

**Participatory design and participatory development: a comparative review**

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# Participatory IT Design and Participatory Development: A comparative review

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## ABSTRACT

This paper examines literature in the twin domains of participatory interactive systems design and participatory approaches to international development. As interactive systems are increasingly promoted as a possible means of achieving international development goals, designers generally agree that participatory design approaches should be applied. However, review of the literature reveals that these two different traditions have more complex relationships, and questions must be asked about: the aims of participation, the forms of participation that are being advocated, and the skills and strategies required of practitioners. The findings suggest that successful integration of participatory interactive systems design into development will require careful reflection on the nature of development and the approaches adopted.

## Categories and Subject Descriptors

H m [Information Systems, Miscellaneous].

## General Terms

Design

## Keywords

Participatory Design, International Development, IT for Development, Design methods

## 1. INTRODUCTION

This paper examines the role of participatory approaches to the design of interactive systems design in international development efforts. Within interactive systems design, there is an established tradition of user participation and a set of methods associated with this tradition. In discussing interactive systems in international development, it is usually assumed that such participatory techniques will be required, and will be effective and appropriate to create technology that addresses development goals. In addition to the interest in participatory techniques in interactive systems design, there is also an established tradition of participatory methods for use in development, 'Participatory Rural Appraisal' (PRA) being one of the most well known [16, 17, 18]

As information technology is increasingly seen as a potential contributor to international development efforts, for examples see [10, 60] there is a growing need to explore the relation between these two traditions.

This paper presents a critical review of the literature on participatory interactive systems design and on participatory approaches to international development. It considers these traditions not only at the level of technique, but also we examine the underlying themes, principles and strategies that inform these traditions. The examination suggests that integration of these two traditions requires more than simply an ad-hoc combination of methods. Instead, it highlights the importance of constant vigilance and critical reflection on our goals and practice.

## 1.1 Structure of this paper

The next section provides a brief history of participation in each field. Section 3 examines the rationale for participation offered by various authors, highlighting the wider benefits of participation beyond the restricted scope of the individual participatory project. Section 4 discusses the processes of participation in establishing relationships and collaborating in conducting the programme. This discussion highlights how degrees and forms of participation can vary, and how these differences contribute to wider impacts. Section 5 discusses the skills required by participatory practitioners in each tradition. Section 6 deals with the languages and models used in projects and the important role that these play in enabling and empowering groups in the development processes. This section examines how important it is for groups to develop their own language, capability and way of thinking about their problems in order to really impact on development. The examination of these materials leads to the conclusion, in section 7, that the use of interactive systems in development grows, participatory designers will only be effective agents in development if they can adopt a critically reflective stance, and if they focus on wider issues than the simple selection of particular methods or tools.

## 2. A HISTORY OF PARTICIPATION

Orthodoxies of development management have changed dramatically since 1950. Over the past 50 years fashions have moved between faith in state controls, markets and now in 'bottom-up' systems based on participation and empowerment. Orthodox public administration theory advocated 'hierarchies of authority, divisions of labour, adherence to rules and spans of control, but these are now thought to deny 'the flexibility and responsiveness that provide the necessary conditions for effective management' [67]. The search for participatory management

began with discourses in many of the leading non-governmental organisations (NGOs) [14, 16]. Participation emerged from these discussions in response to global demands for greater individual and social control over the activities of state and private agencies, and especially in response to manifest failures of traditional 'top-down management systems' to meet the needs of people in less developed countries [12, 41].

