

# REFLEXIVE TECHNOLOGY FOR COLLABORATIVE ENVIRONMENTS

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## Abstract

In the field of e-democracy, what is mostly emphasized is the ability to create a neutral place for deliberative discussions and voting, where the view is that technology can enable a stronger democracy. Most important, focus is on the nation state, not on democracy on a global level. In a democracy initiative on a global scale one cannot only deal with the questions of what should be discussed and in what way. First of all the question about representation has to be answered: who the participants are that are part of democracy. In order to create technologies that support democracy initiatives at a global level, it is not enough to create methods to set the agenda and framework for discussion, but it is also important to have a well thought out idea about how those who participate will be selected and on what grounds. In a micro-global perspective, in the collaborative network, this is about creating incentives that support a democratic culture, an awareness of how to go about involving everyone in the conversation. With this in mind we have developed a discussion platform that uses a radical democracy as a benchmark. Based on democratic meeting techniques and social media and grounded in a participatory design process, basic principles for a groupware are formulated containing typical democratic features such as voting and discussion, but taking user activities and reactions into account and clarifying the individual's activities in relation to the group. The result of the design process is a Wiki-like prototype where the participants' reputations are measured and transformed through a dynamic voting process. This can clarify the representativeness of the discussion at stake, showing whose positions and interests are put forward, providing a method for measuring the quality of online discussion.

Keywords: E-Participation, Meeting techniques, Diversity, Collaboration online

## 1. Introduction

Despite the rapid growth of social networks that indicates that the political discussion takes place elsewhere than at governmental web sites, the research field has a governmental perspective rather than a participant perspective (Macintosh, Coleman, & Schneeberger 2009). Instead, the major part of the technology-driven research in the field of e-democracy is characterized by a technologically deterministic discourse, where technology is seen as an unproblematic opportunity to deepen a deliberative democracy within the nation state (Dahlberg 2011). The current more nuanced discussion of a Habermasian democratic model taken place in the field of political science and political philosophy is missing (Macintosh et al. 2009; Sæbø, Rose, & Skiftenesflak 2008). Here the idea of a deliberative democracy has been widely



We are interested in developments in the lower right map position, democratic techniques for globally scattered micro-cultures. It's about means of production for a creative collaborative process. Democratic skills that are not constrained by nation-state thinking, but that independently and dynamically define demos.

Anderson (1991) argues that the nation state developed and held together thanks to the printing press which spread of a common culture to a geographically defined language area. This “imagined community” was thus held together by the exchange of information that created a homogeneous culture in areas that previously consisted of culturally distinct village communities. Today imagined communities are globally created. Thanks to the Internet, shared cultures can more easily hold together and develop without geographical limitations. But according to Fraser (2005) most of the political theories build on a normative vision of the nation state as what constitutes demos. Within its geographical domain, citizens have equal rights to participate in the design of this state. In contrast to this nation thinking the “state”, or “common” for an interest based group is defined in other ways. Here the creation of identity is not defined primarily by geography, but built up around an interest, such as “environment”, “star wars” or “Karlberg's football club”.

The hegemonic model of democracy is also based on a norm of equality, which may mean that it can be difficult to deal with a situation where everyone does not have equal value in a “democratic” manner. Macintosh's (2009) overview of the e-participation research shows a lack of methodology for measuring the quality of online discussion. Most discussions on the web are driven by a relatively small number of active participants, in which these are far from representative. It is not just anyone who can exploit the opportunities technology offers, to resist, create opinions, or be part of creative networks. Research on the digital divide shows the importance of class for the use of digital media, also when looking at how the technology is used; whether it is for consumption or production of online material (Schradié 2011). Gender research shows that the difference-making and discriminatory processes within and between the different groups online are reinforced rather than reduced, thanks to technology. (Dutta-Bergman 2005; Herring 2008; Kampen & Snijkers 2003; Nakamura 2001; Norris 2001; Postmes & Spears 2002; Wright 2005).

In these perspectives, one can see an interest as a sort of country, and in this virtual country, there is an unequal distribution of opportunities and recognition. In this project we have therefore based our research on theories about how a special community of interests is maintained, namely the global art world, with a view to finding principles for how a demos built on interest can be effectively enforced. These principles have guided the development of a digitally mediated collaborative system designed to strengthen democratic processes in self-interest groups. In order to find guidance for how a reflexive democratic process can be supported, we have used Fraser's definition of democratic justice and Dahl's model of democracy. We begin by describing theories of democracy in more detail in Chapter 2. Chapter 3 describes the participatory research method used for the development of ideas. Chapter 4 describes the art world from a democratic perspective. From this analysis the design principles are derived that are used in the development of a tool as described in Chapter 5. Chapter 6 discusses how the results of the design process correspond to the initial questions about what a reflexive process built on radical democratic principles might look like in practice. A summary of the outcome of the process is given in Chapter 7.

