Conflict Management in an Online Gaming Community[1]

Aldo de Moor, Jaap Wagenvoort
Dept. of Information Systems and Management, Tilburg University
the Netherlands
ademoor/H.J.Wagenvoort@uvt.nl

Abstract

Online gaming communities are an important class of virtual communities. They comprise complex and dynamic socio-technical systems, in which conflict is inevitable. Understanding how these communities manage conflict and how conflict management relates to other governance processes such as activity design and change management is essential to ensure their sustainability. This paper concerns a longitudinal case study of the role of conflict management in a successful virtual Formula 1 gaming community. The results of this study show that a carefully tailored system of conflict management and related community governance processes plays a significant role in fostering community health and growth.

Introduction

Virtual communities are emerging everywhere in our networked society. They partially replace the social capital that has been lost in the past decades because of increasing work pressure, distribution of work and living, and globalization (Etzioni 1993; Sassen 1998). They are also natural candidates to fill the collaborative gaps that traditional, hierarchical organizations no longer can. Thus, both from a social and professional perspective, it is important to know what makes virtual communities work, and what makes them break down.

There are many definitions of virtual communities. A comprehensive one is provided by Preece, who defines a virtual community as consisting of (1) *people*, who interact socially as they strive to satisfy their own needs or to perform special roles, such as leading or moderating, (2) a *shared purpose*, such as an interest, need, information exchange, or service that provides a reason for the community, (3) *policies*, in the form of tacit assumptions, rituals, protocols, rules, and laws that guide people's interactions, and (4) *computer systems*, to support and mediate social interaction and facilitate a sense of togetherness (Preece 2002). Technology is only an

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enabler. What really matters is how people interact to achieve common goals and how their interactions are mediated by often subtle and implicit norms. A virtual community is thus a socio-technical system. Such systems require proper *community governance*, including not only a careful design of their activities, but also a continuous change management process, in which the technologies are carefully calibrated with social requirements (Kling, McKim et al. 2000; Preece 2000; Shneiderman 2002).

Community governance directs what people can or should do and what they should not or cannot do (Preece 2000). Its manifestations range from unwritten norms, via moderation of discussion and regulation of conduct by systems operators, to formally enforced rules (Harvard Law School 1999). Governance in virtual communities is a complex process. First of all, it is *situated* in the sense that each online community has to work out its own system of governance (Rheingold 1993; Harvard Law School 1999). Communities are unique social constructs that require a subtle process of organizing themselves in order to be sustainable, which may differ from community to community. Second, research findings indicate that virtual communities, because of their voluntary nature, are more *democratic* and less authority-driven than other organizational forms (Carotenuto, Etienne et al. 1999). Rather than being regulated by imposed rules, they develop their own set of shared group norms. It has been shown that members becoming actively involved in community moderation and standard setting is a necessary condition for the virtual social networks to become self-sustaining (Andrews 2002). Decision making is thus not a simple process of top-down control, but much more a form of subtle negotiation between many stakeholders in the community.

Much research stresses the harmonious side of communities: how they provide emotional support, sociability, information, and instrumental aid, for instance (Rheingold 1993). However, while sharing objectives, community members often have very divergent interests, leading to potential conflict (de Moor and Weigand 2004). To develop a sustainable community, conflict management is therefore essential. In online communities, this is even more important, and more difficult, than in face-to-face communities (Duval Smith 1998). Furthermore, understanding how conflict occurs and can be handled may illuminate patterns in regular behaviour that would otherwise go unnoticed (Sternberg 2000). It is, however, not easy to determine successful models of conflict management in virtual communities. Standard

(inter)organizational approaches, such as described in (Ulijn and Lincke 2002), cannot simply be transplanted, given the unique properties of virtual communities. Empirical research is needed that can provide insights into the conflict management structures and processes needed to allow a community to evolve into a mature and healthy state.