Perhaps the most widely known range of participatory development techniques today are those related to 'Participatory Rural Appraisal' (PRA) and its counterpart 'Participatory Urban Appraisal'. According to Chambers this family of draws upon a range of separate initiatives in development from the 1970s and 1980s. Specifically, Chambers [17] credits:

- activist-led initiatives in Participatory Action Research showing "that poor people are creative, and can and should do much of their own investigation, analysis and planning; that outsiders have roles as convenors, catalysts and facilitators;" [17, p954];
- applied anthropology research highlighting "the idea of field learning as flexible art rather than rigid science" and "the validity of indigenous technical knowledge" [17, p955];
- Agroecosystem analysis [19], a systems based approach to analysing agricultural production that provided techniques for studying agricultural production in specific contexts;
- field research on that demonstrated "the knowledge, professionalism and rationality of small and poor farmers; their experimental mindset and behaviour; and their ability to conduct their own analyses"[17, p955]; and
- techniques of Rapid Rural Appraisal, from the 1980s, which Chambers characterised as eliciting and extracting local knowledge for analysis and application by outsiders, rather than on local control of the research and analysis process.

Thus, the history of PRA links some developments based on particular values and political positions (action research, applied anthropology), and technical approaches emphasising the need to understand context in planning development interventions (Agroecosystem analysis, Rapid Rural Appraisal, field research).

The participatory tradition in interactive systems design is most closely associated with work arising in Scandinavia in the 1980s. A key figure in this development was Professor Kristen Nygaard who was both an internationally renowned computer scientist and a passionate political activist and trade unionist. Nygaard & colleagues questioned how the interests of working people could be defended and promoted in technology design. This work was recognised by some researchers outside of Scandinavia and generated a series of important dialogues. Key publications arising from this period of work were [5, 29, 31]. A number of techniques that were developed in this early work have been widely adopted in 'mainstream' interactive systems design. In particular, there was a strong emphasis on: engaging users actively in design [2] on prototyping, both in terms of 'paper-prototyping' [25, 57] and co-operative software prototyping [8]; and on taking into account the details of context by applying field work and ethnographic methods [7, 73].

As with PRA, it is clear that the techniques that were developed were consequences of both, particular values, principles and political commitments, and a recognition that established techniques paid too little attention to details of context. Even in these early discussions a distinction was recognised between the emphasis in the Scandinavian tradition where participation in design was underpinned by a specific social objective of workplace democracy, and the focus in other settings. For example: some authors recommend participation primarily because of its contribution to producing better designs that may lead to increased sales [32]; the tradition of socio-technical design [59] which positioned user participation in a frame of enlightened management.. Ehn & Kyng [24] suggest that this socio-technical systems framing may implicitly assume that the interests a system's users and the interests of managers of an organisation can always resolved to mutual benefit.

Since this early work, participatory design has continued as a tradition with a strong linkage to Scandinavia. A bi-annual Participatory Design Conference has been held alternately between North America and Scandinavia since 1990 (with the most recent being held in Italy in 2006). At the same time, standard text books in interactive systems design generally include at least some discussion of participatory or participative design, for examples see [23, 62], most often citing example techniques of lo-fidelity prototyping and paper-prototyping.

### 3. RATIONALE FOR PARTICIPATION

Definitions of participation in development differ, and this alters the way observers perceive and evaluate it in practice [12]. Theorists agree that participation is 'a process by which people, especially disadvantaged people influence decisions that affect them' [79], as opposed to one where decisions are imposed on them by hierarchical outside agencies. Proponents argue that participatory development processes provide people, especially underprivileged and marginalised people, the opportunity to overcome the 'habit of submission', a frame of mind that curtails people from fully and critically engaging with other world and participating in civic life [30]. Participatory approaches have been applied in projects working on irrigation, livestock, health, water, sanitation and agriculture [63].

According to Oakley [61], there is a direct relationship between peoples' active participation and project success. Gow and Vasant (cited in [9]) claim the following advantages:

- People organise best around problems that they themselves consider most important;
- Local people tend to make better economic decisions and judgements in the context of their own environment and circumstances;
- Voluntary provision of labour, time, money and materials to a project is necessary condition for breaking patterns of dependency and passivity; and
- Local control over the amount, quality and benefits of development action helps make the process self-sustaining.

