Awareness of Risk Factors for Digital Game Addiction: Interviewing Players and Counselors

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Abstract The potential dangers of digital games for the development of game addiction among their players are discussed in media as well as in scientific research. Research so far has identified several potential risk factors among social settings, traits, and playing motives. The present study provides first insights into the perceptions of risk factors by (non-addicted) players (N=28) and by counselors (N=7). By conducting individual interviews with both groups we found that players especially named social settings as the most important influence on the development of problematic playing behaviour while counselors focused more on further existing psychological problems. We argue that the experience of both groups has to be taken into account to guide the development of prevention and intervention programs.

Keywords Digital games · Video games · Addiction · Problematic gaming · Pathological gaming · Online gaming

The discussion about digital games and their potential negative influence on young adults seems never-ending among media and researchers. This attention from scholars and popular media is justified because many people, especially young adults, spend a lot of their leisure time with media; for instance in the United States, the average time commitment is 9.5 h a day (Leckart 2009). Statistics about gaming in Germany reveal that in 2013, 24.2 % of the population older than 14 years played digital games. More than 3/4 of adolescents between 14 and 17 years of age (86.7 %) reported having experience with digital games. For those

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between 18 and 29 years age, that proportion is still as high as 61 % (Quandt et al. 2013). Compared to other countries, Germany lies in the mid-table in terms of percentage of the population reporting that they play digital games (Quandt et al. 2014).

With regard to the actual playing behavior, the average daily usage in 2013 from that German survey was approximately 50 min. While respondents 14-29 years of age reported a consistent average amount of time spent gaming of approximately 70 min from year to year (2011-2013), the older generation of participants surveyed reported an increased average amount of time engaged in playing digital games over that period (2011: 46 min/day, 2013: 67 min) (Quandt et al. 2013). Those digital gamers predominantly played alone (88.4 %), although 64.9 % mentioned social gaming, and 51.5 % reported playing online games. Among the huge variety of different game genres, strategy as well as puzzle and riddle games were found to be the most popular genres (Quandt et al. 2013). Survey data indicated mixed trends regarding the prevalence of so-called heavy users. Altogether, the number of heavy users decreased from 2011 to 2013; however, in the younger generation (14-17 years), the percentage of heavy users increased from 11.2 to 13.2 %.

Those increasing numbers of young heavy users are the target of preoccupation with potential negative effects of media consumption among both researchers and media sources, an emphasis that is motivated by long-standing speculation about media harms through the history of electronic media. With games as well, a special focus of research is negative influences, behaviours or outcomes. In the last few years in particular, digital game addiction has received a high level of interest – both from a clinical perspective and from a broader social science perspective. Even if the estimated prevalence rate of addiction among all players— 3.5 % according to Whang et al. (2003)—is generally low, the issue of "Internet Gaming Disorder" was addressed in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association 2013) as a condition warranting further study. Thus, continuing research is needed to determine whether speculation among researchers and media reports about digital game addiction represents a legitimate societal concern or an unjustified moral panic. Research so far has included studies developing diagnostic instruments (Byun et al. 2009), proposing treatment strategies (Yellowlees and Marks 2007), identifying causes of this pathological behaviour (Byun et al. 2009) and naming possible risk factors.

Game addiction is often perceived as similar to gambling addiction (Griffiths and Wood 2000) although that comparison has also been criticized (2008). Wood (2008) argued that gambling addiction and its negative outcomes are closely connected to losing or winning money while use of digital games not usually involve the threat of losing a large amount of money and ensuing problems that loss may precipitate. Wood (2008) also criticised the use of the term "addiction" to describe excessive game play, because in his view most excessive players do not play digital games due to an addiction to these games but as a means of escaping from real world problems. Therefore, what some consider addictive digital game play behaviour might only be a marker of difficulties dealing with unrelated "real world" life circumstances.