## 2. Theories of global democratic justice

### 2.1. A global radical model of democracy

Fraser (2000) argues that democratic justice includes both equal *distribution* of resources and opportunities as well as *recognition*, an acknowledgment of identity, and that it is important to understand that these two sometimes overlapping parameters are not the same thing. It is for example possible for an artist to have high status and a great cultural influence without having the financial capacity. Economically successful people may have difficulty getting their culture reflected in the media, or their sexual preferences recognized as a political right. A third parameter that is crucial to democracy is the question of who should participate (Fraser 2005). The issue of representation, that those affected by the decisions are involved in the decisions, is becoming increasingly important in a globalized world where nation state both affects and is affected by global events. It is no longer clear who should be part of the political unit. Fraser (2005) argues that most political theories are based on a normative view of the nation state and that it is important to find other ways of looking at the framework of democracy for this to develop.

Dahl's (1989) model of democracy is not based on the nation state but rather defines demos as the location that includes those affected by its decisions. It can just as easily apply to residents of a house as in a state, as well as participants in a globally dispersed community of interest. Democracy is thus a process that is not just about making decisions, but that also covers the definition of who is involved in the association. Furthermore, all participants should have an opportunity to influence what should be on the agenda and in setting the rules for decision making, and being able to make informed decisions. The democratic regime does not exist, except as a utopia, that can be used as a mirror to measure the degree of democracy in a particular situation (Hemberg 2002):

- Who is involved in the situation?
- Can they define the problem?
- Do they have equal opportunities for discussing the problem?
- Do they all agree on the rules for how decisions should be taken?
- Does everyone understand?

These criteria can be used to analyze any situation from a participatory perspective, in order to find methods to improve democracy in actual situations. In practice, these can be used as democratic techniques that not are fixed in a set of methods, but are a way of maintaining the reflexive process on a daily basis. This is also the ambition in democratic meeting techniques developed in critical pedagogy and in feminist-oriented movements. Democratic meeting techniques can be seen as a development of traditional meeting techniques where one uses an agenda, rules for speaking and voting procedures. But instead of assuming an ideal speech situation where participants are relatively equal, these techniques assumes that people do not participate on equal conditions; that they have different capacities for participation and that they are treated differently depending on interacting power structures. By varying meeting forms, by visualizing power structures, and by constantly reflecting on the meeting culture, a more democratic culture is developed (Hedenstrand 2008; Hemberg 2002). In addition to following traditional meeting procedures and informing participants in advance of important points to the agenda, the aim is to

enhance participation and activity. This is, for example, done by setting the meeting agenda together, by rotating key functions like president and secretary, by using speaking rounds to get everyone involved in the conversation early on, and by employing many different discussion forms and forms of voting (Hemberg, 2002). One method of increasing participants' awareness of the importance of power structures is to observe the conditions for dialogue in the meeting situation: who it is that gets the most space and attention and who is ignored, and how domination techniques are used (Hemberg 2002).

But what is it that motivates participation? If democracy is not seen as something that deals with the relationship between the state and its citizens but as relationships between participants in dynamic communities of interest you have to understand what motivates this involvement. Why do people engage in network-based collaborative processes, such as open source culture, which do not directly produce any gains? Kelly (2008) calls the open source culture a "recursive culture", a culture that is not just about recreating discourse but that also seeks to re-build the basic systems that limit discourse. In this public place, where participants not only express themselves in, but also are co-creators of a continual building process, the central motif for participation is to confirm their identity as participants in this collective creative process. The participants act in this perspective as highly creative subjects. It may therefore be interesting to look at the functionality in another creative field. The global art world is a culture built around a common interest that is practiced largely through the publication of books and articles in newspapers and now also by the Internet (Bydler 2004). What does community mean in this context? How "democratic" is this community?

### 3. Participatory design methods

Instead of searching for a general model for how community is created, this project has focused on finding a distinctive model, based on the singularities that can be found in social realities. Through the experience of the art world and theories from art sociology, we find principles to implement in a technical design solution for a network-based collaborative tool. The design was then further developed and implemented together with programmers and researchers at Stockholm University.

To explore the art world a practical design work was conducted based on a discussion in a so-called research circle. Research circles are mostly used in pedagogy and work-life research in the Scandinavian context (Härnsten 1994; Persson 2009). A research circle can be described as a study circle<sup>1</sup> in which experts are involved. The aim is to bring the expertise and experience of the participants involved to the inner circle of research, not only as informants but also as co-researchers and work-place developers. The group was formed by students and project students<sup>2</sup> at the Royal Institute of Art in Stockholm who answered an open invitation to participate. During a period of two years a group of five to seven people met together with the researcher on a monthly basis to discuss the role of the artist by sharing experiences and theories.

The initial group of seven was a heterogeneous group of people as regards gender, age and artistic genre. The average age gap was five years, the youngest was

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<sup>1</sup> The study circle is an important part of the Swedish labour movement. It is a form of adult education common in Sweden where a group of people with a shared interest meets regularly to discuss a common theme. Most common are book circles around a shared reading list.

