DEVELOPING A FACEBOOK WITHDRAWAL SCALE: RESULTS OF A CONTROLLED FIELD EXPERIMENT

Research in Progress

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Abstract

Particularly in the last years, IS research started to analyze threats due to technology, like the unhealthy misuse of the social network Facebook. This research examines withdrawal symptoms due to cessation and develops a Facebook withdrawal scale (FWS). At first, we identified withdrawal symptoms from substance related and behavioral addictions, which have been tested by scales from medicine and psychology research. In a second step, we developed the Facebook Cessation Model. Results of a controlled field experiment with 26 Facebook users being isolated from Facebook for in total 120h reveal that different withdrawal symptoms can occur: Agitation, annoyance, anxiety, increased appetite, difficulties in concentrating, craving for Facebook, disturbance of social contacts, not feeling happy or calm, fluctuation in mood, feeling left out, hostility, impatience, inattentiveness, irritability, memory lapses, restlessness and feeling slowed down. Our results offer an opportunity to assess addiction and withdrawal without relying on participants’ self-reporting their behavior.

Keywords: Technology Addiction, Withdrawal Symptoms, Facebook Cessation, Facebook Withdrawal Scale

1 Introduction

Today there are many studies in medicine and psychology available that deal with the topic of addiction, especially with the misuse and addiction to psychotropic substances like alcohol and medications. Research results show that humans do not only get addicted to substances, but also to gambling, which is labeled as a behavioral addiction (Andreasssen et al. 2012). While pathological gambling is at this point the only behavioral addiction, which has gained the status as a formal psychiatric disorder, there are an increasing number of studies trying to analyze other potential forms of behavioral addictions, like addiction to technologies (Turel et al. 2011b). Technology addiction is quite at the beginning of its observation and development and therefore still not well established in standard IT usage conventions (Turel et al. 2011b). Nevertheless, scientists from the Chicago University Booth Business School explain in their empirical analysis (Hofmann et al. 2012) that Facebook can be even more addictive than alcohol or nicotine (Hofmann et al. 2012). In addition to these findings, first instruments were invented like The Bergen Facebook Addiction Scale (BFAS), which is a standardized self-reported scale to assess the addiction to Facebook. However, from a
medical point of view the problem of a general definition of addiction has not yet been solved completely (Charlton and Danforth 2007; Turel et al. 2011b). The question, whether addictive disorder should include non-substance related conditions is therefore still difficult to answer (Potenza 2006). Originally the notation addiction is derived from the Latin word ‘addicere’, which can be translated into the English language as "bound to/enslaved by" (Potenza 2006). One definition says that addiction is a behavior over which an individual has limited and decrepit control with hurtful consequences (West 2001). While addiction has more come into the focus of IS research (Byun et al. 2009; Turel et al. 2011a; Turel et al. 2011b; Turel and Serenko 2012) especially in the context of drawbacks of social networking sites (Maier et al. 2014) and the massive use of online gaming (Kim and Kim 2010), it is now a sensible next step to analyze withdrawal situations that are caused by the addiction. Withdrawal and withdrawal symptoms from substances like alcohol (ethanol) (Estruch et al. 2003), benzodiazepines (Fontaine et al. 1984) and tobacco (Hughes and Hatsukami 1986), with nicotine as its main addictive element (Paolini and De Biasi 2011), have already been researched and experimentally measured in medicine and psychology research to a large extent. However, in IS research in terms of technology addiction these withdrawal patterns as cessation were completely neglected so far.

