Discovery and Design in a Community Story

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ABSTRACT
We argue that design is one activity among many in projects of discovery and self-expression. We further suggest that in such projects participation may be impeded not so much by power imbalances as by difficulties in establishing a coherent pattern of working. By examining a case study of the use of hypermedia technology by a community group to tell its own story, we show participation and design activity emerging as the project progresses.

Keywords
Design, discovery, participation, story, community, hypermedia technology.

DESIGN
'Design is the conscious effort to impose meaningful order.' [6, p. 3]. A generous notion of design such as this one of Papanek's perhaps concedes too much to it. It certainly takes the idea of design beyond its more usual meanings, such as:

- 'a plan or scheme conceived in the mind of something to be done; the preliminary conception of an idea that is to be carried into effect by action; a project'
- 'purpose, aim, intention'
- 'a preliminary sketch for a work of art; the plan of a building, or part of it, or of a piece of decorative work, after which the structure or texture is to be completed; a delineation, pattern'.

These dictionary definitions [8] accord with our common understanding of design as something involving a plan or intention, followed by execution and completion.

Papanek's and other more expansive notions of design go beyond such ordinary conceptions and appear to embrace many other activities such as understanding, interpretation, narration, and the exercise of authority. Keeping a personal diary, for example, may be considered a 'conscious effort to impose meaningful order' on daily experience, and step by step on a life. But this is not to *design* a life in the ordinary sense of design; rather to describe it, observe it, make sense of it, or express it.

Design as understood in information systems is an uncomfortable combination of these two senses. Information, systems and organizations all appear to be eminent candidates for the imposition of meaningful order. In principle, 'meaningful order' could be achieved through a process of interpretation, discovery or learning. In practice, however, when it comes to achieving meaningful order with information systems, we seem to believe it necessary to have an intention, a plan, and a regime for execution and completion. This switch to the narrower conception of design puts a premium on method and methodology, and justifies a disciplinary order. Although it may seem more enlightened and more empowering to embrace the wider, more visionary and inclusive conception of design - as we tend to do, for example, in advocating participatory design - to do so may have the unintended consequences not only of obscuring the other ways we do things, but of permitting the disciplinary notion of design to dominate when it comes to practical action. We propose to reserve 'design' to refer to the narrower, more ordinary sense of the word, so that we can set design among the other activities and episodes of life in organizations and elsewhere.

In information systems, the elevation of design parallels - and is no doubt connected to - the privileging of rationality. Just as the emphasis on rational thought over other forms has distorted our understanding of decision making, so the concentration on design hides all the other ways we make and use information systems. We shall understand the design process better, we maintain, if we see it as one form of activity or practice emerging out of a more general background of meaningful endeavour.

Work done in sociotechnical, participatory, and evolutionary design of information systems has done great service in showing us that entrenched power and knowledge have to be questioned, challenged and levelled if inclusive and

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empowering information systems are ever to be built; and also in showing that designs of human-computer systems cannot be truly completed (functionally or temporally), but must be regarded as ongoing processes. These advances still, however, retain a central emphasis on design, which we want to question. There is still a notion of projection towards an intended goal, and still an idea of producing something - an artefact - which is a realization of a plan, which embodies a certain functionality, and which therefore is somehow separate from its producers.

In carrying out of all kinds of projects we are involved not only in design but in inquiry, guesswork, improvisation, negotiation, and changes of direction. This applies to information systems projects as to others. Furthermore, if our projects are principally about expression, discovery, or learning, there may be no product at the end of them, or even no end to them. In these circumstances, *design* may no longer be the most appropriate way of characterizing what we are doing. In the project we report on below, for instance, the objective is to use a hypermedia system to tell the story of a community group: here, the story emerges in the process of trying to tell it on a machine. The story is partly told by making an application on the computer. The story and the application are not designed first and realized later, but rather produced in the telling and making, though there are elements of design in the wider effort. And the project is not concluded, though there is a succession of interim products.