Virtual gaming communities are an interesting domain for studying conflict management. Online gaming is an important economic activity and quickly becoming a sizable portion of the total video game market (CNET.Com 2004), which itself is an increasingly important part of the entertainment industry. Much care is therefore given to making such communities sustainable. Furthermore, participants often take their hobby very seriously, ensuring participation and the development and enforcement of strong communal norm sets. Studying online gaming communities can thus make important contributions to the understanding of virtual communities in general, both by the research questions they raise and the large amounts of empirical data they generate (Manninen 2002).

Many studies on online gaming concern MUDs (multi-user domains) or other types of virtual worlds in which people simulate social and economic interactions, e.g. (Morningstar and Randall Farmer 1990; Turkle 1997; Dibbell 1998). These studies mostly describe anecdotal cases of conflict and ways to deal with it that have - often spontaneously - emerged in online communities. A more systematic account of conflict management in virtual communities is given by Duval Smith, whose findings show that methods that reconcile divergent interests through mediation and factfinding and that adjudicate rights by factfinding and arbitration are more effective than power strategies of social control by the community's management (Duval Smith 1998). Still, longitudinal studies of online gaming communities that have been able to successfully handle conflict are still scarce, yet much needed to get better insight into what works and what does not in the long run.

In this paper, we aim to contribute to this body of knowledge by studying conflict management in the GPChampionship community. This concerns a gaming community in which members emulate the Formula One racing schedule. The community was established only a few years ago, yet has grown into the most successful Formula One racing simulation community on the Internet. Like in any online community, serious conflict does regularly occur, yet has not permanently damaged the community. Elaborate conflict management procedures have evolved which have prevented the community from disintegrating. In this paper, we therefore

use the following leading questions with respect to analyzing this community: what is the role of conflict and conflict management? What structures and procedures have emerged to manage conflict? How does conflict management relate to other community governance processes? What balance has been found between the need for an effective and the need for a democratic governance process?

In the next section, we outline a conceptual model of conflict management in virtual communities. We then use this model to analyze the GPChampionship case. After discussing some implications of the findings, we end the paper with conclusions.

Conflict Management in Virtual Communities

To clarify the role of conflict management, we first outline a conceptual model of the virtual community governance of which it is a part (Fig.1).
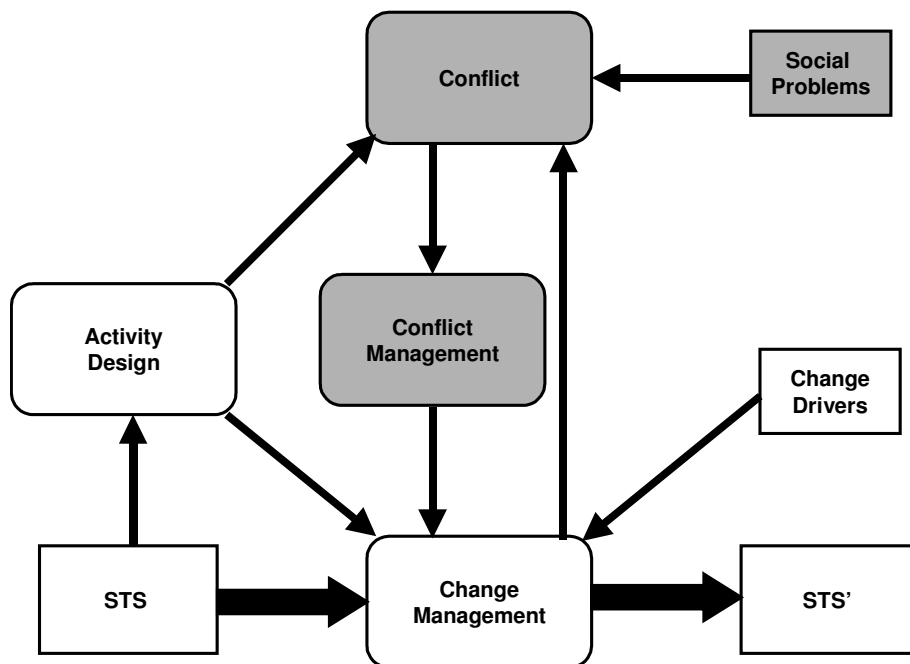

