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Stress 2.0: Social Media Overload among Swiss Teenagers

Abstract

Purpose: *Technostress and information overload are serious challenges of the information age. An alarming number of people exhibit dangerously intensive media consumption, while Internet and mobile phone addictions are a widespread phenomenon. At the same time, new media overexposure among young people is understudied, even more so when social network sites are concerned.*

Methodology/approach: *This study explores how feelings of overexposure and stress relate to the self-expressive needs of teenagers. It presents and discusses the results of a large-scale survey conducted during an exhibition on media overload in Switzerland. A total of 6989 adolescents provided answers on their media overload and stress. Descriptive statistics and logistic regression were used to quantify the influence of demographic characteristics on social network site related stress.*

Findings: *While only a minority of 13 percent of respondents feels stressed by social network sites, more than one third has the feeling of spending too much time on such platforms. Age, gender and language background (French vs. German speaking) shape the overload propensity, with older, male and French speaking teenagers most at risk for social network site stress.*

Social implications: *The study proposes that social divides exist in teenagers' ability to cope with a specific affordance of social network sites, namely their constant status updates and potential of overexposure. Furthermore, it reflects upon the relation between identity performance and stress.*

Originality of paper: *The paper is one of the first to investigate social network site overload with a broad sample approach, quantifying antecedents of the phenomenon.*

Keywords: *Social Network Sites, Technostress, Information Overload, Teenagers, Digital Divide, Online Identity*

Research Paper

1. Introduction

The invasiveness of technology has led to an inclusion of media in many daily activities. Social network sites (SNS) are permanently changing the ways in which we interact and make sense of ourselves. Due to their large focus on individuals, their connections, stories, and rants (DiMicco & Millen, 2007), SNS have been investigated as a territory for identity experimentation. They have been studied both as means of strategic impression management (boyd & Ellison, 2007; Pempek, Yermolayeva, & Calvert, 2009) and as an answer to self-expressive needs that are often not rationally mediated (Ducheneaut, Wen, Yee, & Wadley, 2009; Wolfendale, 2007). Social media interaction takes a pivotal definitional role for teenagers, who discover and construct their identities simultaneously online and “In Real Life” (Blinka & Smahel, 2009; Christofides, 2012; Livingstone, 2008). The boundaries between online and offline necessarily become blurry and the self-expressive potential of the Net goes hand in hand with significant risks of abuse and overexposure.

Consequently, more and more studies analyze the negative effect of SNS. Some of the “hot” topics include cyber bullying (Smith et al., 2008), stalking (Lyndon, Bonds-Raacke, & Cratty, 2011), distraction and negative academic performance (Junco, 2011), un-friending and feelings of alienation (Sibona, 2013), and excessive self-promotion as well as narcissism (Buffardi & Campbell, 2008; Carpenter, 2012; Mehdizadeh, 2010). Recently, studies have also concentrated on envy and jealousy. They showed that for a substantial part of users, Facebook might, in fact, generate envy (Chou & Edge, 2011; Krasnova, Wenninger, Widjaja, & Buxmann, 2013). Most of such studies, however, are based on small or very concentrated (student) samples. While mass media report a growing concern towards the dangerous effects of social media on the lives of the young, a wide-sample approach is substantially missing to this day.

In particular, it surprises that *digital overload and stress caused by SNS* are still neglected topics, despite the growing academic and public interest in the “dark sides” of social media. Hargittai and colleagues (Hargittai, Neuman, & Curry, 2012) reviewed the literature on information overload and found that almost all studies focused on the work environment (cf. Eppler & Mengis, 2004 for a comprehensive overview in that regard). The authors stress their surprise with the lack of focus on the phenomenon in private life: “We were surprised to find an absence of systematic assessments of information overload and/or the perception of information overload in the home, despite a very extensive literature on patterns of reading and viewing [...]” (Hargittai et al., 2012, p. 163).

