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The Integrated Model of (Dys-) Functionality: Reconstructing Patterns of Gaming as Self-Medication in Biographical Interviews with Video Game Addicts

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Key words: Internet gaming disorder; video game addiction; grounded theory methodology; qualitative interviews; functionality of addictive gaming

Abstract: We aim to build a new theory of highly committed problematic video gaming based on rich qualitative data and to compare it to existing theories. To do this, we used hermeneutic analytical methods and grounded theory methodology to analyze 125 hours of recording from 42 biographical interviews, 23 of them with long-term follow-up. Participants were addicted (ex-) gamers according to screening instruments, aged 16 to 44, 29 males and 13 females.

The integrated (dys-) functionality model shows in-game behavior of participants to be dysfunctional in that it hinders advancement in several distinguishable real-life biographical quests (for success, for belonging, and for autonomy) and at the same time functional in that it matches these quests. The model integrates two seemingly irreconcilable research traditions: The addiction/disease model in medical-psychological research investigates dysfunctionality of gaming in pathological gamers. Game studies focus on functionality of in-game behavior and establish gamer typologies based on gaming motives. By adding the biographical context to game studies, but keeping the gamer's perspective, we show that gamers whose lives become dominated by gaming may know what they want and "virtually" get it, but still not "really" get it in the long term. "Compensatory" gaming does not, thus, equal unproblematic or "non-addicted" gaming.

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1. Introduction

Are gamers whose lives became dominated by their video gaming behavior addicted people who have lost their sense of what is good for them and what they want? Or do they know what is good for them and what they want and get it in-game, so their behavior is functional and thus unrightfully labeled "Internet gaming disorder" (AMERICAN PSYCHIATRIC ASSOCIATION, 2013, pp.795ff.)? These somewhat exaggerated questions stand for two existing and seemingly irreconcilable positions within research on highly engaged gaming behavior: the former arises from a medical-psychological paradigm and represents a model that conceptualizes such behavior as addiction/disease and focuses in particular on diagnosis, epidemiology, and comorbidities (AMERICAN PSYCHIATRIC ASSOCIATION, 2013; KUSS & GRIFFITHS, 2012a, 2012b). The latter has its origin in communication and game studies, interpreting such behavior as functional and playing down (long-term) problematic aspects (KARDEFELT-WINTHER, 2014; WOOD, 2008). This polarization does not contribute to a deeper understanding of the phenomenon under discussion (see also JUKSCHAT, 2013). Rather, an integrative approach is needed that takes the subjective perspectives of the video gamers seriously and, in particular, places an unbiased and high-resolution spotlight on the complex interrelationship between everyday life and the biography and the gaming practices without idealizing or pathologizing them from the outset. [1]

As a first step in integrating these two positions, from a social science perspective and following a qualitative research approach, the study of gaming addiction has been extended regarding the meaningfulness of addictive gaming behavior (BLECKMANN, ECKERT & JUKSCHAT, 2012; JUKSCHAT, 2014). A qualitative typology of addictive gaming introduces a distinction between three "functions" in the sense of three different ways of using video games as an attempt to cope with biographical problems: a re-enactment function, a narcotic function, and a vitamin function (BLECKMANN & ECKERT, 2012). The rare re-enactment function of repeatedly playing out unpleasant or even traumatic real-life experiences in-game has not been described or discussed by other authors. In narcotic cases, gaming is used mainly for distraction and numbing to escape real-life situations perceived as unbearable. These gamers are described as addicted not so much to a particular game or genre, but to distraction itself, and as showing a low relevance of in-game logic. There is largely a consensus that such escapistic behavior should be called addictive/pathological among authors from both the gaming/social science perspective (BILLIEUX et al., 2013; KARDEFELT-WINTHER, 2014) and the medical-psychological perspective (LI, LIAU & KHOO, 2011; MÖßLE & REHBEIN, 2013). [2]

The focus of the present article will be on the most controversially discussed of the three functions, namely the vitamin function. In these cases, in-game behavior is used to virtually fulfill functions in face of a real-life lack of opportunities for fulfillment (BLECKMANN & ECKERT, 2012; KARDEFELT-WINTHER, 2014). A different briefly sketched typology is based on a literature review and theoretical reasoning rather than new empirical data. Several different

vitamin functions, which KARDEFELT-WINTHER (2014, p.353) calls "compensatory modes of Internet use," are described and labeled unproblematic. In the same line, the additional concept of a virtual self has been introduced by BESSIÈRE, SEAY and KIESLER (2007), who claim it makes a high actual-ideal self-discrepancy more bearable. Contrary to the findings of LI and colleagues (2011), they argue that compensatory use is not only unproblematic, but that if gamers spend a long time playing virtual characters whose attributes are close to what they desire their real selves to be like, this could even be considered therapeutic and helpful for their psychological health, as it would help to reduce their ideal-actual self-discrepancies (BESSIÈRE et al. 2007, p.535). A straightforward distinction would thus seem plausible between an escapistic/narcotic use which is dysfunctional, and a compensatory/vitamin use which is functional. [3]

For decades, a more complex understanding has been provided by social scientific research which has described addiction as a functional and at the same time dysfunctional behavior that can be "understood as an individual's adjustment, albeit a self-defeating one, to his or her environment" (PEELE, 1985, p.2). Interestingly, for substance-related addictions the variety of "functions" appears more limited: The narcotic/escapistic function is dominant, and other functions are possible only when mediated by the ability of a drug to change the perception of an otherwise unchanged real life situation ("rose-colored beer goggles"). In behavioral addictions, in contrast, the range of functions is wider (GRIFFITHS, 2002). It is even wider for complex video games, all the more if they are played online with the option of building up a complete virtual "better life" with a "career" and a "social life." So studying addictive gaming provides the opportunity for investigating the vitamin/compensatory side of self-medication in addiction (cf. KHANTZIAN, 1985) in a more differentiated way relating it to varying biographical problems. [4]

