

**How Belonging to an Online Group Affects Social  
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# How Belonging to an Online Group Affects Social Behavior – a Case Study of Asheron’s Call

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## **ABSTRACT**

The aim of this study was to investigate how group membership in an online game affects online and offline social interaction. Our main questions were:

1. Do people in online groups socialize more online and offline than people not in groups?
2. Do people in online groups have a different attitude towards bad behavior online?

We surveyed Asheron’s Call users and logged online game observations to compare the subjective reports with objective measures.

The results indicate that group members interact with other players online and offline more than non-group members, and that group members have a different attitude towards bad behavior online than non-group members.

## **Keywords**

Massively Multiplayer Online Role-Playing Games, Asheron’s Call, Online Communities, Virtual Environments, Social Interaction

## **INTRODUCTION**

In the last five years, the personal computer has developed from a stand alone machine to a graphically powerful networked device. People now use their PC to work and play together at a distance. PC games now have immersive 3D graphics and networked play modes as the norm. Massively Multiplayer Online Role-Playing Games (MMORPGs) are inherently networked as the purpose of the game is to role-play within a large community of online role-players. These games are growing in number of titles and number of players.

MMORPG designers intentionally encourage interaction between players. The storyline, the historical background, and game-play instructions all include descriptions of how players interact with other players. People are social animals and social interaction generally attracts people, online as well as offline [1]. Interaction between two players may attract a third player, to either actively participate in the interaction, or to spectate, and it is likely that the two interacting players will log on again hoping to resume the relationship.

Asheron’s Call (AC) [3] is a leading MMORPG, typically with 10,000-15,000 players logged on [20]. Many features of AC are designed to increase the social interaction between the players, and to foster ‘good behavior’ online. In this paper, we study two: the allegiance and the fellowship systems that constitute AC’s basis of supporting good and social behavior online.

An allegiance in AC is a large long term group that a player joins by swearing allegiance to another player. By doing this the swearing player becomes the other player’s vassal and the other player his/her patron. The relationship between the patron and his/her vassal is a mutual exchange system. The vassal automatically passes on experience points<sup>1</sup> to his/her patron, who typically provides his/her vassal with money, weapons, or protection in return. Since the patron too can swear allegiance to another player, the allegiance soon grows into a massive hierarchical structure with many patrons and vassals as the core, and a leader, the monarch, at the top of the pyramid. When a player has joined an allegiance, s/he belongs to the group until s/he breaks the allegiance. However, breaking the allegiance, costs the player a certain amount of experience points. Many allegiances consist of hundreds or even thousands of players.

A fellowship in AC is a small short term group, with between 2 and 9 players, who typically form the group to accomplish a common goal, such as exploring a dungeon or killing enemies. Apart from the enjoyment of interacting with other players, the fellowship members can also take on enemies and tasks with greater ease since they can achieve more in a group than individually, they may chat just to their group and they may share experience points gained. One can create, join, and abandon a fellowship without cost, but they last for only a single gaming session. When the player exits the game, s/he leaves the fellowship.

The aim of this study was to investigate if and how these two game features actually have an affect on social behavior in AC. We see this as a step towards a more

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<sup>1</sup> Experience points are central elements in the game, since they are the means by which players advance in the game.

general understanding of how we can create more social and less anti-social communities online.

## PREVIOUS RESEARCH

Existing research into mainstream PC gaming focuses on the technology and processes of game development (see any Games Developer Conference proceedings [11]) and on game-play's cultural and psychological aspects (for example Cassell and Jenkins [7]).

There is very little formal research on the social psychology of modern MMORPGs (Yee [19] is an exception). But we can look back to the Multi-User Dungeons (MUDs) and Object Oriented MUDs (MOOs) MMORPGs in part evolved from. There is a wealth of research on these, see for example sections in Preece [16], Turkle [17], and Pargman [15].

However, MMORPGs differ from MUDs in two key ways. Firstly, they owe part of their lineage to the addition of networked play to action games started by Doom [8] – so for MMORPGs the graphics are important. Secondly, they are a commercial success with 'the big three' (Ultima Online [18], Everquest [9], and Asheron's Call [3]) commanding approximately 655,000 paid monthly subscriptions [2].

