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Recommended Citation

Kisyovska, Yana; Krönung, Julia; and Eckhardt, Andreas, "Peer Influence, Family Dysfunction or Conditioning? – An Empirical Analysis of Facebook Addiction Predispositions" (2015). *Wirtschaftsinformatik Proceedings 2015*. 125.
<http://aisel.aisnet.org/wi2015/125>

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Peer Influence, Family Dysfunction or Conditioning? – An Empirical Analysis of Facebook Addiction Predispositions

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Abstract. The high increase of usage rates of Social Networking Sites (SNS) such as Facebook are a worldwide phenomenon as are people spending hours in Facebook especially among young adolescents. However, beside their useful and enjoyable features, SNS like Facebook have also proven to have undesired outcomes in terms of technostress, social overload, or even addiction. Addiction as a variable in adoption models has been introduced into the IS community by Turel and Serenko (2011) who operationalized online-auction addiction and assessed its impact on adoption determinants as perceived usefulness. By means of an empirical study of 125 young adults, the present research shifts the focus to the causes of addiction using the example of Facebook. We thereby focus on three groups of addiction predispositions (Family dysfunction, peer influence and behavioral conditioning) and empirically investigate their impact on Facebook addiction.

Keywords: Social Media Addiction, Conditioning, Peer Influence, Family dysfunction

1 Introduction

People staring on their smartphones are a usual sight in public means of transport, but also in restaurants or malls where people used to talk to one another without electronic mediation. Technologically-induced change of communication has long taken hold in many societies, and the exponential increase of new communication platforms mostly subsumed under the label ‘Social Media’ have become an ever-increasing part of individuals’ daily lives and routines [4]. Beside the high usefulness and enjoyment parameters of these platforms, and the various possibilities they offer in terms of communicating, documenting, information processing or gaming, the increase and occasionally excessive use can - alike related phenomena as Technostress or IT-induced social overload [6], [35] – cause immense health related problems for its

users, one of them is addiction. Given the sheer number of users of Social Networking Sites alone, and the fact that they have already become an inherent part of many users' lives, it is evident that the dimensions of health problems related to these technologies will affect society either in one or the other way, and gives reason for concern.

Attending to the gradually increasing number of reports about users engaged in addictive online activities [8], [18], [49], research has taken up on these issues and made attempts to operationalize online addiction (e.g. [4]) and understand its causes with respect to usage behaviors (e.g. [53-54]). However, in order to prevent that usage of technologies like Social Networking Sites (SNS) (e.g. Facebook) become an addiction with all implicit physical and behavioral consequences, it is inevitable to focus on the predispositions of this malicious behavior and understand what factors cause addiction. Further, in order to develop prevention strategies, knowledge about online addiction predispositions provides information about potentially vulnerable societal groups or on which preventions in daily routines can be taken in order to avoid the step from using SNS to addictive usage behaviors.

In order to structurally investigate the impact of predispositions, within this research we identified three groups of predispositions (Peer Influence, Family Dysfunction, and Behavioral Conditioning) and empirically investigated their impact on Facebook addiction of a sample of 125 young adolescents whose Facebook addiction was measured by means of the Bergen-Facebook-Addiction Scale [4]. We thereby specifically focused on the effect of behavioral conditioning that was modeled as a causal relationship between habit and self-reactive outcomes.

We thereby aim at providing the following contributions: First, in contrast to recent research on Facebook addiction (e.g. [53-54]), we shift the perspective from the relationship between addiction and usage or intention and thus adoption perspective of the issue on predispositions in order to understand the causes of Facebook addiction and hopefully helps to prevent it. Second, we group the predispositions into three major causes of addiction that per se can vary with respect to their manifestations from case to case, but build a good proxy of which classes of variables Facebook addiction is determined. And third, we assess and model the impact of behavioral conditioning by means of the two constructs habit and self-reactive outcome.

