Formalizing informal social behavior

- developing a visual tool to support collaborative discussions

Karin Hansson
Royal Institute of Art & Stockholm University
(Department of Computer and Systems Sciences)
Stockholm, Sweden
karin.hansson@kkh.se

Harko Verhagen, Petter Karlström, Aron Larsson
Department of Computer and Systems Sciences (DSV),
Stockholm University
Kista, Sweden
{verhagen|petter|aron}@dsv.su.se

***Abstract*—In technological development in the area of e-democracy in-group equality is taken for granted. However, inequality in online communication is just as common as in other social contexts. To research the effects of starting from the presupposition of inequality we have developed a groupware for discussions. Based on democratic meeting techniques and social media it takes the form of a strategic game. The score within the game reflect user activity and the reactions to the activity in a dynamic way. Existing groupware and Internet forums available share the measurement of user activity but their evaluation systems are hidden from the user and not open to change. Instead, our system offers many reaction mechanisms that all add to the score for a user that can be seen as the expression of the user's status. The calculation and weighing mechanisms are open to inspection and change by the users. Hierarchical roles reflecting game levels may be attached to rights of what a specific user may change. The prototype presented in this paper will be evaluated in the next phase of the design research process.**

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

I. INTRODUCTION

In the early discourse on the Internet and e-democracy, the absence of the body and its attributes suggested the Internet to be a neutral place where different people could come together and develop a deliberative democratic discourse [1], [2]. In this ideal speech situation participants would reach consensus on rational grounds and technology would diminish differences between people, regarding body, time and space. This view of Internet technologies as a neutral medium that fosters consensus still characterizes many of the contemporary attempts to use the Internet as a forum where participants from different groups, officials and politicians can meet[2-5].

Gender research concerning new media argues that social media such as chat rooms, online games, etc., are far from neutral places where participants are treated equal, but instead are places where gender, race, ethnicity and other grounds of discrimination are just as prominent as in other social contexts and that hierarchies and status are reproduced on-line [6-10]. In practice, communication technology may reinforce differences between individuals and groups in society, rather than bringing diverse groups and perspectives together [11], [12].

In the fields of political science and political philosophy, the Habermasian idea of a deliberative democracy has been widely discussed and developed [4], [13-15]. However, in technological development in the area of e-government a more nuanced understanding regarding the importance of form and structure in democracy is seldom articulated [5], [16]. Instead, what is mostly emphasized is the ability to create a neutral place for deliberative discussions, where the view is that technology can enable a stronger democracy [17]. Even in a more radical democratic perspective, where difference on a societal level is emphasized and the importance of separatist counter-publics is put forward, in-group equality is taken for granted. And despite the rapid growth of social networks that indicates that the political discussion takes place elsewhere than at governmental web sites, efficient technology design to support representation and analysis is lacking [5].

In an exhaustive review of current research on e-participation, Sæbø et al [16] discusses a technological agenda for the field. The paper states that most software are adaptations of existing technologies without much technological innovation, that the internet is treated as a distinct artifact, and that technological solutions are mostly taken for granted (with the exception of systems for e-voting). Furthermore, it suggests that a technological research agenda could focus more on developing novel tools.

It seems that there is a gap between theory driven research were technology most often is seen as given, and technology driven research where theory is seen as given. We bridge this gap and instead of treating technology as something neutral, we treat it as cultural production where norms and social practices are expressed in the system design.

As a starting point we challenge the presumption that members of an interest group are equals. Instead of developing a system based on an ideal speech situation, we suggest a system based on the opposite, a technological tool that takes people's difference into account and even makes it the point-of-departure. The research question in this paper is: *How then should a system based on diversity be conceived? And how is it possible to visualize and communicate power structures in the system's design without emphasizing or simplifying them?*

In order to find guidelines for the design of such a system, we have looked in to democratic meeting techniques and social media practices.

This paper expands on a previous workshop contribution by the authors [29]. The background and design principles (sections I through III) have also plementation, and in through VIII).