One can design online communities to promote successful online social interactions (for example using the rules described in Kollock and Smith [12] on social engineering of virtual environments, see also Becker and Mark [5] and Axelsson [4]). Members of vibrant online communities often choose to meet in real life too (as, for example, in The Well [14]).

Bruckman et al [6] discuss different policing styles for online communities. AC chooses to focus on fostering good behavior through tools like the allegiance and fellowship system.

Kim [10], recognizes the importance of subgroups to online communities and, writes: 'Whether they're set up by community staff or created by the members themselves, these small groups are where people will form their deepest relationships and strongest loyalties.'

Our study examines online and offline social behaviors in AC providing hard evidence that engineering game structures has a significant social effect on behavior and attitudes.

## METHODS

### Study I: The Online Survey

#### *Procedure and Materials*

Respondents accessed our online survey for AC players via the Online Lab [13], a resource for conducting social psychology experiments online. A link on the official AC website [20] directed people to the survey, which consisted of 56 questions and a number of follow-up questions. By participating in the survey, the participants also took part in a drawing for a chance of winning one 6 months subscription to AC, worth about \$60.

The two main areas covered in the survey were:

1. online social interaction (e.g. to what extent do players interact with other people in the game)
2. offline, but game-related, social interaction (e.g. to what extent do players contact each other outside the game).

The questions were typically yes-no questions followed by a multiple-choice question asking for additional information (e.g. 'Have you become acquainted with other AC players via the game?' and 'If yes, how many players do you consider as your friends?'). We presented a number of statements to the respondents to either agree or disagree with, rating their answers on a 5-point scale (e.g. 'I adventure alone a lot'). Our questions also covered a number of behaviors that might occur in the game (e.g. 'Cheating on fellow players') and asked the respondents to rate, on a 5-point scale, how appropriate they think they would be in the game. We also asked a small number of free-response questions to give the respondents the possibility of describing their gaming activities in more detail.

#### *Participants*

During the 3 weeks (July 19 - August 13) the survey was online, we received 7364 entries. We based the results in this paper on a sub-sample consisting of the first two weeks participants. The total number of entries during the first two weeks were 5587, and after excluding multiple and incomplete entries, the total valid number that we base the results on is 5064 participants.

The average age was 29.6 SD =9.3 (n=4925). A majority of the sample, 86.2%, was male, while 13.8% was female (n=4861). The three countries with the largest representations in the sample (n= 4888) were The United States (80.4%), Canada (8.6%), and The United Kingdom (3.3%).

The three occupational categories with the largest representations in the sample (n=5064) were 'Technology' (21.7%), 'Student' (19.0%), and 'Other' (17.9%).

### Study II: Observation and Log Study

#### *Procedure*

To alleviate problems due to self selection among our survey respondents we also carried out a number of observations of AC players playing the game. To do this we used a special client, called the Sentinel Client, used by the support team within AC. The Sentinel Client features we required were

- Player list – so we could choose a random player online to observe
- Teleport – so we could move to be close to the player we were observing
- Invisibility – so our observation would not affect players behavior

We randomly picked a total number of 23 players and monitored them while they played the game. We observed players entirely without intervention in the game. The observation periods were between 30 and 60 (+- 5 minutes). At a minimum 30 minutes and at a maximum 65 minutes or until the observed player logged out. We took extensive field notes about what activities the player was engaged in, players s/he interacted with and places s/he visited. There were also automated logs produced during these observations. These logs included information about the player character and her/his activities (character name, heritage, gender, level, group memberships, geographical position in the game, communication, and spells used). We had to exclude one observation as the player appeared to be running a macro to repeat a predetermined set of utterances.

We would like to point out that the observation findings, even though they are quantitative, should be interpreted carefully, since the sample is small and of just one hour of play. However, the quantitative measures and the qualitative observations complement each other.

#### *Participants*

We observed 22 people. The average character level was 34 ( $SD=15.9$ ). They covered a large range of experience (the lowest character level was 5 and the highest was 69). A majority of the sample, 90.9%, was male, while 9.1% was female.

#### *Group Membership*

Table 2 shows the make up of our sample.

### **RESULTS**

In these two studies we were interested in how group membership relates to social interaction, that is, if players that belong to a group online socialize more online and offline than people not in groups, and if they have a different attitude towards bad behavior online than people not in groups.