Hence, the aim of this study is to develop a scale helping to assess possible withdrawal symptoms due to the cessation of Facebook, the so-called Facebook withdrawal scale (FWS). The scale is based on withdrawal symptoms or signs which have been widely tested by existing scales and research that dissect withdrawal symptoms from alcohol (ethanol), benzodiazepine, cannabis, cocaine, marijuana, tobacco (nicotine), as well as gambling. The new scale has been combined with a modified version of the model of smoking cessation, which among others tries to explain the relationship between dependence and cessation for the example of smoking (Kleinjan et al. 2009). The following two research questions will guide the procedure in this research-in-progress approach:

**RQ1:** What kinds of withdrawal symptoms exist due to the cessation of Facebook?

**RQ2:** How can these symptoms be generalized to develop a Facebook withdrawal scale?

To answer the guiding research questions, the remainder of this article is structured as follows. We initially describe technology addiction (Turel et al. 2011a; Turel et al. 2011b; Turel and Serenko 2012), cessation and withdrawal symptoms, and the model of cessation (Kleinjan et al. 2009). Based on this, we develop hypotheses and the Facebook cessation model to validate the Facebook withdrawal scale. Finally, we discuss and summarize the results for this research-in-progress critically. Results gathered through a controlled field experiment (with 26 Facebook users whereby 11 were identified in a pretest as Facebook addicted) show that several different withdrawal symptoms can occur due to the cessation of Facebook. These symptoms are agitation, annoyance, anxiety, increased appetite, difficulties in concentrating, craving for Facebook, disturbance of social contacts, not feeling happy or calm, fluctuation in mood, feeling left out, hostility, impatience, inattentiveness, irritability, memory lapses, restlessness, and feeling slowed down.

2 Theoretical Background and Hypotheses Development

In order to address the research questions mentioned above, a research model based on a modified version of the model of smoking cessation (Kleinjan et al. 2009) has been developed. Our objective is to show the relationship between technological addiction, withdrawal, and withdrawal symptoms using Facebook as an example.
2.1 Technology Addiction

In their approach, Turel et al. (2011b) introduced technology addiction as one possible negative outcome due to the usage of information technology (IT) (Turel et al. 2011b). It can influence individuals as well as societies (Block 2008; Turel et al. 2011b; Xu et al. 2012). Technology addiction can be seen as a particular type of behavioral addiction, therefore not caused by substance (Holden 2001; Turel et al. 2011b). More precisely, it is a pathological dependency on the use of a certain technology so that the following characteristics may appear: (1) salience, (2) withdrawal, (3) conflict, (4) relapse and reinstatement, (5) tolerance and (6) mood modification (Andreassen et al. 2012; Griffiths 2000; Peters et al. 2007; Turel et al. 2011b). A short description of these symptoms can be found in Table 1. While Turel et al. (2011b) tried to explain online auction addiction with these six core symptoms (Turel et al. 2011b) it was Andreassen et al. for instance who used the same symptoms to develop a Facebook addiction scale (Andreassen et al. 2012).

A closer look into current literature shows that different terms like Internet addiction (Tokunaga and Rains 2010), Internet dependency (Tokunaga and Rains 2010), compulsive Internet use (Meerkerk et al. 2010; Tokunaga and Rains 2010; Turel et al. 2011b), problematic Internet use (Bayraklar and Guen 2007; Tokunaga and Rains 2010; Turel et al. 2011b) etc. try to define these occurrences in other words (Turel et al. 2011b). In the specific case of Facebook, it is also possible to find the designation Facebook addiction (Andreassen et al. 2012) or Facebook Addiction Disorder (Kuss and Griffiths 2011). In this study, we have decided to use the umbrella term technology addiction.

<table>
<thead>
<tr>
<th>No.</th>
<th>Symptom</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Salience</td>
<td>A user’s thoughts and behaviors are dominated by the technology.</td>
</tr>
<tr>
<td>2</td>
<td>Withdrawal</td>
<td>If a person cannot use a technology negative emotions arise.</td>
</tr>
<tr>
<td>3</td>
<td>Conflict</td>
<td>There is a conflict between other tasks, which impair functioning and the use of the technology.</td>
</tr>
<tr>
<td>4</td>
<td>Relapse and Reinstatement</td>
<td>The usage of the technology cannot be reduced voluntarily.</td>
</tr>
<tr>
<td>5</td>
<td>Tolerance</td>
<td>The technology has to be used by a person to a greater extent in order to produce thrill.</td>
</tr>
<tr>
<td>6</td>
<td>Mood Modification</td>
<td>The usage of the technology enables relief and thrill, and induces mood changes.</td>
</tr>
</tbody>
</table>