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II. Democratic Meeting Techniques

Following the theory by Robert A. Dahl [18], Hemberg [19] has created a model of democracy that is useful as a way of measuring participation on different levels, from countries and organizations, to smaller interest groups. Five criteria are stated for fulfilling the ideal democratic situation:

1) Participants are equal members
2) Participants sets the agenda together
3) Participants can fully participate in the discussion
4) All participants have the same status when decisions are taken
5) Everyone has an enlightened understanding of the discussion

These criteria can be used to analyze any situation from a participatory perspective, in order to find methods to improve democracy in the actual situation. Thus democratic meeting techniques are not a fixed set of methods, but a way of maintaining the reflexive process on a daily basis.

Democratic meeting techniques as developed in critical pedagogy and in feminist-oriented movements can be seen as a development of traditional meeting techniques where one uses an agenda, rules for speaking and voting procedures. Instead of assuming an ideal speech situation where all participants are relatively equal these techniques assume that people do not participate on equal conditions, that they have different capacities to participate, and that they are treated differently depending on interacting power structures. The underlying idea is that status and power is created in relation to others without being assigned a fixed category like "man" or "black". Power is created in the intersection between multiply categories.

One method to increase participants' awareness of the importance of power structures is to observe the conditions for dialogue in the meeting situation; e.g. who gets the most space and attention, who is ignored, and how domination techniques are used [19], [20].

Different communication forms produce different results, and people are more or less at ease when expressing themselves depending on the situation. In a critical and feminist pedagogic perspective the importance of a diversity of communication forms that takes peoples' different capabilities and experiences into account is therefore emphasized [21-24]. An informal discussion can be seen as a complex value system where participants control the stage by for example encouraging or ignoring some and going into 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 both written comments and informal oral discussions are used to come up with an agenda [25]. The ambition is to create the agenda together, and prepare it in self-organized groups in an organic but efficient process, before any decisions are taken.

A. Technology and discursive democracy

There are several examples of digitally mediated self-organized systems that contain functionality similar to those used in democratic meeting techniques. Wikis are such a concept where many of the aspirations of deliberate democracy are fulfilled [26]. Referring to the work of Dryzek [15] on deliberative democracy, Costa [27] defines blogs and wikis as "discursive forums". These are places where peers can develop a common discourse around shared interests and these discourses can in the long run influence democratic decision-making.

Dahlberg [17] suggests that democracy in self-organized systems like social media is to be understood as an autonomous system that goes beyond the centralized power of the nation-state, and where the network is the organizational principle. In this so-called open source production decision-making takes place in the collaborative, decentralized network of peers. Communication forms associated with social media and Web 2.0 are examples where technology supports this kind of e-democracy through a mix of different discussion forms, motivating and voting systems and possibilities to extend communication in different ways; linking, liking, blogging, digging, twittering. Here value systems are created using reputation to validate content rather then using the legitimacy of conventional institutional frameworks.

B. Game challenge to influence behavior

One can view the use of reputation in social media as an economic system for social capital, or a strategic game. Most games contain an economy of some sort where the challenge is to accumulate resources, where the users often level up and earn "score" by doing different activities [28]. Some social media also uses this game aspect in order to motivate a use of the system and to foster a certain behavior. Take for example LinkedIn that encourages users to add information to the system in order to gain "profile completeness", which means submitting different kinds of information and adding a certain amount of contacts. Swedish Lunarstorm is another social networking website that used economic challenge to make people to explore and use all parts of the system. Here active users received attention and sometimes awards for their participation. However, the functionality of most systems is only partly revealed and the systems are thus far from transparent. This holds for all social media applications we have analyzed.