Figure 1 A Conceptual Model of Virtual Community Governance

Central to any governance system is that it encompasses the processes and institutions that enable the citizens of a particular population to seek the collective good. In online communities, such governance principles of actions typically should emerge from the bottom-up (Johnson and Post 1997). We therefore define community governance as

the regulation of community behaviour by applying community-defined norms and rules that prescribe what regulation behaviour may, must, or may not be performed by members of the community in their various roles. In our view, community governance consists of three main processes: *activity design*, which concerns the definition and tuning of the operational processes or workflows of the community (which are enabled by the socio-technical system or STS); *change management*, which concerns the implementation of changes in the socio-technical system of the community; and *conflict management*, which consists of the prevention and resolution of conflict. These processes do not occur in isolation, but are interrelated.

Activity design is a source of change to the socio-technical system because of the breakdowns people experience when applying technologies in their activities (Winograd and Flores 1986). For example, members of a community may discover that they need an agenda functionality to better coordinate their work, or that they need to redefine their procedures to make optimal use of their mailing list. Besides leading to changes in the socio-technical system, activity design may also give rise to conflict, however, for example about interpretation of rules or distribution of resources. Conflict management is then needed to deal with such conflict. Conflict management, in turn, may lead to the need to make changes in the socio-technical system. Such changes could concern an update in procedure, such as "netiquette", but may also entail a change in the technical system: many tools have built-in technical features for dealing with online misbehaviour (Sternberg 2000). A chat tool, for example, often allows one to ignore or to 'kick' an offending user. Most often, however, the changes required will be a mixture of social and technical changes. Besides activity designs, *social problems* within the community also contribute to the emergence of conflict. Many conflicts arise because of disagreeing values, goals, interests and norms (Duval Smith 1998). Special efforts are needed, for instance, to mitigate resistance that may occur when members dislike the online community structure, see a lack of appropriate topics, or do not see their interests reflected in the community's purposes (Andrews 2002). Besides these 'legitimate' sources of conflict, there are often members who intentionally misbehave by purposefully breaking the rules of civilized online behaviour, for example by flaming discussions or spamming (Sternberg 2000). To further increase the complexity of conflict management, one should realize that there are many complex and interrelated drivers of socio-technical change, including social, technological, organizational, environmental, and political

factors (Peterson, Smits et al. 2000). Inadequate change management may then easily create new sources of conflict or disrupt carefully tailored socio-technical solutions to deal with previous conflict.

Having outlined the complex governance context in which the conflict management process is embedded, we are now ready to take a closer look at its make-up. First, one should realize that conflict management does not equate conflict resolution. Adequate conflict management instead aims to prevent conflict as much as possible.

An important approach to prevent conflict is to design communal norms into the socio-technical system so that sufficient social capital is created, which can act as a buffer against the emergence of conflict. Key to fostering such voluntary online cooperation between strangers in virtual communities is to ensure that the socio-technical system supports the emergence of trust, which is the implicit set of beliefs that the other party will refrain from opportunistic behaviour and will not take advantage of the situation (Ridings, Gefen et al. 2002). The resulting system should also ensure that social support can be generated by, for instance, aiding self-expression, promoting attachment of members to their community, and facilitate the emergence of generalized reciprocity, which means that members are more likely to give to and take from the community as a whole (Wellman and Gulia 1999). Besides ensuring that the right norms are designed into the system, there must also be sufficient attention for communication support, as this is essential for the coordination of actions in the community (Manninen 2002). Furthermore, communication support should play an essential role in allowing members to explain background assumptions and get involved in a process of rational discourse, thus reaching true consensus on issues of potential conflict instead of imposing decisions by force (Froomkin 2003).