Since there are two different group structures in the AC game, allegiances and fellowships, it is also interesting to see whether these behaviors and attitudes differ depending on whether a player belongs to the two group structures or only one, and depending on which of the two group structures a player belongs to.

The group which we will call 'the allegiance-fellowship group' consists of people who are members in an allegiance and who use to play in a fellowship, while the group called 'the no-group' consists of people who are neither in an allegiance nor use to form fellowships. The 'allegiance-only' group consists of people who are members in an allegiance but do not play in a fellowship. The 'fellowship-only' group, on the other hand, consists of people who are not members of an allegiance but play in a fellowship. Table 1 shows the distribution of people between the groups.

#### **ONLINE SURVEY RESULTS**

We summarize all the results reported on in this section in Table 1. We made the group comparisons below using

univariate analyses of variance (ANOVA) with time playing AC as a covariate. This means that the group effects reported are significant regardless of how long time the players have played the game, something which could otherwise be considered as a main influencing factor on social behavior.

#### **Time Spent Playing the Game**

We asked the participants three questions about how much time they spend playing the game. One question concerned how long they had played AC, the second question concerned how much time they spend playing AC in a typical week, and the third question concerned how long their typical playing session is.

When reporting how long they have played the game, the respondents answered by specifying a period from 'less than 1 month' (= 1) to '19-21 months' (= 8). The results show a significant difference between all the groups ( $F(3, 4657) = 53.10$ ,  $MS_E = 4.53$ ,  $p < .05$ ), such that the 'allegiance-fellowship' group ( $M = 5.68$ ,  $SD = 5.81$ ) has played longer than the 'fellowship-only' group ( $M = 4.92$ ,  $SD = 5.49$ ), and the 'allegiance-only' group ( $M = 3.41$ ,  $SD = 4.93$ ). The 'no-group' group report the shortest period ( $M = 1.53$ ,  $SD = 2.61$ ).

When it comes to average time played per typical week there was a significant difference between the groups ( $F(3, 4560) = 4.376$ ,  $MS_E = 241.03$ ,  $p < .05$ ), such that the 'allegiance and fellowship' group ( $M = 24.09$ ,  $SD = 15.47$ ), spend significantly more time playing than the 'fellowship-only' group ( $M = 20.88$ ,  $SD = 15.11$ ). There is no significant difference between the other groups.

The average typical play session reported is 3.93 hours ( $N=4363$ ). There is no significant difference between the groups.

#### **Friends and Close Friends in the Game**

To find out to what extent people socialize with other players in the game, we asked the respondents a number of questions about their social activities online. One question was: 'Have you become acquainted with other AC players via the game?' The follow up questions to this question were: 'If yes, how many players do you consider as your friends?', and 'How many of these do you consider as close friends?'

There was a main effect of group ( $F(3, 4173) = 2.71$ ,  $MS_E = 1156.45$ ,  $p < .05$ ) indicating that players in the 'allegiance and fellowship' group ( $M = 14.2$ ,  $SD = 35.3$ ) have made significantly more friends online than the 'fellowship-only' group ( $M = 7.6$ ,  $SD = 8.6$ ) (see Table 1). There is also an indication that the 'allegiance-fellowship' group differs from the other groups, but the difference is not significant, probably due to group size. There was also an indication ( $F(3, 3113) = 3.05$ ,  $MS_E = 53.07$ ,  $p < .05$ ) that players in the 'allegiance and fellowship' group ( $M = 4.44$ ,  $SD = 7.5$ ) have more close friends than the 'fellowship-only' group ( $M = 3.5$ ,  $SD = 2.0$ ). Also, the 'allegiance-fellowship' group differs from the other groups, but the difference is

not significant. People in the 'no-group' group reported the far least number of friends and close friends.

### **Social Structures and Social Behavior Online**

To find out how social players are online, we put forward four statements about social interaction online for the respondents to either agree or disagree upon. The 5-point scale used included the options 'Strongly agree' (=1), 'Agree' (=2), 'Neither' (=3), 'Disagree' (=4) and 'Strongly disagree' (=5).