III. System Design

Dahlberg [17] suggests that an important part of e-democracy takes place outside of the development of government initiated e-democracy projects. Instead, it occurs in collaborative decentralized interests-based networks. In order to create a system that supports and conceptualizes more autonomous decentralized parts of e-democracy, we have instrumentalized some of the norms and practices that were synthesized from democratic meeting techniques and social media discussed in the previous section. Our ambition here is to create:

A discursive forum:	The software should support development of common questions, rather than decision-making. Anyone should be able to propose an activity and implement it without the need for formal voting and discussion.
Ubiquitous voting:	informal voting should be on-going and everywhere.
Measuring activity:	A person's score in the system should be created through her and others' actions. Everyone's status in the system should be taken into account when judging action.
Visualized reputation:	Informal hierarchy should be visualized.
Challenging game:	Gaining score should be challenging in order to motivate and encourage participation.

We elaborate each of these points in the following sections A – E, where we describe how these norms and practices are expressed in the system design.

A. Discursive forum

Our intention is not to develop a formal voting system, but a platform that supports development of common discourses – like the development of a political agenda or as in collaborative cultural production. Therefore we build on the principles of a wiki, a platform that suits discursive processes. A wiki gives the user an opportunity to develop information in collaboration with other users in a simple way. One important criteria of democracy according to Hemberg [19] is to be able to set the agenda. In a wiki, the opportunity for anyone to raise a question and create a space for the discussion around it is technically unlimited.

In a more informal grouping, the subjective experience is important and it is the individual who decides what is relevant for her to discuss and how it relates to the overall theme. Therefore we have added the feature that the user who creates a post also controls this micro-forum, and decides if she wants to invite others in the writing process or just as commentators.

In order to make the information structure simple to use and to facilitate the development of a common discourse, we use association as a way of structuring instead of categorizing. A requirement to link a post to an earlier post forces the user to refer to at least one source within the system and this contributes to an emphasis on the development of a common discussion.

B. Ubiquitous voting

In a collaborative, decentralized network of peers, there are constant negotiations about what to do and cooperation is not steered using a centralized formal voting process. Democratic meeting techniques acknowledge that the arrangements for voting are important for participation and outcome, and therefore seek to vary forms of discussion and voting [19]. Our proposed system emphasizes different kinds of activities, and gives score not only to direct voting but to all kinds of attention: Linking, commenting, clicking a like/dislike button, and rating. These different possibilities to express meaning as a numeric value can be unrestricted or restricted in time and quantity. In the scoring process, both users and their actions are given score, creating a hierarchy not only between users but also between posts.

A "like" option that is easy to click on is commonplace in social media in order to provide users with a possibility to quickly express their opinion. This is often combined with a rating system that demands slightly more reflection. Some blogs provide users with a set of tools to evaluate and disseminate information widely through services such as Digg and Twitter. Our idea is to reconnect the value of this kind of informal voting directly to the user, and also create an understanding of the valuation process. The valuation is bi-directional; the reference is a way to legitimize the own statement, and also a way to legitimize other people who use the same reference. When linking to someone's post it adds score both to the user and the post. The amount of score can also depend on the *actory index* of the user, which is the users percentage of the total amount of score in the system, multiplied with the total amount of users.

C. Measuring activity

Visualizing communication structures may make the represented structure more permanent. An important question then is how to make structures visible without entrenching hierarchies. Another question is how status should be estimated. A situation where everyone rates one another in a constantly on-going voting process is not only time consuming, it can be difficult to get people to want to participate. Our solution to these two questions is to focus less on actors and more on actions. Following a critical and feminist pedagogic perspective we assume participants will give more attention to people with high status and to people in their network. Reputation most often refers to an opinion that an agent has of another agent's intentions and norms. Here we emphasize that this opinion is influenced by socially structuring factors: People who have a high status may get more attention and their actions may be valued higher by other users. Beginners and other people can instead compensate for their low status by being more active. The system may thus work in an emancipatory way. By visualizing reputation as a way of formalizing informal social processes, we will be able to use the system for furthering understanding of structural mechanisms empirically in unequal settings.

D. Visualized status

If we assume that groups always are structured and thus that the power distribution within the group is more or less unequal, a transparency of the structures can clarify user strategies and system rules in an empowering way.