However, the reasons for participation, and the value of participation in development are felt beyond the improvement of individual project outcomes. Participation in project also results in new learning and capabilities in communities. The IDRC

Source Book [37] describes participation as a collaborative and empowering process because it brings isolated people together around common problems; validates their experiences as the foundation for understanding and critical reflection; presents the knowledge and experiences of external practitioners as additional information; and contextualises what have previously felt like personal, individual problems and weaknesses by linking them to political realities and development actions.

Jaitli [38] identifies four main functions for participation: an instrumental function, accomplishing project goals with low cost and greater chances of sustainability; a project function for achieving power to influence decisions that affects one's livelihoods; a social function focusing on bringing development to meet basic needs hence removing poverty; and a psychological function stressing participation as building inner freedom and confidence in articulating needs and devising solutions.

Severo [71] concludes that participation empowers the primary stakeholders of development by:

- Helping break the mentality of dependence, promoting self-awareness and confidence, by leading the poor to examine their problems and think positively about solutions;
- Helping people acquire new skills and abilities which could enable them to better defend and promote their livelihoods;
- Building-up people's capacity to generate and influence development at various levels, increasing their access to and influence over resources and institutions;
- Building social capital, facilitating better management of risks by households through reciprocal self-help, sharing information and strengthening local associations.

In discussing the participation in technology projects for development Katsumoto [42], lists the following benefits:

1. Clarifying project goals, essentially the promotion of the social and economic development of the local community;
2. Reducing project cost, by identifying site specific data crucial for determining most effective size, form and means of execution of projects;
3. Reducing management conflicts that may be caused between development workers and local people, by negotiating and sharing the development processes;
4. Promoting technology transfer to people in need, which is often necessary for projects to have lasting impact;
5. Encouraging a culture of self-help and a commitment among the people to the development of their own communities.

This appears a relatively narrow interpretation when compared to the goals set by Jaitli and Severo.

Much literature on participation in interactive systems design emphasises the contribution that participation can make to better product design, and to the take-up of interactive systems [32, 33]. However, wider values are also evident. As noted above, the Scandinavian tradition of participatory interactive systems design was initially informed by an awareness of potential conflicts of interest, and concerns that technology introduction was serving the interests of management at the possible expense of workers

[48, 24, 25, 29]. Other perspectives emphasised a humanistic tradition, arguing that users of interactive systems should be treated as independent actors, not objectified through mechanistic forms of 'human factors' [2]. A common theme has been one of 'mutual learning' where technology designers learn about the setting where technology is to be used, and users continuously learn about technology design and designers [43]. However, whilst participatory development places equal emphasis on the sustainability of the current project, and on the long term impact of learning in the project experience; the learning that takes place in participatory interactive systems design is usually interpreted more narrowly as establishing the equal status and value of the knowledge provided by users and technologists. Interactive systems design projects rarely consider how skills and power relations might be transformed as a secondary consequence of engaging in the project itself.

A possible exception where participatory interactive systems design is explicitly framed as an ongoing learning process transforming power relations, is the Collective Resource Approach [24, 29]. This approach aimed to support learning, within trade-unions, about the nature of new technologies, and how these relate to working conditions and union objectives. Here, each project was both a site where workers could engage in designing their futures, and an opportunity to learn about how to exercise control over technology creation processes.

In creating a participatory approach to interactive systems design for development, it is important to recognise participation as going beyond simply engaging people as informants in design. Instead, participation must be framed as an ongoing engagement that supports learning and development of a wide range of knowledge and transferable skills. The goals of participation should be wider than the individual project and should aim for learning and long term empowerment.

## **4. THE PROCESS OF PARTICIPATION**

### **4.1 Establishing relationships**

Entry to the field and initiating the processes has been considered a very sensitive aspect of participatory development. Developing relationships with a local community in a development setting is identified as a critical phase, because the way in which the relationship is established and nurtured strongly influences the degree to which community members will or will not participate in research and development initiatives. The IDRC Source Book [37] deals extensively with this issue. Established local communities are often distrustful of outsiders claiming to bring benefits, when these outsiders are drawn from more privileged social settings. This distrust may be well-founded on the basis of previous interactions with political, commercial or government agencies.

