learning book project would start by acknowledging that the various participants would never be 100 percent regional learners, rather they would do their local thing and thereby contribute to the book and then be part of, and possibly appropriate the idea of, regional learning.

8 CONCLUSIONS

In this paper we have discussed features that seem to be specific to voluntary organizations, and pointed to a basic heteropraxiality that we have to take into account when designing for such contexts. Through the application of concepts from activity theory, we have been able to focus on how appropriation has been disrupted in the two cases, as well as pointing to how the mechanisms of appropriation can be supported. In both cases the absence of an appropriate conceptual basis was a strong limit to appropriation, even in the instances where the new tool to be appropriated was clearly useful. Applications of this type therefore need conceptual support, and this support could at least in the book-writing case actually not be developed from within. Use value per se does not guarantee appropriation. We have also seen, however, that the traditional analysis of commodity may not account for all tension in the process of appropriation in the two cases. Thus we suggested that the concept of sign value (Baudrillard, 1981) could provide a more straight forward analysis, and at the same time help in the understanding of motive in human activity.

From an interface design perspective the two projects represent two extremes. In the festival project designers failed to understand and respect important organizational constraints as the deliberate background for missing information sharing. In the collaborative writing project, however, designers failed to realize that the collective activity of doing regional learning through book writing was to be carried out by individuals who might not necessarily share the grand ethos of the project, but still be equally engaged anyway. This article only recognizes the difficulty here; our analysis does not suggest any easy solution to this problem. In both cases the researchers had to swallow their pride in reporting their own failed design endeavors, but the insights thus generated could not have been obtained through a smooth unproblematic process.

Finally, it seems likely that the present analysis of appropriation of ICT in voluntary organizations could be extended to the general working life. This is due to the fact that the boundary between work and leisure is blurred, working life is giving identity to people, and work is becoming increasingly development-oriented and open. Working life today is marked by an increasing heterogeneity and complicated goal structures. The issues mentioned above on heteropraxiality, lack of concepts, and misconception of purpose might thus extend beyond the context of voluntary organizations. This will remain hypothesis for the time being, though.

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