#### *'I adventure alone a lot'*

There was a main effect of group such that the 'allegiance-fellowship' group ( $M = 2.05$ ,  $SD = 1.00$ ) adventure on their own significantly less ( $F(3, 4588) = 26.67$ ,  $MS_E = .96$ ,  $ps < .05$ ) than players in the 'fellowship-only' group ( $M = 1.64$ ,  $SD = .86$ ), players in the 'allegiance-only' group ( $M = 1.49$ ,  $SD = .88$ ) and than players in the 'no-group' group ( $M = 1.50$ ,  $SD = .60$ ). There is no significant difference between the other groups ( $p > .05$ ).

#### *'I usually don't chat with my fellow players'*

Players in the 'allegiance-fellowship' group ( $M = 3.79$ ,  $SD = 1.06$ ) chat significantly more with their fellow players ( $F(3, 4563) = 63.62$ ,  $MS_E = 1.15$ ,  $ps < .05$ ) than players in the 'fellowship-only' group ( $M = 3.11$ ,  $SD = 1.29$ ), players in the 'allegiance-only' group ( $M = 2.77$ ,  $SD = 1.24$ ) and than players in the 'no-group' group ( $M = 2.50$ ,  $SD = 1.22$ ). Players in the 'fellowship-only' group also chat significantly more than players in the 'no-group' group ( $p = .05$ ).

#### *'I find myself having meaningful conversations with others in AC'*

Players in the 'allegiance-fellowship' group ( $M = 2.26$ ,  $SD = .97$ ) have meaningful conversations to a significantly higher degree ( $F(3, 4548) = 1.12$ ,  $MS_E = .97$ ,  $ps < .05$ ) than players in the 'fellowship-only' group ( $M = 2.80$ ,  $SD = 1.12$ ), players in the 'allegiance-only' group ( $M = 3.23$ ,  $SD = 1.09$ ) and than players in the 'no-group' group ( $M = 3.05$ ,  $SD = 1.09$ ).

There is also a significant difference between players in the 'allegiance-only' group and the 'fellowship-only' group such that the 'fellowship-only' group has meaningful conversations to a higher extent than players in the 'allegiance-only' group ( $p < .05$ ).

### **Social Structures and Social Behavior Offline**

#### *Contacts with Players Outside the Game Context*

We were not only interested in to what extent people socialize with each other in the game, but also to what extent game relationships are brought offline. To find out about this we asked three questions about offline player contacts. Note that since all three questions were yes and no-questions and the value 1 signifies yes and 2 no, a low mean value in the describing section below, illustrates high sociability. We present these results in Table 1 as a percentage of how many in each group answered yes to the questions.

Two of the three questions were the following: 'Have you contacted people you have met in Asheron's Call outside the game context?', and 'If you have made friends in AC, have you met any of them face-to-face?'. Both questions showed the similar results. Players in the 'allegiance-fellowship' ( $M = 1.38$ ,  $SD = .48$ ) have contacted players offline to a significantly higher extent ( $F(3, 4638) = 28.84$ ,  $MS_E = .23$ ,  $ps < .05$ ) than players in the 'fellowship-only' group ( $M = 1.61$ ,  $SD = .49$ ), players in the 'allegiance-only' group ( $M = 1.71$ ,  $SD = .46$ ) and than players in the 'no-group' group ( $M = 1.93$ ,  $SD = .26$ ).

There is also a significant difference between players in the 'fellowship-only' group and the 'no-group' group ( $p < .05$ ) such that the 'fellowship-only' group has contacted players to a higher extent than players in the 'no-group' group.

Players in the 'allegiance-fellowship' ( $M = 1.74$ ,  $SD = .44$ ) have met players face-to-face to a significantly higher extent ( $F(3, 4574) = 9.34$ ,  $MS_E = .18$ ,  $ps < .05$ ) than players in the 'fellowship-only' group ( $M = 1.89$ ,  $SD = .31$ ), and than players in the 'no-group' group ( $M = 1.97$ ,  $SD = .16$ ). There is no difference between the other groups ( $p > .05$ ).