Research on these risk factors for game addiction has identified factors related to individual traits as well as social settings, for instance low self-esteem (Collwell and Payne 2000; Niemz et al. 2005) or high levels of loneliness (Lemmens et al. 2011; Whang et al. 2003). Due to the correlative nature of most studies, it is impossible to define problematic playing behaviour as cause or as effect in most instances where problematic game use covaries with such traits and social factors (Desai et al. 2010). While Gentile (2009) showed a bi-directional connection between possible causes and problematic playing behaviour itself, other studies did not find any relationship between media consumption and negative outcomes at all (e.g., Ferguson

2011). On the side of the possible causes, besides traits and social settings as risk factors, a few studies deal with the motives of game playing and their impact on explaining addictive game play tendencies. These results indicate escapism as specific game play motive which seems to be connected to digital game addiction (Kuss et al. 2012).

Therefore, the aim of our first study was to investigate what motives players name for their hobby, if they are aware of further known risk factors and if they discriminate between healthy and unhealthy playing behaviour. In addition, we were interested in opinions of counselors with expertise treating individuals with a digital game addiction.

Theoretical Background

Traits, Social Settings, Psychological Problems, and Playing Motives

There exist several factors which have been found to contribute to problematic game play behaviour. For instance, gender and age were identified as possible risk factors, male adolescents being the most "affected" group (Chak and Leung 2004; Niemz et al. 2005). Boys are more prone to play digital games (Greenberg et al. 2008) and adolescents are more likely to neglect their duties (school/work) than adults when being immersed in a game (Gentile 2009). Additionally, poor parental relationships (Niemz et al. 2005) have been found to be related to problematic playing behaviour.

As far as personality factors are concerned, low self-esteem, high levels of loneliness and shyness are positively correlated with problematic gaming tendencies (Armstrong et al. 2000; Caplan 2002; Chak and Leung 2004; Yang and Tung 2007). Further, pathological playing behaviour may in turn enhance future loneliness (Lemmens et al. 2011).

Psychological issues also comprise a large group of known risk factors. With regard to digital game play, research has particularly focused on depression (Caplan 2002; Kim et al. 2006), compulsion (Whang et al. 2003), suicidal tendencies (Kim et al. 2006), attention deficit as well as hyperactivity (Yoo et al. 2004), and low self-acceptance (Montag et al. 2011).

Besides these risk factors, some characteristics of this medium itself also play an important role. Klimmt (2006) mentions control and direct feedback as main advantages of digital games compared to non-interactive media. Recent research on self-determination theory suggest that games offer the possibility to satisfy basic human needs such as social connectedness, autonomy, and competence (Reinecke et al. 2011, 2012). Ryan et al. (2006) specified that autonomy and competence were especially related to the sense of immersion in game play experiences.

In particular for mood issues, digital games have also been found to provide strategies to attenuate negative states and to repair noxious moods (Bowman and Tamborini 2012). This function has further been supported for even violent digital games; Instead of finding that violent games increased aggressive behaviour, Ferguson and Rueda (2010) demonstrated that violent video games reduced depression and hostile feelings in players.

Games offer unique coping strategies to turn users' attention and energy away from real life problems and stress. However, research could show that distractive coping strategies can be considered as risk factors for problematic playing habits (Kuss et al. 2012). In particular, online games, such as whole virtual worlds like Massively Multiplayer Online Role-Playing Games (MMORPGs) facilitate involvement in a virtual life, away from potential real life problems. Players of MMORPGs can build a double life within the virtual environments they use, create their own "ideal" character for social interaction, find new friends, and develop kinships with their chosen long-term social groups (such as "guilds"). Yee (2006) describes three main

motives for playing these games: achievement, social interactions, and immersion. Inside this virtual life, players have the chance to be someone who is ideal; having good social connections and achievements they might not be able to find in real life. Engaging in this side-world, it is easy to forget about problems in real-life and to cope with real stress. According to the taxonomy by Yee (2006), achievement is the motivation for competition with other players; it also includes advancement and mechanics. Social interaction encompasses socializing with others, for instance through communication, helping, teamwork or being part of a social group. The third described motif, "immersion" means the real cultivation of the virtual character and is accompanied by the feeling to escape the real world and all its concomitant problems (escapism). In line with this, Przybylski et al. (2012) found that digital games were most motivating when players could try on aspects of their selves they considered to be "ideal". This relationship was shaped by immersion: The higher the level of immersion in the digital game, the higher the intrinsic motivation to play as well as the experience of ideal-self characteristics.