If despite all attempts at prevention, conflict should still arise, there are several ways to resolve it. There are three basic strategies for resolving disputes, in descending order of desirability: reconciling interests, adjudicating rights, and exercising power (Uri, Brett, and Goldberg in (Duval Smith 1998)). Duval describes three types of third-party procedures that were used to create an effective system of conflict management in an online gaming community. They were designed to reduce the dependence on power contests by attempting to reconcile interests or adjudicate rights: mediation, factfinding, and arbitration. In the order of introduction of these procedures, both the authority of the third-party and the focus on rights instead of

interests increases, whereas desirability of the procedure decreases. *Mediation* is negotiation assisted by a third party who facilitates the disputants reaching agreement on a solution to their conflict. *Factfinding* is a quasi-judicial process in which the neutral party conducts an evidentiary hearing and issues a report. Factfinders have the authority to decide the facts of a dispute and may also have the authority to make recommendations for resolution. *Arbitration* is also a quasi-judicial process. It differs from factfinding in that arbitrators issue decisions which, by prior mutual agreement of the parties, are final and binding (Duval Smith 1998).

In the following case study, we use our conceptual model of the role of conflict management in community governance as a guiding framework for analysis, in order to answer the questions raised in the introduction.

Case Study: the GPChampionship Community

This section describes the results of an exploratory case study, aimed at obtaining a more specific understanding of to what extent and in which form the conception of conflict management introduced in the previous section applies to one of the world's most successful online racing communities. Since the community has been so successful for many years, its conflict management approaches should be instructive to other communities as well. The data were collected by one of the authors, founder and participant observer of the community, in which he is both a player and a member of the management. The formal basis for our observations were the conceptual model, documents, discussion archives, change logs, and interviews with key members of the community, such as members of the management. The case study is exploratory in nature, in that we aimed to examine the actual evolution of socio-technical solutions for managing conflict in virtual communities, rather than testing pre-conceived theoretical notions of conflict management in more traditional settings. In future work, we intend to make more refined analyses of particular aspects of interest.

Background

In October 2000, GPChampionship.com was founded by a Dutch Formula One enthusiast. GPChampionship.com started as a small, so-called simracing

championship, which means that virtual drivers from all over the world match up online to race against each other to see who is the world's best simulation racing driver. To this purpose, drivers use their own racing software, which is initialized before each race by data from the central web server. After the race, the driver uploads the results to this server. The championship is organised in several leagues. Each league has different characteristics in terms of difficulty and drivers can choose the league in which they would like to compete. Each year, one racing season is completed in every league. A season comprises a specific number of racing events and at each event drivers can collect points. The driver with the most points at the end of the season is winner of the championship.

GPChampionship is an open community of interest, which any interested person, who bought the simulation software, can join. The community developed from an initial 8-driver championship to a championship with over 700 registered competitors in 2004, thus being the simracing community with the most registered drivers in the area of online Formula One simracing communities. Not all registered drivers in the forum are active participants, but with currently approximately 250 active participants (i.e. registered competitors), participation is among the highest compared to similar communities. The growth of the number of active participants over the years is shown in the following table:

Year	# competitors
2000	18
2001	78
2002	144
2003	270
2004	284

The Socio-Technical System

Community members are involved in a wide range of *activities*. The main activities in GPChampionship.com are:

- Create and publish season rules;
- Create season schedule;
- Driver registration, activation and validation;
- Team registration, activation and validation;
- Start racing event;
- Start and finish qualifying and race;
- Verify preliminary results;
- Process driver/team appeals to results;
- Finish event;
- Process championship points.

Basic *functionalities* supporting these activities are the Registration Module, a Login Module, a News Module, a Results & Standings Module, and a Maintenance Module.

However, functionalities just for planning and administrating races are not enough. The continued existence of a virtual community is based on its conversation, for example in the form of postings and their responses (Ridings, Gefen et al. 2002). GPChampionship features a very active discussion forum. In July 2004, 531 of the 791 (67%) registered drivers had subscribed to this forum. Since its new installation in January 2003, the forum has had 48,065 postings submitted. This comes down to an average of almost 88 posts per day, which seems a very strong indicator of the health and success of the community.