To build trust, bidirectional communication has to be employed and promoted, where the practitioner listens carefully, and shows sensitivity to the wide range of concerns and issues owned by the community, not simply focusing on their own external project goals. This requires patience and demands skill. Interpersonal skills and careful attention to non-verbal cues are important. At this stage, there is value in attending community activities and meetings as a 'helpful outsider' without restricting focus to project goals. This allows the practitioner to demonstrate commitment to community interests.

Building mutual trust and understanding at the beginning is a major challenge and will continue to be so during entire period of participatory engagement. Only when a trusting relationship has been built can the practitioner effectively facilitate work on the identification of problems, potential solutions and implementation of concrete initiatives. In these later phases of work, the practitioner acts as a facilitator of a process, rather than a primary driver of change. These processes involve local community members and other stakeholders in the identification and resolution of a problem or the realisation of a common goal, the planning for research and development activity, the intervention phase and the assessment and utilisation of results.

In participatory interactive systems design, discussion of the initial project establishment phase has been more limited. The STEPS [29] and MUST [45] models both identify and discuss 'project establishment' as a fundamental formative activity to be performed at the beginning of every new project. Most interactive systems development methods include phases of exploration and analysis. However, Törpel [74] reports that for most interactive systems design projects, participation only begins *after* initial information on the objectives of the projected technological innovation have been compiled and disseminated, resources have been allocated, participants or samples of persons whose knowledge, status and perspective are deemed relevant have been chosen and preliminary suggestions for setting (who will contribute, when, how often, where, how) have been made.

Proctor et al. [65] argue that more attention should be paid in building relationships between interactive systems specialists and users that extends over the whole system life cycle up to and including the use of the interactive systems i.e. appropriating its functionalities into their work practices and relations. They describe their 'Co-Development Approach in Healthcare' as 'user-led' not 'user-centred'. They aim to create circumstances where the staff can take control of the project by 'being there and doing it', taking the technical work of the development into the users' workplace. Here the interactive systems specialists act as facilitators, helping users to realise their needs. This can imply acting as design consultant, developer, technician, trouble-shooter and handyman. Their project allocated six months for initial familiarisation with hospital ward work practices through ethnographic field studies and 'building common ground' prior to planning software interventions. Similarly, Hansen [34] reports an ongoing collaborative relation between a specialist design group and a specific user group designing and developing systems for use in hospital settings. In this relationship, tests and investigations that are part of one project, contribute to the development of background knowledge applied in other projects. The relationship supports gradual knowledge exchange and trust building between software developers and medical practitioners.

It may be concluded here that building relationship and preliminary activities have been given some consideration in both traditions. However, in participatory development, building relationships is viewed as a core skill and is discussed at length in standard field manuals, in participatory interactive systems design, it is examined in depth only in special cases.

## 4.2 Participation in the programme

Many researchers and practitioners have attempted to classify types of participation in development programmes. Biggs [4]

presented one useful typology, later adapted by Probst et al [64]. This typology distinguishes: contractual participation where one social actor has sole decision-making power over most of the decisions taken in a research process; consultative participation in which most of the key decisions are made by one social actor with emphasis on consultation and gathering information from others; collaborative participation where different actors collaborate on a more equal footing, emphasizing linkage through exchanges of knowledge; and collegiate participation, where different actors work together as colleagues or partners, ownership and responsibility are equally distributed, and decisions are made by agreement or consensus. Michener [54] distinguishes participation as strong and people-centred or weak and planner-centred. Weak participation involves only consulting or informing whereas strong participation emphasises partnership and control. Strong participation implies an educational and empowering process where people, in partnership with each other and with facilitators, identify problems, mobilise resources, and assume responsibility to plan, manage, and control the individual and collective actions that they themselves choose. Oakely [61] gives three levels of participation:

- Level 1: Participation as contribution or passive participation: Here participants make voluntary contributions to a predetermined project in return of some perceived future benefit. The approach may not be linked to any specific fundamental problem owned by the community.
- Level 2: Participation as Organisation or Externally Driven Participation: Here, the external development actor leads the reform or creation of some new organization through a process of participation.
- Level 3: Participation as Empowering and Leading Social Inclusion: Here participation aims to develop skills and abilities within the community to enable people to manage their own needs better and decide on aspects that they select and determine. This type of participation seeks to build the capacity of the community to act on their own in the future.