We start with the premise that users receive recognition through the way they use the tool, and that others' reactions also depend on the status they attribute to the user due to structuring factors such as gender, class, ethnicity.

The system consists of three different parts: *Activity, About* and *State*. Activity is where new activities are suggested and debated inside a group, and partly on the public web as a news feature. About is were the result of the collaborative work is manifested outwards and where the overall topic that functions as the starting point for the work is expressed. State is where the individual score is visualized and roles and score levels are set. Of these three parts, State stands in focus here. Participants' State is in turn measured in two ways: through the activities users report and by the reactions from others on these activities. User score level thus depends on the score of the activity the individual creates in the system (*Acts*) and the score others give the individual actions in the system (*Reacts*). Depending on the purpose of the system, the setting of the score and thus the emphasizing of either Acts or Reacts can be changed.

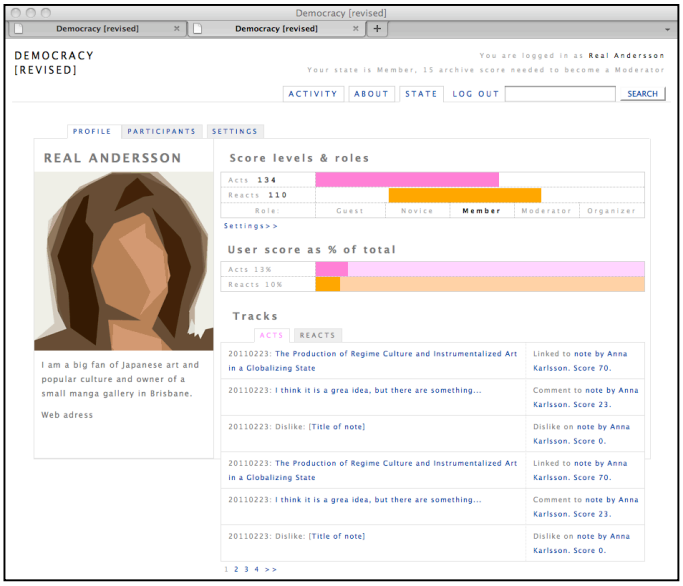

Figure 1. Web based prototype built in Drupal visualizing user state.

E. *Challenging game*

In order to motivate and encourage participation the system has to be challenging and rewarding. One can see the system as a strategic game, where increasing one's influence is a goal in itself. Most games contain an economy of some sort where the challenge is to accumulate resources. Users often level up and earn "score" by doing different activities [28]. The game aspect of the system can create an incentive to participate, even when the participant does not have an enlightened understanding of the "game". A certain hierarchy can thus be used as a means to develop a certain type of behavior and communicate the functionality of the interface, but also to create stability and to motivate people with high status (that we assume is due to knowledge and experience) to continue to participate. Here, the user score level can have a direct function, giving the users that have gained a high score a greater influence over the formulation of the collective goal. The roles could thus be set dynamically, giving the user more and more influence over the system, or set by an administrator.

IV. SUMMARY OF DESIGN PRINCIPLES

The system can be summarized in five design principles as follows:

1. A discussion forum, like a wiki, that supports open source cultural production. Users have the right to edit their own posts, and to delegate this right. Association structures the information.
2. Informal voting is done constantly and in different fashions: Linking, commenting, liking/disliking, and rating.
3. The score users activities generates depends on their total score level. Users' total score depends on own activity and the score other gives users' activity. User and posts percentage of all scores are dynamic and depends on the total distribution of score among users and posts.
4. Transparency and visualization clarify user strategies, system rules, roles and rights.
5. Hierarchy can be used as a way of communicating the system and motivate participation.