We will present a further important step in attempting to bridge the gap between the functionality claim of communication/game studies, and the dysfunctionality claim in medical-psychological Internet and video game addiction research. The former studies online behavior in detail but mostly neglects real-life biographical context and consequences, the latter neglects the individual social and biographical perspective and uses methods unsuitable for our aim in this article: to contribute to an empirically grounded theory of addictive gaming and therefore to a more complex understanding of the phenomenon. Following the work of BLECKMANN et al. (2012) and JUKSCHAT (2013, 2014) we observe the phenomenon from a social science perspective and use a qualitative-reconstructive research approach. Rather than testing several pre-formulated hypotheses the point of departure in such research is an open research question which is sharpened throughout the research process and in confrontation with the empirical material (BRYANT & CHARMAZ, 2011; PRZYBORSKI & WOHLRAB-SAHR, 2008; STRAUSS, 1998). In line with that, we started our research with the inquisitive stance that tries "to figure out what the hell is going on" (OLSON, 1991, p.248) when people become heavily attracted to video games so that their gaming behavior is considered addictive by themselves or others. Later this

research question was refined and differentiated in the course of the research process as follows: In which ways do addictive gaming practices match real life biographical quests? How does the functionality of gaming vary between different addicted gamers and along their individual biographies? In which ways does the gaming practice retroact on the biographies? [5]

In the following method section, we will first describe the reconstructive-hermeneutic research approach in general, within which the research process in the present study was conducted (Section 2.1), then present the recruitment strategies and describe study participants regarding socio-demographics and outer gaming behavior characteristics (Section 2.2), followed by a description of important steps in the analysis of the material leading to theory building with a focus on the two metatheoretical categories of a "biographical referential problem" and the "structure of gaming behavior" (Section 2.3). At the end of the results section, the integrated (dys-) functionality model is presented as a whole, which includes three overarching functionality modes: a compensatory/vitamin function of gaming, a narcotic/escapistic function and a re-enactment function. In the present article, the focus is on a detailed description of the compensatory/vitamin function, which is again subdivided into three different types ("quest for success" (Section 3.1), "quest for belonging" (Section 3.2), and "quest for autonomy" (Section 3.3). At the beginning of the results section a brief general characterization of each type is followed by case vignettes to illustrate its scope, followed by a joint description of how for all three quests, advancement in real life is hindered through gaming behavior and at the same time functionally matched by gaming. In the discussion (Section 4) study limitations, directions for further research, and a positioning of the present findings as a bridge in the debate characterized by a disciplinary chasm are discussed. [6]

2. Method

2.1 Reconstructive research approach

To answer the research questions posed and to bridge the gap between the two research positions presented, the present study follows a qualitative-reconstructive research approach (PRZYBORSKI & WOHLRAB-SAHR, 2008). Concerning the organization of the research process, it centrally follows grounded theory methodology (GTM) (BRYANT & CHARMAZ, 2011; STRAUSS, 1998), whereas the attitude of the researchers towards the material is closer to hermeneutic approaches (HELFFERICH & KRUSE, 2007; OEVERMANN, ALLERT, KONAU & KRAMBECK, 1979). This has a strong impact on the whole research process: Firstly, data collection and analysis proceed simultaneously and inform and streamline each other. Research is characterized by an iterative process of moving back and forth between empirical data and emerging analysis, which makes the analysis successively more theoretical. Secondly, the purpose is to go beyond paraphrasing the manifest text or describing and classifying the phenomena under concern: Reconstructive research methods rather pursue the target to reconstruct the latent patterns from the material, or, as Jo REICHERTZ puts it for objective hermeneutics: "the 'reconstruction of objective meaning

structures' of texts: what the text producers thought, wished, hoped, believed in the creation of their text, that is, what subjective intentions they had, was—and is—unimportant for objective hermeneutics" (2004, p.290). For the present study this means: what the interviewees themselves say on a manifest level about their biography and their gaming practices, and how they interpret it, is less important than the latent functionalities of their gaming practices regarding their everyday life and biography, which they themselves might not be aware of. These latent patterns can be reconstructed and described. Thirdly, the identified patterns and reconstructed structures allow for generalization, as they are based on a systematic illumination of the research field, following the principle of continuous comparison to identify contrasting and similar patterns (BRYANT & CHARMAZ, 2011; PRZYBORSKI & WOHLRAB-SAHR, 2008). [7]

2.2 Recruitment strategies and participants

Potential participants were informed of the Germany-wide study using various channels, such as announcements in online and offline media, in Internet forums for different game genres and at important events in the gamer's scene. In addition, it was advertised at schools and universities and through gatekeepers including the German Association for Media Addiction. Recruitment strategy addressed gamers of all age groups and gaming habits. In order to minimize framing or bias on addiction beforehand, the study was advertised with the broad slogan "Gaming in Germany—between leisure-time activity and addiction." [8]