Table 1. Symptoms and Description (Andreassen et al. 2012; Turel et al. 2011b)

To classify psychological diseases, systems of classification are often used. These include the International Classification of Diseases (ICD-10) published by the World Health Organization (1992) (Gruesser et al. 2007; Smith 2002) or the Diagnostic and Statistical Manual of Mental Disorders (DSM) of the American Psychiatric Association with its current version DSM-IV-TR (Gruesser et al. 2007; Lawrence et al. 2009; Turel et al. 2011b). The latter for instance does not entirely acknowledge that addiction to technology is in fact a dysfunction, appointing that it is has its roots in other mental conditions such as decreased impulsive control (Turel et al. 2011b; Yellowlees and Marks 2007). Nevertheless, Ko et al. (2009) showed that online gambling addiction and craving in substance related addiction share the same neurobiological mechanisms (Ko et al. 2009; Turel et al. 2011b; Woelfling and Mueller 2010; Xu et al. 2012).

2.1.1 Cessation and Withdrawal Symptoms

After cessation of a drug withdrawal symptoms often follow (Kliethermes et al. 2004), in other words ‘(w)ithdrawal syndromes from dependence-producing substances are due to the specific absence of a drug within the substance (e.g. alcohol within beer)’ (Hughes et al. 1994). Dependence on a certain drug can be among other reasons because of trying to avoid negative consequences like withdrawal signs or craving during cessation (Briggs et al. 1996; Farook et al. 2007; Koob et al. 1998; Littleton...
In DSM-IV-TR, three elements for a substance withdrawal disorder can be found (Budney et al. 2004). The first criterion says that there has to be a development of symptoms, which are substance-specific and caused by a decrease in usage or even a complete termination (Budney et al. 2004). Secondly there has to be a clinically significant adverse effect on a person’s life and finally the symptoms should not be better explored by other disorders or on the bias of general state of health (Budney et al. 2004). In their edition from 1994, APA named eight signs to indicate the nicotine-withdrawal symptom: Anxiety, difficulties in concentration, restlessness, decreased heart-rate, increased appetite or weight gain, irritability, frustration or anger, insomnia, and a dysphoric or depressed mood (Teneggi et al. 2002). It must be considered that withdrawal symptoms are not typical for one drug only (Hughes et al. 1994; Kliethermes et al. 2004). Among them who are related to several drugs are anxiety, difficulty concentrating, impatience and irritability (Hughes et al. 1994). As a result, overlapping diagnostic confusion is possible (Hughes et al. 1994).

2.2 The Underlying Model: The Model of Cessation

Summarizing the model of cessation, it can be said that it identifies predictors of smoking cessation like i.e. dependence on nicotine (Abrams et al. 2000; West et al. 2001; Kleinjan et al. 2009). Many studies show that dependence symptoms can be an obstacle in persevering cessation from smoking (Colby et al. 2000; Kleinjan et al. 2009; Prokhorov et al. 2001). While trying to quit smoking many smokers report cravings as well as withdrawal symptoms, whereby the relapse to smoking can occur (Bagot et al. 2007; Colby et al. 2000; Horn et al. 2003; Kleinjan et al. 2009).

Meanwhile, there are scientists assuming that a mixture of biological, psychological as well as social aspects that contribute to the development of addiction could also hold good when considering Social Networking Site (SNS) addiction (Kuss and Griffiths 2011). As a result of this suggestion and the assumption that Social Network Sites like Facebook can be addictive (Andreassen et al. 2012; Kuss and Griffiths 2011), comparing dependency of substance-related addictions like smoking with addiction to technologies such as Facebook represents a plausible next option. If the excessive usage of Facebook has a comparable outcome with the misuse of cigarettes, it might be more difficult for this group of Facebook users to cope with the cessation from Facebook in comparison to those, who do not use Facebook in an extensive way. Referring to the example of smoking, it will be interesting to find out whether cessation from Facebook is equally more difficult in the course of time or not.

