Communities of Practice in MMORPGs: An Entry Point into Addiction?

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1. Introduction

Massive Multiplayer Online Roleplaying Games (MMORPG) have become increasingly popular over the past few years. The most successful MMORPG "World of Warcraft" has to date – according to its publisher Blizzard Entertainment – more than 8 million subscribers[1] who pay a monthly fee to play on a regular basis. The ongoing investment in online gaming services by videogame publishers such as Microsoft's Xbox Live is pushing this development further and will increase the percentage of online gamers in the near future. In this context it has to be noted that MMORPG form a special subset of online games which demand a much stronger commitment than other online genres, such as first person shooters, tactical shooters, sports and driving games, which can be played more casually.

The forerunners of MMORPG, Multi User Dungeons (MUD), have long been believed to be a place to build and maintain communities, providing a social space (Turkle 1995, Bruckman 1998), but they never found their way into the mainstream. Now with millions of people playing MMORPG it is of interest to investigate whether these environments are providing new means to build meaningful online communities, or if they are games specially designed to create an addicted user base. Two questions are of special importance:

- are MMORPG a supporting environment for communities of practice?

[1] Press release from Blizzard Entertainment, January 11th, 2007.

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- is there a danger of becoming addicted to the game while trying to become a part of the community?

2. MMORPG as Supporting Tools for Communities of Practice – A Theoretical Approach

While there are countless references to the term community, only a few theoretically sound concepts have been developed to grasp the complexity of informal group learning. This study is based on the theoretical background of communities of practice (CoP) first described by Lave and Wenger (1991, for an overview of definitions see figure 1).

Lave & Wenger 1991, p. 98	"A community of practice is a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice."
Eckert & Wenger 1994, p. 2	"A community of practice is an aggregate of people who come together around some enterprise. United by this common enterprise, these people come to develop and share ways of doing things, ways of talking, beliefs, values – in short, practices – as a function of their joint involvement in mutual activity."
McDermott 1999, p. 1	"Communities of Practice are groups of people who share ideas and insights, help each other solve problems and develop a common practice or approach to the field."
Wenger & Snyder 2000, p. 4	"Communities of practice are groups of people who share expertise and passion about a topic and interact on an ongoing basis to further their learning in this domain."
Wenger 2001, p. 2	"In a nutshell, a community of practice is a group of people who share an interest in a domain of human endeavor and engage in a process of collective learning that creates bonds between them: a tribe, a garage band, a group of engineers working on similar problems."

Fig. 1. Different definitions for "Communities of Practice".

CoP consist of a content domain, a group (community) of persons interested in this domain and a shared practice to increase the effectiveness of each member in the domain (Wenger, McDermott, Snyder 2002, p. 27). They are set apart from other communities by a special kind of practice, forming a joint enterprise with a mutual engagement to develop a shared repertoire of knowledge and competences (Wenger 2000, p. 208).

The CoP concept seems to be a good theoretical background for analysis of the community building process in MMORPG. In MMORPG, the three defining blocks domain, community and practice of CoPs are present (see figure 2).

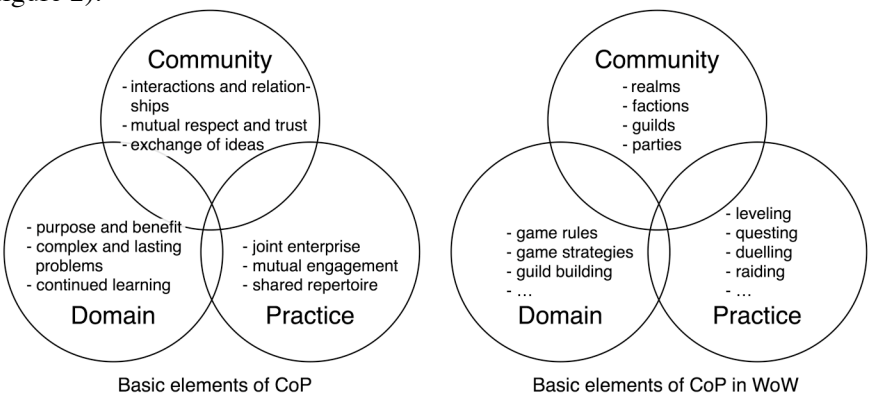

Fig. 2: Basic elements of CoP: in general (left) and in WoW (right)

WoW provides several technical tools to support the building of communities: the actual cooperative gameplay with an immersive 3D interface, guilds and groups, chat channels, a guild screen, post offices, discussion boards and guild websites. These tools are mapped to a typology of technological support for communities of practice in figure 3.