Most of the work in information systems design, including that in the sociotechnical and participatory design traditions, has been done in formal organizations characterized by fairly clear structure, hierarchy, and procedures. Information and communication technologies are moving increasingly beyond such organizations into homes, the voluntary sector, community groups, and society at large. In these contexts, the conditions which impede and create a need for participatory design as generally understood may not obtain. In our project, for instance, we are working in a community organization with low regular staffing levels and minimal structure and procedure. There are no marked differentials of power and knowledge, and no regular design practices. Participatory design in such a setting is not a matter of challenging the status quo so much as of creating a structure for new cooperative work and of establishing enough knowledge and skill to carry it forward. Furthermore, the aim of this project is not to design an artefact with specific functions, but to create an expression of the life of the community. In these circumstances, the nature and rhetoric of participation changes: participation is natural, rather than struggled for, and what impedes it is lack of structure, time, and knowledge; and what we are participating in is a gathering expression of the participants' experiences, in which design is one activity among many - incidental, rather than dominating.

TRUE STORIES

The remainder of this paper reflects on our findings to date in the first phase of a research project called *True Stories*, in which we are investigating the use by community groups of emerging multimedia and hypermedia technology. We were interested in particular to see how this technology can serve community groups by helping them tell their story together. This research is essentially collaborative. The project is academic in inception, with a small amount of independent funding, but cannot proceed until it finds partners among community groups who meet two conditions: they have a story they want to tell; and they are prepared to experiment with a hypermedia system (provided by the research team) to tell it. The community groups are self-defining, and their 'story' is what they want it to be. The project was set up to be participatory from the outset, and we expected the engagement with the technology to be problematic for these users. It was not our primary focus to investigate design approaches, but in observing and participating in one group's discovery of the technology we have ourselves been led to reflect on aspects of the design of the technology and on the emergence of design in the users' activities.

With multimedia systems, images, sound and animation can be integrated into texts. Furthermore, it is possible to create 'hypertexts' with multiple narrative threads running through them, so that stories can be produced which do not have to be linear, nor even finite, and can include many voices and styles. By integrating different media and supporting multiple voices, this technology appears to open up new avenues of self-expression and collaborative creativity.

The variety of ways in which a story can be created through using this technology, including written word, spoken word, video, photos, drawings, diagrams, songs, music, and animation, opens the door to participants who might otherwise not feel able to contribute. A child's drawing can stand on its own terms as part of the story beside a student thesis on the history of the community or a local TV news clip. As well as creating new material, archives can be incorporated. This story can be endless, since hypermedia formations do not require the same sense of an ending as a community video or book. Endings are more likely to be imposed by practical considerations such as limitations of memory or funding.

Here is a technology which looks to be of great potential use to community groups. There are some obstacles in the way, arising in particular from the complexity and novelty of the technology, and the unpreparedness of community groups to engage with it. We have an interest as researchers in seeing whether community groups can gain some benefit out of this technology, and a belief that benefits are more likely to come if the group members find ways of engaging with the technology themselves, for their own purposes, and do not see

their opportunities closed down by the imposition of a technical agenda (or of an aesthetic one). That is to say, we see our task as helping the group to make enough sense of the technology to tell a passable story with it which is their own story: our main concern is not the achievement of technical excellence nor narrative brilliance (though either of these might occur), but rather to see what ways there are for community groups to use technologies and turn them to their own ends.

Theoretical Background

Although there is not space here to lay out more of the thinking and intentions behind our project, it may help to sketch our main influences (see [1]). A key starting point for the *True Stories* project was Ricoeur's analysis of the connections leading from the workings of the imagination in the individual to practical action by groups in the world, in which story has a central part [7]. Ricoeur describes a process in which the imagination, working temporarily away from the world of perception and action, produces novel schemata which give a basis for a redescription of the world. Redescriptions are essentially fictions, but they have a heuristic force which will open up new dimensions of reality, and take us beyond earlier descriptions into new understandings and new possibilities. Reality is re-made in a richer vein. In their telling and retelling, stories have the capacity to reflect, unite, and mobilize a community. Ricoeur's analysis of the transition from *story* to *project* is particularly interesting. He presents a progression from narrative to action, from individuals' plans of actions to intersubjective action, and from specific projects to the more general imaginative practices which constitute the social imagination. There are certainly elements of design in the narrow sense which feature in this analysis, which enter into the construction of stories and the formulation of plans of action. But these are part of much larger processes of understanding, mobilization, imagination, and expression.