A common finding is that to achieve the goal of empowering people for social inclusion, it is necessary to use 'bottom-up' processes where participants are engaged at all stages, in project definition, exploring needs, specifying objectives, mobilising resources and in evaluation.

This is not to argue that every participant in a development project must necessarily be involved in every planning decision. The aims of participation need to be realistic. There are many kinds of participation, not all of them relevant or effective for all tasks. It makes no sense to think of maximal participation, since participating in decision making or implementation, entails costs as well as benefits for individuals and communities [26, 41]. For a highly vulnerable rural family, the trade-off may be between spending a day working on securing food now, or to risk spending a day on a development project that may or may not provide long term benefits. For highly vulnerable people, it is rational to be risk averse. Heeks [35] presents a detailed analysis of ways in which nominal participation in development may be distorted so that rather than supporting and enabling, it actually involves coercive abuse of power.

- Participation that ignores context: especially the political and cultural context. This can create a veneer of participation that hides underlying exercises of power; inequitable participation where pre-existing power relations are not recognised and addressed; skewed participation where selective involvement excludes the most marginalised; non-communicative participation where groups fail to establish shared dialogue; and participation driven by the career goals of particular actors.
- Participation that ignores the principles of participation, instead being driven by tokenism or 'participation by numbers'. Such approaches may be injurious to the community by imposing new bureaucratic structures that displace existing participatory structures.
- Participation that ignores the local realities and constraints, for example ignoring the lack of resources or capabilities that people to actually need to effectively engage in activities; problems of groupthink in participation; and situations where individuals and groups may be best served by not investing limited time and resources in participatory activities, but would prefer to delegate design responsibility.
- Finally Heeks considers 'participatory' activities that use participation as a cover for a lack of rigour or for failure to respect ethical responsibilities such as confidentiality.

In participatory interactive systems design, the discussion of the scope of participation has been more limited. An issue raised by many authors [25, 2, 8, 57] is the need for users to be active participants in the generation of design ideas, rather than simply design informants, or reviewers of prototypes created by others. However, the lifecycles of systems design are often presented as unproblematic. As Törpel [74] reports, users are rarely invited to negotiate the structure of the design process itself.

Discussions of participation in interactive systems design also point to the cost-benefit trade-offs that need to be made by users in designing activities. Trigg [77] discusses the problems for participants to find time to prioritise interactive systems design activities in applying a participatory design approach in a small non-profit organisation. Cederman-Hayson & Brereton [15] and Hornecker et al. [36] make similar observations in different settings. In each of these cases, the participatory designers had to negotiate the scope, terms, and methods of participation. Robertson et al. [69] emphasise the degree to which participatory design involves a flexibility to renegotiate ways of working:

"... in the first instance, participatory design demanded a situated, radical, creative approach to the application of design techniques to particular work places, the application of the standard toolkit of participatory approaches to new contexts of use still required of us, and probably always will, the same situated, radical creativity."

Thus in both traditions, there is a recognition that the scope of participation goes beyond positioning participants as design informants. However, a distinction can be seen in terms of the scope of the participants' role in projects. In participatory development, involving the community in planning activities is seen as providing a specific benefit of by developing the stock of planning and mobilisation skills. Involving the participants in

planning activities provides them with increased capacity to articulate their own needs in other situations.