Besides the basic racing functionalities and the discussion forum, the community has some advanced technical systems supporting the championship and its leagues, seasons and events. Examples include a dynamic and database-driven championship site, a custom-built application to log and prevent cheating, and an integrated full cheat-prevention tool in the championship site that verifies submitted results in real-time and provides full feedback of verification results to the driver.

These technical systems were not created all at once. Over time, the technical specifications and implementation have become considerably more complex. Drivers

imposed increasingly complicated requirements on the management of GPChampionship.com, which had to be addressed as soon as possible due to competition among simracing communities. As a result, systems were continuously improved and new ones developed. An interesting observation, based on interviews, is that there seems to be a direct relationship between the introduction of the new technologies and the increase in participation. Part of the rise in participation in 2002 and 2003 could be related to the fact that completely new championship software was developed for those seasons, whereas in 2001 and 2004 improved software from the previous year was used. This is an illustration of the complex interrelationships between the social and technical systems.

Community Governance

Over time, GPChampionship.com has evolved into a complex organisation. The management consists of the Race Directors. These are advised by League Consultants. A Verification Team verifies qualifying and race results. News Reporters report on completed events. A Court of Appeal processes appeals by drivers and teams. All these actors are responsible for the successful operation of the community. Drivers can take on such an active role (for example as verifier) when they feel they want to contribute to the community. About once a month, a driver requests to be assigned such a role. Race Directors and Court of Appeal members are selected from the community by the Race Directors only. League Consultants are elected by the community once a year. Every community member who participated in at least 6 events can be a candidate in this election.

Over the years, governance practices in GPChampionship.com have changed considerably. It started out as a small community with a very limited set of rules. Everyone who participated had a close relationship with the management of GPChampionship.com and just a few formal rules were required to organise the events. As time went by and the number of registered drivers grew, the rules had to become more formal as community members started questioning the fairness of decision making processes. This formalisation process included the following milestones:

- Extended Rules Document to formalise many of the implicit rules;

- Stricter verification of results;
- Improved communication of verification process to the community;
- Foundation of the Court of Appeal to give drivers a chance to appeal to verification outcomes.

We next discuss two of the governance processes distinguished in our conceptual model: activity design and change management.

Activity Design

A season consists of racing events. Each event is governed in the same way. There are several activities in an event:

- Race Directors start the event;
- The Verification Team verifies qualifying results;
- Race Directors process verification results and inform drivers involved of race details;
- The Verification Team verifies race results;
- Race Directors process verification results and inform drivers involved of the outcome;
- The Court of Appeal processes possibly submitted appeals and informs the drivers and teams involved on the final verdict.

Change Management

Members are not only involved in racing, but also play an important role in the change management of their socio-technical system. A sizable proportion of the registered drivers is actively involved in the development and improvement of the championship software and rules. Much responsibility for this governance process is in the hands of the GPChampionship.com management, however. The change management process in which they interact has over time evolved into the following procedure:

1) A driver or manager starts a new topic in the special 'Rules & Questions' topic of the community discussion forum. In this topic, a member explains why he or she wants to change something to the technical system or rules.

2) The Race Directors decide whether or not opinions of other registered members may be valuable in this discussion. The criterion used in this decision is the potential contribution of opinions from other members to the creation of relevant knowledge on the raised issue. If the request is very simple and requires only a small change to the system, Race Directors will not ask members to give their opinion. If the request concerns a significant change in structure and systems, Race Directors will ask other members to contribute.

3) If the Race Directors decide that general participation of other registered drivers is necessary, the management will state in the topic in what way the results of the topic may contribute to the changes to be decided by the management.

4) If the management considers it desirable that other registered drivers post their opinion, the request will developed by the Race Directors into a special forum topic in which registered drivers are urged to give their opinion on the case. Often, members from the management actively participate in this discussion as well. The advantage is that registered drivers immediately see the management's opinion on the subject. In this way, they have a chance to influence management's opinion before a final decision is made.