In line with the above-mentioned findings, we assume that:

\[ H1: \text{The higher the state of dependence on Facebook the more difficult it is to stand the cessation of Facebook.} \]

\[ H2: \text{The longer the withdrawal from Facebook the stronger the withdrawal symptoms.} \]

2.3 The Modified Research Model: The Facebook Cessation Model

The modified research model named The Facebook Cessation Model consists of three parts: Facebook addiction, Facebook cessation and withdrawal symptoms due to the cessation of Facebook. The related constructs as well as the points in time, when they need to be measured are depicted in Figure 1.
Scale Development

The objective of this section is to describe how the scale including withdrawal signs due to the cessation of Facebook has been developed. Therefore, we decided to conduct a controlled field experiment: The reason for that was because of our willingness to observe our participants without making them feeling being in an unnatural control situation (Harrison and List 2004). Additionally, in field experiments unexpected findings can be made (Harrison and List 2004). In a first step, we analyzed the demographic variables, the duration of the Facebook usage and the number of log-ins of our participants (see Table 2).

In a second step we dissected which participants were addicted to Facebook (with the help of the BFAS by Andreassen et al. 2012) and which of them were not. We used the liberal approach by the authors and categorized a Facebook user as addicted when the participant scored in four out of six items above three on a five point Likert scale (see Table 5 in Appendix) (Andreassen et al. 2012). With the help of the Bergen Facebook Addiction Scale by Andreassen et al. (2012), we identified 11 Facebook users as addicted to Facebook. After 24h of cessation there was no one who suffered a relapse. However after 72h of withdrawal, 10% of our participants did not endure the withdrawal as addicted users. These 10% were excluded from our further research. An additional exclusion after 120h of cessation was not necessary.

The non-addicted individuals remained in the analysis, to act as a control group. After the analysis, all test subjects had to deactivate their Facebook accounts and were interviewed with the help of a literature-based questionnaire 24h (in line with Estruch et al. 2003, who tested the effects of alcohol withdrawal on 24 hour), 72h (in line with Teneggi et al. 2002, where smokers were deprived of cigarettes for 72 hours) and 120h after the beginning of the cessation from Facebook. As this is research-in-progress, the results of the interviews after two and three weeks of cessation will be available in the next months. Finally, a scale based on the observed findings has been developed.

<table>
<thead>
<tr>
<th></th>
<th>Addicted</th>
<th>Non-Addicted</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women:</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td><strong>Men:</strong></td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Age between 13 and 17:</td>
<td>2</td>
<td>Age &gt; 25: 3</td>
</tr>
<tr>
<td>Age between 18 and 25:</td>
<td>6</td>
<td>Age between 13 and 17:</td>
</tr>
<tr>
<td>Age between 18 and 25:</td>
<td>6</td>
<td>Age &gt; 25: 3</td>
</tr>
<tr>
<td><strong>Facebook usage</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration:</td>
<td>336.5 min</td>
<td>35.5 min</td>
</tr>
<tr>
<td>Log-ins:</td>
<td>13</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 2. Demographics and Facebook usage of the 26 interview partners
By observing these technological features that are used by the 11 addicted and 15 non-addicted participants we gathered some interesting insights. While both groups used the same functionalities that are offered by Facebook to its users (i.e. newsfeed, sending private messages to Facebook friends, checking in public places, planning events, and pushing the “like”-button), their usage frequency and usage intensity significantly differed. The time span between different log-ins was much shorter as for the addicted users as they continuously needed to reassure themselves, that there are no updates in the newsfeed. This is also shown by the ten-time higher average daily Facebook usage as depicted in Table 2. The need to quickly re-login into Facebook was even stronger if addicted users themselves posted new messages or pictures and awaited their friends to comment and like them. As a result after having posted new content, some of the addicted users even left their seminar rooms during university or high school classes just to check in private and detail. Interestingly, one of the addicted users played daily more than six hours online play money poker in Facebook with his friends and strangers. While we suspected for this participant to be addicted more to gambling than Facebook at first, but as he declared only to play poker in Facebook, the participants remained in our observatory group.