2 Theoretical Background and Conceptual Model

2.1 Related Work on Online Addiction - The Importance of Predispositions

Recent research indicated that Internet dependents spent more time online (38.5 hours a week), compared to non-dependents with 4.9 hours a week [60]. Karaiskos et al. [26] reported a case of a 24-year old female, who used Facebook excessively for at least 5 hours a day resulting in the loss of her job. Additionally, she developed anxiety symptoms and sleep problems, what suggestively emphasizes the clinical relevance of SNS excessive use [26]. Similarly, scholars have denoted SNS addiction as "*internet spectrum addiction disorder*" [26]. As to Internet addiction, there have been debates in different research disciplines about the meaning of the term and it still difficult to find a comprehensive definition [49]. In order to assess Internet addiction, many re-

searchers have adopted the criteria of pathological gaming [64], referring to the substance-dependence criteria of the Diagnostic and Statistical Manual Fourth Edition (DSM-IV). As noted in previous studies, game addiction “*still the most prevalent term to describe excessive, obsessive, compulsive, and generally problematic use of videogames*” (Lemmens et al. 2009). The literature demonstrates that computer and videogame overuse is critical for the users, facilitating the development of a behavioral addiction (Griffiths, 2005), which is consistent with the primary findings by Mendelson/Mello (1986), who proposed a classification for addictive behavior as a compulsive, uncontrollable and psychologically or physically destructive behavior (Lemmens et al. 2009).

Under this logic, we use the term addiction, in parallel with game addiction, as an appropriate way to define and conceptualize the excessive and compulsive engagement with the social networking website Facebook. It is proposed in this line of research that addiction to Facebook may be a specific form of Internet addiction [4]. Considering the rapidly increasing engagement in usage of the social platform and in order to assessing the development of “a possible Facebook addiction”, Andreassen et al. [4] developed the Bergen Facebook Addiction Scale, examining the personalities of SNS users and including extra information about user’s demography, Facebook activity and sleep habits [4].

The findings to data indicate that most frequently research models have highlighted the negative consequences of excessive technology usage [55], [29]. Corresponding to the reason-based decision process of the users, Turel/Serenko [55] emphasized the potential negative outcomes of online auction addiction. The theory of technology acceptance model [11] has been successfully utilized to demonstrate how the level of addiction may distort the individual’s perceptions toward the technology [55]. As a result, the importance of the technology addiction was verified, requiring future investigation and a better understanding of the process [55]. This is in line with the findings by Kuss/Griffiths [29], which shown that an increased social media use corresponds to decrease in real-life communities and causes relationship problems, as well as negative consequences for individual’s academic performance [29]. Due to the potential negative internet outcomes according to gradually increasing amount of time people spend online, research on the nature of the addictive internet behavior will gain importance [65].

The formation of addictive behavior on the basic of cognitive processes is inherent in most of the research done on pathological dependency [55]. In order to explain the development of addiction tendency toward social network sites and to predict the user’s behavior, prominent theories like the cognitive behavioral model provided by Davis [12] and the socio-cognitive model of unregulated Internet use by LaRose et al. [33] were developed and integrated into mainstream SNS use models [54]. Addressing the question what are the underlying cognitive mechanisms can help researchers understand the development of SNS maladaptive obsessive use patterns [54].

To our state of knowledge, there are still no research results on Facebook addiction on the basic of conditioning as a form of associative learning. In contrast, the theory of conditioning has been successfully utilized to explain substance abuse [28]. Ko et al. [18] has provided a basis for analyzing the interaction between dopamine function

and substance use experience, revealing that the latter is possibly associated with an impaired dopamine system [18]. The study results provided by Yen et al. [62] indicate that the individual's higher sensitivity to rewarding stimuli leads to the formation of strong associations with conditioned behavior. This is according to the theory of neural sensitization by Robinson/Berridge [42], which leads a support to the proposition that conditioned behavior is a major risk factor contributing to the development of an addiction.

Although research on excessive Facebook use has also started in recent years and the possibility to develop Facebook addictive behavior has been recognized by Andreassen et al. [42], to our state of knowledge, there appears to be no common agreement on what constitutes it. Drawing on previous research, the current study examines a variety of factors which are thought to be determinants of Facebook addictive behavior. Understanding the underlying influential mechanisms under which the social platform will be embraced by the user remains a high-priority research issue. [29].