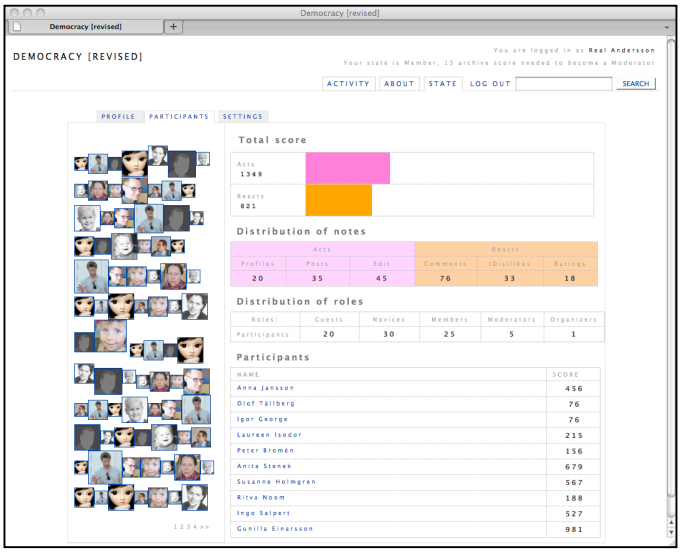

Figure 2. Web based prototype built in Drupal visualizing distribution of total score and roles on users.

The system can thus be described as a wiki combined with an evaluation system that tracks all activities of the users including the reactions of other users in relation to a specific action. Any comment, like / dislike or link action creates a score. Each new score affects other user scores in all parts of system since each user's *actory index* is calculated in relation to the total amount of score in the system. Furthermore, how much scores are given (by making comments, links, like / dislike, grades) depends on who reacted. As the user's actory index is constantly changing and as some old posts might be updated with new links and comments, the order of the archive is dynamic as each post dependents on the changes in the total system.

V. IMPLEMENTATION OF THE SCORING SYSTEM

Part of the distribution of score between users when posting and commenting is illustrated in Fig. 3 below. It is not only users that receive score, but also their activity. Furthermore, a distinguishing mark of our system is that scoring is multi-directional. When for example commenting on a post the commenting user receives score, as well as the post itself and the owner of the post. When writing a new post and linking to another post, both post owners receive score.

Our intention is not only to visualize the users relative status in the system, but also to use this information to enhance hierarchy. Therefore we have created an *actory index* that can be used to generate score that depends on user status within the system. The *actory index* is the users percentage of the total score in the system multiplied with the amount of users. *Status impact* is a variable that can be set to ≥ 0. When set to 0 status does not count and *actory index* is not calculated. When larger than 0 *actory index* is multiplied with the *status impact*. The sum S_x for user x in the gray circle in Fig. 3 and 4 is obtained from the following calculation assuming pre-defined mappings s and t:

$$S_x = \mathrm{s}(a) \cdot [1 + (t(a, z) \cdot A_x)] \quad (1)$$

where $s(a)$ is the score of activity a (20 in the above example), $t(a, z)$ is the status impact of activity a and z is a binary variable indicating if x is the subject to attention or not (2 and 0 for user A and B respectively since B is subject to attention) and A_x is the current actory index for user x. This suggested logic was implemented and tested as an Excel spreadsheet using a scenario with three fictional users involved in a dialogue that consisted of 28 activities. The logic of the system has been developed more in a recent paper [29].

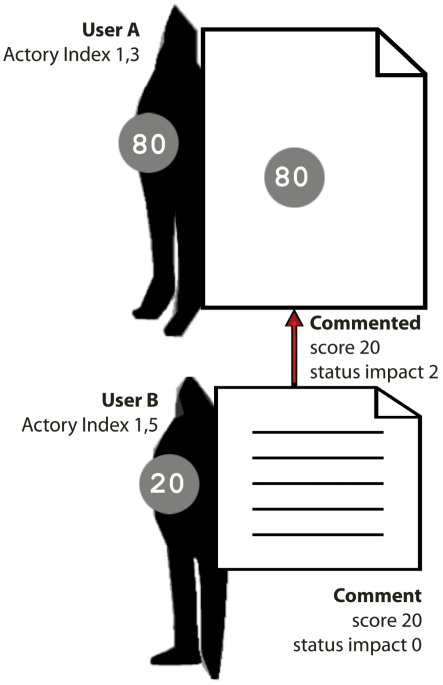

Figure 3. The distribution of score between users and activities when a user comments a post.