Interested gamers were asked to complete an online screening questionnaire which in addition to questions regarding gaming habits and socio-demographic data included KFN's CSAS-II scale[1] (REHBEIN, KLEIMANN & MÖßLE, 2010) for gaming addiction. The prospect of receiving an incentive of 25 Euro upon participation in the interview phase was advertised. In this way a database could be built up which in the end included around 1,100 gamers, 368 of them former or present video game addicts. From this pool interviewees were selected, following the theoretical sampling strategy, in which results from first transcript analyses influence the selection of the next interviews for analysis. In this process, similar as well as contrasting cases with respect to emerging themes and motives are sequentially selected (see MORSE, 2011; STRAUSS, 1998). [9]

Interviews took place in eight different German states between 2010 and 2013. Altogether 42 addicted (ex-) gamers (inclusion criteria: either self-report as "addicted" or 42 or more points on the video game addiction scale CSAS II; REHBEIN et al., 2010) participated, aged 16 to 44, 29 male and 13 female. They vary regarding socio-demographics, gaming habits and preferred game genre. 36 out of the 42 interviewees were addicted according to both self-report and the CSAS II scale. First interviews (t1) lasted between one and more than three hours; total duration was approximately 100 hours. This variation can be mainly explained by the age of the interviewees: younger participants had consequently

1 KFN CSAS-II is a 14-item scale that includes the addiction criteria loss of control, withdrawal symptoms, tolerance, salience, and continuation despite negative consequences, but does not include gaming times as an addiction criterion.

shorter biographies and therefore less to talk about in the biographical-narrative interview. In 23 cases out of the 42 follow-up interviews (t2) could be arranged 12 to 28 months later, with a total duration of approximately 25 hours. Additionally, 12 corroboration interviews with family and/or psychological counselors of a total 12 hours were conducted at t1 (cf. criteria for methodological quality; SOBELL, ELLINGSTAD & SOBELL, 2000). [10]

2.3 Research design and methods

According to the open research question and the orientation towards biography, data was collected using biographical narrative interviews (PRZYBORSKI & WOHLRAB-SAHR, 2008, pp.92ff.; SCHÜTZE, 1983, 2007), which have been complemented by open questions on gaming biographies and in-game behavior.[2] The interviews were conducted and recorded in the private setting of the interviewees or at places chosen by them. The audio files were transcribed including nonverbal actions, dialect, emphasis, speed, tone of voice, timing, pause, etc. and anonymized (real-life and Avatar names, places). [11]

In a first step of analysis, contrasting cases were selected according to theoretical sampling (MORSE, 2011), initially producing contrast by choosing cases that varied regarding socio-demographic data and "objective" gaming characteristics (e.g. gaming time, used genre, etc.), later focusing on contrasts regarding patterns and dimensions that proved relevant during initial analysis (biographical situation, gaming practice). Individual case reconstructions of about 5 to 40 pages were formulated based on the group analysis (2 to 5 persons) of interview transcripts by researchers experienced in reconstructive approaches. In this stage we combined hermeneutic analytical methods (HELFFERICH & KRUSE, 2007; OEVERMANN et al., 1979). These methods are characterized by an extensive sequential analysis line by line of the opening sequence and three to five other selected sequences of each interview, which lead to the reconstruction of recurring patterns and finally to the formulation of single case structures. [12]

Reconstructing the structure of the single cases is already a first step towards generalization, as the results of a number of several single case structures are condensed into a more general structure by systematic comparison and the construction of ideal types by focusing on several relevant aspects according to the research question. For advancing theory building towards a typology, two core metatheoretical categories (PRZYBORSKI & WOHLRAB-SAHR, 2008, pp.337ff.) proved relevant: "biographical referential problem" and "structure of gaming behavior." The former describes the structural biographical problem for which the addictive gaming practice provides a temporary "solution" or alleviation. The latter refers to a detailed reconstruction of the inner logic of this in-game

2 Three examples of questions/stimuli for the interviewees to narrate their experiences: 1. What I would like you to do is tell me the story of your life. Try to remember the time when you were a kid. What was it like and how did it go on until today? Please feel free to go into details and take your time. 2. I would like to ask you to describe a kind of typical or average day in detail from morning to night during that time (phase of most intensive gaming). 3. Can you go into a little more detail describing what you actually did when you were gaming (plus inherent questions on avatar characteristics and in-game social interaction, if applicable)?

"solution." This goes far beyond the outward structure, such as game genre, and focuses on an inner subjective logic of gaming behavior. Different subjectively relevant themes in gaming behavior were reconstructed from the material. They could differ widely between gamers using the same game genre or even the same game title, and could vary between genres (as expected from the literature), but could also be similar for individuals playing very different games. This non-correspondence of "inner" gaming structure and "outward" game characteristics (e.g. genre) proved to be a pattern consistent in the material across the variety of gamers of different game genres that had been selected. These metatheoretical categories led to more-focused analyses of the biographical narratives and the descriptions of the actual gaming practices regarding the latent individual motives and functions of gaming. In this process, the correspondence of an individual's "quest" (fittingness of biography and gaming practices) and the process in which the gaming practices retroact on the biographies emerged as important patterns in the higher-level analysis. Through systematic comparison (HOLDEN, 2011; STRAUSS, 1998) of the single cases, within the overarching gaming functionality mode of "compensatory/vitamin function," three important subtypes could be reconstructed from the material, which are the focus of the present paper and are presented in the results section in detail. Together with two other functionality modes, they were combined to comprise the integrated (dys-) functionality model of video game use. [13]

3. Results

In the following section we will present in detail the vitamin/compensatory part of our typology of the (dys-) functionality model of video game use. Three types will be described with two to three brief case reports characterizing each type in its different possible orientations. [14]