### 4.3 Participation in evaluation

The natural counterpoint to participation in defining project goals and in project planning, is participation in monitoring and evaluation. This raises questions of what is being evaluated, who is measuring, and how are the interests of different participants represented. Rebien [68] suggests that for an evaluation to be considered participatory, participants must be involved in defining the terms of reference, collecting data and using the results. A variety of specialist methods have been developed including the MSC (most significant change) approach [72] Estrella et al. [27] present a set of case studies in which different methods are applied in context. Perhaps the main observation of participatory evaluation in discourses in development is that the terms are explicitly problematised, and the question of how stakeholders can effectively engage with and control monitoring and evaluation is surfaced for discussion.

In the case of participatory interactive systems design in work settings, considerable attention has been paid to how users can participate in evaluation of prototypes, and techniques such as co-operative evaluation [55] are now mainstream. Ross et al. [70] argue that assessment of Computer Supported Co-operative Work (CSCW) systems should seek to balance between evaluators 'objective' measures, and users' personal experiences. However, evaluating prototypes is a very narrow scope. A deeper evaluation needs to consider the wider socio-technical arrangements of which new technology is a part. Muller [58] speculates that a layered CARD technique might be applied to support a participatory evaluation style of the wider socio-technical system. Indeed, full evaluation should examine the project processes, not just project outcomes.

Methods from participatory evaluation of development activities have been adopted in community informatics [49, 50, 53] perhaps reflecting common roots in Participatory Action Research. Participatory interactive systems design for development should adopt this type of wider perspective.

## 5. THE SKILLS OF PRACTITIONERS

In participatory development, there is considerable emphasis on the skills required of competent practitioners. According to Mayoux [51], the role of the facilitators in participatory development processes is crucial. Experience, sensitivity and knowledge are all critical to the success of the processes. The IDRC Source Book [37] states that:

"Researcher's skills and experience with community facilitation, understanding of social and gender dimensions of research, and capacity for adaptability and flexibility all influence how research will actually be done. At the same time, the capacity of the community ... and past project experiences will have an impact as well."

Participatory development is often undertaken in complex socio-cultural, economic and political contexts with deeply embedded social relations. According to Finn [28], participatory research has three key elements: power, people and praxis. In participatory processes, critical inquiry is informed by and responds to the experiences and needs of people involved. It is people centred and is about power which is crucial to the

construction of reality, language, meanings and rituals of truth. [13]. The IDRC Source Book [37] advises:

“the most critical point is of awareness. This is really the first step! If the researchers and the communities with whom they are working, are thinking about this question (who is participating? Who wins? Who losses?), they are better placed to consider mechanisms and strategies to address this”.

Discussion of the specific interpersonal skills of practitioners has received less attention in the interactive systems design community. Törpel [76] reports on observations of students undertaking a course in participatory design, and examines the way that students’ assumptions and pre-judgements about a situation can impact on the outcome of their design projects. Robertson et al. [69] argued that participatory interactive systems design needs to be understood as being as much about a set of skills for facilitation as it is about a set of techniques for design conversation. Mörberg & Studedahl [56] discuss silence as an important signal from participants in design. Practitioners need to be very alert and aware of non-verbal communications, group dynamics, and the degree of engagement from all the different stakeholders. Puri et al. [66] comparing three interactive systems design projects in different developing countries found that circumstances were very different and it is dangerous to make assumptions about the local culture. In some countries it was very important to involve senior figures to give the project legitimacy and to persuade people to engage. In other settings it was easier to work with existing open decision making practices. Practitioners must pay attention to the specific local situation, and respond accordingly. DePaula [22] gives similar arguments that participatory interactive systems designers must attend to the multiple arenas (the local project, the institutional/organisational setting, and the national / international) that action must address to achieve positive change. All these articles findings emphasise the importance of the practitioners’ interpersonal skills and their political awareness as critical factors in project success.

## 6. THE ACTIVITY OF PARTICIPATION

### 6.1 Preparing to participate

Ehn & Kyng [24] argue that design for and designs by users are unacceptable and infeasible. Users need understanding; and learning in order effectively to take part in the process. Axtell et al. argue that “a user’s work in development should be adequately supported (i.e. with clear goals and access to appropriate information and knowledge sources).” [1, p340]. Therefore, it is necessary to set up explicit expectations of mutual learning at the beginning of a project, and to support development of skills as the project progresses. Ehn & Kyng [24] talk of ‘pre-qualification’ of users.