This is true for media in general, but it appears to be particularly pressing when it comes to SNS. In fact, if we consider how portable digital media are, due to mobile technology, then also the involvement

of users is potentially deeper and less interrupted. In this sense, coping with social media information overload and stress is becoming an ever more important asset in the information age and can even be considered a new form of mental literacy (Bucher, Fieseler, & Suphan, 2013). Perhaps due to the exposure that professionals experience with their social media use, technostress and the skills required to support it have mainly been investigated among adults in organizations, and grounded on their work-related use of social media (Bucher et al., 2013; Ragu-Nathan, Tarafdar & Ragu-Nathan, 2008). This excludes private and hedonic uses of SNS, and, most importantly, leaves teenagers out of the picture. Considering our little knowledge about social media overload in general and in the private sphere in particular, we deem it worthwhile to investigate the topic. To avoid being a-theoretical, we take two established research strands to guide our approach. First, we introduce how social media have been studied as an identity playground, and how that can resonate with adolescents' SNS use (and abuse). Second, we derive a framework for the empirical analysis that builds on findings from digital divide theory. We employ logistic regression with two dependent variables: overexposure and stress; introducing demographic variables (gender, age, language, place of residence) we explore their explanatory power. Finally, we interpret our results under the lens of impression management, exploring how overload and technostress can have an impact on the digital identities of teens.

2. Theoretical background

2.1. Digital identities and impression management

The use of social media for self-experimentation (DiMicco & Millen, 2007; Zhao, Grasmuck, & Martin, 2008) and for the establishment of relationships is one of the largest research foci in computer-mediated communication. Through the years, the space between “online” and “Real Life” has reduced drastically. SNS have grown into sophisticated tools of identity construction, going from anonymous IRC chat rooms (Bechar-Israeli, 1994; Smahel & Subrahmanyam, 2007) to pseudo-nonymous Myspace profiles (Manago, Graham, Greenfield, & Salimkhan, 2008), to fully personal Facebook pages. The “embeddedness” of online technologies in everyday life (Livingstone, 2008) has reinforced the bond between identities on the two sides of a computer screen. Particularly for today's teenagers, fine-tuning an online profile might not differ significantly from choosing a dress, or a haircut for school or other social situations.

The experimental value of digital identities is highlighted in many studies. Chat-rooms are considered a tool for a dialogic identity co-construction (Subrahmanyam, Smahel, & Greenfield, 2006), blogs often mirror the fluid nature of teen identification (Blinka & Smahel, 2009), and Facebook profiles are elected as a favorite tool for self-disclosure (Ellison, Hancock, & Toma, 2011; McAndrew & Jeong, 2012).

However, the definition of authenticity takes a slightly different meaning online. When “physical cues” are reduced or entirely missing (Ellison et al., 2011), teenagers, feel as though they can be more honest towards others, precisely because their physical appearance is not so relevant (Lenhart, Simon, & Graziano, 2000). In this sense, social media present a de-marginalizing potential towards “alternative” identities, which could otherwise suffer from peer and adult judgment (McKenna & Bargh, 1998). However, they also expose users to risks of overexposure, misuse of personal data, and even cyberbullying and isolation.

We can therefore think of online profiles as putting young users in a difficult trade-off (McLean & Jennings, 2012): on the one hand, they need to express themselves through social media, on the other hand, they risk a loss of control. Such a loss of control can happen both on the published content, which might be used in unintended manners, and on the medium (such as smartphones or tablets), which might become very invasive. In this sense, social media require the acquisition of a specific language. Only when users understand how their communications are sent out, can they properly master self-narratives, and avoid the fear of being exposed and exploited. In this perspective, it results particularly interesting how digital identities and over-exposure relate to each other.

Many scholars have investigated differences in impression on social media among different teenager groups. *Gender* is an important source of differentiation, because of the information that is chosen as self-representative (narratives are often more emotional and personal in girls' blogs and social media profiles, (cf. Ringrose & Barajas, 2011; Stern, 2002; 2004) but also because of its meaning: girls, in particular, make sense of new discourses of femininity, gender, and sexual representation by embracing or challenging existing roles. The increasing emphasis on sexualized images on blog platforms, such as Tumblr, can be seen in this sense: a redefinition of identity boundaries, belongingness, and identification.

Age differences in the self-expression of teenagers also tell an interesting story: younger teens exhibit more detailed and stylized narratives of the self. They employ images which are gradually adaptable to their tastes (Livingstone, 2008). They are also report to lie more frequently, so as to appear older (Blinka & Smahel, 2009). Within their online growth, parallel to what goes on “In Real Life”, the amount of information they share, and the interdependencies with offline networks (i.e., school, friends, and family) can have huge impacts on their wellbeing and overall health.

In this sense, we wish to extend the existing literature on identity by introducing overexposure and technostress as elements which could influence the relationship between online and offline selves.