To explore the situation confronting users of a relatively unfamiliar technology as they attempt to make a story with it, we have used Certeau's analysis of users' practices [4]. His interest is in the ways in which users (in general - including users of supermarkets, streets, books..), who are commonly assumed to be passive and guided by established rules, in fact operate. His claim is that users, far from being mere consumers, are actually engaged in a hidden form of production:

"To a rationalized, expansionist and at the same time centralized, clamorous, and spectacular production corresponds *another* production, called "consumption". The latter is devious, it is dispersed, but it insinuates itself everywhere, silently and almost invisibly, because it does not manifest itself through its own products, but rather through its *ways of using* the products imposed by a dominant economic order." [4, p. xii].

We can then see the use of a new technology by people who did not invent it as a 'production', an emergent process of making and doing. In terms of users' participation in system development (or in a research project) we can expect informal, tentative, obscure involvement underneath a rationalized, 'clamorous' project methodology.

Certeau uses the terms *strategy* and *tactics* to distinguish between the respective situations and possibilities of system owners and users [4, pp. 35-37]. A group with sufficient will and power to establish and hold a base for its operations can produce a strategy for maintaining its boundary, rationalizing its operations, and reproducing itself. Users, on the other hand, operating in a space which is not their own, can only produce tactics - isolated and opportunistic actions conducted *ad hoc* against the background of a dominant strategy, to take whatever advantage there is to be had.

From the point of view of our project, Certeau's analysis alerts us to the likelihood that users who feel themselves to be in someone else's world when working with technology, will operate 'tactically'. We should not expect particularly concerted or coherent efforts, but rather a patchwork of attempts, experiments, and withdrawals. The general mode of operation will not be *design.* What we might hope and look for is that the members of this group, through the making of their own story, could evince a sense of ownership of their work and their situation, and so eventually proceed to 'strategic' engagement with the technology. At that stage, more of a design sensibility might emerge.

Community group members, in their engagement with the technology, are occupied in 'reading' or making sense of complicated software packages. This is a reading with a purpose (that of using the technology to tell the community story), but it is essentially *tactical* in Certeau's sense: in the main, users are tweaking the software to make it do what they want, rather than gaining or looking to gain full competence in it. This is not design in the sense of plan and execute or sketch and complete, but rather a process of experimentation and learning. In creating their story on the machine, group members are also occupied in 'writing'. In this exercise, though there may well be threads and themes and arrangements which are designed, the overall process is also better understood not as design, but here rather as expression, accumulation, and piecing together.

In a project like this the key activities are discovery and expression rather than design. Users are not designing the technology as such but striving to understand it and use it to express their story. This is a story with multiple voices and no fixed endpoint. The story is not a finite product with a specific functionality (though making an artefact could be part of the project), but rather an aspect of the group's life which is flowing in counterpoint with other aspects in a

direction only revealed as it unfolds.

Participation

What model of participation is appropriate for this kind of project? We do not have the usual developer-user split, because the clear intention is for the users to develop their story. The researcher's role is not to direct the project but to facilitate it and provide some assistance and continuity. It would be detrimental to a project of this kind for the researcher/helper to be stridently expert, either at the technical or the aesthetic level, since such a stance would most likely provoke a tactical withdrawal by the group members. The role needed here, it seemed to us, was one which combined participant observation with a modicum of technical guidance. In the collaborative telling of a shared story, the knowledge of the story is with the participants, while the researcher may bring some technical competence. Both forms of knowledge are required to create the story.