The third question concerning offline contacts was 'Do you give other players your outside contact information if asked (e.g. your email address or telephone number)?'. The results show that players who belong to the 'allegiance-fellowship' group ( $M = 2.52$ ,  $SD = .91$ ) do so 'Always' or 'Often' to a significantly higher extent ( $F(3, 4647) = 22.46$ ,  $MS_E = .83$ ,  $ps < .05$ ) than players in the 'fellowship-only' group ( $M = 2.08$ ,  $SD = .95$ ), players in the 'allegiance-only' group ( $M = 2.04$ ,  $SD = 1.03$ ), and than players in the 'no-group' group ( $M = 1.95$ ,  $SD = 1.05$ ). There is no significant difference between the other groups ( $p > .05$ ).

#### *Romantic Relationships with Players*

The fourth question concerning contacts with players outside the game was 'Are you or have you been dating, engaged or married to someone you have met initially in AC?'. In the 'allegiance-fellowship' group, players reported all three types of relationships, whereas players in the 'fellowship-only' group and the 'allegiance-only' group reported only dating. In the 'no-group' group, no one reported any romantic relationships (see Table 1). However, due to the small size of the groups, it is not meaningful to test the variance statistically.

### **Social Structures and Bad Behavior**

#### *Attitudes Towards Bad Behavior Online*

We were also interested in how people's attitudes towards bad behavior online might correlate with group membership. We presented 6 behaviors that might occur in AC and asked the respondents to rate how appropriate they think the behaviors would be in the game. The 5-point scale used included the options 'Very appropriate' (= 1), 'Somewhat appropriate' (= 2), 'Neither appropriate nor inappropriate' (= 3), 'Somewhat inappropriate' (= 4) and 'Very inappropriate' (= 5). The describing section below presents the ratings given and the statistical variance

between the groups. In Table 1 (where the results are described as a percentage), the two measures ‘Somewhat inappropriate’ and ‘Very inappropriate’ are presented as one joint measure, ‘Inappropriate’.

The results show that all players, regardless of group membership, show a moral attitude. However, in all cases except one (‘inappropriateness to hack the game’), the ‘allegiance-fellowship’ group rated to a higher extent the behaviors as being inappropriate than did the ‘fellowship-only’ group, the ‘allegiance-only’ group as well as the ‘no-group’ group. The last mentioned group shows the least moral attitude regarding three of the six behaviors. The differences between the groups are not statistically significant, except in relation to one behavior, ‘Inappropriateness to cheat on other players’. Here the ‘allegiance-fellowship’ group ( $M = 4.50$ ,  $SD = .94$ ) report a moral behavior to a higher extent ( $F(3, 4625) = 5.647$ ,  $MS_E = .91$ ,  $ps < .05$ ) than players in the ‘fellowship-only’ group ( $M = 4.32$ ,  $SD = 1.06$ ), and players in the ‘allegiance-only’ group ( $M = 4.09$ ,  $SD = 1.33$ ). There is no significant difference between the other groups ( $p > .05$ ).

In addition to the attitude questions, we also introduced a scenario to the respondents. We asked them to describe how they would deal with the situation by choosing from three different alternatives. The scenario and the alternatives were the following: ‘If you discover a bug in AC that could give your character a double amount of experience points in combat, would you... ‘report the bug to the administrators’, ‘share the bug with your friends’ or ‘use the bug to improve just your characters?’’. The results show, once again, that all players, regardless of group membership, show a moral attitude, such that a majority of players say that they would report the bug to the administrators. Even though there is no significant difference between the groups the results still indicate a slight difference such that players who belong to the ‘allegiance-fellowship’ group who would not report the bug would rather share the bug with friends than use it to improve their own characters.

### **OBSERVATION LOG RESULTS**

As in the online survey, we were interested in how group membership relates to social interaction, that is, if players that belong to a group online are more social online than people not in groups.

### **Social Structures and Social Behavior Online**

We used three different measures to find out how social players are online. We automatically logged the number of utterances that the players communicated in public, as well as the number of spells that they used, and we also took field notes during the observations to capture what kind of activities the players were involved in and to be able to describe how social they were while carrying out these activities.

However, due to the small number of subjects in the sample ( $N = 22$ ) it is not appropriate to perform statistical analyses to compare group effects on social behavior. We describe the following results in terms of mean values and used as a complement to the qualitative observations. Together however, we believe that these three measures (utterances, spells, and activity types) can form a valid basis for a comparison with the survey results. Table 2 below contains a summary of the results.