In Fig. 3 user "B" comments upon a post by user "A". User B receives score for the comment, user A and the post that is commented also receive score for the comments from B. Here the score is multiplied twice by the actory index of user B, thus creating a high score because of user B relatively high actory index.

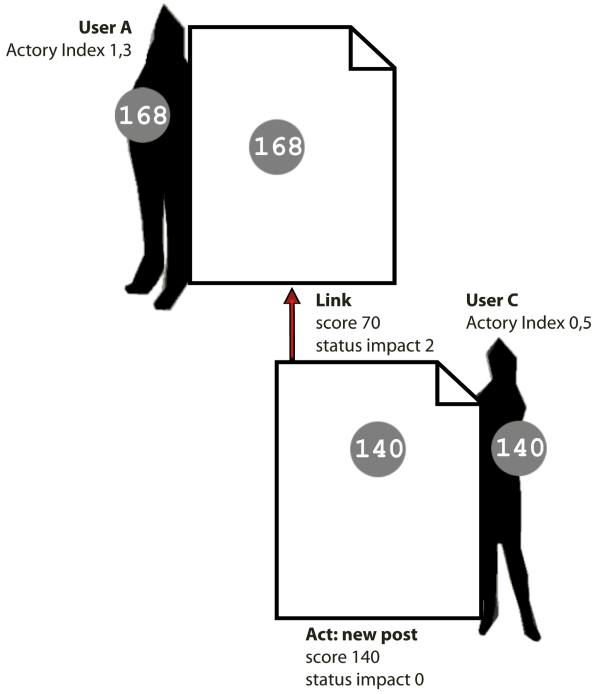

Figure 4. Distribution of score between actors and activities when creating a post.

In Fig. 4 the user "C" creates a post that links to a post by user A. This generates scores to the post plus to user C, and also for user A and the post that gets linked to. As user C has a low actory index, the generated score is rather low.

Fig. 5 illustrates the implementation of the scoring system in our Drupal prototype. The table *track_linkage* stores the linked and the linking activity. The user who created the linked activity receives a linked score in the *user_scores* table. The user who is linking the activity receives a new post score in the *user_scores* table. The *set_score* table stores variables that can be set and changed by the user / organizer.

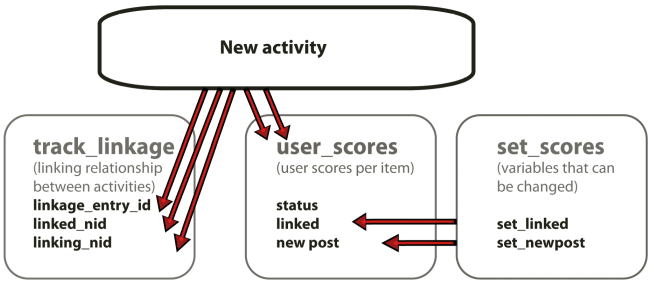

Figure 5. The scoring system in Drupal when creating an activity.

VI. DESIGNING THE RULES OF THE SOCIAL GAME

Informal voting is ubiquitous and performed in different ways: Linking, commenting, liking/disliking, and rating. We have chosen to use these features for the sake of simplicity. These activities are common in social media and are therefore simple to understand and use. The score of each feature depends on the social context and what kind of discussion one would like to promote. Different behaviors may then be stimulated and rewarded by redefining the score and the use of the actory index. What emphasis is put on each feature thus creates the informal rules of the collaboration or what can be called the social game. The rules can be set and changed by the organizer, but can also be set by the users.

We exemplify our system with two templates reflecting different goals with respect to the type of activity aimed for in the discussions.