As can be seen in figure 3, WoW provides a nearly complete array of in- or near-game tools to support the building of communities, with the exception of guild websites, which are created and maintained solely by the guild members themselves.

Providing tools is not sufficient, though. The actual game design of WoW does not just *support* the basic elements of communities of practice, it *forces* players to group together especially in the higher levels of the game. While groups (parties) are a first step towards intensifying contacts with other players in WoW, apart from an occasional encounter, the guilds are the most important game element in building lasting social structures. Without becoming a guild member, it is nearly impossible to reach the game's ultimate goal and become a well known, respected high-level character[2].

[2] For more information about the actual gameplay and the user interface see http://www.wow-europe.com/en/info/basics/.

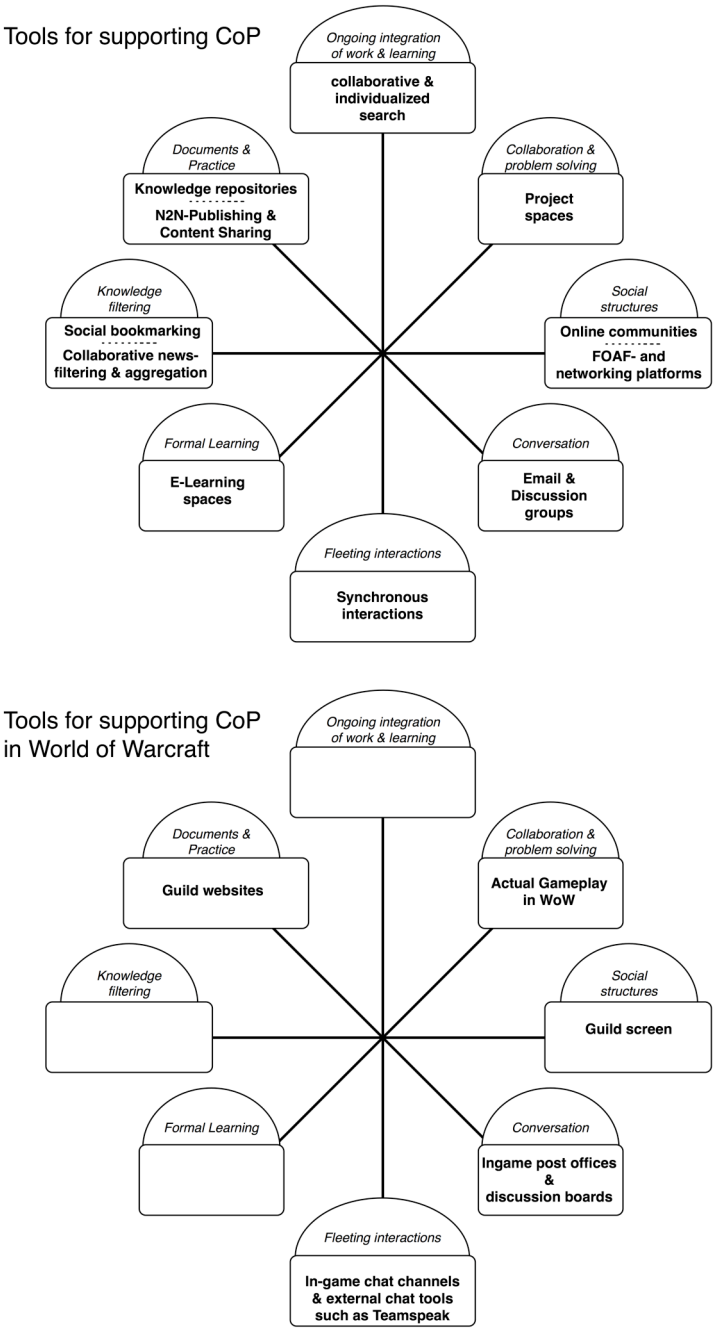

Fig. 3. Types of tools for support of communities of practice (Wolf 2006a updating Wenger 2001, top) and WoW-specific implementation (bottom).

3. Communities of Practice in World of Warcraft – An Empirical Study

To get empirical insights into the community aspects of WoW, an online study was conducted in March 2006[3]. In total, 1102 German players filled out the questionnaire (93.2% male players) with the majority of the players being between 18 - 29 years old (see figure 4). In the absence of direct access to World of Warcraft users through Blizzard, it was simply not possible to recruit participants through some type of random sampling mechanism, so they were recruited by announcing the study on discussion boards of guilds, WoW fan websites and blogs.