5) There is no predefined finish date for a change management process. When the amount of added replies to the topic posts starts to decline considerably, the Race Directors post a reply to the topic in which the participated drivers are thanked for they contribution and in which it is made clear that the management will go 'private' to make a final decision, taking into account 'the opinion of the community' as expressed in the discussion.

6) After private deliberation, the management will make a decision. This decision is also posted in the topic in the discussion forum. Community members then have the option to post their final opinion on the decision by posting a reply in the topic. This enables the Race Directors to assess the feelings of the community about the final decision and to give instant feedback to further increase the acceptability of the decision.

Participation of community members in these change management discussions is generally high, since the discussion affects the interests of most of the community members and also because they know that their opinions matter and are incorporated into decisions as much as possible by the management. Since the elaborate procedure invites all to participate and has many feedback moments, most of the decisions by the management are widely accepted by the community.
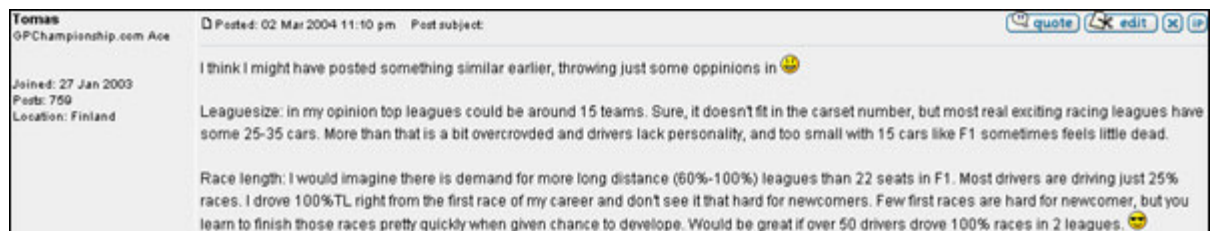

Figure 2 A Change Management Discussion in GPChampionship.com

To illustrate this approach, Fig 2 shows a contribution by one of community members in a topic in which the management asked the community for their feedback on the championship structure[2]. In total 69 contributions were made to this topic, which illustrates the (typical) high degree of involvement of community members.

Conflict Resolution in GPChampionship.com

GPChampionship.com's participatory activity design and change management processes have been an important factor in successfully preventing conflicts throughout the years. Still, conceptually we distinguish conflict management as a separate governance process, consisting of a prevention and a resolution part. We have seen that conflict prevention is mainly realized by the proper (re)design of the other two types of governance processes. Thus conflict prevention is a meta-process that should pay special attention to the procedural aspects of the other governance processes. However, despite all prevention efforts, GPChampionship.com still has its share of conflicts that need to be resolved. In this section, we zoom in on the

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[2] The discussion thread of this topic can accessed at http://www.van-den-hoogen.nl/gpchampionship2003/forum/viewtopic.php?t=2364

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resolution of three types of conflicts: activity design conflicts, social conflicts, and change management conflicts.

Resolving Activity Design Conflicts

Adequate management of conflicts originating from the activities on an operational level is crucial in a simracing community like GPChampionship.com. Conflicts at this level often occur when a registered driver does not agree with a certain decision made in the championship. This could be due to management decisions not being trusted, such as the disqualification of a driver or the non-disqualification of a driver when somebody else thinks that the driver has broken a rule. Many similar online racing communities have closed down because of conflicts on the operational level that could be not be resolved in time, in other words, which are the result of inadequate activity design.