2.2. Extending the picture: the overload divide

We expect an uneven distribution of the negative and unintended consequences of teenagers' social media presence. This is because teenagers report differences in self-expression along demographic lines, especially when it comes to age and gender. Thus, we propose an *overload divide*, where feelings of stress caused by social media – and more particular SNS – are more prevalent within certain teenager groups than others. This proposition draws its rationale from the digital divide literature.

The main argument of the digital divide framework claims that social inequalities “in the real world” are reconstructed online. Hence, people with lower socioeconomic status (SES) are less likely than those with higher SES to have access to modern ICTs (access divide), advanced e-skills and digital literacy (skills divide). Furthermore, compared to high SES users, those with low SES often lack the motivation to engage in capital-enhancing (usage divide) and active, content-producing forms (participation divide) of using the Internet, or to go online at all (motivational divide) (Correa, 2010; Hargittai & Hinnant, 2008; Hargittai & Walejko, 2008; Hargittai, 2007, 2010; Selwyn, 2006; Van Deursen & Van Dijk, 2010; Van Dijk, 2005; Zillien, 2006). Many studies have found a positive effect of SES on “digital advantages” (see van Dijk, 2006 for an overview).

Other than SES, demographic variables such as age/generation and gender also structure digital inequalities. Palfrey and Gasser (2008) state that individuals born after 1980 (digital natives) are more versatile and innate in using the web than those born before 1980 (digital immigrants). This is because the digital natives grew up with the Internet and have integrated it into their lives as children.

As for gender, early studies of the digital divide found a considerable gender gap in ICT access. With time, however, the access divide has leveled, but there are now differences in Internet use between men and women (Helsper, 2010; Li & Kirkup, 2007; Ono & Zavodny, 2003; Weiser, 2000). “The Internet in this sense reflects the practical reality of offline life circumstances, and online gender differences cannot be seen as separate from offline gender roles” (Helsper, 2010).

As of today, limited research has addressed people's vulnerability to Internet and social media overload in general, and, in particular, the feelings of stress and exhaustion, as experienced by teenagers and caused by social media, are still outside of the academic radar. In a recent study, however, Hargittai and colleagues (2012) conducted focus groups with 77 participants from diverse social backgrounds and found that only few respondents felt overwhelmed by new media and the Internet. By contrast, a vast majority perceived the new media environment positively, at times even enthusiastically. “Instead of feeling burdened by choice, many participants enjoyed the freedom it brought, especially the range of information available online” (Hargittai et al., 2012, p. 165). A few respondents complained about too many options and sources, however only three felt overwhelmed. Additionally, technology addiction was barely an issue in the discussions. Interestingly, while the Internet in general was perceived positively, a

larger proportion of focus groups participants showed skepticism and even dislike towards SNS. “Perhaps more than any other topic in the focus groups, social network sites caused the most raised voices as participants were bolstered by others’ emotional reactions” (Hargittai et al., 2012, p. 168). Several respondents perceived SNS “as an outlet for narcissism” (Hargittai et al., 2012, p. 169), but information overload was also conceived as a problem. In total, a little less than one third of all participants (22 out of 77) had rather negative feelings towards SNS and a small minority of only 9 respondents indicated strong positive feelings.

A few studies in information systems research have investigated social media overload and SNS-induced stress from a more (social) psychological angle (Koroleva, Krasnova, & Günther, 2010; Maier, Laumer, Eckhardt, & Weitzel, 2012a; 2012b). Koroleva et al. (2010) conducted 12 qualitative interviews within a grounded theory framework to derive a model of information overload (IO) on SNS. They distinguished three forms of IO: cognitive, affective and conative. Cognitive IO is signaled with statements such as “This is just too much” or “It takes so much effort to pick out the information I am curious about, in between this and this” (Koroleva et al., 2010, p. 3). By contrast, adjectives such as irritated or annoyed indicate affective IO. A sample statement for affective overload is “This is really annoying to have a whole page filled with this...” (p. 3). Conative IO captures behavioral intentions, such as “I don’t want to know” or “I should delete this” (p. 4). Koroleva et al. (2010) also identified antecedents of SNS overload and found that information characteristics and network characteristics influence users’ IO. Information characteristics cover aspects of the content produced by Facebook friends, such as detail, frequency, novelty and interest of their posts. Network characteristics include – among others – network size, structure, geographical distance or level of closeness. Finally, a set of intervening (time pressure, social pressure, skills, knowledge, technology characteristics) and driving conditions (e.g., information longing) shape SNS IO. Koroleva et al.’s (2010) study does not offer a statistical test of the proposed model but is the first to look at social media overload and its antecedents. Other research by Maier et al. (2012b) applied structural equation modeling within a technology acceptance perspective to test the influence of SNS-induced stress on usage satisfaction and continuous usage intention. They found that SNS-induced stress strongly and negatively affects both satisfaction and continuous usage intention. More surprisingly, the effect of stress is stronger than the effect of attitudinal beliefs, such as perceived usefulness, perceived enjoyment or social outcomes. Thus, both for users and providers of SNS alleviating or avoiding stress is an important issue. Yet another study by the same authors (Maier et al., 2012a) among 523 Facebook users suggests that social overload (stress and crowding on SNS) leads to emotional exhaustion (strain), which in turn strongly diminishes users’ Facebook usage satisfaction and increases their propensity to reduce their time spent on Facebook or to quit. In Maier et al.’s (2012a; 2012b) studies users’ report low to medium levels of stress induced by