3.1 Quest for reliable success

The biographical situation of this type could best be described as an (unfulfilled) desire for success, not for the sake of success itself, but for an experience of self-assurance through recognition of continuing and reliable success by oneself or others. Therefore, "quest for reliable success" was chosen as a brief label for this type, which is characterized by the following core real-life biographical experiences (see also JUKSCHAT, 2014):

- absence of biographical fields to achieve recognition and to prove oneself,
- experiences of arbitrariness and powerlessness,
- circumstances that hinder fulfilling of aspirations,
- stagnating and obstructed educational and/or professional careers. [15]

Gaming, on the other hand, is characterized by the following:

- experiences of success and recognition,
- experiences of power and control,

- circumstances that allow for constant advancement,
- reliability of clear rules. [16]

Gamers of this type try to succeed within the game and are successful in doing so because in contrast to their biographical experiences and their everyday life, effort and success are strongly related within the game. The rules within the game are clear and the gamers are much more able to control the game than their life (on the impact of control and the relationship between power and powerlessness within video games see also FRITZ, 1997a). [17]

Whereas all gamers of this type have in common that they "quest for reliable success" in-game, there are differences regarding the specific manifestation within this type. On the one side we find more or less isolated gamers who, like Christian (see below)[3], play to constantly renew their former experience of success, feel control, and prove themselves by beating the machine. On the other side are gamers like Daniel who long for recognition and appreciation of achievements by significant others. They play to be successful and to be seen doing it by their fellow gamers, and are consequently integrated in online relationships. [18]

Daniel, 28 years old, represents the latter form. He is a self-identified former World of Warcraft (WoW)[4] addict who grew up as the elder of two sons in a middle-class family with a strong emphasis on success in sports, school, and professional career:

> "she [my grandma] used to say, 'he will become a bank director' [...] and it wasn't with pressure, it was more luring kind of like it would be really great if you did this and then, [...] then it provided the recognition I needed and I bounced on command."[5] [19]

When he started playing WoW addictively his life was characterized by a feeling of stagnation in his job as a bank clerk: "Recognition was missing then I tried to get the success and the recognition elsewhere and in this case it was through gaming. Because you could get recognition quickly in there." Additionally, he experienced powerlessness after a personal disappointment: "I had trusted my colleague 100%, he committed the embezzlement using my number." Stagnation and disappointment provided fertile ground for the games mechanisms: Daniel

3 Names and places are anonymized in all case examples presented.

4 World of Warcraft is a subscription-based complex "massively multiplayer online role-playing game" (MMORPG), where players control and develop an avatar within an imaginative game world. They can choose a race and a class for their avatar and customize its appearance. Among other things, players can explore the landscape, complete quests, fight in raids (fight virtual monsters together with other players), join a guild (a group of players who fight together in raids), or fight "PvP" (person versus person).

5 Transcription: Emphasis: underlined; speaking pause: two dots for short pauses, number of seconds in brackets for long pauses; slashes, e.g., /Uh-huh/: short statement by the other person; brackets, e.g., (laughing): nonverbal actions. Interview passages from follow-up interviews are marked (t2) at the end; all others are from t1 interviews. Reconstructive analysis is based on the German version of the transcript. Only the transcript excerpts to be presented in the article were translated into English by a native speaker who was not informed about the results of the reconstructive analysis of the passages.

played to reach recognition through his gaming community and eventually took up the job as a guild leader. In the game, effort leads to success:

> "we were very successful because we were playing very excessively, and in the end, you know there are guilds in the game, and I was the leader of one of those and there were 150 members [...], all below me in the guild, and well that way another thing I would have liked to achieve in real life, I had in there. [...] people would say [...] That was really good, you did totally great!" [20]

In real life, Daniel lost his job during this gaming phase. [21]

Christian, 17 years old, grew up as the second of three children of an educationally deprived family where he experienced and suffered from the indifference other family members displayed. No matter what he did, nobody gave him attention or personal appreciation. An example is his reaction to the critical situation of his mother leaving the family: "I went to lie down in the middle of the hallway." Since nobody took notice of his demonstrative request for help, he returned straight to gaming. In his relevant social environment no rules existed on which he could rely to reach recognition. Unlike his family life, the game provided such rules and criteria for success. Accordingly his gaming behavior was achievement oriented and allowed him to experience power and control. It was not important for him to be seen being successful, something that was directly reflected in his choice of games—racing games like Need for Speed[6] and Gran Turismo[7] which he played alone and offline. Christian rather got his satisfaction out of beating his former results and going beyond what is technically feasible. His yardstick for success was grounded in objective numbers and facts:

> "At some games, where you would normally need eight hours, I needed four. Played through everything. That was ... really crazy. ... And some time in between I managed to get my memory card to glow- to blow up." [22]

That his gaming compensated for something that was biographically missing is also confirmed by the loss of relevance of gaming after Christian started an apprenticeship as a retail salesman where he felt respected and received the recognition for his efforts. [23]

6 Need for Speed is a series of racing video games to be played on game consoles. The player can customize the body of his virtual racing car and steer the car along various racing tracks. Some titles also include police pursuits in races. There are online and offline versions.

7 Gran Turismo, abbreviated GT, is a racing video game to be played exclusively on PlayStation systems. The player can chose a car from a large selection of vehicles, nearly all of which are licensed reproductions of real-world automobiles, and steer it along tracks some of which are also reproductions of real-world race tracks. There are online and offline versions.