Due to its growth in the past years, the GPChampionship.com management realized that with increased participation numbers it was required to implement more formal conflict resolution structures to deal with these situations. Otherwise the risk of chaos and lingering conflict due to drivers not trusting decisions made by the management would have been too high. In 2002, the management therefore launched a new institute called 'Court of Appeal' to deal with situations in which drivers do not agree with decisions made. Before the Court of Appeal was institutionalised, the Race Directors themselves were responsible for the discussion with drivers when these did not agree with certain verification decisions. The Court of Appeal, however, consists of members not being part of the management, but who are registered drivers who have built a good reputation and are respected by the community. This institute has the power to overrule decisions made by the management when concerned drivers prove that they have a strong case.

Despite the arbitration by the Court of Appeal, registered drivers sometimes still do not agree with or question the validity of the rules, most often when they are being disqualified. This can then trigger the governance process of change management.

An example of this way of changing rules because of a decision made by the Court of Appeal concerns a case of an unclear rule in the Rules Document[3]. In this case a Portuguese rival of a disqualified, but reinstated, Austrian driver started a topic in the discussion forum, in which he, in an emotional way, wondered why the Austrian driver had been reinstated by the Court of Appeal. The Portuguese was angry as he thought the rules had not been followed and that the Austrian driver had been given unjustified advantage. The fact, however, was that the Austrian driver had been disqualified for a technical system-configuration detail which did not influence his race. The system-configuration detail only influenced drivers who make a pitstop in their race, while this driver had not had one in his race. He therefore appealed and the Court accepted his appeal. The Race Directors analysed the appeal and concluded that the Rules Document was not governing this specific situation in a clear way. The appeal thereby triggered a change in the Rules Document, which was applied from the next event onwards.

Resolving Social Conflicts

Other conflicts are more difficult to manage. Especially truly social conflicts, for example two members who do not like each other, are hard to manage in communities. This has happened in the GPChampionship.com community a couple of times and has led to serious instability in the community. Emotional discussions have unfolded in which drivers start accusing each other, causing a deterioration of the social atmosphere in the community. Occasionally, this has led to a situation in which participants immediately left the community to join another one, but in most cases the drivers concerned managed to put things in perspective after a while, after which the case could be closed. In the end, communities like GPChampionship.com sustain themselves only because people voluntarily spend their free time there. When the fun disappears because of social problems, a community can easily collapse. This has not happened in GPChampionship.com, because of the strong sense of community, i.e. the considerable social capital that has been generated. Furthermore, the management is well aware of this risk of conflict and of the important role of fun in simracing gaming communities. The management therefore communicates this message of

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[3] See http://www.van-den-hoogen.nl/gpchampionship2003/forum/viewtopic.php?t=2428

combining fun and respect to its members very often by means of forum contributions. This message is well understood by the members and has evolved into an important community norm.

It is interesting to see that despite the democratic and participatory nature of this community, registered drivers still seem to be waiting for management to act and manage the problem when social conflicts emerge. Experience has also shown that early action can prevent a social conflict from really developing into a problematic or even destructive situation.

A case where management action came too late concerned a conflict among News Reporters. News Reporters in GPChampionship.com used to produce a magazine each month. They worked a full month in their free time to be able to present a high-quality magazine. A team manager who had commercial interests in another simracing community (his team was sponsored by a company that produces simracing machines) spotted a mistake in the magazine. His team name was misspelled (.net instead of .com). The manager thought this was an intentional mistake, because of the commercial interests. However, it just was a mistake and the aggressive response by the team manager lead to angry News Reporters who felt being attacked. Race Director-intervention came too late and by then various members were involved in a very negative discussion. Even though the situation was ultimately resolved and various people involved offered their apologies, the atmosphere in which the magazine could be created was damaged and no further editions were published. This case is clearly an example of a social problem that erupted because of misunderstanding and wrong assumptions made by various community members. Because Race Director intervention came too late, irreparable damage was done. The team manager left the community and no magazine has been created anymore until now.

Resolving Change Management-Based Conflicts

Conflict management may also be needed when new socio-technical features are added to the championship. In GPChampionship.com, no serious conflicts have emerged so far because of the introduction of new socio-technical features. This could be due to the well-evolved change management process preventing conflict. Other cases, such as the MUD where community members could not agree on how to prevent rogue behaviour, splitting the community into two bitterly opposed camps (Dibbell 1998), indicate that change management can indeed be an important source of conflict, however.