<sup>2</sup> A project student is an artist that for a particular purpose gets the opportunity to work in the workshops during a shorter period like a year.

born in 1983 and the oldest in 1951, and so they all represented different generations of artists. The initial group thus contained a combined experience of the development of the art concept and how this has influenced the art environment from the political action oriented figurative painting of the 1970s, to the performative acts of the 2010s. The participants' different strategies in the art world, different perspectives on the concept of art and personal relationships to the artist's identity, were rich resources for comparison and the empirical ground for the study of different theories about the art. The theories that were discussed were initiated primarily by the researcher but also chosen by the participants: From anthropological network theory, the sociology of art and different feminist approaches. Everything that felt relevant for creating a common understanding of the functionality of the art world. As a method of making abstract theories more concrete, the idea came up of translating the theories and personal experiences of the art world in a practical design of a collaborative groupware that would combine agency with structure.

In the design process different participatory design methods were used such as sketches, prototypes, cases and scenarios. Especially in the design field, various participatory methods are used to get a more informed design, grounded in the reality of potential users; ethnographic techniques as participant observation and interviews, as well as more exploratory methods like sketches and prototypes (see eg. (Buchenau & Suri 2000; Goldschmidt 1991; Houde & Hill 1997; Lim, Stolterman, & Tenenberg 2008). Also more artistic techniques are used to involve participants as informants and co-designers such as probes, scenarios and role-playing. (Buchenau & Suri 2000; Gaver, Dunne & Pacenti 1999; Goldschmidt 1991; Houde & Hill 1997; Lim, Stolterman & Tenenberg 2008). Unlike most problem-focused design research, the aim with our project was not primarily to get a more informed design. Instead we used the design process in itself as a participatory research method, as a tool to explore the art world.

The following chapter 4 describes how the theories and experiences from the field of fine art evolved into principles that could guide a design of collaborative software.

## 4. Democracy in the art world

What is community in the art world, a global culture not directly characterized by the idea of equality?

- Who has the right to participate in the art world?
- How is the agenda set in the art world?
- Who participates in the discussion of the concept of art?
- How are decisions taken about what is art?
- How do you know what rules apply in the art world?

Following Heinich (1997), looking at the art world and the concept of art as a faith community, we can make use of Hemberg's (2002) model to see this community from a democratic perspective. In the following, we answer these questions by looking at how the concept of art is defined.

### 4.1. Who has the right to participate in the art world?

Elitism in the art world, where some people's expressions and taste dominate over others, can be seen as something profoundly undemocratic. According to Bourdieu

(2000) participation is here a question of power, the understanding of the situation, and an ability to handle the codes in the field that you want to play on. Everyone can, in theory, be involved in deciding what is art. There is no central instance that legitimizes art. Following the institutional art concept, the creation of art is a collective work, where shared norms about art and the artist are developed. In this collective development work all those who have any ideas about art are involved, from a disinterested public, to an enlightened art audience and hobby artists to professional artists and curators. For many it is an important part of their identity, to be part of the art world. According to sociologists from Goffman (1959) to Butler (2004) identity is a performative act, something we repeat and thus maintain. By acting by the rules of how, for example an artist should be, you become an artist. By doing things that look like art, they become art. Heinich (1997) compares the art with a belief system. Art is a belief in certain fundamental values we share with others, a sort of identity. Some people, of course find it easier to follow the standards of the arts than others. For example, if art is considered to be something that white Western men do best, it is difficult for a black woman to assert her artistic genius and be accepted as one of the clergy. If discussions are carried out at exclusive nightclubs it can be difficult for low-income parents with young children to participate. Participation is not on equal terms, and some decide more than others. Decisions about what is art are not taken by any central authority, but are influenced by all. But some have more influence than others, and this cultural hegemony interacts with an economic hegemony.

One principle we can note here is that while *anyone can join*, this does not mean that anyone will get recognition. It is a *decentralized system*, there is no central legislation for who counts, the rules are carried and maintained by all the participants in the system.

#### 4.2. How is the agenda set in the art world?

From a historical viewpoint the concept of art has changed radically, starting from the Middle Ages, when the art was more like a craft, to the artist as a romantic genius following the emergence of capitalism, to the artist as collectively created by the art world's institutions, the institutional concept of art (Becker 1982; Hauser 1999; Thornton 2008). So, what is considered as art is changing. And everyone has their view of what art is, or of which art is more interesting. In principle, anyone can do what she wants how she wants. But obviously there are certain issues that count more than others. Some artists' art sells for millions while other artists may never even get the opportunity to be exhibited. Here it is important who it is that makes the art or suggests an artist; whether there is someone who has high status or that refers to someone of high status and thereby legitimizes their position. Status is co-created from different intersecting parameters such as class, age and ethnicity. Bourdieu (1993) claims that status is thus both something we are born into and something others assign to us, though it can also be developed through individual actions.

The changing status of the art world's actors is important information in the art world. What is right and what is wrong in the arts is relative and changes constantly, depending on the changing status of the actors. Co-branding is also an important feature of the art world, where the actors benefit mutually from strategic relations with the right people and places (Thompson 2008; Thornton 2008). If an important actor falls out of fashion, the status of associated actors and art genres lose value and position in the history of art.

*Status* is thus an important feature of the art world. To get your own perspective into the arts, you have to be the right person and have the right contacts. *Co-branding* is another important aspect, in terms of being associated with the right people and styles.