3.2 Quest for belonging

The second vitamin/compensation type is characterized by biographical conflicts concerning social relations and therefore given the brief label of "quest for belonging":

- high relevance and normative expectations regarding belonging,
- experiences of social exclusion and victimization (bullying, abuse),
- experiences of being different and not belonging. [24]

Gaming, on the other hand, is characterized by the following:

- communitization,
- experiences of being among like-minded people,
- opportunity for instant on and off social contact. [25]

Whereas in real life these people, each in his/her own way, struggle with the desire to belong, within the game they experience being part of a community and feel like they belong. In contrast to the "quest for reliable success" type, being successful and reaching the goals set by the game have low relevance. Rather, the game provides a basis for communitization. Again we find a variation within this type regarding the specific manifestation of the behavior. On the one hand are gamers like Said who search for belonging on the basis of virtual extensions of real-life relationships and thus play with their peers. In maximum contrast to these gamers we find gamers like Sandra who do not have any real-life contact to their gaming partners and actively exclude their name, their personal history, and sometimes their voice from gaming. They immerse themselves completely into the game world, identify with their avatars, and communitize solely on the basis of these avatars or surrogates. Others, like Conny, are in between the extremes regarding the degree of anonymity. [26]

Said, 19 years old, is an example for communitization via gaming driven by his real-life peer group. He grew up in a small town with his elder sister, his German mother, and his Lebanese father. He was active in football and handball and had a fixed group of kindergarten and school friends who later tried out a number of computer games together. When he described his group of friends, a central motive was the fear of being left out, possibly triggered by his multiethnic background. He was invited to play World of Warcraft by his peers when he was 16 years old. At the peak of addiction he spent eight hours per day gaming, mostly raiding with the guild in WoW, which in great part consisted of his offline group of friends: "It was fun because becau- when you are in the group of friends and you are the only one who doesn't join the gaming, then that's hmm somehow quite unpleasant." Interestingly, what is fun about the game is not mentioned in this sequence, but rather why it is socially unacceptable for him not to join in. He centered his whole life around the game to keep up with his friends: "You don't do your homework, you don't revise, you go straight to the computer, to advance like all the others, so that you are not the only one lagging behind." To be part of the

group, high involvement within the game was necessary, which even led to neglect of personal hygiene, sleep deprivation, a weight gain of 20 pounds, and a change from a high school track to a lower type of secondary school. When his uncle facilitated an involvement with an entirely different reference group, a fitness community, which allowed him to feel a sense of belonging, Said, after two years of addictive gaming, gradually lost interest in WoW: "Sylvester Stallone, the Rock and such things, people with muscles, that was something that has always interested me, that was really cool. [...] I had less and less time for WoW and I didn't want to." He started to work out between one and three hours per day, lost weight, took a lot of pride in the new shape of his body, and described himself as an accepted and valued part of the fitness community. He finished school and later took up a university degree. [27]

Thirty-year-old *Conny* stands for all those in-between "quest for belonging" gamers who use the game and the shared experiences it provides as a starting point for communication. From there on interaction often goes beyond gaming-related topics and sometimes even leads to a desire to meet face-to-face. Conny grew up in an unstable and deprived family. After a turbulent youth including being abused by her uncle, attempting suicide at age 14, living in a children's home, and becoming a mother at age 16, Conny finally managed to stabilize her biography, completed an apprenticeship, and even added an entrance qualification to study at a university of applied sciences. She came across the online role-playing game War of Dragons[8] at age 29—a time when her professional aspirations seemed to have stalled and she especially felt socially isolated in the context of the village where she lived by then: "if you're not taking part in any sports clubs or ... rifle club or ... voluntary fire brigade or such a shit (laughing) /Mhm./ you actually have poor opportunities to establish contact here." The game became a communication tool, which Conny used addictively. In the interview, gaming and chatting were used by her synonymously and were tightly interwoven. War of Dragons as a game is arbitrary and interchangeable, and Conny was rarely interested in gameplay. She rather practiced a special form of communication in the game that she called "gaggling" and that seems more typical for teenagers. It stays superficial like small talk although it is very straightforward, for example, regarding sexual topics. Online she found a community where she could be herself and where she did not feel different anymore. Attempts to transfer these relationships into real-life ones repeatedly resulted in disappointment:

> "Like my last relationship, I just ended it, he lives in [city about 600 kilometers from her place]. /Mhm./ (1) I saw him via Skype before too. /Mhm./ But he was here only two times … And then I decided: he's too boring for me." [28]

The game lost its relevance when she finally managed to transfer such a game-based romantic relationship to real life successfully. Being married to a man she

8 War of Dragons is a free-to-play MMORPG, where players control and develop an avatar in a game world, trade items and complete quests, fight in PvP or raid mode (see Note 4) or in virtual mass battles of two opposing parties.

met through the gaming community and having a three-month-old baby together, Conny looks back at her gaming activities:

> "Well ... I don't have to go online to chat with adults anymore. Well ... into the game (1) I don't need the chat anymore to exchange. [...] Not because priority changed but because I get it at home now" (t2). [29]

Sandra, 25 years old, represents the other extreme of the "quest for belonging," which is characterized by communitization solely on the basis of avatars or surrogates. Her whole narrative circles around relationships, and in this context mainly about experiences of either being excluded and bullied in institutional contexts or being disappointed and fooled by people she felt close to. In her accounts on early childhood, negative social experiences already emerge as a central problem: "And well at that time I was a fat child. Which is not a lot of fun anyway. (1) And well ... there it ... like it started already." When Sandra got to know the online role-playing game The Lord of the Rings[9], which she was addicted to at the time of the interview, her social life mainly took place at the school where she pursued her educational training as a child and youth care worker and felt excluded by her classmates and betrayed by her teachers. From initial attempts to establish real-life relationships with people she got to know online, Sandra more and more shifted to completely virtualized relationships on the basis of her avatars with whom she identifies to a striking degree. In the interview she went so far as to recount in detail not only her own biography, but also the made-up biographies of several of her more important avatars, with romantic relationships and friendships as central themes in all of them. But in contrast to her real-life relationships these fictional ones are free from betrayal and disappointment. About her gaming Sandra herself says: "well it is somehow like, it almost can be called a second life in a way." Her "first" life thus is reduced to the absolute minimum and Sandra jeopardizes the completion of her degree and neglects her health. [30]