#### *Number of Utterances and Spells*

The 6 players in the ‘allegiance-fellowship’ group produce more than twice as many verbal utterances ( $M = 51.17$ ,  $SD = 50.36$ ) than the largest group in the sample, the ‘allegiance-only’ group ( $M = 21.21$ ,  $SD = 36.2$ ). The other two groups are too small to take into consideration.

When it comes to spell casting, the order is reversed. The ‘allegiance-only’ group produces almost three times as many spells ( $M = 87.36$ ,  $SD = 130.9$ ) as the ‘allegiance-fellowship’ group ( $M = 29.67$ ,  $SD = 58.13$ ).

#### **Activity Types**

The activities carried out in the game were classified into 4 categories, i.e. (1) Fight/Solve quest, (2) Trade, (3) Improvement of character (e.g. develop one’s skills, cast spells on self), and (4) Chat/Play. Each activity is social or not social, depending on whether the observed player performed the activity on his/her own or in a group.

The three most common activities observed were ‘Fight/Solve quest, social’ ( $n = 10$ ), ‘Fight/Solve quest, not social’ ( $n = 7$ ), and ‘Character improvement, not social’ ( $n = 3$ ).

When it comes to engagement in social activities, the groups that had most members engaged were the ‘allegiance-fellowship’ group (100%,  $n = 6$ ), the ‘no-group’ group (100%,  $n = 1$ ), and the ‘allegiance-only’ group (35.7%,  $n = 14$ ).

**Table 1****Social Structures and Behavior**

	Allegiance-Fellowship (n = 4309)	Fellowship-only (n = 263)	Allegiance-only (n = 48)	No-group (n = 41)
<b>Participant Characteristics and Time Play</b>				
Age (M ± SD)	29.6	29.9	31.3	30.2
Male (%)	85.7	89.7	97.9	90.2
Playing less than 1 month (%)	3.1	7.2	25.0	56.1
Playing 19-21 months (%)	30.1	24.0	14.6	0.0
Playtime per week in hours (M ± SD)	24.1 ± 15.5	20.9 ± 15.1	20.3 ± 14.3	22.4 ± 23.9
Typical AC session in hours (M ± SD)	4.0 ± 3.2	3.5 ± 2.0	3.9 ± 2.5	3.6 ± 2.8
<b>Social Behavior Online</b>				
Number of friends (M ± SD)	14.2 ± 35.3	7.6 ± 8.6	6.3 ± 9.2	2.7 ± 2.9
Number of close friends (M ± SD)	4.44 ± 7.5	2.5 ± 2.3	2.8 ± 3.7	1.0 ± 1.0
I adventure alone a lot (%)	75.7	88.0	83.0	95.0
I usually don't chat with fellow players (%)	14.2	33.2	48.8	60.0
I have meaningful conversations with others (%)	67.0	44.5	25.5	28.9
I seldom interact with other AC characters (%)	9.0	26.8	29.8	45.0
<b>Social Behavior Offline</b>				
Contacted people outside game (%)	62.2	38.8	29.2	7.3
Met face-to-face (%)	25.7	10.7	12.8	2.6
Dated AC player (%)	3.1	1.9	4.3	0.0
Engaged to AC player (%)	0.5	0.0	0.0	0.0
Married to AC player (%)	0.2	0.0	0.0	0.0
Often give outside contact information (%)	10.3	6.1	4.2	2.6
<b>Social Structures and Bad Behavior Online</b>				
Inappropriate to use foul language (%)	60.8	55.7	54.3	50.0
Inappropriate to cheat on fellow players (%)	89.9	85.8	87.2	77.5
Inappropriate to cheat on other players (%)	86.0	78.1	68.1	72.5
Inappropriate to harass other players (%)	88.7	84.4	83.0	82.5
Inappropriate to mislead others about you (%)	52.2	48.1	42.6	46.2
Inappropriate to hack the game (%)	91.9	91.6	87.2	92.5
Report bug to administrators	78.5	77.3	79.2	82.1
Share bug with friends (%)	13.9	9.8	6.3	7.7
Use bug to improve own characters (%)	7.7	12.9	14.6	10.3

Note. Number in groups may vary depending on response rate.