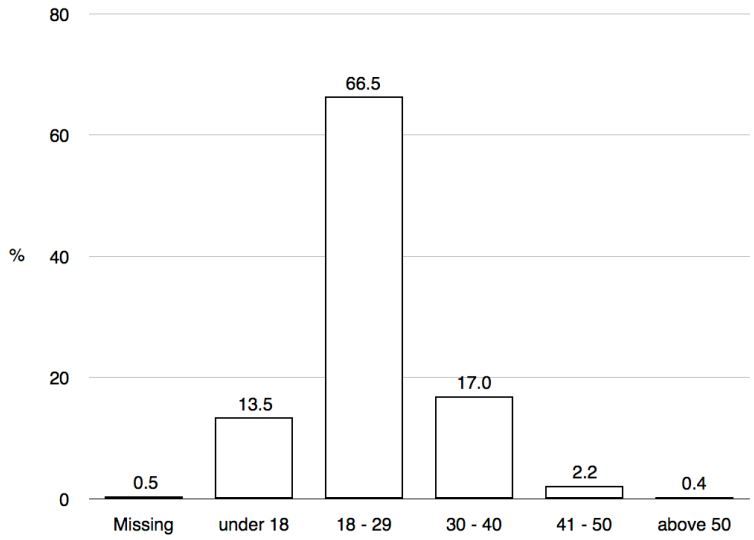

Fig. 4. Age distribution of participants (n=1102)

Therefore we can only compare our sample with other samples collected so far (see discussion below). While it cannot be said that this sample is representative, we are able to draw certain conclusions about people with a given intensity of playing, e.g. players playing 30 - 40 hours per week. Indeed, in comparison to the data from Yee (2006, see figure 6), the sample seems to be composed of more advanced players, which is more suitable for our analysis of community building, while not being focused as much on hardcore players as the Cypra (2005) study.

[3] Thanks to Sandra Cafrey, who helped in doing the online study and recruitment of participants as part of her state examination thesis.

Another bias of the sample is that people who are more engaged in a community within WoW are probably more likely to become aware of the survey in the first place (the survey has been announced on several WoW related forums and blogs) as well as to participate. The number of community-oriented heavy users in this sample is probably disproportionately high. Therefore it is not possible to conclude exact estimates for the whole WoW population. Again, the main thrust of the contribution is to investigate, whether the WoW toolset supports the formation of communities and if people who experience being member of a community are at risk of becoming addicted to the game.

Regarding actual playtime, more than half of the WoW players in this study (54.2%) played for an average of 20 or more hours per week (see figure 5). Heavy usage of 30 or more hours per week accounted for 22.4%. Nearly all participants played at least one hour per day (94.9%). For many people not involved in playing MMORPG, these numbers may seem very high. To put them into context, it has to be noted that the average viewing time of TV for example in Germany is about 26 hours per week (datasource: ARD/ZDF 2005), so the average WoW player plays as much WoW as people watch TV. Nevertheless, WoW is just one "channel" and the question is: how much time does one need to spend in a MMOG to get a community feeling?

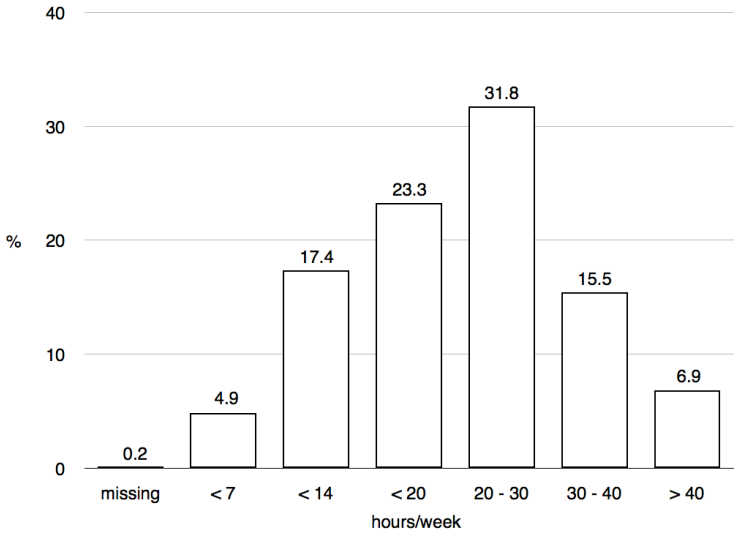

Fig. 5. Playtime for WoW in study (n=1102).

In comparison to other studies, there were almost no casual players (< 10 hours / week) but more "light" players (10–19 hours / week). The study by Cypra (2005) had many more "hardcore" players (40+ hours / week), whereas the Yee (2006) study sampled a lot of casual gamers (see figure 6).