3.3 Quest for autonomy

The third type of biographical problem relevant for an addictive gaming practice is centered around biographical conflicts regarding leading a self-directed vs. an other-directed life, therefore labeled "quest for autonomy":

- other-directed life situations,
- entrapment in normative expectations,
- blindness regarding own desires,
- inability to defend own desires against others and oppose expectations. [31]

9 The Lord of the Rings Online (abbreviated LOTRO) is an MMORPG set in a game world based on J.R.R. TOLKIEN's Middle-earth writings (1954). It was originally subscription-based and is now free-to-play. If players decide to pay for a subscription they can progress faster in their in-game career. Players control and develop an avatar, explore the landscape, fight in PvP and raid mode and interact with other players and non-player characters.

Gaming, on the other hand, is characterized by the following:

- experiences of autonomy and being at one with oneself,
- reliance on a structured background for a personal agenda,
- self-assertion. [32]

Gamers of this type use the game to feel autonomous. Whereas their biographical core experience is one of being other-directed, within and through the game they are able to assert their autonomy. Again, we find a variation within this type: On the one side there are inward-directed autonomy gamers like Lukas who are hardly aware of their own desires and goals and live an other-directed life. They experience gaming as a way to be at one with themselves, to live their desires, to experiment—in short, to feel autonomous. On the other side are outward-directed autonomy gamers like Topac, who also find themselves in other-directed life situations but do sense the conflict between external demands and their own needs without being able to stand their ground. The gaming behavior helps them to assert those needs. Thus, their quest for autonomy is more ostentatious and directed outward. [33]

Lukas, 17 years old, an example for an inward-oriented "quest for autonomy"-type, grew up in a middle-class family with four siblings; after the death of his father he lived with his mother and his two sisters. Particularly striking was his infantile appearance and the absence of an own perspective and orientation in life. He passionlessly did more or less what was expected from him by his family and his social environment, which is reflected in the empty and unemotional language he used talking about biographical matters like his educational and professional career or his family life—for example in his stereotype answer to the question what is important to him in life:

> "First of all the most important thing for me is my apprenticeship ... that I don't end up living on the street or something like that. [...] Family (1) probab- not yet but probably two kids ... daughter, son ... cliché." [34]

In contrast, talking about his activities within the online role-playing game Nos Tale[10], which he is addicted to, his language was vivid and Lukas didn't seem infantile and other-directed anymore. He appeared rather self-determined and at one with himself, and he experienced power and control he didn't have regarding his biography:

> "I go into the area ... look for other opponents .. kill them and that way I work on my reputation .. so several people already know me, right? /Ahm./ [...] When they see me coming with my equipment .. 'Careful this is ahm mister so-and-so' and then they run away. Yes (laughing) I go after them and kill them." [35]

10 Nos Tale is a free-to-play MMPORG set in a colorful comic book style world with anime-style graphics of an enchanted valley and forest. The player can create an avatar, explore the landscape, complete quests and fight in PvP and Raid mode.

The case of 27-year-old *Topac* is an example of a mostly external, outward autonomy function of the game. He is the son of Turkish immigrants who work in several stable low-paying jobs each. His elder sister, who already had two school-aged children at the time of the interview, is married "correctly" inside the Turkish community, and so is Topac, who married at age 19 and lives with his wife in a small flat next door to his parents. At the time of his video game addiction, Topac's gaming behavior and his work times could be reconstructed jointly to minimize contact with his wife ("[gaming was] the only joy that I had left, because, ... like I said, with wife there was always trouble"). Topac referred to the person he stays married to for several years as "wife" without even an article, and he never mentioned her name. He worked night shifts in a factory and regularly played around six hours of World of Warcraft directly afterwards: "straight from work to the computer. It was the first thing I did, switch on the computer, well, yeah, … wife went to work eventually. And me gaming, gaming, gaming." He then went to sleep and usually woke up at the time when his wife was already in bed. Afterwards he ate and went to the next night shift. During the weekends, Topac played 10 to 12 hours a day. His narrative indicates distance but unwillingness to divorce to avoid conflict with expectations in his family, though he did not mention such a dilemma explicitly, in line with a low degree of self-reflection throughout the interview. In the game, Topac decided on his actions independently of his family's expectations; he had a choice: "Well, yeah, and the game offered a lot of different choices of course." When his brother-in-law was sent by his mother to remove his computer from the flat in his absence, he reports his reaction: "I got home from work, my computer gone, I—I just went wild. [...] It went so far that I threatened to call the police." As soon as the computer was returned, Topac resumed his usual gaming pattern. Only after his divorce did his gaming patterns change. The separation from his wife can be seen as a real-life decision that he is an autonomous person, independent not only of his wife, but also of his family's expectations. Afterwards, he lost interest in the game quickly, which is in line with our reconstruction of the game's function as self-assertion, which is no longer needed. Topac himself described some degree of surprise at experiencing this lack of interest: "And at a certain point it happened that I separated from my wife that we divorced but ... I don't know, somehow from one day to the other, you know, I lost interest in the game somehow." [36]