Klimmt et al. (2009) also reported that playing motives influenced problematic playing behaviour, and additionally explained possible negative outcomes better than did playing time. In their study, all three motives described by Yee (2006) contributed to an enhancement of problematic game play behaviour in order to cope with real life problems. In line with this, Hellström and colleagues (2012) investigated the interplay between those playing motives and addictive tendencies. They found that satisfying social interaction and achievement via digital games decreased negative outcomes. In contrast, a higher motivation for immersion was associated with higher negative outcomes (Hellström et al. 2012; Kneer and Glock 2013).

Research has found specific risk factors among traits, social settings, and playing motives. But how do players and counselors judge these risk factors? Are players aware of those or do they even discount the existence of digital game addiction? Can players discriminate between healthy and unhealthy playing behaviour? How do social workers and therapists judge risk factors for addictive tendencies?

As a first step, we wanted to investigate how players perceive digital game addiction and if they are aware of possible risk factors. In order to consider positive aspects as well, we wanted to know if players name traits, social settings, and playing motives which they perceive as *protective* against problematic behaviour.

Study I: Players on Risk Factors for Digital Game Addiction

Methods

Procedure and Participants

We recruited 28 male German participants with playing experience during the *gamescom* 2012 fair in Cologne. Players' age was between 18 and 25 (M=21.32; SD=2.45, all Caucasian) and they played at average M=9.95 years and currently played M=12.61 h per week.

The interviews lasted between 15 and 20 min. Answers were assessed via paper and pencil. The interviewer introduced herself as a "passionate" player in order to reduce reactance of players. Participants were first asked about their own playing behaviour including playing years, playing time per week in hours, favorite genres, favorite games, and favorite playing mode (single player vs. multiple players).

The next questions concerned digital game addiction. The reviewer first asked participants if they knew any people who they think have addictive tendencies in their game play behaviour. Participants were not asked about the possibility of their own problematic playing

behaviour in order to reduce social desirability and reactance in responses (Glock and Kneer 2009). The interviewer then asked about risk factors for game addiction concerning traits, social settings, playing motives, and further conditions. Participants were asked to name factors which could support or inhibit digital game addiction. Afterwards all participants were thanked and received a soft drink for participation.

Categorization of Interviews

Two independent raters interpreted the interviews. Answers were assigned into the following categories: playing motives, social settings, and traits. In addition, answers for *supporting* and *inhibiting* playing motives, traits, and social settings were counted. Further, raters divided the answers for each category into different subordinate categories. Closely related answers were summarized and assigned to the concerning subordinate category (e.g., no friends and lack of friends were counted for the category "no friends"). See Table 1 for all categories. Inter-rater reliability was high, $r=0.82$ (Cronbach's Alpha). Statements included in this manuscript were translated in English after the categorization.

Results and Discussion

All 28 participants acknowledged the existence of problematic playing behaviour, and only one player did not know any addictive players. Nevertheless, all players were aware of addictive playing behaviour, and all were able to name risk factors as well as inhibiting circumstances. Table 2 provides a list of statements made by the players representing the different categories.

Altogether players reported more factors supporting addictive game play than inhibiting factors. To a large extent, social settings were considered as factors contributing to either direction, more pronounced however was the idea that good/stable social settings can inhibit addictive game play. As one player mentioned, an inattentive family can be seen as a risk factor (P1): "….When the family neglect one or doesn't pay any attention at one playing at the computer, this could be an aiding factor in developing an addiction…". In contrast, good social relationships, e.g., friends, can protect someone from developing addictive game play (P2): "… friends to go out with and party with are important to inhibit addictive game play…" and (P3) "… a real girlfriend is helpful to stop playing excessively…" One player also mentioned co-players as control factors (P4): "…sometimes co-players can help by telling you, hey you play too much….but this only works when they are also real friends."