2.2 Social Factors

Peer Pressure. People who engage in excessive internet behavior have a recognizable common underlying addiction process and usually share similar social factors [63]. Seeking friends and social support were found to be the most significant predictors of addictive Facebook use, especially among young adolescents. According to Seidman [44] the normative pressure among the peer group' members, as well as the recognition of the critical mass could be perceived as an instrumental way for social compensation, which may lead to using internet and Facebook excessively. Those findings results are in line with the findings of Gangadharbatla [17], Theotokis/Doukidis [53] Xu et al. [60], and Xu/Tan [61]. A review of computer-mediated communication literature conducted by Shepherd/Edelmann [46] revealed that the online communication via Facebook may fulfill individual's belonging and acceptance-seeking needs. In addition, Virtanen/Malinen [59] found by means of a survey of 240 Finnish Facebook users that the majority of the sample is interested in using Facebook to maintain existing relationships, like those to the closest peer group [13], [39]. Consequently, individuals with higher levels of normative social influence are more likely to turn to Facebook for communication purposes [40]. It has been argued that the individual may feel obliged to maintaining his social networks on the Internet which may cause an excessive Internet use, using the SNS as a tool for staying connected [29]. Especially individuals with troubled peer relationships and negative social identity tend to be more active on Facebook and other SNSs in order to compensate for their limited real-life networks. In this line of thought, the virtual world offers the opportunity to escape the real-life social interaction, fulfilling the individual's needs for acceptance and improving his level of self-esteem [61]. This, in turn, may potentially develop into excessive Facebook use. Therefore the following hypothesis was tested:

H1: Peer Pressure positively impacts Facebook addiction.

Family environment. Another predisposition that impacts the development of malicious behaviors are the “poor family management practices” [5]. According to Yen et al. [63] and Siomos et al. [47] family dysfunction, higher parent-adolescent and inter-parental conflicts predict internet addiction. Research in the psychological field associated with internet addictive behavior revealed that the disembodied environment online offers the opportunity to create a new identity independent from social constraints such as destructive family relationships. Adolescents, who do not feel secure about their real-life connections to their family and thus have a negative family identity tend to use Facebook more in order to compensate for this, alternatively to the real life [34], [38], [7]. The prior research findings indicated that there was a strong positive correlation between family dysfunction and problematic internet behavior. Those adolescents who associated their childhood with lower family functioning scored significantly higher on excessive internet use [63]. Adolescents with a lack of familial support and inadequate parental involvement are more likely to develop an excessive use to the social platform, looking online for admiration and emotional support [14]. Similar findings could also be found in the wider adolescent problem behavior literature. Ary et al. [5] suggested the possibility that childhood experience of family conflict situations, leading to weak parents’ involvement, may contribute to an inadequate parental monitoring. In addition to this, these factors were expected to predict an association of the children with deviant peer groups, engaging in problem behaviors. In general, the results of the reported study by Ary et al. [5] provided interesting insights in the area of social risk factors. Findings in research revealed that the social context model to oppositional behavior by Ary et al. [5] could be used to explain the excessive internet use, representing especially poor family management practices as an important contributing factor to the development of Internet addiction [63]. The provided family-based approach by Yen et al. [63] stressed also the importance of family identity as determinant of young adolescents’ Internet problem behavior, indicating the high parent-adolescent conflict as the most significant predictor of Internet addiction [63]. Therefore, the online interactions become a substitute for the lacking support from the parents, which in turn, help the formation of higher levels of addiction [64]. Hence, the following hypothesis was derived:

H2: Family dysfunction positively impacts Facebook addiction.

2.3 Learning mechanisms

To study the logic behind technology use, researchers have expanded the theoretical core of classical and operant conditioning, pointed out their importance especially in treating individuals with addictive behaviors [45]. Accordingly, computer-based consumption could become a classically conditioned response to negative moods (e.g., frustration) [36], implicating underlying psychopathology in the excessive use of the Internet [12] and conforming to the etiology of addictive behavior [12], [36].

Still, it is interesting to note that the expression “operant conditioning”, popularized by Skinner, defines the process as a type of learning, in which the frequency of

the initially spontaneous behavior is determined by its consequences [48]. In other words, web surfing could elicit a variety of positive perceived consequences like a social support or relaxation [45]. After many repeated pairing internet usage and the associated outcomes became an expected reward, transformed into conditioned response to individual's negative moods or experiences [33]. These motives, known as "self-reactive incentives" in social cognitive theory [31], define the reinforcement a user receives from the internet use. Motivated by positive responses, the individual is conditioned to perform the media consumption and to remain in a virtual social life. Following recommendations by LaRose et al. [33], the engagement in addictive media behavior is predicted by the individual's expected outcomes. As long as the reinforcement mechanism is working, using the media to relieve negative moods or negative emotional experiences, the internet consumption behavior will be repeated, increasing habit strength and triggering obsessive thoughts about the internet overuse [52], [33], [12]. Habits developed "*by the systematic experience of rewarding consequences (...)*" [56] represent a distinct type of behavior that is related to forms of automaticity, representing an individual's learned responses to stimuli [58]. Defined as "*learned sequences of acts that have become automatic responses to specific cues, and are functional in obtaining certain goals or end-states*" [56], they denote the individual's customary way of behaving, highly reflecting on one's well-being [56]. In line with these findings, it is argued that SNS use habit predicts adoption behavior, which in turn could develop into technology addiction. The behavior becomes automatic, directly impacted deficient self-regulation and enabling the direct Stimulus-Response relationship between the media (stimulus) and the emotional experience (response), proceeding without conscious control by the individual [33]. In order to assess the aforementioned line of thought, the following hypotheses were formulated:

H4: Habit positively impacts self-reactive outcome expectations.

H5: Self-reactive outcome expectations will be positively related to Facebook addiction.

Another interesting paper that has to be mentioned in the context of this research is the work published by Robinson/Berridge [42]. They focused on the neurobehavioral approach, which attempts to address the development of addictive behavior to the incentive sensitization [42]. Accordingly, an increased habitual SNS use causes brain's hypersensitivity to the social platform use and all associated stimuli of the neural circuits mediating incentive salience. Moreover, it was established that the increasing sensitivity to SNS stimuli is responsible for a consequent growing gap between expected and actual rewards, mediating an increase in "wanting" [42], which corresponds to higher levels of excessive use [54]. Adapted to Facebook usage but in line with prior conceptualizations, we define Facebook use habit as the extent to which people tend to perform Facebook use automatically based on learning mechanism. Therefore, it was hypothesized that:

H3: Facebook use habit is positively related to the Facebook addiction.

However, not every habitual behavior can be considered as addictive, because: “*Habits are not intrinsically compulsive in any motivational sense, no matter how automatic they are*” [42]. According to Robinson/Berridge [42], no matter how strong the link between Stimulus-Response in simple actions such as teeth brushing is these habitual behaviors will never become addictive. Therefore, they are unlikely to turn into a habit since their performance is not going to be satisfied. A necessary condition is the presence of continuous reward [19], which according to Davis’ cognitive-behavioral model of PIU (Pathological Internet Use) should be related to the social environment of the individual. It seems reasonable to assume that individual’s belonging and communication needs are responsible for the dramatically exaggerated motivation for remaining in the virtual worlds [12].

3 Conceptual Model

The conceptual model that builds the basis for this research is depicted in the following Figure 1. It is based on the development model of adolescent problem behavior by Ary et al. [5] in which the individual’s excessive media use is observed. Given the potential importance of social influence of peers in general and of the family construct in particular [5] and its scanty consideration in social networking addiction research [63], [34], we chose the work by Ary et al. [5] as the point of departure for our work on Facebook addiction. Since Facebook provides the opportunity to escape high family conflict situations and adverse family conditions, thereby stimulating the user to remain online for longer than anticipated, the level of excessive and/or potentially addictive use of Facebook might be dependent from the family identity [34]. This would implicate that family dysfunction positively impacts Facebook addiction (H2). It is also reasonable to assume that the process should be increasingly influenced by interactions with peers. Therefore, it is proposed that the higher the level of peer influence the more likely users might develop an addiction to using Facebook (H1).

Second, we add to the core of our model by Ary et al. [5] a set of constructs associated with variables from social-cognitive theory that help to further explain the excessive Facebook use. Although research on social network site addiction has started to grow in recent years, there are still no research results explaining Facebook addiction as a type of conditioned behavior. Here, the theory of associative learning postulates that a distinct behavior could be performed both automatically as well as a planned action [42]. Therefore, it is proposed in this line of research that users differ in the extent to which they tend to perform behavior automatically (use Facebook) (H3), reflected at the same time by the expected positive-incentive value of Facebook use (H4) that generates high engagement with the platform (H5). In line with the above mentioned arguments, we assumed that higher levels of habitual use of Facebook and specific expected outcomes will positively impact Facebook addiction. This recognition of difference based on a distinguishing characteristic of the individual, form two fundamental components of a cognitive perspective, which would predict adolescents being differently predisposed to Facebook addiction.