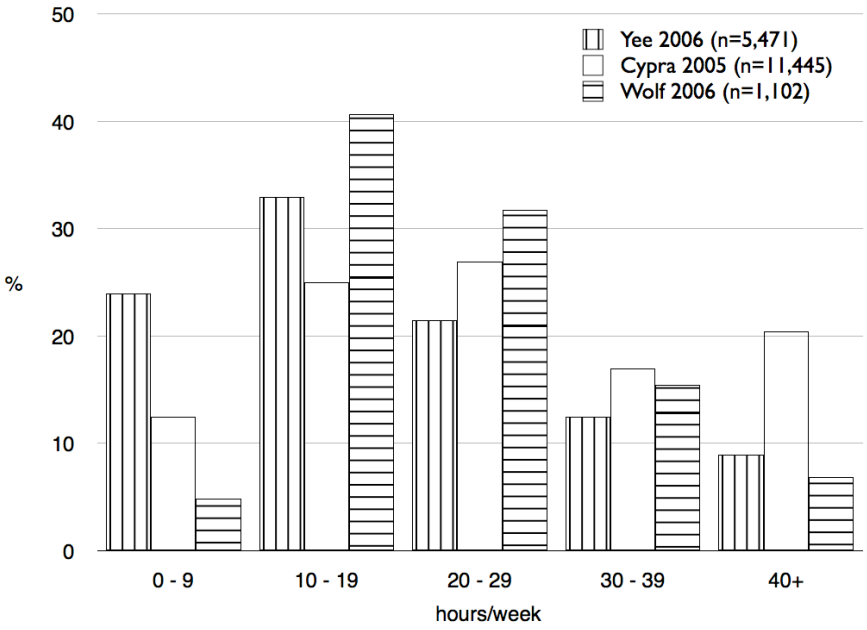

Fig. 6. Comparison of reported playtime in three MMORPG studies (rate in percent, percentage rates adapted to play time ranges).

To measure different aspects of CoP relevant to MMORPG, a subset of the Communities of Practice Inventory (CoPI, Wolf/Rausch 2005) has been used (see figure 7).

Because of concern about the length of the questionnaire, only 3 items were used per subscale and only selected subscales were applied (shown bold in figure 7). No subscales from the domain area were used because they are clearly covered in WoW. The reliability (cronbach's alpha) was satisfactory for all subscales except for *Rituals*.

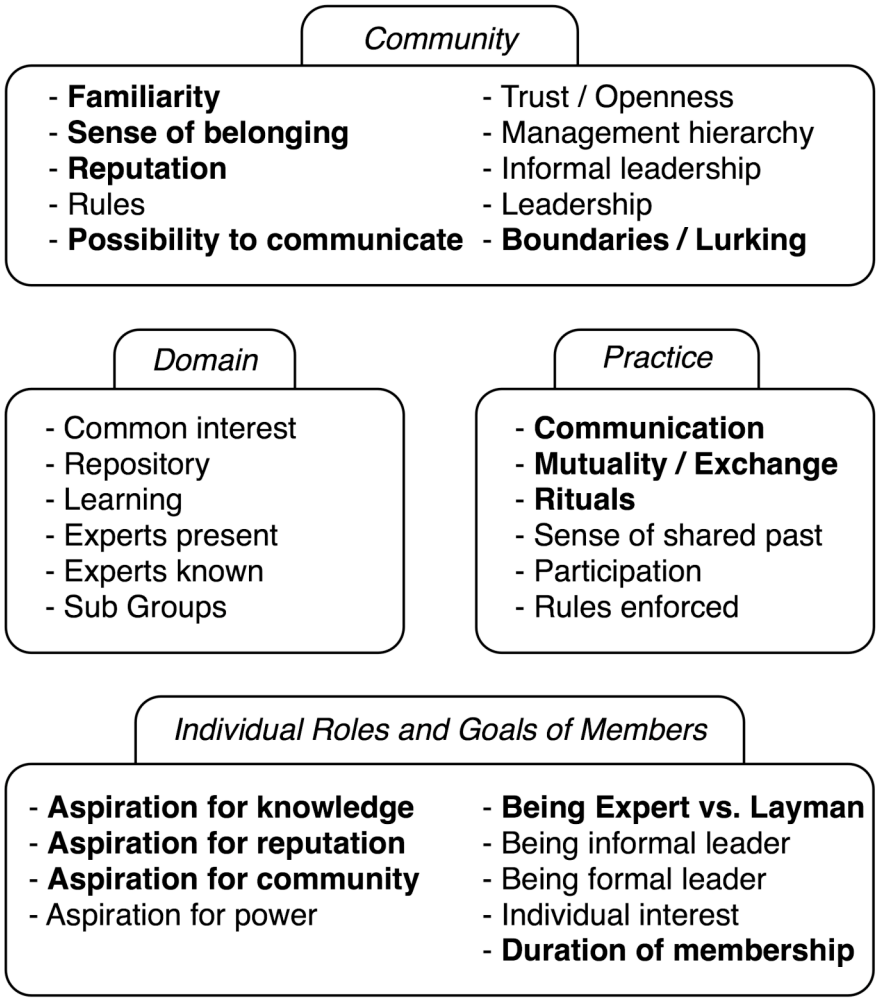

Fig. 7. Community of Practice Inventory (CoPI): overview of scopes and their subscales (Wolf/Rausch 2005; only bold subscales were used for the WoW survey).