Concerning personality traits, known risk factors were also identified by players themselves. Mainly, a low self-esteem, introversion and emotional instability were claimed to support tendencies for game play addiction (P5): "… loneliness, shyness, and low self-esteem are very dangerous …especially when someone is not emotional stable." This is in line with former research which could also show the importance of a stable self-esteem and emotional stability (Yang and Tung 2007).

Most strikingly however is the category "motives". Twenty-two answers of players point towards the notion that immersion is highly supportive for addictive game play behaviour. Former studies could also identify this motive as influential on losing track of time, day time, and "being lost" in the game etc. (e.g., Griffiths and Wood 2000). Players seem to acknowledge this motive as dangerous, well knowing that it might be part of the fun/appeal of games (P6): "Immersion is very dangerous: The other two playing motives could foster a person in life. You could learn something (e.g., motoric skills, understand new systems, learn social behavior etc.) and you meet other players. Immersion is very problematic, because you should

Table 1 Number of supporting and inhibiting risk factors named by players

	Supporting	Inhibiting	Total
Motives			
Social interaction	3	2	5
Achievement	4	2	6
Immersion	22	0	22
Traits			
Low self-esteem/high self-esteem	5	6	11
Introversion/extraversion	9	2	11
Not conscientious/conscientious	2	4	6
Emotional instability/stability	5	3	8
Social skills/lack of social skills	1	2	3
Openness to experience	0	3	3
Narcissism	2	0	2
Anxiety	1	0	1
Aggression	1	0	1
Social settings			
No friends/friends	7	16	23
Good/bad family background	7	10	17
Bad/good social ties in general	8	8	16
Bullying/no bullying	3	0	3
Being single/having a mate	3	3	6
Further conditions			
Nothing else to do/other hobbies	4	11	15
Unemployed/work or school	0	2	2
Being younger/being older	1	1	2
No/constrictions on playing hours	2	2	4
Having stress/no stress	1	0	1
Not/having self-reflection	0	3	3
Lower income background/higher	0	2	2
Failure/success	1	0	1
Not/receive acceptance	2	0	2

not live like there is nothing else important in life (e.g., care about friends, find love, take responsibility for yourself) and like being online is the only thing that matters." One player interpreted immersion as compensation and therefore dangerous playing motive (P7): "… immersion is dangerous when someone just wants to forget what is really going on in life. In most cases nothing."

In addition to social settings, traits, and motives, players named "having other hobbies" as a very strong inhibitor of game play addiction which of course should correlate negatively with time spent gaming, a known predictor of game addiction (e.g., Hellström et al. 2012). One participant mentioned (P8): "…people need something else to do, like other hobbies, sport clubs, and more possibilities in their free time."

Having assessed players' perceptions of risk and prevention factors associated with game addiction in Study I, we conducted a follow-up study to explore whether social workers and therapists who work with addicted game players consider the same factors as important when being asked for possible risk or prevention factors.

Table 2 Qualitative statements by players, exemplary for different categories

	Supporting arguments	Inhibiting arguments
Motives		
Social interaction	social interaction and immersion, both lead to an ambiguous perception of reality	
Achievement	competition, because one has to invest a lot of time if one wants to be successful.	
	Competition: one wants to become better and better.	
Immersion	I find immersion to be dangerous, because, as in the case of other addictive behaviours, it has to do with running away from something "unpleasant". Definitely immersion, because people lack a connection to reality and miss a stable point in their lives, which would help them to deal with ever day life. Immersion, because one is stressed at school or at work, one finds himself again there.	
Traits		
Low self-esteem/high self-esteem	Aiding: Not being at ease with oneself and the uncertainty arising out of this	A healthy self-esteem and self-trust definitely protect one from it, possibly by small ever-day rewards
Introversion/extraversion	Being an introvert	Being open towards other things
Not conscientious/conscientious	lazy, no daily tasks	High conscientiousness
Emotional instability/stability	I think that all psychic disorders which are caused by overprotection or neglect may sustain the developing of an addiction	
Social skills/lack of social skills	Protection: social competency	little open-minded-ness to wards other people and little competencies
Openness to experience		Being open towards other things
Narcissism	Narcissistic people, who like to be in the middle of attention	
Anxiety	Fearful people are weak	
Aggression	Aggression, stubbern and ignorant ones are aiding	
Social settings		
No friends/friends	What may encourage it is when one has no friends	Friends one can rely on and can go to parties with
Good/bad family background	When the family neglect one or doesn't pay any attention at one playing at the computer, this could be an aiding factor in developing an addiction	A healthy family context -> Attention
Good/bad social ties in general	few social contacts	social contacts
Bullying/no bullying	aiding: mobbing, isolation, being repressed at school, at work, etc.	
Being single/having a mate	Heartsickness	when one has a partner who offers support