#### 4.3. Who participates in the discussion about art?

Even though status is important when you collectively decide that certain issues are more important than others, perhaps it is not the will to dominate that is the main reason for wanting to participate in the discussion about art. Common interests and identity is what the players themselves set as an explanation for participating in various artistic fields (Gielen 2005; Heinich 2009). Bowness' (1989) description of the avant-garde in art emphasizes the recognition of peers as the main driving force. His model of four "circles of recognition" takes both time and space into account. The inner circle, whose recognition matters most, consists of the closest artistic colleagues, the second circle consists of gallery owners and collectors. The third circle consists of experts in art, critics and art historians who are often further away spatially and in time. The outermost, widest but least significant circle consists of the general public. The actors simply want to participate primarily in discussions concerning themselves, where they feel understood, where they are listened to and recognized. This recognition does not have to come directly but may well be in an uncertain future (Heinich 1997).

So there is a need to create a system that rewards the creation of joint discussions, a *discursive forum* that rewards exchange between actors. *Asynchronous communication* is another principle, the fact that the discussion can evolve over time.

#### 4.4. How are the decisions taken about what is art?

There are no central instances of legitimization for becoming an artist or the standard for art. In the dynamic rating system of the art world artists' and art's value is decided on a daily basis through a complex evaluation system situated in each action of the system. In order to mirror this decentralized action in the digital system some kind of *voting should be ubiquitous*, ongoing and everywhere.

#### 4.5. How do you know what rules apply in the art world?

The experiences of the group were that a common domination technique in the art world is the withholding of information. What is right and what is wrong to do is seldom outspoken. In principle, according to the norm for artistic freedom, everything is possible and everyone can join the global art community. But in reality, the rules are harsh and few have the privilege to participate. The informal rules governing the fellowship are a tacit knowledge obtained by socializing with other participants in the international art world. Here the group wanted to challenge the norm by using the tool as a clarification of the informal systems, and thus empowering the actors.

One method practiced in radical democratic meeting techniques is to increase the participants' awareness of power structures by observing the conditions for dialogue in the social situation; e.g. who gets the most space and attention, who is ignored, and how domination techniques are used (Hedenstrand 2008; Hemberg 2002). In order to challenge the domination technique of withholding information, and to support reflection, some kind of *visualization of the informal hierarchy* is necessary.

#### 4.6. Design principles

Design principles we can extract from our study of the art world are thus:

- Any one can join
- Decentralized system
- Status counts
- Co-branding
- Discursive forum
- Asynchronous communication
- Voting should be ubiquitous
- Visualization of the informal hierarchy

## 5. Implementing design principles

Even though the focus in the analysis was on the singularities of the art world, what came out was a set of common principles for an informal discussion. An informal discussion can be seen as a complex “value system” where users give each other encouraging nods, ignore some of the speakers and engage in heated argumentation with others. There are several meeting techniques that emphasize complexity and offer diverse possibilities for debate to encourage different kinds of participation styles. Open space technology is one example where users employ both written comments and informal oral discussions to come up with an agenda (Owen 1997). Here users create the agenda together, and prepare the questions in self-organized groups in an organic but efficient process, before any decisions are taken. There are plenty of examples of digitally mediated self-organized systems that contain a similar functionality. Wikis are, for example, based on the idea of an open ongoing discussion and here many of the aspirations of deliberate democracy are fulfilled (Klemp & Forcehimes 2010). Referring to the work of Dryzek (2005) on deliberative democracy Lourenço & Costa (2010) define blogs and Wikis as “discursive forums”, places where peers can develop a common discourse around shared interests. A Wiki is a simple system which enables a group of people to develop a website without knowledge of coding. The basic idea is that anyone in principle can add or edit pages. Anyone can create new Wiki pages by simply creating a new link with the name of the page. The pages are not hierarchical, but the data structure is held together by hyperlinks between pages. Most Wiki types come with an opportunity to discuss the contents of the current page, and a history of the development of the site with the possibility to retrieve earlier versions. This provides an easy way to collaborate around the development of the content. A Wiki fulfills many of our design principals; *any one can join*, it can be a *decentralized system*, it is a *discursive forum* and it enables *asynchronous communication*.

We have therefore started from this basic Wiki functionality and developed certain aspects further. The user has greater control over the pages she develops, and may choose to invite other participants in the development or only as commentators. You can also make parts of the content private or public, or direct it only to specific users.

*Ubiquitous voting systems* are also present online in form of possibilities for extending communication in different ways; linking, liking, blogging, digging, twittering. Here value systems are created using reputation to validate content rather than using the legitimacy of conventional institutional frameworks. But the algorithms involved are never completely visible or open to change by the users. Our ambition is to reconnect this kind of ubiquitous and ongoing rating directly to the user and thus make the valuation process visible. Therefore, in order to mirror the importance of status in the tool, status needs to be calculated. But it is a delicate

matter to decide who in practice would determine the status of various actors in the system. Should the participants' status be determined when they enter the system? Or should the status be decided in an ongoing voting procedure in which participants regularly rate each other? This would probably not attract some participants. The solution is to focus less on the actors and, instead, to count activity. "Status" is thus measured indirectly through the value others assign to the actors' actions. Here we assume, following gender research on communication on-line (Herring 2008; Kampen & Snijkers 2003; Nakamura 2001; Postmes & Spears 2002; Wright 2005), that users will react differently to other participants depending on the status position they attribute to the actor. People who have acquired a reputation inside and outside the system get more attention and their actions are given a higher score. Of course, this provides no simple answers as to exactly what factors determine how participants treat each other. But it can point towards ongoing discrimination patterns.