3.4 Integrated (dys-) functionality model

The final step in the analytical process was to condense the findings from the different groups of cases described in detail above into a model, the integrated (dys-) functionality model of video game addiction displayed in Figure 1. The model is based on a typology of gaming motives in the biographical context of addicted gamers, introduced by BLECKMANN and ECKERT (2012). In this article we focus on the vitamin/compensatory function, differentiating the three subtypes of a quest for belonging, for achievement or for autonomy. The narcotic/escapistic function and the re-enactment function of addicted gaming (at the bottom of Figure 1) are included in the figure as they are different but important functions dominant in different case analyses which have been described for addicted gamers on the basis of qualitative-reconstructive analyses

by BLECKMANN and ECKERT. Our detailed reconstructions of the vitamin/compensatory cases have shown that their gaming behavior is functional in that it matches the gamers' real-life biographical quests for success, for belonging, or for autonomy (illustrated by the puzzle-like fit of the virtual and the real-life side in Figure 1)—a match that leads to a stabilization of the gaming behavior and an extension of investment, not only but primarily concerning time spent in the game.

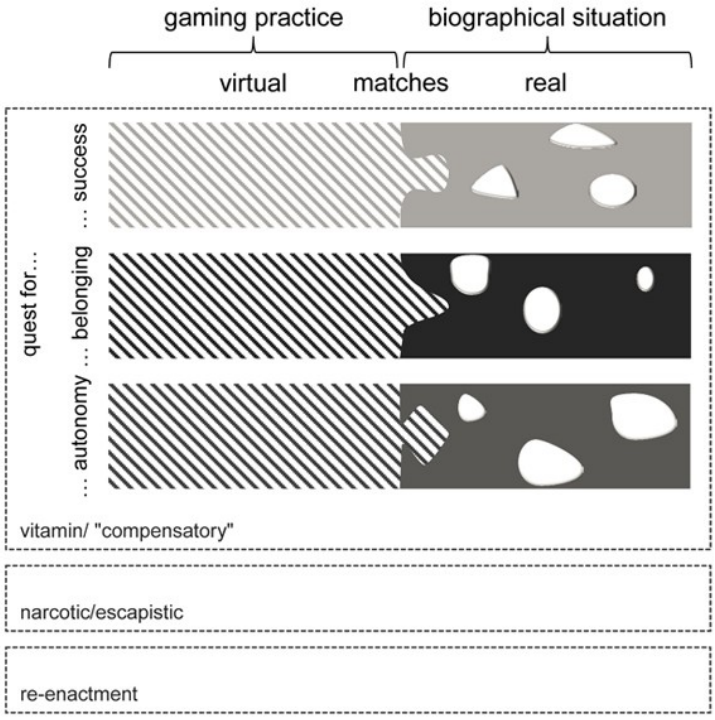

Figure 1: Integrated (dys-) functionality model [37]

But what are the consequences of the three types of in-game functionality in the real-life biographical context? For the real-life biographies of the interviewees with a predominant vitamin function, this can be described as detrimental regarding long-term biographical processes. Gaming is dysfunctional in that it hinders advancement in real-life biographical quests. It only "virtually" provides fulfillment of the biographical quests (illustrated by the striped, not solid appearance on the left side in Figure 1), whereas the unsatisfactory biographical situation (represented by the holes on the right side) remains or even worsens. One reason is the simple time displacement in the cases where gaming becomes a more than full-time activity of up to 14 hours per day. Another reason is the loss of relevance: The pursuit of the real-life quest loses its pressing importance because of the seeming virtual fulfillment. We consistently reconstructed such a displacement of time and relevance for vitamin-function interviewees: Said sees the group pressure he experienced and the extent of his involvement as negative in retrospect. His advice to young people would be: "Go outside. Do something for your body or your future or for school. Because that makes more sense than play any odd game." Daniel described his online quest for success that

contributed to real-life failure as a "vicious circle" he was glad to quit. Both he and Christian experienced a worsening of an already unsatisfactory academic situation. Topac's game-induced factual avoidance of having to interact with his wife served at best to make unbearable circumstances bearable, just as Sandra's gaming allowed her to avoid her unpleasant real life, but did not lead to or replace the decision for an initiative to improve it. Conny did meet her prospective husband through her gaming behavior, so it is an important link and starting point, but remains a surrogate. Her quest for belonging remained unfulfilled until they met and united in real life. [38]

To sum up, our integrated (dys-) functionality model shows that beyond a simple narcotic/escapistic function, even those interviewees who "virtually" get what they want (vitamin/compensatory function) do not "really" get what they need. In-game behavior of gamers qualifying as addicted is dysfunctional in that it hinders advancement in real-life biographical quests. At the same time it is functional in that it matches these same quests—in our vitamin/compensatory cases the quest for success, for belonging, or for autonomy. [39]

4. Discussion

In the light of this model, we will discuss the disparate positions described in the introduction: communication/game studies, which study online behavior in detail but mostly neglect real-life biographical context and consequences, and medical-psychological Internet and video game addiction research, which use mainly quantitative methods and neglect the individual in-game motives and real-life biographical perspective. [40]