SNS. However, for certain forms of stress – especially for uncertainty and invasion –, the values are higher than for others, like complexity.

Taking such results as a starting point, we can conclude that SNS overload exists and poses a problem for a certain proportion of individuals. We should be cautious not to dramatize the topic, though, as overload seems to be an exception rather than the norm. However, given the qualitative and explorative nature of Hargittai et al.'s (2012) as well as Koroleva et al.'s (2010) study and the relatively small and selective sample of other research (Maier et al., 2012a; 2012b), we are so far not able to reliably quantify the phenomenon of social media-induced stress. Moreover, none of the studies tested risk profiles for SNS-induced stress and antecedents of this phenomenon in quantitative way. Thus, we do not know which groups are especially susceptible to SNS overload and how it relates to the life worlds of teenagers. From a digital divide perspective, though, we would expect SNS overload to be clearly socially structured: indicators of socioeconomic status (SES) and demographic characteristics, such as age and gender, should therefore be influential in shaping people's propensity to SNS overload. Teenagers should not be an exception in that regard. From here, we derive our research question:

How do demographic characteristics and status influence teenagers' propensity to SNS overload?

3. Methodology

3.1. Data

The "Museum for Communication" in Berne (Switzerland), in cooperation with the authors, conducted a large-scale visitor survey during an exhibition on the dangers of media consumption. Over a period of 8 months, a data set of 23'878 cases was collected. The exhibition approached the hazards and stress factors behind communication from a playful angle and intended to sensitize visitors about their own communication behavior. Visitors were asked to fill out a short questionnaire, which contained demographic questions, assessed media usage patterns and included a set of items on information and media overload.

The initial analysis revealed a noteworthy age distribution within the sample. With about 30 years (median 25), the average age of the respondents lies well below the Swiss average of 41.5 years. We attribute this bias to a large number of school classes visiting the exhibition. Gender, area of residence and employment status were also assessed, but did not show similarly remarkable patterns. Subsequently, we selected all respondents aged 13-18. A total of 6989 persons fulfilled this criterion, which leaves us with a large – albeit not representative – sample of Swiss teenagers.

Age is quite evenly distributed, but adolescents aged 17 and 18 are slightly underrepresented. The average age in the sample is 15.3 years. Looking at *gender*, we see a slight underrepresentation of male visitors. 55 percent are female and 45 male. Of all teenagers, about 40 percent reside on the countryside and in the cities accordingly, and 20 percent live in suburbs. Table 1 shows the frequencies for school/employment status and language.

The numbers are roughly in line with the general population in Switzerland, especially concerning the language and place of residence. Although the results are not representative and the sampling is far from random, the database is substantial enough to make careful inferences.

Table 1 Sample Characteristics

	<i>Number</i>	<i>Percent</i>
School		
<i>School</i>	5138	73.5
<i>Apprenticeship</i>	1258	18.0
<i>Total</i>	6396	91.5
Language		
<i>German</i>	5505	78.8
<i>French</i>	1484	21.2
<i>Total</i>	6989	100

Missing values school = 593

3.2. Questionnaire and measurement

The questionnaire had to be short and straightforward, because it was part of an exhibition. It contained a total of 13 pages/screens and between one and six questions per screen. In total, there were 48 questions – all of them closed except for 6 questions on average media use per day.