In the template "Initiative" in Fig. 6 the value of adding a new post is relatively high in order to promote new initiatives. Features such as like/dislike provide an easy way of expressing an opinion that does not demand much in terms of critical thinking. In the example in Fig. 6 those actions are therefore not associated with high scores relative to other actions. For instance, to rate something is a more cognitively demanding action than liking or disliking, which motivates its higher minimum value in the suggested template. The rating is also conducted in relation to the history of the collaborative work, thus votes from users with higher status are given a higher reward. In this way the status of users that have worked a long time for the topic is emphasized, making it more difficult for new users to change the rules for discussion as well as the overall topic.

The score given can thus have an informative and symbolic function. If attached to roles it creates a "game" where users level up and receives extended rights by earning score within the system. In the example of settings of roles and rights in Fig. 6 the "Guest" has the right to read and comment on others posts and like 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 rights to do everything except edit public pages. To be allowed this the user has to level up to "Moderator" which demands a sustainable contribution to the topic. To become an "Organizer" with the rights 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.

In the template "Debate" in Fig. 7, the ambition is to reward debate and to give attention to other users. Therefore a new post does not give the active user a score; instead the user that created the post that is linked to is rewarded. The user can receive score by commenting, liking/disliking, and rating but her activity foremost gives score to others. Users' status is emphasized and the score given depends on who reacts. For example if a user with an actory index of 1.8 (which is 180% of average) creates a post, the linked post and its user receives $100 \cdot (1+(3 \cdot 1.8))=640$. But if the active user actory index is 0.2 the linked post and its user receives $100 \cdot (1+(3 \cdot 0.2))=160$.

		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 "Initiative": Thresholds, amount and total score of user activity related to roles and rights. Variables changeable by users are in red. Grey areas show what rights are connected to which role.

		Variables		Roles				
Rights		Score	Status impact	Guest	Groupie	Friend	Family	Boss
Acts	new post	0	x0	x0	x0	x0	x2	x0
	edit	0	x0	x0	x0	x0	x0	x0
	comment	20	x0	x0	x3	x5	x5	x0
	like	20	x0	x0	x1	x2	x0	x0
	dislike	10	x0	x0	x1	x0	x0	x0
	rate	40	x0	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	400	570	
Reacts	comment	40	x0	x0	x0	x0	x4	x0
	liked	10	x0	x0	x0	x0	x0	x0
	disliked	-10	x0	x0	x0	x0	x0	x0
	linked	100	x3	x0	x0	x0	x2	x0
	rated 1	-15	x3	x0	x0	x0	x0	x0
	rated 2	-10	x3	x0	x0	x0	x0	x0
	rated 3	10	x3	x0	x0	x0	x0	x0
	rated 4	30	x3	x0	x0	x0	x0	x0
	rated 5	45	x3	x0	x0	x0	x0	x0
	Score needed			0	0	200	530	
	Total score needed			0	100	600	1100	Invitation

Figure 7. Template "Debate": Thresholds, amount and total score of user activity related to roles and rights.

In order to level up from "Guest" to "Groupie" the user not only has to gain score, but also perform certain actions: at least 3 comments, 1 like, and 1 dislike. As a guest the user is not allowed to create posts or rate other posts and thus can only comment others and like/dislike. These rules follow the norm of common netiquette in online discussion lists, where new

users are supposed to lurk for a while and give attention to the ongoing discussion before positioning themselves. To be able to participate in the rating the user has to have submitted at least five comments.

In this template, it is only the "Boss" who has the right to edit the public part of the groupware, where the objectives of the group are listed and the collective work is abstracted.

VII. Discussion

In this article we have challenged the norm in the area of e-participation that all the participants in an interest group are equal. Instead, we have created a tool that assumes the opposite, that everyone is different and that this creates meaning. To find forms for this, we have combined democratic meeting techniques with a scoring system from social media and designed a web-based groupware that functions as a strategic game. Our ambition is to clarify informal norms and structures by formalizing them and make them possible to debate and influence, as when using democratic meeting techniques. The focus has been on the discursive democratic processes that take place in collaborative group discussions online.