Our results challenge the simple disease model still prevailing in Internet addiction research. The integrated (dys-) functionality model characterizes unfavorable circumstances, not sick people. It describes a "pathological" biographical context in which the interviewees feel unable to fulfill the expectations imposed on them by others or themselves, but not a pathological person. Other authors postulate the same mechanism of circumstances pushing people into addictions on an individual and a social level (GRAHAM, YOUNG, VALACH & WOOD, 2008; LARKIN, WOOD & GRIFFITHS, 2006) or a broader societal or even global level (ALEXANDER, 2008; MORGENROTH, 2013). The case reconstructions show persons who are earnest and desperate in their quest for reliable success (between beating the machine and being seen in success), for belonging (between face-to-face originated relationships and purely fictional relationships), and for autonomy (between inward self-assertion to outward delimitation) in the perceived absence of real-life opportunities for fulfillment. Unrealistic normative expectations of self-optimization in terms of individualization (autonomy), academic and occupational success (achievement), and social functioning (belonging) prevailing in Germany could push people into virtuality (BLECKMANN, JUKSCHAT & KRUSE, 2012). [41]

In some of our cases, interviewees explicitly describe a belief in effective self-medication for some time during their extreme involvement in gaming (e.g.,

Daniel), similar to what has been described for many other addictions as an early stage in the addiction recovery process called either precontemplation or denial (cf. PROCHASKA, DiCLEMENTE & NORCROSS, 1993). A shift from considering the gaming behavior functional to considering it dysfunctional on the level of self-analysis has also been described for other addictions, especially in self-change and recovery research (KLINGEMANN & SOBELL, 2001). [42]

Compared to the game studies tradition, our model partly overlaps and partly differs from existing classifications of (highly engaged) gaming behavior. Interestingly, the match types we identified are also similar to typologies of gaming motives in studies looking at unproblematic gamers[11] (BARTLE, 1996; FRITZ, 1997b; FRITZ, SCHMIDT & LAMPERT, 2011, pp.21ff.; YEE, 2006). For example, our findings rather confirm the "achievement" and "social activities" categories, but question the subsumption of role-play and escapism, both under the same heading of "immersion" in the classification of YEE. In the study of DOMAHIDI and QUANDT (2014) the two types considered as "problematic" gamers are classified as "meaning-seekers," which would most closely correspond to our vitamin/compensatory function cases, though their small sample (n=5) prevents these authors from a further differentiation within this group, whereas the "passive-secluded" gamers correspond well with our narcotic/escapistic function group. Our model also shows overlaps with the types of gaming motives that KARDEFELT-WINTHER (2014) briefly sketched: 1. socially motivated gaming, indicating loneliness; 2. achievement-oriented gaming, indicating frustration over a lack of real-life success; and 3. gaming to achieve domination and competition, indicative of anger or a desire for accomplishment. At the same time, our case evidence clearly contradicts KARDEFELT-WINTHER's claim that if Internet use is compensatory rather than escapistic, it is unproblematic. This primitive "positive compensation" idea has similarly been described as "intermondial competence transfer," for which a quantitative study showed, unsurprisingly, that the more time active gamers spend on gaming, the higher their conviction that their gaming behavior has positive effects on their real life (LAMPERT, SCHWINGE & TEREDESAI, 2011). In line with our case reconstructions, a recent study challenges the idea of a long-term compensatory functionality of gaming for the "belonging" type by showing that perceived real-life social support is correlated with less depression, whereas for the reported social involvement in an MMORPG, the correlation with depression is in the opposite direction (DUPUIS & RAMSEY, 2011). Exceptions among our sample were such cases where relationships initiated in-game were successfully exported into real life; social involvement in the game did lead to subsequent improvement in the real-life quest for belonging in these rare cases. [43]

A limitation of the present study is that it is based on a limited number of cases. Possibly, potential interviewees with gaming practices resembling those in our sample but only moderate or absent detrimental effects on their real life biographies might have objected to the term "addiction" included in the recruitment messages, so they might not have participated in the online

11 Though we could not verify the close correspondence of gaming functionality mode and game genre that other authors describe.

screening. This would lead to an unwanted exclusion of a certain type of gamer. The case selection was led by theoretical sampling (MORSE, 2011; STRAUSS, 1998) and is therefore more systematic than in most previously published qualitative studies on Internet (gaming) addiction. The number of cases is larger, the duration of interviews is longer, and theoretical saturation was reached. Still, the reconstructive analysis of further cases could reveal patterns that do not fit into the typology of the achievement/belonging/autonomy types. Another possible limitation of our model could be that interviewees who self-identify as ex-video game addicts would have a distorted, exaggerated negative view on their gaming behavior as part of a cognitive strategy to prevent "relapses." Though this is possible, of course, we do have interviewees in the sample who were current addicts at the time of the first interview; these case reconstructions support the same model of three match types, but did differ in the degree of belief of effective self-medication as expected. [44]

Thus, more longitudinal studies on video game addiction that are able to analyze gaming practices embedded into long-term biographical processes seem very worthwhile. Game studies should expand their hitherto small interest in real-life biographical processes that lie at the background of the "gaming biographies." This can be incorporated well in research on gamer typologies and extensive gaming. Secondly and just as importantly, the study of video game addiction from a medical-psychological view should be extended by using qualitative-reconstructive methods to understand in more detail and depth a variety of latent gaming motives that addicted gamers might not themselves be aware of. Thirdly, it would be worthwhile to study the societal dimension behind the three quests and answer the following question: Could the high variations in prevalence of addictive gaming in different regions of the world be explained, not only by "surface factors" like differences in availability of financial resources and spare time, but also, as suggested above, by a varying cultural background? International comparative studies could investigate the relationship between pressure to perform in the quest for belonging, for reliable success and for autonomy on the one hand, and opportunities to comply with these expectations in the real everyday life on the other hand in different countries and cultures. [45]

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