Following this line of thought, which is represented by the hypotheses, incorporating both social psychological and cognitive perspectives as important determinants of Facebook addiction, the following Figure 1 forms our conceptual model:

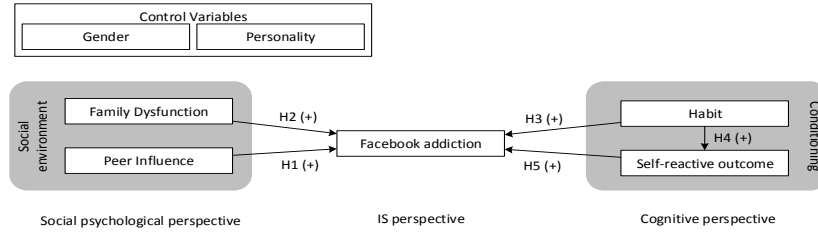


Fig. 1 Conceptual Model

4 Research Methodology

Based on the theoretical arguments summarized within the hypotheses in Figure 1, a questionnaire was developed and distributed online. In recognizing the potential importance of the individual differences, we include them as control variables. First, we control for the effect of personality traits that are arguably among the most personal characteristics shown in extant additional research consistently affecting individuals' Internet use [29-30], [43], [2], [4]. To account for the effect of personality traits we used the higher level traits of the Big Five (openness, extraversion, neuroticism, conscientiousness, agreeableness) by McCrae and Costa [37] representing personality on the uttermost level.

Second, it appears that the usage of Facebook may differ between men and women, so we checked for the effect of gender [1]. Those variations might have an impact on how users interact in social network sites such as Facebook. In addition, we considered that it might be beneficial to use the level of education as control variable as well. But such information is usually difficult to be acquired externally. Due to the fact that the questionnaire was distributed online and the respondents were not selected, it was supposed that their responses would be influenced by criteria such as country of origin or different migration background, which are difficult to be generalized.

4.1 Measurement of Constructs

In order to access the addiction to Facebook a standardized self-reported scale named The Bergen Facebook Addiction Scale (BFAS) is used and sample items include "You spend a lot of time thinking about Facebook or plan use of Facebook" [4]. The items are measured on a five-point Likert-type scale.

The family dysfunction is measured with the frequently used Adult Child of Alcoholics scale [53]. Since not every item was accessible, the questions are changed by the authors to fit the context of the study, resulting in nine items with reverse-coded questions and asking the respondents to answer on a Likert-type scale ranging from

“strongly disagree” (1) to “strongly agree” (4) (e.g. “Do you think you have been affected by your parents’ alcohol or drug problems?”). Peer influence was assessed by a scale for subjective norm, measured on a seven-point Likert-type scale (e.g. “My friends think that I should use Facebook”) [50-51], [15]. Habit is assessed with the 12-item SHRI reported by Verplanken and Orbell [58] (e.g. “Facebook to use is something I do automatically”). Each item is scored on a Likert-type scale (disagree-agree). The expected self-reactive outcomes are measured with a 5 self-evaluative incentives scale, which involved items (e.g. “I use Facebook to feel less lonely”) to regulate negative moods, such as feeling lonely or being bored [32]. A list of the items used is provided within the appendix.

4.2 Data Collection

While we observe Facebook addiction based on the development model of adolescent problem behavior [5], we target the distribution of our questionnaire on exactly this age group. Hence, data is collected by means of an online questionnaire administered in the online survey platform “EFS Survey”. Participation was entirely voluntary and anonymous. Demographic information on the respondents is shown in Table 1 in the appendix. Among the 125 respondents, 43% were male and 57% were female. As aimed, a majority of the participants (58.4%) are aged 20-24, followed by the age group of 25-29 (20%). The majority of participants were students (66.4%) and only 9.6% are currently employed or serve as a civil servant.

5 Data Analysis and Results

In order to examine the research model and to test the proposed hypotheses based on the collected empirical data, the partial least squares method is used [41]. Following the two-step analytical approach for model estimation [3], we first examine the reliability and validity of the measurement model and then assess the structural model. As to the measurement model, we test for construct reliability, convergent validity and discriminant validity. Construct reliability can be assessed in terms of composite reliability. As shown in Table 2 in the appendix all measurement scales showed high reliability (from 0.8412 to 0.9396), exceeding the threshold of 0.7 [21]. For convergent validity we estimated the average variance extracted (AVE), which has to exceed 0.5 [16]. As one can see in Table 2 in the appendix, our scales meet the recommended guideline (ranging from 0.673 to 0.8384).