Freire's dialogical model of adult literacy education in Brazil provides some pointers [5]. Freire criticizes traditional education as a *banking* method which attempts to deposit education in students, and advocates in its place a *problem-posing* education based on exploring the context in which the students live - a learning process which "consists in acts of cognition, not transferrals of information"[5, p. 60]. This requires that the "teacher is no longer merely the one-who-teaches but one who himself is taught in dialogue with the students."[5, p. 61].

Freire's concept means joint responsibility for the process and joint ownership. Knowledge is not owned by the teacher but developed through the process. Furthermore what he describes is a cumulative process, "a constant unveiling of reality" [5, p. 62].

In the context of our storytelling project, we would expect participants, as they become more at ease with the technology and gain more of an understanding of what they can do with it, to get new ideas about how the story can be presented. Meanwhile the researchers, by gaining a fuller understanding of the community story, might as a result provide more appropriate support. There will be a continual process of telling and retelling, and reworking of the materials.

Tomaselli, writing about the balance of power in participatory media projects, makes the point that researchers inevitably apply an outsider's understanding to a community:
"Academics' [...] social positions are those of intellectuals 'removed' from the 'community'. While desperately seeking a connectedness (even if mythological) they tend to create a discourse about 'the community' which has more to do with their own positions in society than with actual situations on the ground." [9]

He suggests that hands-on participation in production is one way of preventing tensions between facilitator, participants and technology - although being able to make use of the technology does not lessen the users' perception of it as the 'property' of the researcher. He recommends that the theory of community participation be put into practice by "responding to briefs provided by the community organizations rather than outsiders imposing topics on their subjects". The implication for our project is that ownership of the story must remain with the group telling it and not be ceded to the researchers.

Tomaselli also counsels against the imposition of a dominant *form* on community content or knowledge. He argues that the reshaping of community stories to fit a professional standard or design methodology may sit ill with the nature of a community story and is as inappropriate as dictating content. This issue arises in the case study reported below - for example in the preparation of material for an interim version of the story on CD-ROM: to preserve a mix of different styles and inputs from individual and group work, it is necessary to forgo the coherence of style which might be found in a professionally produced CD-ROM. The design of the software being used exerts another constraining influence over the story being told with it: here a facilitator can play a useful role in explaining the software tools and helping users bend them in the direction of the story.

NEW TECHNOLOGY IN A COMMUNITY ORGANIZATION: A CASE STUDY

We now present some findings from ongoing work with one community organization, the St. Paul's Carnival Association in Bristol. This is the first substantial piece of fieldwork within the *True Stories* project.

Finding Partners

We remarked earlier that one of the things which makes participatory system creation difficult outside the usual formal organizational context is *lack* of structure (whereas the usual problem is *too much* structure). Our first experience of this was the difficulty we had in finding a community group to work with. The complexity of the technology and the effort required in using it to tell the story put some groups off who might be interested, but were uncomfortable or unfamiliar with computers. Where some groups might have agreed to participate in a video or photography project (both media which are current and familiar) they were less clear as to what a hypermedia or multimedia story might involve, or what it might be like. One organization was keen to engage us to work in an area where it was trying to rebuild community ties, but this would have required a long period of outreach work before any group would exist let alone be ready to tell its story. Academic and community timescales appeared in that instance irreconcilable. There were also high expectations about the IT skills which could be gained from such a project.

Finally we started our first project with St. Paul's Carnival Association, in Bristol, which organizes an annual African-Caribbean carnival. It was established as a local festival in 1967 primarily by a local vicar in the face of racial tensions. It has gradually been appropriated by the local African-Caribbean community, officially changing to a carnival in 1991. It has also become more formalized, with a paid full-time coordinator and funding for educational activities - which have become a major part of its remit. The Association is reliant on student placements and volunteers to fund-raise, plan and run the carnival day and events running up to it. It is managed by a committee made up of local people. The focus is the annual carnival: two months of school based *mas* camps preparing the procession, and two weeks of cultural and sports events, leading up to carnival day every July which attracts about 35,000 visitors. As they wanted to have more year-round activities and were interested in exploring new media as one aspect of carnival events and workshops, it seemed appropriate for the Association to work with us to use hypermedia to tell the story of the St. Paul's Carnival.