Everything the participants do in the system is called *Acts*, and every Act is also a *React* on someone else's Act, as in Fig. 2. The participants' *Status* is measured in these two different ways in the system. Initially it was an attempt to mirror Bourdieu's habitus concept. Here your position (Status) is something that can be developed through individual actions (Acts), and something others assign to you depending on class, gender and other structuring factors (Reacts). Of course this can not measure the complex habitus process, but it creates a nuanced unit that gives an idea of what kind of activity is needed to level up in the system, without going into details.

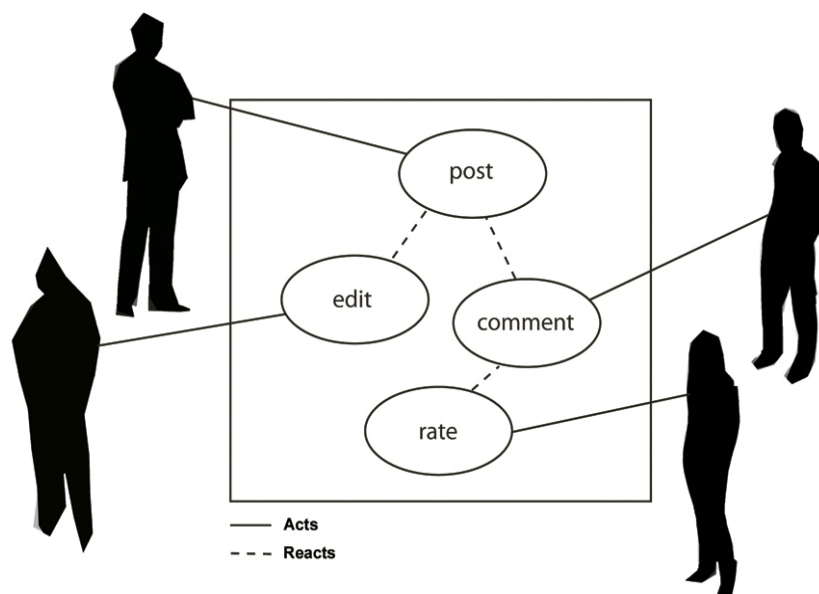


Figure 2. Acts and Reacts on Acts in the system.

Fig. 3 shows how score is distributed in the system, both for Acts and Reacts, and to both actors and objects in the system. The scoring of the objects gives users an opportunity to navigate the content based on popularity.

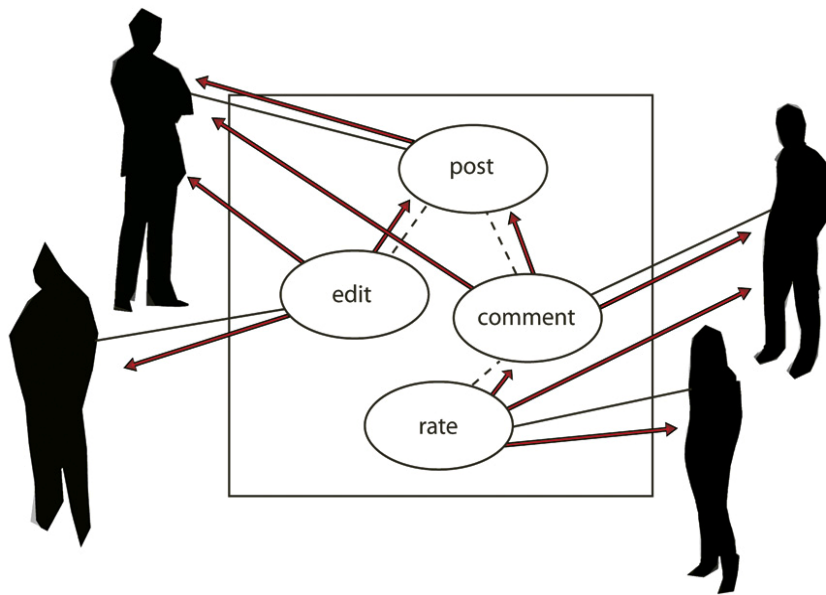


Figure 3. Distribution of score in the system for Acts and Reacts, to both actors and objects.

The valuation does not just take place in one direction in the art world. If one is referring to an artist this not only gives the artist greater value, but also gives oneself value by making the reference. The reference is a way to legitimize one's own position, but it is also a way to legitimize others using the same reference. This mechanism of co-branding also has to be counted. Therefore the score that is given for certain Reacts depends on who is responsible for the React. Fig. 4 illustrates a case where an actor's status level influences the amount of score that is distributed. Here status is a relative value calculated on the user's percentage of the total amount of score in the system, expressed in a value between 0 and the number of users in the system. This implies more or less "inequality" depending on how the system is used, and the greater the number of users the greater the potential inequality.