The first question block assessed the visitors' media usage for six different media types: landline phone, mobile phone, press products (newspapers, magazines etc. but not books), e-mail, social network sites and online communities, and Internet in general (for other purposes than SNS and online communities). People were first asked if they use the medium at all or, in the case of SNS and online communities, if they are members in at least one service (e.g. Facebook, Twitter, Flickr etc.). Then, they had to indicate how many minutes per day they spend using the medium (open-ended question). Finally, a block with three questions asked how much fun they had using the medium, how useful they deem it, and how stressed they feel when using this technology. Thus, we have information on the perception of each of the six media in terms of perceived fun, perceived usefulness, and perceived strain.

Subsequently, eleven items assessed people's feeling of media overload. A sample statement was: "There are times when I completely switch off my mobile phone" (very often true – often true – sometimes true – rarely true – very rarely true).

At the end of the questionnaire visitors answered a couple of demographic questions that assessed their age, gender, area of residence, and employment status (still in school, apprenticeship, employed, self-employed, not employed). Furthermore, we could extrapolate the language region of the respondents (French – German), as the questionnaire could be answered in both languages. However, we have to take this information with much care, because French-speaking adolescents could well have answered the questionnaire in German and vice versa, as in school French and German are taught as the first foreign languages. Students – at least in the higher age groups of the sample – can be expected to have basic knowledge in the respective foreign language. We opted for using the language information in subsequent analysis because, traditionally, substantial regional differences exist in Switzerland when it comes to attitudes and certain forms of behaviors, such as voting (Steenbergen, 2010). Some of these differences fall along language lines – a phenomenon often described with the humorous term "Röstigraben" (Rösti ditch) (Brügger, Lalive, & Zweimüller, 2009). In our case, we suspect that the language differences indicate certain cultural differences that also capture teenagers' propensity towards SNS overload and stress.

We used two indicators of SNS overload as our dependent variables. They show distinct concepts:

- Strain and Stress caused by SNS
- The feeling of spending too much time on SNS

Both indicators were measured with 5-point Likert scales and high values on the scale indicate high stress by SNS and high levels of perceived killing time on SNS. We recoded the variables because of the skewed distribution and the ordinal Likert scale of the original variable with only 5 levels, which makes it problematic to use OLS regression. For stress, values 0-2 (i.e., strongly disagree, rather disagree and neither nor) were coded as 0 and values 3-4 (i.e., agree and strongly agree) as 1. Thus we define respondents that agree or strongly agree as stressed by SNS and those that disagree or are uncertain as not stressed. For the second indicator we also coded values 0-2 (i.e., never true, rarely true and sometimes true) as 0 and therefore not spending too much time on SNS. Values 3-4 (i.e., often true and very often true) were coded as 1, which means they generally have the feeling of spending too much time on SNS. The thresholds are due to our interpretation of the indicators. We wanted to set a stricter criterion for SNS overload. Had we chosen to include students that indicate they sometimes spend too much time on SNS in the overload category, a majority of respondents had fallen into this category.

3.3. Method

We used logistic regression in IBM SPSS Statistics (version 20) to test the hypotheses. This technique is common in the social sciences and suitable for binary dependent variables. Logistic regression is a valid alternative when the assumptions of linear regression are violated, for example when the dependent variable is categorical or in case of non-linearity. In our data set the dependent variables are not strictly metric, and they also reveal skewed distributions. Therefore, we chose to use logistic regression.

4. Results

4.1. Descriptive analysis

Figure 1 shows the use of SNS in the sample. On average, teenagers visiting the exhibition spend 70 minutes on SNS per day. However, outliers skew the arithmetic mean. The median value for teenagers' SNS use – including non-users who have 0 minutes – of 30 minutes might be more accurate and realistic. Finally, the mode of 31-60 minutes (Fig. 1) indicates that for a considerable part of Swiss teenagers visiting the exhibition, SNS are a large part of their daily routines. Respondents spend more than twice as much time on SNS as the average beyond the sample across all age groups. There, people spend a little less than 30 minutes on SNS per day (28.51; median 5 minutes).

Fig. 1 SNS use in the sample

Tables 2 and 3 reveal the distributions of the two recoded dependent variables. Missing values are due to non-use of SNS. Thus, adolescents who stated they do not use SNS were not asked the questions about SNS stress and “too much time” on SNS.