As can be seen in table 1 (Individual roles and goals of members), the surveyed WoW players have a pronounced aspiration to be part of a community, which is much stronger than their aspiration for reputation and knowledge.

CoPI subscales	Mean (std. dev.)	Cronbach's Alpha
Individual roles and goals of members:		
Aspiration for Community: players find it important to work as a team, to help each other and build a community.	3.37 (0.63)	.758
Duration of Membership: how long the members have been in the community.	3.08 (0.89)	.824
Being Expert (Or Layman): to be more knowledgeable in important areas than other players.	2.64 (0.77)	.833
Aspiration for Reputation: player wants to be recognized as an expert within the community.	2.55 (0.78)	.766
Aspiration for Knowledge: player wants to become or stay an expert regarding certain problems, duties and questions.	2.47 (0.76)	.687
Community attributes in World of Warcraft:		
Reputation: mechanisms for becoming well respected among fellow players for participating actively.	3.28 (0.61)	.782
Sense of Belonging: players feel like a part of the community and a feeling of belonging develops within the community.	3.13 (0.75)	.847
Boundaries / Lurking: beginners and newcomers may ask questions and do not need to contribute much to achieving goals.	3.06 (0.70)	.709
Possibility to Communicate: the opportunity to make contact with other players by chance and have informal communication.	3.03 (0.75)	.777
Familiarity: to get to know other players better and know private things about them.	2.76 (0.76)	.779
Practice attributes in World of Warcraft:		
Mutuality / Exchange: a give-and-take atmosphere, where players are willing to help each other.	3.25 (0.60)	.782
Rituals: players in the community form habits, customs and traditions not easily understood by outsiders.	*2.94 (0.72)*	*.589*
Communication: players often communicate with each other spontaneously and also do join in private smalltalk and gossip.	2.72 (0.70)	.776

Table 1. Results of Community of Practice Inventory (Wolf/Rausch 2005), n = 1099, scale 1 (do not agree at all) – 4 (strongly agree).

On average the players rate their duration of membership to be rather long, but don't think that they are true experts, which supports the notion of a community of practice very nicely: a large group of people with long term memberships, interested in community building and a heterogeneous level of knowledge.

Regarding *community attributes*, reputation mechanism are strongly experienced as well as a general sense of belonging. Beginners and newcomers are tolerated (lurking) and there is ample possibility to communicate. Only the mean value for familiarity (meaning knowing each other on a more personal level) is rather low, which fits to the games fantasy setting, which calls for role-playing and not for a direct connection to the players "real" life and identity such as in other Communities of Practice.

In the *practice attributes* there is a high level of mutuality among players with some rituals and a lower level of (private) communication, which fits to the rather low familiarity score.

The perceived community and practice attributes in World of Warcraft are highly correlated with the players' aspiration for community, especially "Sense of Belonging" ($r=.575$, $p<.0001$), "Communication" ($r=.463$, $p<.0001$), "Mutuality/Exchange" ($r=.439$, $p<.0001$) and "Familiarity" ($r=.386$, $p<.0001$). People looking for communities can obviously find a supporting environment in the WoW game.

4. Playtime of World of Warcraft Players and Perception of Community

Interestingly, the amount of playtime is higher for players with higher aspiration for *knowledge* and aspiration for *reputation*, but the aspiration for *community* is high for all users regardless of their playing time, except for casual players (see figure 8). In a logistic fit analysis of time-spent playing WoW by the three aspiration types, R^2 is only 0.0049 for aspiration for *community*, but 0.0139 for aspiration for reputation and 0.0351 for aspiration for knowledge. Therefore players striving for community aspects in a MMORPG do not necessarily play top hours automatically.