**Table 2**  
Social Structures and Behavior Online

	Allegiance and Fellowship (n = 6)	Fellowship only (n = 1)	Allegiance only (n = 14)	No-group (n = 1)
<b>Character Characteristics</b>				
Level (M ± SD)	29.8 ± 22.6	35.0 ± 0	36.9 ± 13.5	22.0 ± 0
Male (%)	83.3	0	100.0	100.0
<b>Social Behavior Online</b>				
Number of utterances (M ± SD)	51.17 ± 50.36	1.0 ± 0	21.21 ± 36.2	14.0 ± 9.1
Number of spells (M ± SD)	29.67 ± 58.13	15.0 ± 0	87.36 ± 130.9	3.0 ± 0
‘Fight/Solve quest, social’ (%)	100.0	0	28.6	0
‘Trade, social’ (%)	0	0	0	100
‘Chat/Play, social’ (%)	0	0	7.1	0

## DISCUSSION

### Social Behavior Online

The more groups a player belongs to, the more social s/he is. People who are members of both an allegiance and fellowships have more friends (and more close friends) online than other players. According to their self-report, they also participate in social activities like adventuring with other players, chatting and so forth to a higher degree. The same pattern appeared in the log and observation study, where players in two groups communicated more, and participated more in social activities than did players in one or no group. The differences between the groups are not always significant, but the same pattern repeats suggesting that group membership does truly have a strong influence on social behavior.

### Social Behavior Offline

We saw the same pattern for social behavior offline. Two-group members have constantly more social contacts with other players and no-group members have least contacts. Some studies of other online communities show online social relationships sometimes spill over to members’ offline life [14], but no one, as far as we know, has yet recognized the relationship between belonging to a subgroup online and increased offline social activity.

### Bad Behavior Online

The second subject of interest in this study, after investigating whether there is a relationship between group membership and social behavior, was to find out whether people in online groups have a different attitude towards bad behavior online. Some significant differences between the groups supports the hypothesis that group membership can support ‘good’ and prohibit ‘bad’ behavior. However, note that the majority of the players, regardless of group membership, demonstrate a moral attitude. The question

about what the respondents would do if they discovered a bug in the game that gave them an advantage shows that two-group members would, if they did not report it to the administrators, rather share the bug with friends, whereas players in one group or no group were more likely to use the bug themselves. We argue that group membership does increase players’ moral attitude, and makes people more loyal towards their groups. A small number of online community developers and researchers interested in dealing with the problem of bad behavior online have recognized the importance of social networks and subgroups as means to support good behavior [6,10]. Because people are more likely to behave well among, and towards, people whom they are familiar with [1] provision of game and hence community sub-grouping mechanisms has the desired effect.

### Time Spent Playing the Game

People in groups have played the game for a longer time than people not in groups. This gives us an indication that group membership is related to engagement in the game, so that a player either joins a group early on and thereby becomes engaged in the game, or s/he joins a group later on when s/he have become more engaged in the game.

We found that players who are members of two groups spend more time playing than players in only one or no group at all. This may be because people in dense social networks find the game more enjoyable and therefore play more. Or it may be that they have more people around to keep them in the game (it is for example not easy to leave a room, even if it is a virtual one, if people keep talking to you). Of course, it might be a combination of the two.

## CONCLUSION

Online groups make people more social online and offline: they have more close friends online they participate in social activities more often, they have more social contacts with players offline, and they are more loyal. This is not a longitudinal study so we can really only notice the correlation between group membership and social behavior. But, it is likely that there is a causal effect, since a player who joins a group becomes involved in a social network that makes him/her more visible and accessible to other players than players who are not in groups are.

Recurring patterns indicate that online groups support social behavior and they moderate bad behavior. To test this further we require controlled studies. For example, from the present studies it is difficult to tell whether the long term or the temporary group has a greater effect on social behavior. We need also to look deeper into the relationship between group membership and user experience to answer questions such as:

- Are groups more influential to new or experienced users?
- Can membership in a group help new users to acclimatize to the community faster and in a better way?
- Can experienced users gain something from belonging to an online group together with new users?

Alongside future controlled experiments, our results take us closer to an understanding of how to develop more social and less anti-social online communities for all kinds of users.

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