Table 2 (continued)

	Supporting arguments	Inhibiting arguments
Further conditions		
Nothing else to do/other hobbies	If a person is alone and has only a few hobbies, this could encourage the behaviour to become an addiction	Social obligations (sports club, music class) show the player that there are also other possibilities to enjoy spare time and to develop talents
Unemployed/work or school		Having a good job
Being younger/being older	young people are more likely to become addictive	Elderly people are less likely to be susceptible
No/constrictions on playing hours	no time limit when playing	Control of playing time
Having stress/no stress	Stress (at school or at work)	
Not/having self-reflection		being aware
Lower/higher income		having a higher income
Failure/success	Failure	
Not/receive acceptance	not being accepted by others	

Study II: Counselors on Digital Game Addiction

Results of Study I suggest that players themselves did not deny the potential dangers or risk factors of digital game play and the excessive use of it. Players might name other factors than people working with addicts, such as counselors. On the one hand, counselors might be more objective because they do not claim to be players themselves and on the other hand they are scholarly taught in analyzing addictive tendencies, their roots and their consequences. In Study II, we therefore wanted to identify which specific risk factors counselors and therapists name and if these notes differed from the players' perceptions.

Methods

Procedure and Participants

We were able to recruit seven counselors who were interviewed face-to-face or by telephone. Interviews lasted between 20 and 30 min. Answers were recorded via voice recorder or Skype. All interviews were typewritten for further categorizations.

Five counselors worked as social workers dealing with individual game addiction and two experts worked as therapists. All counselors were asked to answer eight questions. Counselors reported to treat between 10 and 20 persons with digital game addiction per year. Work experience ranged from 1 to 7 years.

We asked counselors about 1) motives, 2) specific traits, 3) attributes of the social setting, and 4) further conditions which could support digital game addiction. The fifth question concerned the three known playing motives from Yee (2006). Experts were asked to judge which motives were considered as problematic and explain why. Afterwards counselors were asked 6) how they are connected to digital game addiction concerning their job. In contrast to the players' interviews, counselors were not asked about conditions which inhibit game addiction.

Categorization of the Interviews

The categorization procedure was the same as in Study I. The only difference concerned the inhibiting factors. Counselors work with persons who show unhealthy playing behaviour rather than with healthy players. Therefore, we did not ask for inhibiting conditions but only for supporting conditions. Inter-rater reliability again was high, $r=0.89$.

Results and Discussion

Counselors mainly pointed towards the role of anxiety, introversion, and other psychological problems such as depression, social phobia, or anxiety attacks (see Table 3 for prevalence of all categories). One counselor mentioned (C1): "…many addictive players are solitary, sometimes even phobic concerning handling other people and that is something, what supports addictive playing behavior." In their role of being an expert, they of course named specific psychological diseases contributing to addictive behaviours in general, such as social phobia or ADHD. Table 4 provides a list of statements made by counselors resembling the different categories.