Discussion and Conclusion

The analysis of conflict management in the GPChampionship.com case teaches us several important lessons. It demonstrates that conflict is always present, also in successful virtual communities. It also shows that conflict as a natural phenomenon does not have to be destructive. On the contrary, if handled well, it may strengthen the community, by increasing the bonds between members who have been through a difficult time together.

For conflict management to be successful, however, an elaborate set of governance processes is needed. Conflict management cannot be seen apart from governance of activities and change. If designed well, these other processes may prevent many conflicts from happening in the first place. Conflict management should thus also include the prevention of conflict by explicitly informing the design of proper activity guidelines and change management procedures. Interesting in the case study is that activity designs continue to lead to conflicts, whereas change management hardly ever results in conflict. One possible explanation is that in activities the personal interests of racers are directly at stake, whereas in change management the decisions apply to all and may thus be considered 'more fair'.

Empirical work suggests that participation in online collaborative settings leads to less participation than in physical counterparts, but that this amount is more equally distributed (Hollingshead and McGrath 1995). Our case study seems to partly contradict these findings: participation, also in change and conflict management, is

surprisingly high, yet many community members still think in hierarchical terms. Many just want to drive, and expect management to make the decisions, although they passionately provide input in the governance discussions. Stratification thus seems to be an important factor in successful conflict management: management has an important role to play in community governance, although it is embedded in a complex set of checks and balances. This goes counter to many of the more naive notions of community governance in which everybody is playing equal roles and decision making by consensus seems to happen more or less naturally. Self-governance, particularly in extreme situations of conflict, thus seems to require much more detailed investigation.

Different actors are involved in the occurrence and management of conflict. An informal analysis of the 180 racers who were active at some point showed that about 30 raised their voice on their own initiative, about 50 did so when prompted by the management, and about 100 were never involved. This means that almost half gets involved at least occasionally in dealing with conflict. This is a high percentage, especially when compared to studies that show lack of participation being a major problem in online communities, e.g. (Benbunan-Fich and Hiltz 1999). This high level of participation therefore seems to indicate that conflict management indeed is a core governance process in online communities.

Many issues still need to be addressed in future research. Does the fact that there is competition among simracing communities have an effect on conflict management in GPChampionship? As members have the option to move, management may have to be more careful in its decisions than if GPChampionship.com were the only community. Another open issue concerns the instruments for conflict resolution used. The current conflict resolution rules and procedures have naturally evolved in this community. However, are they necessarily the optimal ones? Are other configurations of mediation, factfinding and arbitration perhaps more effective or efficient? What is the role of technologies in promoting trust and preventing conflict? GPChampionship.com makes use of tools specifically dedicated to prevent fraud, for example. Can such tools replace the need for human arbitration in certain types of conflict? More likely, a fine balance between technological conflict prevention and human conflict resolution will be needed. Can generic architectures for such socio-technical conflict management systems be

developed that would help virtual communities become more successful without having to go through a painful trial-and-error process first?

The observed complexity of conflict management and its relation with other governance processes indicates that we have to study conflict management processes in many different types of communities in order to distill best practices. For instance, most studies of conflict management in online gaming communities focus on MUDs. Do these have different properties compared to online racing communities? To what extent can the results of our case be translated to other types of online communities, such as knowledge management communities?

Summarizing, conflict management is an essential, yet very complex process in virtual communities. Without it, any community is likely to whither or die. Designing a successful conflict management system that deals with the complexities of conflict management and its interrelations with other governance processes such as activity design and change management is daunting. In this paper, we have tried to explain some of the most relevant issues, and have given examples of possible conflict management approaches in practice. We hope that our analysis may be one other step on the way to understanding how virtual communities may become better at prevention and resolution of conflict, thus helping them to become healthier and more sustainable.

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