4 Results

Before starting to analyze the withdrawal symptoms due to the cessation of Facebook, we separated the participants into two groups. We focused on both the addicted test subjects and on the non-addicted.

The most significant difference between the addicted and the non-addicted individuals was the craving for Facebook, impatience, concentrating-troubles and restlessness. While almost no one of the non-addicted named any changes in these four areas, 100% of the addicted reported that they have frequent urges to use Facebook. Even after 120h of cessation the percentage did not alter. The results also reveal that 100% of the addicted still felt impatient after 72h of withdrawal, though the percentage fell to 80% after five days of Facebook abstinence. Considering difficulties in concentrating it can be noticed that after 24h 90.91% of the addicted realized changes in their skills of concentration, after 72h the amount decreased to 80% and after 120h only just to 70%. In course of time, a decrease of this difficulty has been discovered. While 100% of the addicted mentioned being restless after 24h without Facebook the percentage decreased to 80% 48h later and did not change after further two days.

Furthermore, our data sample shows that especially after 24h of cessation 100% of the addicted participants felt to be easily annoyed. This symptom decreased to the half at the second interview after the beginning of the cessation and continued decreasing to 30% after 120h without Facebook. Another symptom we realized was anxiety: In average 61.11% of the participants felt anxious during the three analyzed periods. Additionally we discovered that every addicted participant felt irritable during his or her first 24h separated from Facebook. After 72h there were only 60% of these people feeling irritable. We recognized a 10% decline after 120h Facebook withdrawal. We found symptoms increasing during ongoing cessation or staying constant after 72h without Facebook: While no one of the addicted participants ate more after 24h than normal, we found 48h later an increasing to 10% and again 48h later the percentage of participants feeling that they ate more than usual doubled. Our first interview after deactivation of the Facebook accounts showed, that 54.55% of our addicted participants experienced fluctuations in mood. The second interview showed a rise to 60%. This percentage did not change at our third questioning. The results in connection with agitation, calmness, neglect, happiness, hostility, inattentiveness, memory lapses and feeling slowed down can be found in Table 3.
Table 3. Results of the Facebook cessation over three periods

The comparison of the data from the addicted and the non-addicted individuals shows big differences: The non-addicted did not recognize serious changes on the above-mentioned areas. Therefore, the hypothesis H1 can be supported.

During our analysis, we did not only focus on outlining the symptoms due to cessation from Facebook, but also on the development of the intensity of itself. Due to the fact that we used a five point Likert scale it can be said, that a score of five stands for "very often" and a score of one for "very rarely". To analyze the changes we calculated the mean values of each item in each interview over all participants on the one hand for the group of the addicted and on the other hand for the non-addicted. While the primary value of the symptom irritability was at 4.55 after 24h of cessation it decreased at first to 2.9 and later on to 2.4. While the intensity of craving without access to Facebook was in average at 4.18 after 24h, it was at 4.2 after 72h and decreased to 3.97 after 120h of abstinence. These two examples make clear, that the intensity of the symptoms can increase but also decrease in course of time. There was no unambiguous scheme observable. As a result hypothesis two cannot be fully supported.

Another observation we did was that a symptom could occur often after 24h without Facebook and decrease to a state were addicted participants only sometimes or rarely feel it during ongoing cessation: While the item “I am irritable” had a mean value of 4.55 in the group of the addicted participants after one day Facebook withdrawal it decreased to 2.9 after all together three days of cessation and even to 2.4 after at least five days of abstinence.