Table 2 Strain and stress caused by SNS. “Using SNS stresses me out”

	<i>Number</i>	<i>Percent</i>
<i>Not stressed</i>	5085	86.6
<i>Stressed</i>	794	13.4
<i>Total</i>	5879	100

Missing=1110

Table 3 Feeling of spending too much time on SNS. “Do you have the feeling you spend too much time with SNS?”

	<i>Number</i>	<i>Percent</i>
<i>Not spending too much time</i>	3719	63.3
<i>Spending too much time</i>	2160	36.7
<i>Total</i>	5879	100

Missing=1110

A small minority of about 15 percent feels stressed or very stressed by SNS. Thus, a large majority is able to cope with SNS relatively well (average value of 1.2/4). For “too much time” on SNS, the numbers are more even, with an average value of 2.0 indicating “sometimes true”. More than one third of all (valid) respondents report to often, or very often, spend too much time on SNS. Thus, SNS overexposure and overuse is markedly more widespread than SNS stress, implying that the former is a less serious form of SNS overload than the latter.

4.2. Explanatory analysis: logistic regression

Table 4 shows the results of the logistic regression of stress and strain caused by SNS on demographic variables. Teenagers’ *age* has a strongly significant and positive effect on their SNS strain. The older the teens in our sample, the more likely they are stressed by SNS. The odds ratio (OR) indicates that 18 year olds are 17 percent more likely to feel stressed and strained than 17 year olds, 17 year olds 17 percent more likely than 16 years old, and so on. Thus, age is an important determinant of social media stress. Even small age differences of only a few months lead to relatively large differences in outcome. This

shows that the phase between 13 and 18 is an important developmental period, also in terms of media stress. Such results point to a different use of social media for older teenagers – changing patterns that might coincide with the extension of personal networks through school change(s) or increased autonomy at home. Such changes might bring about new challenges, which in some cases result in stress and overload.

Table 4 Logistic Regression SNS stress on demographic variables

Independent Variable	<i>B</i>	<i>Odds Ratio</i>
<i>Age</i>	.15***	1.17
<i>Language: French</i> (0/Reference=German)	.72***	2.01
<i>SNS Minutes</i>	.00	1.00
<i>Gender: Female</i> (0/Reference=Male)	-.18*	0.84
<i>Residence: Suburb</i> (0/Reference=Countryside)	.11	1.11
<i>Residence: City</i>	.30**	1.35
<i>Still in School (SES)</i> (0/Reference=Apprenticeship)	.14	1.15

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ ($N=5405$)

Model $\chi^2 = 98.588$, $df = 7$, $p < .001$; Nagelkerke $R^2 = 0.034$; -2 Log likelihood=4087.18

Next to age, *language* strongly influences the dependent variable. The positive effect indicates an increased susceptibility to SNS stress for French speaking teens compared to German speaking ones. According to the odds ratio of 2.01, French-speaking teens are twice as likely to feel stressed, indicating strong language effects. Unfortunately, we cannot assure that all of this variation is due to real (cultural) differences in perceived SNS stress. The instrument itself might be partially responsible for this effect, i.e., the bilingualism of the survey might have created problems in properly rendering the meaning of words. However, despite possible instrument problems, the absolute effect is too large to be neglected.

Real cultural differences seem to exist between French and German speaking (Swiss) teenagers in the use of and coping with SNS. French speaking teenagers use SNS very intensively, as their median SNS consumption of 50 minutes per day suggests (average=81). By contrast, German speaking youths in the sample spend 30 minutes on such platforms (median; arithmetic mean=65). Given that German and

French speaking respondents have roughly the same age and the proportion of non-users is similar, we can carefully conclude that there are, in fact, language and cultural differences in SNS use and overload. A comparison to results in France and Germany would shed more light on the cultural aspects of SNS overload, and give more evidence on the differences we encountered. However, we did not find similar studies in France or Germany.

Interestingly, *time spent on SNS* is not significant. Hence the (self-assessed) time spent on SNS has no influence on perceived SNS stress. SNS strain may be caused by the content and type of use, rather than by the mere amount of time invested. Thus, for example, experiencing cyberbullying or a break-up on Facebook is stressful, even if one spends only minutes per day there. By contrast, having a relaxing chat or watching videos is the contrary of stressful, even if one spends hours on it.

Gender is significant at 5 percent level. Females are 16 percent less susceptible to stress and strain caused by SNS than males ($1 - \text{Odds ratio} = 1 - 0.84$). Thus, female teenagers are better able to cope with SNS and less vulnerable to stress in comparison with male ones.