Counselors also named real-life problems as risk factors such as bad social ties, no friends or family problems which is in line with Hellström et al. (2012). One example from the interviews is (C2): "… lack of friends, problems and family related stress … supports addictive

Table 3 Number of supporting risk factors named by counselors

	Supporting
Motives	
Social interaction	5
Achievement	2
Immersion	4
Traits	
Anxiety	6
Introversion	4
Other psychological problems	7
Low self-esteem	2
Weak (other) coping strategies	2
Depression	2
Attention deficit hyperactivity disorder	2
Social phobia	2
Low impulse control	1
Social settings	
Bad social ties in general	7
No friends	7
Family problems	5
Further conditions	
Availability of digital games	3
Psychological trauma	3
Game –related conditions	3
Stress	1
Nothing else to do	1

Table 4 Qualitative statements by counselors, exemplary for different categories

	Supporting
Motives	
Social interaction	and also the social attachment, like when I am in a solid players' community which cannot achieve a certain thing without me, then I also need to be there so that I don't dissapoint the others
Achievement	This feeling of flow is an important attractor, meaning that, while playing a good computer game, I am experiencing this balance between my own capability and the challenge of the game, this stability between capacity and challenge makes this feeling of flow possible, an awesome feeling, (I don't want to stept out of)
Immersion	It is especially dangerous, I always notice that, I mean this immersion, this getaway, this is always a signal about which I keep talking to school kids during prevention classes, that as soon as it becomes compensating, meaning that it becomes rewarding for a real life situation and is no longer complementary.
Traits	
Anxiety	as regards the personality type, it is scared-avoidant, so that what one gets to see, what one often also gets to experience in the clinic is, that a lot is being avoided and that fear plays a significant role.
Introversion	often socially introvert, on the basis of their life experiences or of certain real life situations which they needed to overcome, and this is, from my point of view, especially as regards online game players, a welcoming personality factor, so that the affected person_the player tends to invest and to spend more and more time in virtual worlds.
Other psychological problems	There is always the question, what there is first, mainly all psychic deficits, up to even ADHS syndrome, all there are mainly able to encourage addiction, as soon as the affected person/the player notices the fact that he finds the computer to be some sort of self-medication, meaning a way to deal with the deficit.
Low self-esteem	I have also named it, I think it is about this – the youngsters have a low self-esteem or have no possibility to experience success in real life.
Weak (other) coping strategies	My opinion is that this happens when the persons have little coping strategies against stress, when they have little alternatives.
Depression	Mainly there are naturally other disorders, too, as for example, anxiety disorder/anxiety attacks, depression or other disorders related to that,
Attention deficit hyperactivity disorder	Fears, anxiety, meaning a fearful personality, is for sure encouraging, also when we think of social phobia, also being simply anxious in having social contacts, an uncertain-avoiding personality, one can also think of ADHS as well, what could make the gaming abuse possible.
Social phobia	There are, indeed, when regarding the practical aspects, people who are uncertain, one could partly talk about social anxiety, as regards some of these people, or at least there is an uncertainty when it comes to dealing with others in real life, consequently I think that this is a main trait which a lot of the affected persons/the players have.
Low impulse control	On the one hand, impulsivity seems to play a role here, we often find evidence for fear, heightened fear, without any further differentiation – these are rather interpretations
Social settings	
Bad social ties in general	maybe also a lack of social contacts, via internet is relatively easy to get in touch with others
No friends	for example, an unstable environment, if I end up feeling uncertain due to my own environmental setting or, as a teenager/young adult, due to my family, a lacking circle of friends, a lack of appreciation

Table 4 (continued)

	Supporting
Family problems	Well, often it is the first reason which arises, when going to counselling, the boredom; my parents don't know at all, what I am doing, and I only do it because I am bored, often it is a getaway from family life, a sort of cutting the cord, of having one's own space, as a process in which the youngster takes distance from the parents' home, when the youngster comes home from school and doesn't know what to do, closing himself in his own room.
Further conditions	
Availability of digital games	Equipping the children's room with a computer, playstation and a hand held computer is most likely a higher risk factor compared to the situation of a young man experiencing the acquisition of a computer for the entire family which is to be set in the living room.
Psychological trauma	this is a problem, one of which I have also named, trouble, problems related to the social environment, experiencing frustration, traumatic experiences, a part of it actually, ending relationships, stress, too much pressure from family members, from the outside world, all this making the affected person/the player to back out into virtual game worlds.
Game –related conditions	This feeling of flow is an important attractor, meaning that, while playing a good computer game, I am experiencing this balance between my own capability and the challenge of the game, this stability between capacity and challenge makes this feeling of flow possible, an awesome feeling I don't want to stept out of.
Stress	Then it is totally a good thing, when the computer helps the youngster in regulating stress; on the other hand, the more time the youngster spends on the internet in order to diminish stress, the more likely it can then be that he unlearns other strategies for coping with stress. Then, when he lacks alternatives, this could become problematic, this then becomes a self-fulfilling prophecy, because the youngster notices, okay, I can cope with stress here on the internet, I cannot do this in real life any longer, what then again causes further stress, so that it becomes a vicious circle which may end up in an addictive disorder.
Nothing else to do	The typical football player playing in a football club or the typical active player within a group of youngsters is not really likely to be endangered by developing a problem, taking into consideration our experience.