Setting Up the Equipment

On the basis of the analysis summarized in the sections above, and also of some knowledge of similar projects undertaken locally, we wanted to avoid at the outset setting up a machine which would be over-complicated or too expensive. Our purpose would be defeated if the technology proved too difficult to use, or if it distorted the story too much, or if the helpers ended up telling the story. We took the computer equipment into the community group, so that it would be located in the community's 'territory'. The equipment we provided had to be reasonably low cost, so there would be a chance of the group being able to afford to continue when we left, but it also had to have sufficient power and versatility to support hypermedia work. We chose a mid-range multimedia Windows PC of standard configuration. It came with speakers and microphone, colour graphics display, a built-in photo scanner, and a CD-ROM drive and printer. We did not provide in the initial setup video input or a CD writer. The main software packages we installed were the Adobe Photoshop image editor and the Macromedia Director authoring tool. Although we feared that the powerful facilities and metaphors in these packages would influence the shape and feel of an emerging story, we hoped that the packages could be introduced gradually from the beginning, with the help of a few examples and at a pace governed by the users' learning. We have described the users' encounter with the software packages in more detail in [2].

In spite of limited space and an often noisy environment, there were distinct advantages in having the equipment located in the office itself. The equipment and researcher quickly became part of the Association's routine and were included in other aspects of its work. The accessibility suited the informal nature of a community organization by permitting the coordinator and volunteers to be flexible about when they contributed to the story. Though participants did set aside regular times to work on the story, individually and collectively, they were also able to make use of quiet moments in the office, or fill in time when, as is often the case in community situations, volunteers failed to show up and meetings were cancelled. Of course this unpredictability could have the reverse effect and researcher and PC would sit idle as a series of participants would be called away to other responsibilities. Another drawback was that at least one non-participant saw the location of the equipment as a distraction for the coordinator from his duties in planning and fund raising for the next carnival.

Of the two main software packages, Director has proved particularly useful, partly because it is geared towards story (for example, the tutorial for the package entails putting together a Noh tale). The fact that it can incorporate several media is important for a carnival story. Director works with a theatrical or film metaphor: presentations take place on a stage and are made up of cast members entered into a score. The finished product is a movie. It has been possible to make use of a subset of the package, so avoiding having to deal with the more complicated scripting aspects.

Facilitator and Participants

The fieldwork has been carried out principally by one researcher, who has also operated as a facilitator. It was intended that the use of the equipment would be facilitated in such a way that the community would be able to take control of the process. The researcher is not an expert user of the technology but has a basic competence in using both packages, which was sufficient for providing support in this context. Nor is she a multimedia design professional. This is advantageous for this kind of process: because her experiences of using and learning the software are not far removed from the participants', she can understand the conceptual difficulties they might experience, and is not in a position to impose a professional design methodology.

Our intention was to start the process by focusing on the story, through brainstorming and discussions and looking through the archive, since this would provide a focus for using the technology and also, it was hoped, enable participants to take ownership of the project. It was also thought that for the project to progress some continuity of involvement - including an editorial role - would be needed. It was agreed with the carnival coordinator that a core group of participants would be set up to serve this purpose.

There was however some difficulty experienced in forming and sustaining a group. It took three months to establish a core group of contributors who might take joint ownership of the project. During this time the coordinator took a lead role

in getting the project off the ground and in working on his own contribution. He and others were reluctant to plan before the equipment was installed. The coordinator argued that the project would take off when people could see the equipment. There was a certain association between the equipment and doing the story. Even before the equipment arrived the story was seen as an activity which was done "on the computer". The physical presence of the equipment also signalled the existence of a project and a sign of intent on the part of the researchers.