Place of residence is significant only when we compare countryside (reference category) to city, but not when we compare it to suburb. Compared with youths on the countryside, those in the cities are more prone to feel stressed by SNS. The odds ratio of 1.35 shows that city kids are 35 percent more likely to be stressed by SNS than teenagers from non-urban areas. We think such effects arise from the different and generally broader possibilities of time allocation in cities compared to suburbs and the countryside. We could expect that the exposure to diverse spare time opportunities and multiple parallel networks lead to stress spillovers into the online realm.

Finally *school status* does not account for a significant difference in perceived SNS stress. Here the reference category (0) is apprenticeship and the other category is still in school (1). We excluded the other response categories (unemployed/retired, employed, self-employed), as in the Swiss school system by the age of 18 the large majority is either still in school or doing an apprenticeship. The results indicate that an SES overload divide in terms of stress is not visible. Possibly, an overload divide along SES lines only fully develops at later life stages, when employment and income fully weigh in. Table 5 shows the results of the logistic regression of teenagers' perception of spending too much time on SNS on demographics.

Table 5 Logistic Regression Feeling of Spending too much Time on SNS on Demographic Variables

Independent Variable	<i>B</i>	<i>Odds Ratio</i>
<i>Age</i>	.11***	1.12
<i>Language: French</i> (0/Reference=German)	.43***	1.53
<i>SNS Minutes</i>	.01***	1.01
<i>Gender: Female</i> (0/Reference=Male)	.33***	1.39
<i>Residence: Suburb</i> (0/Reference=Countryside)	.17*	1.18
<i>Residence: City</i>	.34***	1.41
<i>Still in School (SES)</i> (0/Reference=Apprenticeship)	.21*	1.23

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ ($N=5405$)

Model $\chi^2 = 431.171$, $df = 7$, $p < .001$; Nagelkerke $R^2 = 0.105$; -2 Log likelihood=6662.99

Again, *age* is a significant predictor. These findings are in line with those on stress. Not only do older teenagers feel more stressed by SNS, they also have a stronger perception of spending too much time there. Age is an important determinant of media overload and relatively small age differences produce a large difference in outcome. Probably, again, the different life circumstances of older teenagers compared to younger ones explain part of the effect. Increased autonomy with less parental dependence, more available resources (pocket money or the first own salary), better technical equipment (smartphones with contracts), and a more diverse network might contribute to increased possibilities of spending time on SNS.

Language is again strongly significant. French speaking youngsters are about 53 percent more prone to fall into 1 category than German speaking youths. French speaking teenagers in the sample are more attached to SNS than their German speaking peers. This partly results in negative consequences, such as feeling stressed or having the feeling of spending too much time. Unfortunately, the data do not allow inferences about the concrete reasons why such differences exist: Are they due to certain platforms, e.g., a stronger use of mobile applications in terms of SNS (WhatsApp)? Are they caused by institutional reasons (school system) or different subcultures? We would need more detailed, qualitative data to explore the nuances that account for the language differences in SNS overload – both in terms of stress and killing time.

Not surprisingly, the *time spent on SNS* has a strongly significant influence on the perception of spending too much time on SNS. Young people who spend a lot of time on SNS also have the feeling they overuse them.

Gender is also a very strong predictor, but this time in the other direction. Female teens are almost 40 percent (odds ratio = 1.39) more likely to have the feeling to spend too much time on SNS compared to male ones. Thus, we found a very interesting dichotomy: Whereas male teenagers are worse able to cope with SNS in terms of stress, the opposite is true for the “guilt” of spending too much time there. Here, female teens reach substantially higher values. Connecting this result with the literature on digital identities, girls would be expected to be generating richer and more complex self-narratives, which might reflect in a significantly larger amount of time spent, and in a larger conscience/worry about how such time is used.

By contrast to SNS stress, *place of residence* is significant when we compare countryside (reference category) to both city (2) and suburb (1). However, in the latter case, the effect is only weakly significant at 5 percent level, and given the large sample size, it is not very reliable. Compared with youths on the countryside those in the cities are about 40 more prone to spend too much time on SNS. We again account these effects to the different possibilities of time allocation in cities compared to suburbs and the countryside.

Finally *school/employment status* is significant and positive this time. Therefore, young people still in school are more likely than those doing an apprenticeship to (have the feeling to) spend too much time on SNS. Maybe this is due to differences in daily routines between the two tracks. Whereas adolescents doing an apprenticeship have relatively strict schedules – often with direct supervision –, students still in school have more time off and more flexible arrangements for homework and other assignments. Thus, they have more opportunities to go online and to be on SNS, which might result in increased perceptions of spending too much time there.