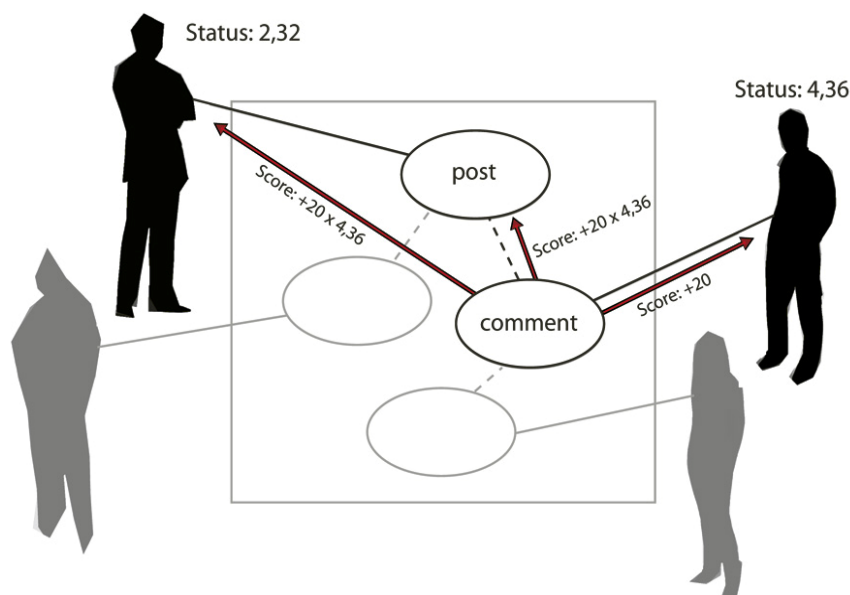


Figure 4. Distribution and calculation of score when a user with the status 4,36 is commenting another user's post.

## 5.1. Visualization and motivation

Bourdieu describes the art world in military terms as field and movements of positions, where different fractions compete (Bourdieu 2000). Becker describes the art world more as a collaboration, where there are not one but many worlds, in a universe that expands with more participants (Becker 1982). Whatever one's perspective, one can look at a strategy to legitimize/establish the artist as a kind of game. A game can also be used as a method for clarifying the rules and can both be instructive and motivate participation. Thus hierarchy of some kind can, in fact, enhance participation. Most groupware support the setting of different roles, like administrator, moderator, members and guests, but these are not dynamic and do not mirror the complex interplay in real life role settings. In order to involve the actors of the art world in the effort, a system was needed that reflected the important informal and dynamic hierarchies that create meaning in this culture.

The actors' scores can be used to visualize the actors' positions in the system, but they can also give this status a formal meaning, connecting it to certain rights. This could be a way of fostering a certain behavior, like forcing new participants to lurk and listen to previous discussions before starting their own.

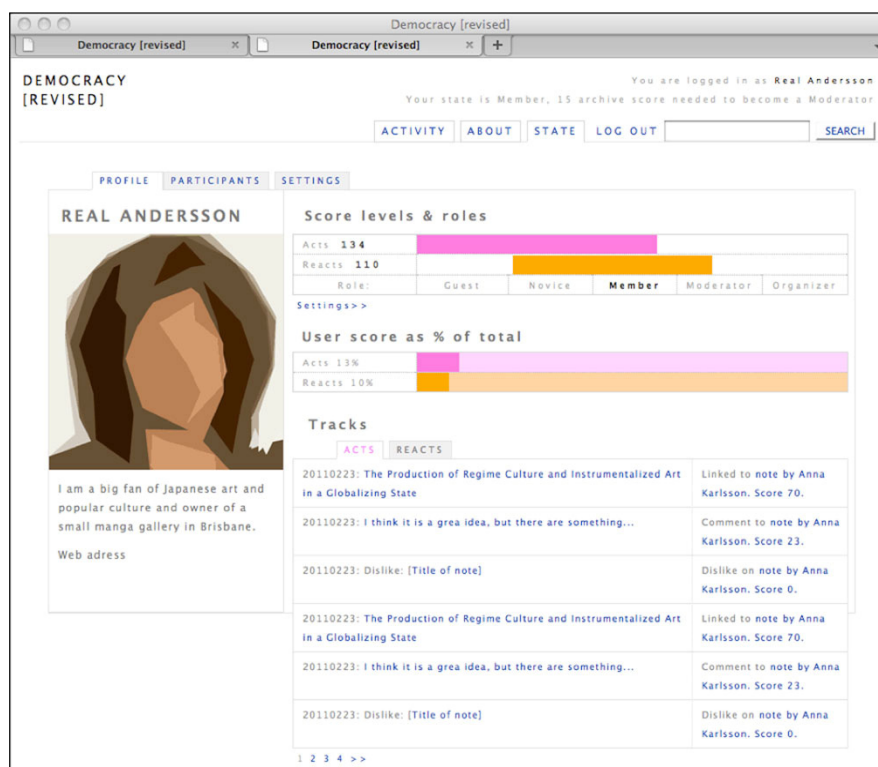


Figure 5. Prototype profile page showing status in relation to total amount of acts and reacts.