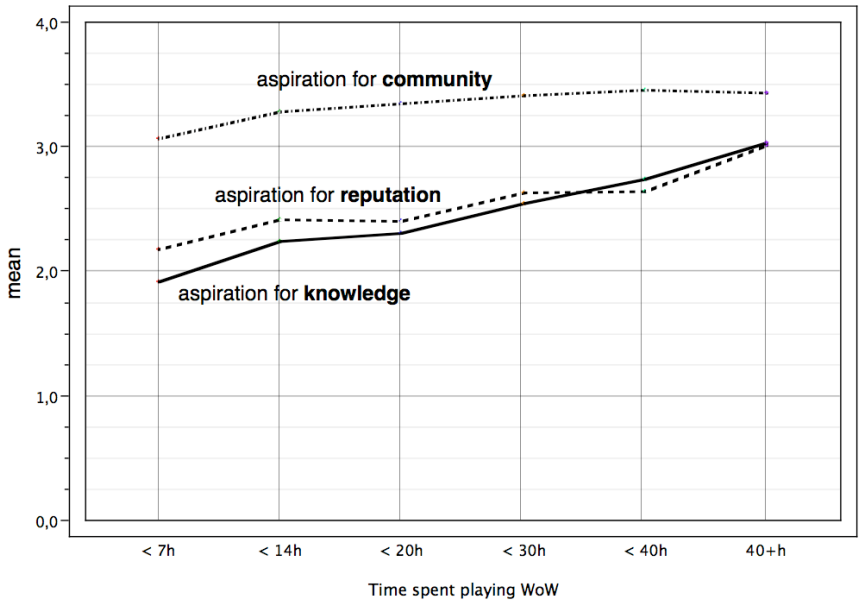

Fig. 8. Mean of aspiration for knowledge, reputation and community for different levels of playtime spent per week.

Hardcore players (40+ hours per week) have a significantly lower tolerance (tested with Tukey-Kramer HSD test and alpha level = 0.05) for *lurking* of new members (mean 2.78, S.D. 0.78, S.E. 0.079) than light users playing 7 to 14 hours per week (mean 3.18, S.D. 0.64, S.E. 0.050), or even medium users playing 14 to 30 hours per week. This is a direct consequence of the game mechanics in WoW. While higher level characters often give low-level *items* away, it is of no interest for players with high-level characters to play together with low-level *characters* in quests, therefore the groups are relatively homogenous with regard to experience and level. This violates a basic rule of CoP, which is to allow new members to grow into the community via legitimate peripheral participation (Lave & Wenger 1991, p.35).

Players develop a stronger *sense of belonging* to the community only while playing 20 or more hours per week. This is also due to the fact, that with a *higher duration of membership* the players also play longer. In WoW there seems to be no "ease out" of "older" players. You either stop playing totally, or play longer hours. From a community point of view this is not optimal, because the experience of long time players is missing. It

also suggests that reducing the playtime is not easily done (see below for a discussion).

Feeling like an *expert* is higher for people playing more, and there are significant differences even between people playing 20 and 40+ hours per week (see figure 9, Tukey-Kramer HDS test). It seems that WoW is such a complex system that these extra hours are needed to reach a higher level of expertise.

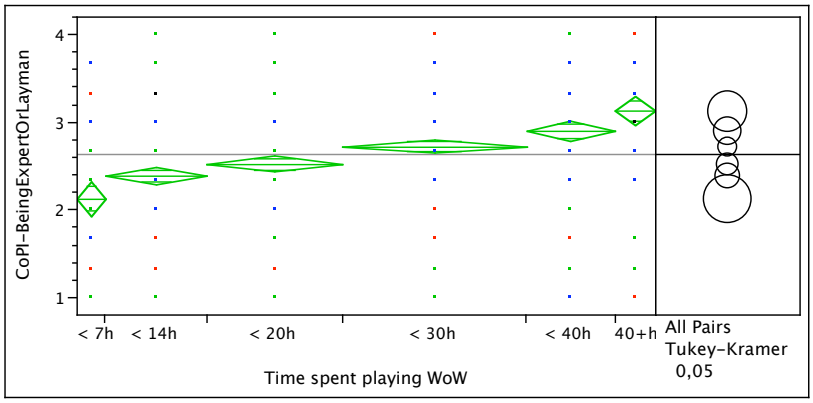

Fig. 9. Oneway ANOVA analysis of Being Expert by Time spent playing WoW.

The *possibility to communicate* is rated high, regardless of time spent playing WoW. Communication seems to be an element of WoW so integral and accessible that even casual gamers (playtime < 7 hours per week) are familiar with it (mean 2.99, S.D. 0.80, S.E. 0.10). *Mutuality* and mechanisms of *reputation* are both evenly experienced across all playtime levels, as are *rituals* except for casual gamers. Regarding *familiarity* as well as *communication* only the hardcore players with 40+ hours per week report a significant higher value.

While most aspects of CoP are perceived and accessible in WoW for players spending less than 20 hours per week, becoming an expert calls for long hours of play.