To further evaluate the model constructs, we follow the guidelines for item reliability provided by Fornell/Larcker [16]. All factor loadings are within an acceptable range (from 0.7246 to 0.9481), exceeding the recommended threshold of 0.7, confirming internal consistency [25]. A value of more than 0.7 indicates that more than half of the variance is caused by the construct [24], which means that the items share substantial variance with their hypothesized constructs [23], [25]. Further, discriminant validity is not an issue as shown in Table 2 in the appendix [16].

6 Structural Model

The following Figure 2 depicts the results of the hypothesized structure model tests. The model explained 76.31 percent of the variance in the endogenous variable Facebook addiction, indicating that our research model has a substantial explanatory power [11]. Our model explained additional 56.03 percent of the variance in self-reactive outcomes, resulting in “moderate” explanatory power [10].

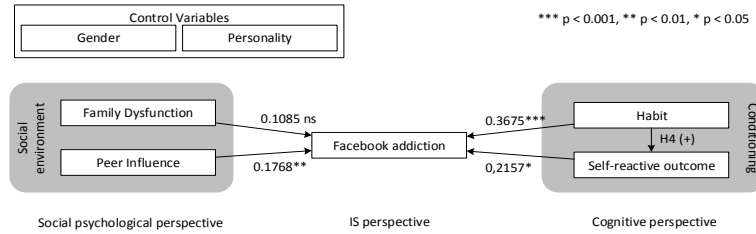


Fig.2. Structural Model Results

The results of the structural model indicate that habit positively affects the addiction directly (coefficient 0.3675) and is indirectly mediated by self-reactive outcomes (coefficients 0.6514 and 0.2157). Although the direct effect of habit to Facebook addiction is not very strong (0.3675), the total effect is quite high (0.508), representing the significant contribution of habit in explaining Facebook addiction (H3). Thus, people performing habitual Facebook use by using the social platform automatically are more likely to get addicted to Facebook. In addition, these individuals have a more sensitive perception of reward, conditioned to perform the activity more often to achieve the same level of satisfaction as the one in the initial phase. Moreover, they may feel encouraged to spend excessive amounts of time using Facebook because they perceive it as advantageous (H4), which in turn can develop into addiction (H3, H4, H5). These results are congruent with the hypotheses of the conceptual model, whereby it is asserted that habit (H3) and expected self-reactive outcomes (H5) would positively impact the pathological dependence to Facebook.

In contrast to this, the Hypothesis 2, implicating that family identity has an insignificant influence on addiction, cannot be supported. In this case, Facebook addiction seems to be more explained by the acting, norms and pressure of peers as only social environmental factor (H1). Consistent with the hypotheses of the conceptual model, the findings indicate that the development of Facebook addiction is driven by a combination of normative social influence and learning modification processes. As essential requirement for significance, critical t-value was assessed to check for the statistical significance of the constructs' relationships [23], [10]. To calculate the t-values we use the bootstrapping routine [22], [27]. The sample size of 125 observations was increased to 5000 re-samples using bootstrapping method in SmartPLS. The results can be seen in Table 4 in the appendix. In addition, the effect of the control variable

gender is not significant. Among the personality traits only neuroticism and openness have been recognized as significant control variables.

7 Discussion

7.1 Summary of Findings

The objective of this research was to develop and validate a new critical point of view toward the new phenomenon Facebook addiction. This effort was successful in several respects. Explicit definitions were stated, followed by a theoretical analysis from a variety of perspectives, including: operant and classical conditioning, socio-cognitive model of unregulated Internet use [33] and cognitive-behavioral model of PIU [12].

While related research set emphasis on technology addiction's outcomes and user's reactions at post-adoption stages, this study, therefore, presented several new insights about the nature of habit and self-reactive outcomes expectations, and their roles as determinants of Facebook addiction. In essence, in the current study was revealed that Facebook addiction could be regarded as a conditioned behavior, responding to positive perceived stimuli [33]. Motivated by positive responses (e.g. relaxation), the individual is conditioned to perform the activity, remaining in the virtual social interaction. As long as the user feels satisfied and the reinforcement mechanism is functioning, Facebook will be associated with the advantageous perceived outcomes. Moreover, in our research habit has been established as the strongest predictor of Facebook addiction, which lends potential support to the existence of conditioned behavior based on learning mechanisms, which modify the addict's perception of media outcomes. This seems plausible, especially given that self-reactive outcomes also impact positively Facebook addiction, which implicates that user's perceptions are influenced by learning and memory mechanisms as well as by a wide range of biases. This finding adds further to previous research done by Davis [12], in which addictive Internet use was conceptualized based on its underlying psychopathology [12].