playing behavior." Another counselor mentioned peers as important factor (C3): "Social factors can come into account when the circle of friends is not stable or if there aren't any friends who talk to you." In addition, one counselor stressed the importance of parental attention (C4): "Very often parents try to 'buy' illusionary silence by providing their children with computers and other electronical devices."

Strikingly, counselors also pointed towards the importance to take playing motives into consideration. They named all three known motives, social interaction, achievement and immersion. Achievement was however mentioned less frequently. Especially immersion was pointed out, for instance one counselor mentioned (C5): "If something in life is missing or hard to achieve and if life leads to frustration or aversive emotions there is the opportunity to decent into online-role games and be away from reality… this escape can become a problem."

Some counselors also talked about playing motives as compensation (C6): "When they talk about their virtual characters… they try to compensate for real life deficits which developed during their own learning history/development.

In particular personality traits were named as predictors or at least as being correlated with digital game addiction (C7): "My experience shows that addicted players showed striking personality traits such as the tendency to be anxious-avoidant or a low self-esteem even before developing a problematic behavior concerning the usage of digital games." Another counselor mentioned (C8): "Digital game players or online addicts are often very introverted, sometimes even phobic concerning contact with other people and that might be something that can foster addiction" A similar statement from another counselor was: If we take a look at the actual practice, they are pretty insecure persons, some of them can be described as social phobic or at least as insecure when dealing with other real people, I think that this is a main characteristic applicable to many concerned players."

We also compared the frequencies concerning the three general risk factors motives, traits, and social settings between players and counselors via chi-square. We found that counselors focused more on traits while players stressed social settings and motives, χ^2 (2)=26.22, $p<0.001$.

General Discussion

Awareness of digital game addiction and risk factors is high among players and counselors and closely related to results of recent research in this area. All players in our group of interview participants confirmed the existence of addictive playing behaviour and were able to name risk factors which support problematic playing. Both groups named playing motives, traits, and social settings as possible risk factors. Taken together the most important risk factors mentioned were: *lack of social life, low self-esteem*, and *immersion*.

The first two risk factors were already mentioned by Griffiths (2000, p. 212): "Anecdotal evidence indicates that the typical "addict" is a teenager, usually male, with little or no social life, and little or no self-confidence." He further argues that this stereotype is too general, as addicts are individuals which might not fit into this stereotype. Griffiths and Wood (2008) both demonstrated via case studies that excessive or addictive digital game play can be seen as a coping mechanism for real life problems. It appears that for players especially the *quality of social life* is seen as main factor which distinguishes between healthy and unhealthy playing behaviour. If real social life is lacking, digital games offer the perfect coping strategy to escape from real life problems. Utz et al. (2012) also demonstrated that problematic players had fewer offline friends.

It was not surprising that counselors focused more on traits compared to players, in particular on psychological problems. However, these problematic traits are seen as caused by an unhealthy development (C1, C7 and C8) especially concerning social problems such as social phobia. Councelors judge games as compensation for the lack of social ties (C5, C2 and C3) but most of them focused more on traits than on actual social settings. The comment C6 shows that even when talking about game play motivation correlations to further psychological problems are drawn by counselors. In addition, social settings such as poor parenthood are seen as causes for an unhealthy development in general especially when parents try to compensate love and attention via computer games (C4).