5. Discussion and Conclusion

Our findings point to digital inequalities when it comes to SNS overload. They indicate an *overload divide*, which adds to other divides. Even at a young age, when “career tracks” are still quite uniform, significant differences between groups exist. The results are in line with previous research on other aspects of the digital divide, such as motivation (Selwyn, 2006), skills (Hargittai, 2010; Van Deursen & Van Dijk, 2010; Van Dijk, 2005), usage (Hargittai, 2007; Zillien, 2006), participation (Correa, 2010;

Hargittai & Walejko, 2008), and gratifications (Hargittai & Hinnant, 2008; Zillien, 2006). However, a vast majority of young Swiss people at the exhibition does not perceive SNS as a stressor. This is in contrast with media coverage and popular belief, and should help to objectify the discourse to a certain extent (cf. Hargittai et al., 2012).

In terms of digital identities, our results point to differences in teenagers' ability to cope with the affordances of SNS. These differences are structured along social lines, where we could also expect differences in terms of self-expression and identity conceptualization.

Overall, it appears that not all teenagers are equally able to cope with social media, their logic, and requirements. A small part (in our case 1110 respondents or about 15 percent of the age group) abstains from SNS, and another minority of about 15 percent reports to be stressed by them. We do not know whether this is due to pressure to constantly impress and "shine" or other factors – such as school-related stress and family problems, which might aggravate existing tendencies. Future research should identify the reasons for SNS overload and investigate the interplay between different antecedents, doing justice to the complex lifeworlds of today's teenagers. Narrative interviews or ethnographic observation in the tradition of ethnomethodology are suitable approaches to go deeper. They could find explanations why certain teenagers are more prone to be overloaded and stressed than others.

Our results, however, provide first hints on potential dynamics. For example, they point to the fact that females are less stressed by SNS than males, but have stronger feelings of spending too much time on them. This indicates remarkable gender differences in the usage and coping with SNS. Considering social media as a facilitator of identity experimentation, we could see our results fitting in the wider framework of gender exploration and (re)definition via social media. Several other studies report girls as having stronger struggles and discomfort in dealing with stereotypes (Bailey, Steeves, Burkell, & Regan, 2013), increased exposure to sexualization, even at early ages (Choate & Curry, 2009), and a higher involvement in working with existing gender barriers to challenge them, or modify them as deemed most comfortable (Ringrose & Barajas, 2011). All those differences in social media fruition could account for differences in perception, and elaboration.

In a perfect world, we (as social scientists) would have detailed information on respondents' identity management on SNS. Having their social graph, we could connect their impression management to both their demographic information and the data on overload. Within that view, impression and identity management could figure as a mediator between demographics and overload. In our case, the only identity management information we have is the time spent on SNS. We would expect teenagers who spend more time there to devote more time to their appearance and impression management as well. This, in turn, could lead to increased aspirations, peer pressure, and envy (Chou & Edge, 2011; Krasnova et al., 2013). Such aspirations, when not fulfilled or taking too big a role in teenagers' lives, might result in SNS

overload and stress. Such an argumentation does not hold the test of our data, because the effective time spent on SNS has no significant effect on stress – only on the perception of spending too much time with SNS. Thus, a careful conclusion would be that excessive identity management is not stressful, but rather perceived as a (joyful, albeit maybe regretful) “killing time”.

For teenagers, parents and teachers our results allow several *implications*. First, *teenagers* should be made aware of the risks, but also the potentials that social media envisage. The options for creativity and self-expression are unlimited, and an education into how to use them could reduce the stress and potential for overexposure. Second, *parents* should be able to realize signs of alarm, when social media becomes a source of stress for their children. In that case, they should seek the dialogue and try to identify the reasons. By contrast, they should not demonize SNS, because – as our data shows – a large part of teenagers is well capable (according to their own responses in an anonymous questionnaire) of using SNS in a healthy manner. Thus, the participants’ self-awareness is higher than many might expect. Finally, *teachers* might increase teenagers’ self-awareness by being in touch with their class and knowing what is going on. They should know about the stress potential of social media for young people and be able to convey this knowledge to their students – but from a well-informed and “objective” perspective, not a patronizing, demonizing one.

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