5. Heavy Use or Addiction – A Normative Question?

MMORPG players are known to spend a significant time in the game. Ironic references to the games as “EverCrack” and “World of Warcrack” and the existence of large “WoW / MMOG widows” user groups suggest

that some players are not only heavy users of a very appealing game, but that there is an addictive element to their gaming which may lead to unwanted consequences for them.

It would not be sufficient to speak of an addiction, if the only critique were that a person spends a large amount of his time on a seemingly superfluous activity. Nobody would say that college students are addicted to learning while they prepare for some exam, even if they spend 12 hours a day in the library. The same is true for a piano player practicing for 8 hours a day. These are said to be "worthy" endeavors, which is a normative idea. While there may be other activities a WoW player could do, it is a form of self-expression. It has even been suggested that playing MMORPG leads to positive side effects, such as improving leadership and organizational skills (Yee 2003). Playing a MMORPG can be more social than reading a book, can be cognitively more challenging than watching a movie, and can improve reading and typing skills more than surfing the Internet.

Therefore a normative critique of MMORPG is difficult without criticizing leisure activities in general. Griffiths and Davies (2005, p. 365f) summarize the research on video game addiction as sparse and as work in progress. Internet-based games such as WoW also add some complexity because of their networked character, which may contribute to their potential addictiveness. Without question, though, many WoW players invest a considerable amount of time in the game, leading to negative consequences for some of them. If they are not able to stop or reduce their amount of playtime although they are aware of these side effects, we can speak of addiction. Following this line of thought we probably overlook all the people *not* aware or ignoring the negative effects to them, therefore probably underestimating the real extent of the problem.

6. Addiction in World of Warcraft – An Empirical Study

To measure the amount of addiction of WoW players, the World of Warcraft Addiction Inventory (WoWAI, Wolf 2006)[4] was adapted from the Internet Addiction Scale (ISS, internet addiction scale, Hahn / Jerusalem 2001).

The WoWAI consists of six factors (loss of control, withdrawal, mental focus, tolerance, negative consequences for work performance, negative

[4] A more general version is also available (MMOG Addiction Inventory, MMOGAI, Wolf 2006).

consequences for social life[5]) with 4 items each and a 1–4 Likert scale (1: disagreement, 2: disagreement to some degree, 3: agreement to some degree, 4: full agreement). As a normative threshold, addiction is defined as having a mean average score of 3 or more over all subscales (meaning agreement to some degree) and being in danger of becoming addicted as having a mean average score of 2.5 or more. The distribution of the WOWAI score (see fig. 10) shows that 2.0% of the users are addicted and another 4.6% are in danger of becoming addicted[6]. These numbers are comparable to a study by Hahn / Jerusalem regarding Internet addiction (Hahn 2002) and much lower than the numbers assumed in public discussions. However, with 8 million players this would mean that there are 528,000 people addicted or at risk, *if* the sample were truly representative for the total population of WoW gamers (see above for a critical discussion).

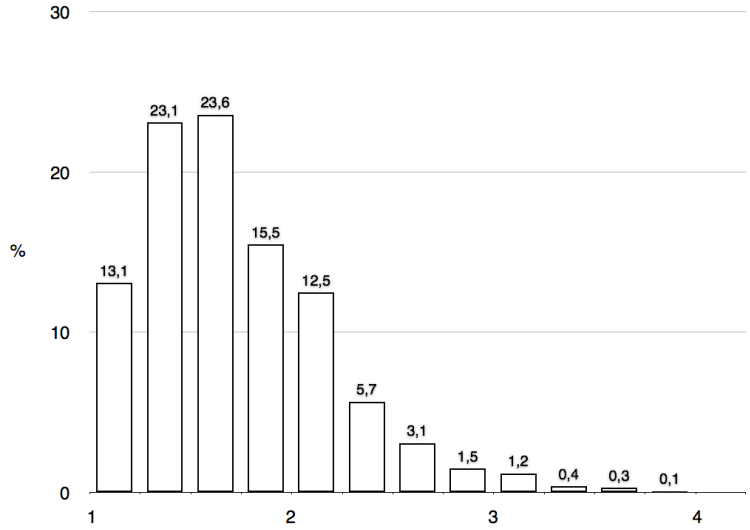

Fig. 10. WoWAI score distribution (percentages shown above each bar).

[5] For this analysis, the five factor solution given by Hahn / Jerusalem has been used (withdrawal and mental focus being subsumed back into one factor with a satisfactory Cronbach's alpha = .750) because the extended factor structure derived by exploratory factor analysis has to be confirmed in a new study and a subsequent confirmatory factor analysis.

[6] For a full discussion of self-selection effects, problems of self-report questionnaires for addictive respondents and other aspects of this study a full paper is in preparation, please see http://www.karsten-d-wolf.de.