As a way of visualizing diversity among users we have proposed a system that measures users' own activity and the reactions towards these activities. Here we assume, following gender research on communication on-line [6-10], that users will react differently to other participants based on the status position they attribute the actor. In this way we avoid a situation where participants judge the status of other participants directly and where status attached to a certain participant is emphasized. Instead, participants' status in the system changes dynamically and depends both on own actions and others' reactions, as well as the changing scores of all users and posts in the system. Thus, we have created a system that recognizes and expects hierarchies without linking them to any designated identity position. This fits well with the idea of status and power as being created in relation to others and not assigned a fixed category.

We also go one step further. Instead of avoiding hierarchy we emphasize it in order to create a strategic game and to explore hierarchy as a way of enhancing participation. One might ask how the emphasis on the game can create a social culture that promotes collaboration around a common goal. Here the use of game elements in social media influences us. In social media, games are sometimes used as a means to inform the user of how to use the platform. Adams & Rollings [28] defines similar motivation in games as *economic challenges*, when the user is motivated by simplistic economic measure of success. *Strategy* is another important part of the game, understanding the relation of whom you support and vice versa, and how the sum of your actions rather than a single move influences your score.

It may be interesting to see other game aspects in the design that can be emphasized for different purposes. In our tool most game aspects have to do with exploration. According to [28] there is for example always a *spatial awareness challenge* in exploring a new tool. Creating a map over the terrain makes it easier to navigate but in order to maintain it a challenge one should not make it to easy for the players. There is therefore a point in not revealing all the possibilities and rules in detail but let the details be revealed when the user has used the system for a while. *Locked doors* is also a game concept that motivates, meaning that the knowledge of that there is a higher level is enough, you do not have to declare exactly what the benefits are to level up nor how to do it.

Our ambition has been to create a dynamic voting system that reflects the complex systems of meaning in social groups. One of the shortcomings of the system in its current state is not surprisingly that it is complex and therefore difficult to explain. To reveal all the rules and give out a lot of information leads to problems with information overload. Just because all the rules are revealed does not mean that users can embrace them all. Here, the use of gaming challenges like *locked doors* can create motivation to participate even for those who fail to understand the overall meaning of the "game rules". The rules of communication may instead be presented at a more moderate pace and understanding can be created through practice rather than by reading a detailed manual.

The ambition to make the system modifiable by users can also be developed further. As a way of supporting diversity we have devised abilities to express opinions in a variety of fashions. To start with we have been using the most commonly used symbols for discussion and voting online, like "comment", "like/dislike" and "rate". These different modes of expressions are fixed in this version of the system but a less static and more modifiable system could easily be developed in a future version.

Further empirical research on the platform in use will investigate how users interact with each other and the system.

VIII. Conclusion

We have proposed a groupware that takes diversity and power into account, influenced by democratic meeting techniques and social media practices. Instead of treating technology as something neutral, we look at it as cultural production and use it as a way of expressing and changing norms and social practices.

The resulting system is a prototype of a collaborative platform with a game functionality where participants' status is measured and transformed through a dynamic voting process. The participants' status as users depends on their own activity and the reactions of others on these activities: links, likes / dislike, rating, commenting. Importance is given both to users' activity and their status position. We assume that users will react based on the actual activity and the status they attribute the actor. The status position we assume depends on level of closeness as well as on intersected factors such as gender, class, age, and ethnicity. By measuring participants' activity in relation to each other's actions instead of their rating of each other we visualize the presence of structuring factors rather than the actual structure. Participants advance in the system by gathering score and can be given different possibilities to influence the rules based on their score. By looking at the collaborative work in the groupware as a strategic game and using hierarchy as a way to motivate participation, we open up

the possible to communicate complex processes through practical action

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 status is created. By using the score as a way to dynamically create roles and provide rights, as in a strategic game, 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 status, role, transparency and motivation in group processes. The system can be set up differently for different experimental purposes and groups.

The current status of the project is a functional beta, developed in Drupal. We will test the tool on groups of students in autumn 2011.

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