Players concentrated more on social settings as current causes instead of naming them solely as past circumstances (P1). The comments P2, P3 and P8 speak also for a solution oriented view on gaming addiction by naming alternatives which are missing for addictive players but might help them. Friends and hobbies are named as protective against addictive game play not only before addiction establishes but also when someone is already addicted. Even co-players (P4) were seen as helpful in case they are not only virtual but real friends.

Being players themselves they know the circumstances under which they play, and maybe also under which they cannot resist or stop playing.

In addition, our results confirm that playing motives are considered to have an impact on addictive tendencies. Players don't perceive social interaction and achievement as playing motives as replacement strategies for real social life and real personal achievements (P6). In contrast, these playing motives are sometimes even seen as prevention factors by some players. The comments P6 and P7 highlighted the importance of immersion as most dangerous playing motive. Players interpret immersion as compensation for real life trouble. These results are in line with a recent study by Beranuy et al. (2013) which focused on players in treatment and found, that addicted players report escapism from real life problems as important risk factor. Counselors see social interaction and immersion as the dangerous playing motives while players mostly focus on immersion. This difference is surprising, taking into account, that players focused more on *real* social interactions than counselors did.

Immersion has also been found to play an important role in explaining why some players get addicted. Kuss et al. (2012) could also show that immersion was one of the motives distinguishing between healthy and unhealthy game playing behavior. Therefore, the motive immersion plays a crucial role as risk factor and was seen as most dangerous playing motive by players as well as by counselors. If social life is difficult and/or self-esteem is low, immersion seems to be the crucial playing motive which players and counselors judged as "false coping".

Our findings are especially important concerning the development of diagnostic instruments and prevention and intervention programs. Counselors as well as players should be considered as experts for digital game addiction. Counselors deal with problematic players every day, therefore, their experience and knowledge is crucial for the realization of diagnostic instruments and treatments. However, their perspective is an *etic* one, that means their analytic view is provided by their disciplinary knowledge (Lindlof and Taylor 2011, p. 95). In contrast, players can be seen as "natives" concerning their knowledge of digital games and, therefore, possess an *emic* perspective. According to Pelto and Pelto "the native's categorization of behavior is the only correct one" (Pelto and Pelto 1978, p. 56). While counselors meet players in most cases when an unhealthy playing behaviour has already developed, players are able to observe the development process itself. Players come to know other players *before* gaming addiction has established. Our player participants were therefore able to analyze social settings and game play motivation differently than counselors. While counselors depend on self-reports of patients, players can be seen as independent observers. Thus, they are able to identify aspects like social settings an addict might not want or is even not able to report to his/her counselor. In addition, our player participants were able to differentiate between healthy and unhealthy playing behavior. They know healthy players as well as addicts while counselors (if they don't play themselves) mostly only deal with the later ones. This is especially important for prevention programs; not only for players themselves but for parents, peers, and other social influences (e.g., teachers) as well. In addition, players' knowledge might help to train counselors in identifying different risk factors besides the criteria used for diagnosis. Players, as natives in the digital game world, have the possibility to contribute their experienced view in identifying factors which help to distinguish between healthy and unhealthy playing behaviour especially in terms of playing motives and social settings.

Limitations and Outlook

Our approach focused on the awareness of players and counselors of known risk factors. We could confirm that especially immersion as playing motive is seen as supporting the

development of addictive tendencies. But what lies behind the different playing motives? Motivation is seen as the drive mechanism to satisfy personal needs. The question arises, which personal needs are satisfied by playing motives and which personal needs might contribute to addiction. As our participants (players) did not match the lack of social relationships with social interaction as playing motive, we cannot answer this question yet.

Future research should investigate how the personal need to satisfy these motives might be important to distinguish between healthy and unhealthy game play behaviour. Reinecke, Klatt, and Krämer (Reinecke et al. 2011) point towards the ability of digital games to satisfy basic human needs as described in Self-Determination Theory (Reinecke et al. 2012). Future research should therefore link the satisfaction of basic human needs and the amount to which this satisfaction is solely based on digital game play with factors supporting addictive tendencies.

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