A number of people expressed an interest in the project but were unable to make any regular commitment to a more involved role. Others wanted to be involved in the core group but failed consistently to show up to prearranged meetings. As the project progressed however a core of participants evolved, three of whom met regularly to discuss the story, while others who were unable to attend these meetings appeared regularly to add to the story.

The difficulties experienced in establishing continuity and ownership may in part be to do with the nature of the community organization, which suffers from the shortages of time and resources common in community groups or organizations. Additionally there is the seasonal focus of the Association. Although the coordinator is employed year round for the task of planning and fund-raising for the carnival, it is only in the run up to the carnival that most volunteers and committee members start to think about and contribute to the Association. This lack of continuity is intensified by a reliance on volunteers and placements, often available only part-time, which produces a high turnover among participants. The Association and its various projects are continually having to adjust to new people.

The slowness and difficulties in establishing a group have led to the facilitator taking on a more central role than intended. Instead of providing technical support and suggesting starting points for thinking about the story, her role has become one of providing the continuity lacking in the earlier stages of the process - not least because she was the only participant working on all aspects of the process and with all participants. Furthermore in her role as researcher as well as facilitator she is interested in being present as much as possible when people are working on their contribution, to observe the emerging practice. The accumulation of observations, notes, and tape recordings of the process means that she perhaps has a clearer overview of the process than anyone else. This is not unusual in participatory projects, but can be accentuated in an organization such as this where members' and volunteers' roles are not well defined and confidence levels can be low.

The participants' perceptions of the researcher as expert (or even tutor), as well as provider of the equipment, appeared to make her their 'way in' to the technology. They tend to defer to her perceived expertise not only in technical areas but also in the representation of their own story. Questions such as "What do you want me to do?" or "What do you want me to say/ talk about?" are common. This has led sometimes to a kind of stand-off where the researcher will wait for a contributor to work through what they want to say and discuss it with them, while the contributor is waiting for the facilitator/researcher to tell them what they should say. The researcher is regarded not only as an informed insider, but also as an objective outsider, who can state what they would want to know about the carnival.

The relationships between researcher and the other participants are thus complex and dynamic, and show the difficulty of limiting the researcher's involvement in shaping both story and technology - and how easy it is to fall into the role of designer or technical expert. It is none the less possible, by trying to adhere to a dialogical, co-learning model of participation similar to Freire's, to limit and moderate one's own influence as facilitator, and encourage the emergence of the group's own voice(s).

In the event, once the core group was established, the process did eventually became more focused round the ideas and stories of the contributors, and they have since found themselves obliged to provide the same sense of continuity for contributors who are less engaged than they are.

Working Together on the Computer

The majority of participants had little or no experience of computers, and none had experience of the packages we were using. Only a few had a concept of what hypermedia was and in those cases it came from viewing CD-ROMs or using the World Wide Web. A great deal of one-to-one work between facilitator and individual participant was required and there has been very little collaborative use of the packages among the participants - partly because they lacked the confidence initially to help one another, and partly because of the impracticalities of group PC use. This is one sense in which the new technology has acted against group participation in story. Three people could sit round the machine (albeit uncomfortably) to discuss some work but it was impossible for more than two to work together, and even with two, only one person can control the mouse. Unconfident users tend to get flustered at having several people watching them.

The amount of time spent learning how to negotiate the Windows platform and the software has served as a barrier to potential participants in the sense that they could not fully engage with all aspects of creating the story. However, this did not exclude them from involvement as they could lend photos, write a text and hand it to someone else to add to the story, or allow themselves to be interviewed. Others persevered enough to be able to make creative use of

Photoshop and Director and involve themselves in all aspects of the process.