In participatory development it is also important to consider the skills that people need to participate effectively. Practitioners must recognise that ‘the community’ are people of diverse orientations and capacities, and it is a mistake to treat them as one homogeneous group. There are many situations where user communities will require help to develop the skills and confidence that they need to participate in development projects. Failure to address this leads to what Heeks [35] calls ‘resource-deficit participation’. Kimaro & Titlestad [47] suggest that, given the limited level of existing knowledge of computer systems available in many development contexts, participatory customisation of

existing software systems might provide for more meaningful participation in systems designing rather than attempting to engage users directly in initial concept formation.

The role of the practitioner as a facilitator, and the trust between the practitioner and the community are important factors in addressing this issue. In the special case of participatory projects involving interactive systems for development, there will be a double need, for both capacity building in planning development action, and developing understandings of how future technology might be understood, envisaged, designed and applied. This will require particular sensitivity.

### 6.2 The language of participation

In both the participatory development and participatory interactive systems design, there is recognition that to engage effectively, external agents and participants need to find a shared language through which they can interact effectively. In interactive systems design this has been described in terms of ‘language games’ [25]. The ideas of using paper prototypes (and prototypes constructed using other media) is founded on this recognition. Scenarios and personas can also be understood as efforts to provide a shared language and frame of reference that both developers and end users can relate to. These techniques have received considerable attention in published literature and are discussed in undergraduate texts [23, 62]. Workshop techniques such as future workshops [44] can support projects in establishing shared language.

Recently Winschiers [78], reflecting on projects in Namibia, reported that although participatory design techniques are used in development projects these fail because cultural boundaries are not given due consideration. She argues that participation must go beyond the involvement of users in the design of the product, but should include an appropriation of the design process itself to new cultural contexts. Thus techniques must be suitable for the local situation. One example of such cultural appropriation is the Bollywood method, developed by Chavan and colleagues, and described in [52].

In participatory development a wide range of diagrams, facilitation activities, and other communication forms are used to support discussions. For example, Participatory Rural appraisal [16, 17, 18] uses techniques such as mapping and diagramming to stimulate discussions and dialogue on the local problems and issues with the community to gather information from poor, so-called illiterate communities who otherwise are marginalised by other traditional data gathering processes. For example, the Transect Walk is a technique where the practitioner walks around the area accompanied by local people, to identify and discuss important locations and land usage patterns. This technique can be compared to ethnographically inspired techniques such as contextual inquiry [3]. Chambers [17] provides an extensive listing of techniques including: participatory analysis of secondary sources; focus groups; ‘do-it-yourself’ where the practitioner is taught how to perform an important village task; transect walks; oral histories and ethnobiographies; seasonal calendars; time lines examining village chronology and identifying key historical events and trends; daily time use analysis; livelihood analysis where participants discuss stability, crises, income, expenditure, supports and protections; ranking and prioritising exercises using tangible artefacts such as ‘chapattis’ of different sizes; stories and

case studies such as household histories and accounts of coping with crises. Cornwall et al. [20] categorises PRA methods into four broad groups.

- *Participatory Mapping And Modelling* - where people are asked to make maps or three dimensional representations of their social demographics, health, environment etc.
- *Time Lines And Trend And Change Analysis* - where people are encouraged to describe changes in land uses, in cropping patterns, or chronologies of events relevant to local life.
- *Seasonal Calendars* – Seasonal variations and their impacts on the lives of the people such as in activities, diet, labour, expenditure, debt etc., are described in this exercise.
- *Wealth and Well-Being Grouping and Rankings* – which focus on categorising households or individuals. The poorest and most vulnerable are identified using indicators and classifications developed by the local people. As a by-product, a wealth of information on livelihood strategies, assets, access to factors of production may be uncovered.