5 Discussion

Technology addiction is quite at the beginning of its development and therefore still not well established in standard IT usage conventions (Turel et al. 2011b). Experts are still debating about the term "addiction" (Holden 2001; Turel et al. 2011b). As a result, different terms could be available describing the same occurrences (Turel et al. 2011b). The results of our research-in-progress support that an extensive way of using Facebook can have a negative impact on an individual’s life (Kuss and Griffiths 2011). With the help of our newly developed and tested Facebook withdrawal scale (see Table 4) we tried to show that technology addiction can not only be measured or assessed with the help of questionnaires trying to find out addiction symptoms but moreover by identifying withdrawal symptoms. The reason for this contradictory procedure was that several studies trying to analyze addicting use data, where participants had to self-report their own behavior which could lead to misreporting and is therefore a major limitation (Kleinjan et al. 2009).

When it comes to cessation from Facebook by Facebook addicted users, different withdrawal symptoms like agitation, annoyance, anxiety, increased appetite, difficulties in concentrating, craving for Facebook, disturbance of social contacts, not feeling happy or calm, fluctuation in mood, feeling left out, hostility, impatience, inattentiveness, irritability, memory lapses, restlessness and feeling slowed down can occur. The relapse was at 0% after 24h without Facebook and increased to 10% after...
72h. This result shows that the relapse rate is higher after the first 24h of cessation from Facebook. Whether there will be any differences in experiencing withdrawal symptoms after two and three weeks of cessation will be seen at the end of this research.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Item</th>
<th>Very rarely</th>
<th>Rarely</th>
<th>Some-times</th>
<th>Often</th>
<th>Very often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agitation</td>
<td>I feel agitated.</td>
<td></td>
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<td></td>
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<tr>
<td>Annoyance</td>
<td>I seem to be easily annoyed today.</td>
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<tr>
<td>Anxiety</td>
<td>I felt anxious.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Appetite</td>
<td>I am eating more than usual.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Calmness</td>
<td>I felt calm.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration</td>
<td>I could not concentrate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Craving/Urges</td>
<td>I have frequently urged to use Facebook.</td>
<td></td>
<td></td>
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<tr>
<td>Disturbance of contacts</td>
<td>I disturbed some contacts.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling left out</td>
<td>I am experiencing a feeling of being left out.</td>
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<td></td>
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<tr>
<td>Fluctuation in mood</td>
<td>I am experiencing fluctuation in mood today.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Happiness</td>
<td>I felt happy.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Hostility</td>
<td>I am experiencing some hostility.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impatience</td>
<td>I feel impatient.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inattentiveness</td>
<td>I am inattentive.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irritable</td>
<td>I am irritable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory lapses</td>
<td>I could not remember things.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restlessness</td>
<td>I am restless.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slowed down</td>
<td>Do you feel slowed down?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Table 4. The Facebook Withdrawal Scale (FWS)

6 Limitations and Next Steps

Several issues set limits to the presented study. First, as the gathering of data in controlled longitudinal field experiments is extremely complex due to a necessarily high need for monitoring and control, the highest possible number of participants per experimental run is comparatively small. Hence, the results for the new scale are so far just based on 26 participants. Second, we did not perform any hormonal and biochemical analysis as done e.g. by Estruch et al. (2003) for alcohol-dependent patients, as sanity checks for Facebook cessation will not get any meaningful results not till one week. Third, we were not allowed to specifically report any differences in age, ethnic origin, or gender, to ensure anonymity for all participants in the group of addicted Facebook users. Fourth, we just focused on one social network, Facebook, for that reason, results of this research might be generalizable to other social network sites, such as MySpace or Instagram to some extent, but they are not transferable to other social media such as micro blogging services (e.g. Twitter), forums or blogs. It will be the next step in this research-in-progress to conduct further runs of field experimental runs with participants, to collect data from different countries in order to get more generalizable results and to focus additionally on the above-mentioned aspects (Xu et al. 2012). While we only focused on the topics of addiction, withdrawal, and withdrawal symptoms, in forthcoming approaches we will also take potential therapies into account and therefore to have more insight into possible coping strategies.
7 References


8 Appendix

Table 5 can be accessed via: http://www.is-frankfurt.de/uploads/Tabelle5-ecis2014.jpg