Some of the design features of the packages appeared to impede the creation of the story. For example, Director - while supporting both linear time-based material and hypertext nodes and links, as well as combinations of these - requires that all material be constructed and represented through the score window. There is no provision as with other hypertext packages for a map view or overview of the nodes and links created. This is particularly confusing for users who are unfamiliar with hypertext structures, but who are attempting to create a story within them. They are obliged to translate the links and nodes into a set of consecutive sections and then imagine or remember the links between them. This is also a drawback for a collaborative effort as it is difficult to see what others have done and so see the big picture.

The Story Emerging

As a means of simplifying this task as well as focusing on story away from the technology, contributors - either on their own initiative or with encouragement from the facilitator - have taken to drawing diagrams and maps, to plan or to record what they have created. Some of these have been posted on the office walls. As well as assisting participants to grasp the hypertext form of their own story and perceive gaps or make additions, this has proved a more satisfactory way of sharing ideas with other collaborators and of working collaboratively. Paper based work has served as a means of overcoming the individual focus of work on a PC and the more confusing aspects of the Director interface. The diagrams on the walls have not only helped the storymakers develop their understandings together, but have also interested or involved less engaged members of the Association.

One of these drawings became central to the development of the story and hence became a key design focus for the Director application. In an early brainstorming session, the carnival coordinator suggested a representation of the carnival as an *island.* He initially translated this idea into a map, which he drew as simply as possible, using abbreviations for the different aspects of carnival rather than images or icons. As things progressed others fed into or from this initial idea. He involved another participant by asking her to translate his diagram into a drawing of an island on the computer, with animated waves and icons created from photos of carnival. This became the focus for a collaborative understanding by showing an overview of an event which was difficult to explain or represent in any detail and also provided a visual representation or map of a hypertext story, which Director does not provide.

That the island was becoming a focus for the story was clear when print outs of the island, stuck on the wall beside the earlier maps, started to be referred to instead of the originals. This became more formally part of the planning and telling process when the researcher suggested that this island could be used as the centre of a new map onto which links could be drawn between the icons on the island and other parts of the story. This new map has continually been added to and altered during group discussions about the story. The work created in Director has largely been developed from the ideas on the island map. As individuals have continued to work in their own directions on the PC, the changes have been recorded on the island map.

The work based around the island metaphor has effectively become the interface design for the carnival story on the computer. It has served as an organizing structure for telling, creating and planning that story collaboratively. Having arisen incidentally out of a need to coordinate the representation of the many different aspects of a community event, it has become consolidated into an informal but still orderly design process.

One outcome of this project has been to produce a CD-ROM of the work done so far in time for this year's carnival. As the carnival approached the participants turned their attentions to pulling together the work to make a version which could be navigated and understood by others. The island map, which had taken on something of a strategic function, was used to organize this process. It has been altered to fit a new direction. In particular the icons were re-employed to take on extra or different significations. Some were replaced. New links were added and others removed. As a product was prepared for external scrutiny, new tactics came to be applied.

At the level of the individual, some have found it easier than others to relate to the story, and this in turn seemed to make it easier for them to approach the technology. These people have tended to be those with a clearer sense of purpose or of a stake in the process. Contributors with more defined roles - such as the coordinator and the emergency planner - thought through what they wanted to say from what was already a clear position in the Association. After initial planning they gained some understanding of the technology by looking at the packages available and seeing some of the researcher's own examples. They spent more time planning before creating the stories using Photoshop and Director. Although they did experience difficulties with the software, they were largely clear about the story they wanted to tell, and were able to make confident decisions about how it should work, without being led too much by the technology or the facilitator.

Other contributors, notably volunteers and placement students who had less defined roles within the Association, appeared initially to be taking a more improvisatory or tactical approach, experimenting with the technology and trying

things out while they looked around for what it was they wanted to tell. One contributor (who is also an animator) was initially involved in designing - from the coordinator's ideas and sketches - the overview of the carnival as an island. She initially experimented with the packages to see how she could do this. When she had completed the island she wanted to continue to contribute. As she was working (as part of her art course) on an animation about the history of the street where she lives, which makes up part of the carnival procession route, she started looking in the carnival archives for relevant materials. Having found images from the 1980's in which she recognized friends amongst the crowd and musicians, she made use of them to design and create an animation representing a procession in the carnival. In the first instance, the researcher showed her a few basic animation techniques using Photoshop and Director which she tried out tentatively to make some floats move along, separately. When she saw the results she had new ideas and increasingly refined and redesigned till she had a continuous procession of floats and dancers. There was no specific design she was trying to achieve, but a continual experimentation.