Elsewhere projects have used photo novellas (people's photographic documentation of their everyday lives) theatre, visual imagery collectively written songs, cartoons, community meetings, community self-portraits and videotape recordings to facilitate collective learning, expression and action [37]. Again, the approach emphasises flexibility by practitioners in context, working to create a shared language that can be jointly owned by practitioners and community members, and that empowers all sides to communicate ideas and concerns.

### 6.3 Language, practice and power

The way that the language used and the way that the language of participation may empower or disempower has received particular attention in participatory interactive systems design. Johannsen & Kensing [39] report on a health portal constructed by the Danish government with a goal of 'empowering' people in relation to their own health. The authors argue that the language used imposes a particular way of looking at health that frames the patient in a particular way. Citing the technical, medical language that is used to discuss pregnancy, the authors argue that the approach actually disempowers readers, positioning them as patients dependent on the medical establishment, rather than helping them to take active responsibility in promoting their own health in their own terms.

In developing the early work with Scandinavian trade unions, an important background paper is Braten's discussion of model power [11]. This paper has had a lasting influence in the development of participatory design tradition, for example, see Kanstrup & Christiansen [40]. Braten uses arguments from general systems theory to demonstrate how in a negotiation between two groups A and B, with different interests, if group B adopts the models and way of perceiving the world offered by group A then this immediately places B at a disadvantage. Specifically, the models offered by group A may not offer any insight into factors that B would regard as important in the negotiation, also, because the model has been developed by A, A may be able to predict B's choices and negotiating moves. The early Scandinavian participatory researchers concluded that the dominant models used in software development reflected the

interests of management and capital, and so simply teaching trade-unionists to use these techniques would disempower them in negotiation [24]. This led to the development of the 'collective resource approach' [24, 29] where groups of workers and their organisations are encouraged and supported in developing their own understandings of technology, its impact on the workplace, and alternative ways of designing. Using these new collective resources the unions can critically challenge proposals and projects in terms of their own concerns.

The collective resource approach can be seen as an example of what is now referred to in development as 'capacity building', i.e. building up the capability of organisations and communities to look after their own interests. The work of Hansen [34] and Proctor et al. [65] can also be interpreted this way. In devising approaches to user participation in designing interactive systems for development, capacity building will be critical to achieving meaningful levels of participation.

Within participatory development, some have argued that participatory approaches have become so mainstream that there is an urgent need to examine power relationships between development agencies, practitioners and the intended beneficiaries of the work [21]. These critiques highlight not only the interests of different local actors, but also the conflicting interests of practitioners (as privileged professionals with interests in promoting participatory methods) and the agencies that fund and manage the work. As Kesby [46] shows, there are potential responses to these critiques, but they require constant vigilance and critical awareness of our actions as practitioners.

## 7. SUMMARY AND CONCLUSIONS

It is clear that there are strong parallels between participatory approaches in development and in interactive systems design. The history of these two fields shares similarities, arising from both a concern for a better sense of local context, and from political and value commitments of practitioners. On the other hand, there are important differences in emphasis in the dialogues that have developed within the two traditions.

In interactive systems design, there has been a steady growth in the range of techniques available to the practitioner, and there has been strong theoretical work examining the processes and language of participation. However, there has been a tendency, as participatory methods have been adopted by the mainstream to highlight issues of technique at the expense of concerns with relationships. The tradition has roots in a critical analysis of the practices of designing and the role of language and representations, but critical examination of the role of practitioners, and of power relationships within the participatory designing seem relatively sparse in recent literature.

In participatory development practice, there has been an emphasis on the importance and specifics of relationships, the interpersonal and social skills of practitioners. One particularly distinctive concern in participatory development is the way that 'entry to the field' and initial relationship building is critical to success. However, as participatory approaches have been adopted by the mainstream, recent dialogues have highlighted the complex, and often hidden workings of power relations in the practice of participation.



As interactive systems are increasingly seen as potential contributors to international development, designers who claim to be participatory, must reflect critically on their skills, their motivations, their practices, their relationships and their priorities.

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