		Variables		Roles				
Rights		Score	Status impact	Guest	Novice	Member	Moderator	Organizer
Acts	new post	140	x0	x0	x0	x0	x0	x0
	edit	10	x0	x0	x0	x0	x0	x0
	comment	20	x0	x0	x0	x0	x0	x0
	like	10	x0	x0	x0	x0	x0	x0
	dislike	0	x0	0	x0	x0	x0	x0
	rate	20	0	x0	x0	x0	x0	x0
	Edit public pages	10	x0	x0	x0	x0	x0	x0
	Setting Values	0	x0	x0	x0	x0	x0	x0
	Score needed			0	100	200	500	
Reacts	comment	20	x2	x0	x0	x0	x0	x0
	liked	10	x3	x0	x0	x0	x0	x0
	disliked	-10	x2	x0	x0	x0	x0	x0
	linked	70	x2	x0	x0	x0	x0	x0
	rated 1	-15	x2	x0	x0	x0	x0	x0
	rated 2	-10	x2	x0	x0	x0	x0	x0
	rated 3	10	x2	x0	x0	x0	x0	x0
	rated 4	30	x2	x0	x0	x0	x0	x0
	rated 5	45	x2	x0	x0	x0	x0	x0
Score needed				0	0	200	500	
Total score needed				0	100	400	1000	Invitation

Figure 6. Template of thresholds, amounts and total scores of user activity related to roles and rights. Variables that could be changeable by users are in red. Grey areas show what rights are connected to which role in this template.

Users' status in relation to others as well as the valuation of different actions and scores can be made visible and changeable for the users, or groups of users (Fig. 5 and 6). Here the system can be set up for different purposes depending on what type of interaction one wants to promote. In Fig. 6, the value of adding a new post is relatively high in order to promote new initiatives. The score given can both have an informative and a symbolic function. If attached to roles, it creates a "game" where users level up and receive extended rights by earning points within the system. In the template example of settings of roles and rights in Fig. 6 "Guest" has the right to read and comment on others' posts and to approve them, but cannot create posts or rate others' posts. To become a "Novice" the user has to obtain a score of 100. As a "Member" the user has the right to do everything except edit public pages. To be allowed to edit public pages the user has to level up to "Moderator" which demands a sustainable contribution to the topic. To become an "Organizer" with the right to set the values and thus being able to co-create the rule for the game the user has to be invited by an organizer.

## 5.2. Design specifications

The system can be summarized in the following design specifications:

A discursive forum: It should support development of common questions, rather than decision-making. Anyone should be able to propose an activity and implement it without anchoring it through voting and discussion. Technically it resembles a Wiki, a discussion forum that supports open source cultural production. Users

have the right to edit their own posts, and to delegate this right. Linking structures the information pointing all actions to earlier actions, to emphasize a common discourse.

- Ubiquitous voting: Voting is done constantly everywhere and in different fashions: Linking, commenting, liking/disliking, and rating. All actions in the system create a score that reflects an opinion.
- Counting activity: A person's reputation should be measured through her and others' actions. Everyone's different reputation should be taken into account when judging action. The scores users give depend on their total score, i.e. their status level. The users' total score depends on their own activity and the score other gives the users' activity. User and posts percentage of all scores are dynamic and depend on the total distribution of score within the system.
- Visualized status: Transparency and visualization of how score is gained clarifies user strategies, system rules, roles and rights.
- Motivating game: Gaining visual reputation should be challenging in order to motivate and encourage participation. Hierarchy can be used as a way of communicating the system and motivating participation.

### 5.3. Wiki + Status + Visualization = Reflexive technology

A collaborative Wiki-like interface, where anyone can create a page linked to previous pages and develop this through the collective, reflects the institutional concept of art where anyone can become an artist as long as she follow the rules created in the dynamic negotiation in the network and thus contributes to the common discourse. A status meter reflects the importance of status in the art world, where participants are scored both by one's initiative and the value others put on this work. Score is gained for many different activities: Linking, commenting, liking/disliking, and rating. Just as in the art world co-branding is an important part of the scoring system, and one's own value is changed indirectly if those referred to change their value. Unlike the art world, where unclear rules makes the system difficult to maneuver, our system creates a visualization of the individual strategy in relation to others as a way of showing alternative routes. The visualization of the score level also creates a kind of gaming experience that clarifies the strategy game in the art world, and can serve as a way to motivate participation in the short run.

The tool is a fully functionally prototype in Drupal that has been evaluated in a small group of users and will be tested further during 2012. The functionality is discussed in detail in two previous conference papers (Hansson, Karlström, Larsson, & Verhagen 2011; Hansson, Verhagen, Karlström, & Larsson 2011).

## 6. Discussion

In a global perspective, one can say that democracy is about the dissemination of a democratic culture, an idea of equality expressed in reflective acts. How can our tool support a global democratic reflexivity? And how is it possible to develop this further?