Playtime seems to be a good indicator for potential problems (see figure 11). 19.5% of the hardcore players (40+ hours per week) are at risk, 10.5% are addicted. They are therefore 500% more likely to be at risk or addicted. For players with 30 to 40 hours per week the risk is doubled (8.8% at risk, 3.5% addicted).

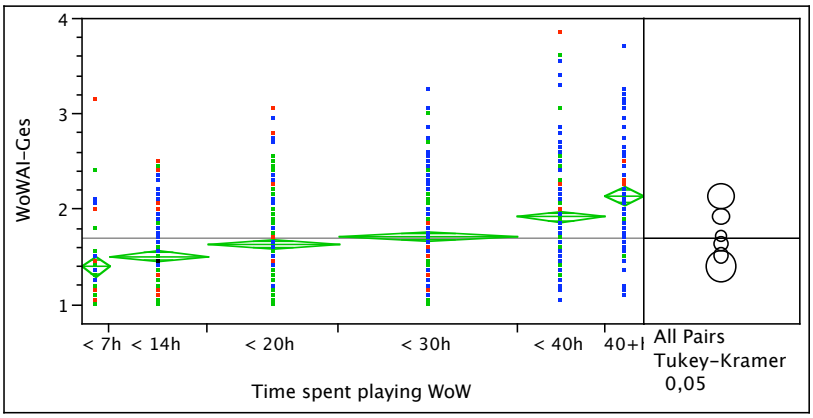

Fig. 11. Oneway ANOVA analysis of addiction score (WoWAI) by time spent playing WoW (n=1100).

Finally, table 2 shows the correlations between the addiction score (WoWAI) and the subscales of the Community of Practice Inventory and the partial correlations controlled for the other subscales in the corresponding scope (e.g. community attributes), which will be discussed here. Both the aspiration for *reputation* and *knowledge* strongly correlate with addiction, while aspiration for *community* and addiction is – after controlling for the other variables – negatively correlated, hinting at an inhibitory effect. The community attributes are positively correlated with the addiction score, except for the tolerance of lurking by new members.

It shows that especially people with a high aspiration for knowledge and reputation are more vulnerable to addiction in WoW. Addicted players also do not support key components of CoP such as *lurking* and *mutuality*.

CoPI subscales	r	p_r	r partial
Individual roles and goals of members:			
Aspiration for Community	.083	.006	- .079
Duration of Membership	.048	.110	- .015
Being Expert (Or Layman)	.215	< .001	.035
Aspiration for Reputation	.325	< .001	.175
Aspiration for Knowledge	.330	< .001	.176
Community attributes in World of Warcraft:			
Reputation mechanisms	.103	< .001	.103
Sense of Belonging	.184	< .001	.164
Boundaries / Lurking	- .159	< .001	- .213
Possibility to Communicate	.129	< .001	- .099
Familiarity	.130	< .001	.093
Practice attributes in World of Warcraft:			
Mutuality / Exchange	-.029	.348	- .101
Rituals	.174	< .001	.150
Communication	.129	< .001	.109

Table 2. Pearson product-moment correlations and partial correlations (controlled for other variables in each scope) between Community of Practice Inventory scales and WoW Addiction Inventory total score, n = 1099.

7. Conclusion

World of Warcraft seems to support the creation of communities of practice to some extent even for light and medium players (playtime < 20 hours perweek), although gamers have to play 20 hours or more per week to feel a strong sense of belonging. Especially members with an aspiration for knowledge need to invest a large amount of time to become experts because of the game's size and complexity and run the risk of becoming addicted. Therefore it is questionable, whether it is viable to use MMORPG as a tool for leadership training.

The big appeal of MMORPG from a CoP point of view seems to be that even new players can experience a feeling of community in the game. It is open to discussion, though, whether WoW supports all aspects of a community of practice. A detailed qualitative analysis of gamer's explanations of the game's appeal and further studies have to examine the complete array of CoP attributes and analyze in more detail the effects of

design elements such as quests, raids, leveling, the hierarchical guild system and player vs. player realms.

Interesting for people trying to nurture CoP with technology is how WoW succeeds in creating an environment with strong CoP-like features by supporting the collaborative nature of the practice through the game interface, blending a surprising small array of tools into one accessible package. CoP support systems therefore probably do not need to be overly complex or fully featured, they only need to support the collaborative work of the community. Much more important is the combination of content and action: WoW succeeds by providing worthwhile challenges (quests) which need to be tackled by groups of people helping each other. Providing honey pots of interesting resources may draw people to a place: to make it a community, meaningful collaborative tasks have to be at hand.

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