As shown, the first most important finding in our study that provides an important implication for future research on Facebook addiction is the existing conditioning effect. The other important implication refers to the peer influence, which has been found to impact positively Facebook addiction. This corroborates with the research findings provided by Quan-Haase/Young [40], who investigated the students' motives for joining Facebook. Peer pressure, social connectivity and curiosity are seen as important indicators for the young adolescents [40]. Consequently, it appears reasonable to assume that the individual may feel obliged to maintaining his social networks on the Internet, using the SNS as a tool for staying connected [29], what supposed to be regarded as a main gain. Unexpected the contribution of family dysfunction to the development of Facebook addiction has been rejected, which could be explained with the participants' age group. The majority of the recipients are aged 20-24 and from a practical point of view the most of them may be don't still live with their parents, which automatically indicates a decrease in the family influence on the individual. This may serve as an anchor point for future studies in terms of defining the etiology of addictive Facebook behavior.

The fact that the contributing variables in our research model explained 76.31% of the variance in Facebook addiction indicates that our findings have a substantial explanatory power. Furthermore, our study results add to the mounting evidence regarding the potential existence of Facebook addiction [4], [19], [29], indicating that of the total, 38% is classified as addicted. Thus, future studies have great chance to develop better methodological designs, including variety of new perspectives and new addiction screeners, fulfilling current gaps in the empirical addiction knowledge [29].

7.2 Limitations and Suggestions for Future Research

Although this work provides insight into the role of social-psychological constructs (i.e. family identity, peer influence), as well as into cognitive models (associative learning), some limitations should be acknowledged. First, the results of the current study might change in the events of the fast-moving development of social media and it is possible that different terminology describing the phenomenon will be represented [9]. Second, our study relied on cross-sectional convenience sample collected and might be limited due to the fact that it was based only on self-reports, what is not sufficient for diagnosis. To increase the generalizability of the findings future research should employ a longitudinal design, using monthly or bimonthly measures. Additionally, it appears essential to pay adequate attention to the specificity of Facebook addiction and potential comorbidity. To our state of knowledge there are no research findings addressing this topic. Future researchers should test mediators in various contexts to develop a better understanding of the underlying influential mechanisms, what would improve the treatment outcomes in the clinical practice. Moreover, the term *Facebook addiction* doesn't specify any more one's consumer behavior because of the numerous online applications, which the platform offers. For additional evidence it is necessary to develop a new psychometric scale examining the addictive behavior to the particular types of applications [20].

7.3 Conclusion

Facebook addiction is in its embryonic stage. This study contributes to the body of knowledge by presenting two causative factors for the development of Facebook addiction, namely, social environment and conditioning. It demonstrated that peer pressure and perceived positive outcomes, as well as the habitual Facebook use predict adolescent Facebook addiction. It was assumed that if the media consumption fulfills individual's needs for acceptance and social support it may develop into addiction. Given the increased number of users, engaged in excessive use of the social networking website, further research on the antecedents and consequences of this technology addiction is warranted.

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Appendix

	Item	Frequency	Percentage
Gender	Male	54	43.2
	Female	71	56.8
Age	Under 20	1	0.8
	20-24	73	58.4
	25-29	25	20
	30-34	6	4.8
	35-39	2	1.6
	40-44	5	4
	45-49	4	3.2
	> 50	9	7.2

Construct	# of items	Reference	CR	AVE	Family dysfunction	FB Addiction	FB Habit	Peer Pressure	Self-reac. outcomes
Family Dysfunction	4	Tony (1978)	0.8996	0.6916	0.8316				
FB Addiction	5	Andreassen et al. (2012)	0.937	0.7487	0.5603	0.8653			
FB Habit	6	Verplanken/Orbell (2003)	0.9248	0.673	0.4239	0.7668	0.8204		
Peer Pressure	2	Taylor/Todd (1995)	0.8412	0.7275	0.3227	0.6013	0.5396	0.8529	
Self-reactive outcomes	3	LaRose/Eastin (2004)	0.9396	0.8384	0.5019	0.7471	0.7307	0.6054	0.9156