There have been a range of contributions and ways of participating in this process, and the diversity reflects the multiplicity of ways into multimedia projects. The key to sustained involvement and to taking control of the equipment independently of the facilitator appears to be a strong sense of ownership of the material. The range and mixture of contributions, and their intricate linkages, reflect the complexity and flexibility of a community organization. Furthermore, by being cumulative, the story can continue to reflect that complexity by adding more and more aspects to it and more and more links.

The hypermedia form has meant that, unlike in book or video production, where (even in participatory community based contexts) linearity of form creates a push towards a unified coherent whole, no contribution has been edited out of this story - even in recent times as the group have been preparing to make the CD-ROM. A cumulative process has been set in train not only for adding new work but also for continually revising what has already been produced.

The paper-based aspects of the process (especially the maps) are what have given this story some shape - some sense of a shared story which links fragments created individually or in smaller groups. It may be that the endlessness and multi-linearity of this form of story will limit its effectiveness in pulling ideas together and catalyzing community action. It is too early to see what wider implications this project will have for the Carnival Association. Whether the project continues beyond our involvement will depend on practical considerations such as affordability of the technology, but more importantly on the sustained participation of the community members.

CONCLUSION

In our examination of the Carnival Association case study, we have described in some detail the emergence of structure, participation, and a community story, in the context of the hypermedia project. We have seen some evidence that the technology described is one which can support the making of a rich and heterogeneous community story. We have observed and played a part in the mobilizing of a community group's imaginative resources in a way which bears out Ricoeur's analysis of story and project. Nothing guarantees coherence in the story which results, but in principle, if the participants can work together on their story and on using the technology to tell it, it is in their hands to produce the degree of order and finitude appropriate to their project.

We have tried to show through an example that the spread of IT into the community, driven by increasing power and falling prices, produces new problems for participative system development. If we are interested in improving participation, the task is no longer so much to gain entry for the users into a development process dominated by managers and experts, as to build stable working relations and knowledge and to produce project momentum. The projects made possible by the new media technologies, furthermore, because of the increased expressive power provided, are no longer so easy to define in terms of specific functionality, and so have more the character of exploration and discovery than of planned construction. This new territory for information systems development work is thus marked by a reduction of structure in both organizational context and project definition.

In the setting we have described, it took considerable time for sufficient group stability and knowledge to be gathered for any concerted attempt to be made to get to grips with the technology and begin to put the story together. We have nevertheless seen a participatory group forming, a momentum developing, and strategic and design activity crystallizing out of a generally tactical and improvisatory background.

Experience in this work does suggest to us that design, in the narrow sense introduced at the beginning of this paper, is one kind of activity which occurs alongside others, and one which tends to emerge distinctively when a certain level of stability (in work group, knowledge, and purpose) is attained. This is a different view of design from one which sees it as fundamental to all meaningful activity, but it is one which may help us understand better how design arises as a relatively structured practice, and how it fits into - and how well it works within - a broader pattern of activity.

The kind of analysis we are suggesting here might be employed more generally. Many uses of information

technology have more to do with expression or discovery than design. Our uses of writing, drawing, and spreadsheet packages, for instance, are principally expressive. Databases and information networks are in many uses instruments of discovery. Even in systems design and software engineering, there is evidence that much of this work is improvisatory and exploratory [3]. We might well deepen our general understanding of how systems develop and are used by paying more attention to how people work together in projects of discovery and expression - in information systems and elsewhere. Design will be an element in these broader activities, but not typically the fundamental driving principle.

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