In this groupware we have developed what we would like to call a micro-democratic model with the ambition of mirroring Fraser's concept of democracy. According to Fraser (2005) a global democratic justice has three dimensions; The first dimension is distribution (1) of equal rights, from legal rights to economic opportunities. The second is recognition (2), that all different kinds of identities and singularities are culturally recognized. The third dimension deals with representation (3), that the people who will be affected by the decision are also represented in the democratic process.

Our tool visualizes these aspects on a conceptual level;

- 1) Distribution of individuals activities is visualized in Acts, showing who is actually using the possibility to act, and who are able to articulate themselves in suggestions and question.
- 2) Recognition is visualized in Reacts, that show whose questions and suggestions get support and acknowledgment.
- 3) Representation is visualized in Status, showing who is most influential and active. Our system can, by measuring the "status" show which actors have contributed most to the community of interests, and the stakeholders whose participation is perceived as important by others. This will create, if not a fair representation, at least a clear picture of who is counted as most "representative" in the community.

A computer program can of course not solve democratic conflicts in interest-based associations, but by showing how individual actions reproduce and alter the structural patterns, use of the system serves as a basis for discussion and as a support for a reflective democratic culture.

The idea of the system is to support discursive democratic processes that can develop various social issues within communities of interest. But it could also be interesting to see how the system can support a traditional representative decision-making process. In most decisions in the representative democratic system, policy makers and officials are in dialogue with citizens about various details of the process. One way to create civic dialogue is through the use of digital discussion forums where various arguments on an issue can be discussed directly with the people concerned. The problem with these forums is the question of representation (Macintosh et al. 2009). It is generally people who already have great influence in society who dominate these digital boards. A tool that keeps track of who is involved and whose positions influence the most, can be a tool to catch sight of how much value this kind of discussion can be given. This does not mean that the participants' opinions are recorded directly, but that one keeps track of some meta-data such as gender, age, education level, etc., depending on the situation, and for safety reasons separates the data from the actual discussion.

Another development of this tool is instead of seeing this from a group perspective or from a government perspective, seeing it from an individual perspective. The individual is part of a wide range of interests and it may be interesting to see how these can be managed and made to work together from the perspective of the individual's life-world. It may therefore be interesting to see how reputation systems are used in other areas. Projects such as Klout give users an opportunity to transform their social capital in different networks to an economic capital in the form of various free products. Here an individual's personal brand is simply used for product placement, and influential individuals are given different free product offers.

Social networks like Facebook supports the user with a variety of opportunities to discuss and “vote” on various issues. Micro blog services like Twitter allow users to see how their own statements are spreading further through their network. It is often personal interests and a few enthusiasts, supported by fans, who run various issues. By looking at issues and interests as individual driven and identity-based, rather than collectively driven and interest-based, one can develop the system further.

## 7. Conclusion

In the field of e-democracy the research on technological development is primarily on the development of e-government, despite the rapid growth of social networks that indicates that the political discussion takes place elsewhere than at governmental web sites (Dahlberg 2011). This project focuses on the democratic processes in the creative culture online in globally spread commons. We have started from theories about how a particular community of interest is maintained, to find principles on how demos built on interest can be effectively enforced. These principles have then guided the development of a groupware designed to strengthen democratic processes in self-interest groups. The result is a Wiki-like prototype of a groupware where the participants’ reputation is measured and transformed through a dynamic voting process. The participants’ scores are created by their own activities but also by others’ reactions: links, likes / dislike, rating, commenting. This creates a system where both user activity and user reputation create the user’s score level. Importance is thus given not only to users’ actions but users’ informal status, here we assume that users will give scores not only based on the actual activity but also based on the status they attribute to the actor (that we assume depends on the level of closeness as well as on intersected factors like gender, class, age and ethnicity). The participant advances in the system by gathering points and can, based on the score level, be given different possibilities to influence the rules. Hierarchy can thus be used as a means to foster behavior and communicate the functionality of the interface, but also to create stability and to motivate people with high scores to continue to participate.

The prototype was tested in a small group of users and is now being tested in our internal team. During the summer of 2012 it will be evaluated in conjunction with civic dialogues in a research project on planning processes.

The system will be further developed towards two different uses:

- 1) A collaborative tool for interest based networks. This tool can serve as a way to draw attention to individual initiative by visualizing how reputation is created in the system by the user and in collaboration with other users. By using the score as a way to dynamically create roles and provide rights, informal roles in the group are visualized and formalized and thus become easier to understand and influence.
- 2) A research tool for empirically analyzing the significance of representation and recognition, transparency and motivation in in-group processes.

## Acknowledgments

This work was partly funded by the Swedish Research Council Formas, grant 2011-3313-20412-312011-3313-20412-31. Further, the author would like to thank Karl David Larsson, Petter Karlström & Torsten Jurell for help in the development of the design guidelines, Aron Larsson & Ernest Rwandalla for assistance in the system

design and Love Ekenberg, Åsa Andersson and the anonymous reviewers for valuable comments.

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