TRAMES, 2011, **15**(**65/60**), 4, 385–403

MOTIVES FOR INTERNET USE AND THEIR RELATIONSHIPS WITH PERSONALITY TRAITS AND SOCIO-DEMOGRAPHIC FACTORS

Veronika Kalmus, Anu Realo and Andra Siibak

University of Tartu

Abstract. The aim of this study was to identify the strongest predictors of individual differences in Internet use, taking into account personality traits, socio-demographic variables, and indicators of habitus and lifestyle. To this purpose, an empirically robust and theoretically easily interpretable classification of online activities and their underlying motives was developed. Representative survey data of the Estonian population (age range 15–74 years; N = 1,507) were used. Factor analysis of online activities revealed two underlying motives for Internet use: *Social media and entertainment* (SME), and *Work and information* (WI). General linear modelling analysis showed that SME was most significantly predicted by younger age, the frequency of Internet use at public place, at friends and at home, Openness to Experience, lower education level, and the ethnic minority status. WI was best predicted by the frequency of Internet use at work or school, higher education level, more active civic participation, and the ethnic majority status.

Keywords: online activities, types of Internet use, Internet use motives, personality traits, socio-demographic differences, Estonia

DOI: 10.3176/tr.2011.4.04

1. Introduction

The increasing number of Internet users in the world has brought about a shift in research focus from a simple dichotomy between 'haves' and 'have-nots' to finer distinctions between types of Internet use, governed by user motives, as well as the predicting factors of different types of use. In this respect, two main approaches can be distinguished in the social sciences. Psychological studies have examined engagement in various online activities as related to personality traits (Amichai-Hamburger 2002, Amichai-Hamburger et al. 2002, Anolli et al. 2005, Gombor and Vas 2008, Hills and Argyle 2003, Landers and Lounsbury 2006, Orchard and Fullwood 2010, Tosun and Lajunen 2010). Research in sociology,

media and communication studies, and gender studies has mostly focused on socio-demographic variables and/or individual resources and situational factors (e.g., economic, cultural and social capital, digital literacy, habitus, lifestyle, political and civic participation, and community norms) as related to different user preferences (Brandtzæg 2010, Brandtzæg et al. 2011, Dutton et al. 2009, Lievrouw 2001, Pruulmann-Vengerfeldt 2006a, Pruulmann-Vengerfeldt 2006b, Runnel et al. 2009, Shah et al. 2001, Vengerfeldt and Runnel 2004, Zillien and Hargittai 2009).

The originality of this study lies in its aim to bring these two approaches together and offer an interdisciplinary and thus a more comprehensive explanation of individual differences in Internet use. To achieve this aim, we first delineate an empirically robust and theoretically well-interpretable classification of online activities, which can be taken as indicative of the underlying motives for using the Internet. *S*econdly, we analyse how those motives for Internet use are predicted by personality traits as well as socio-demographic variables and other relevant factors such as the frequency of Internet use and indicators of habitus and lifestyle. The overall theoretical rationale for merging two previous research approaches is to address and discuss a more basic question: to what extent are motives for human behaviour, exemplified in our study as purposes guiding Internet use, influenced by inherent personality traits vis-à-vis social norms, roles and habits acquired in the course of socialization?

1.1. Classifications of Internet use

Over the last decade, a number of classifications of online activities, their underlying motives, as well as Internet user types have been proposed. The typologies tend to vary in terms of the applied theories, as well as the sampling and measurement techniques and, ultimately, the suggested classifications. A number of studies have taken the uses-and-gratifications approach, which explains the way people adopt and use communication media as a function of their psychological needs and the gratifications they seek (see Kim et al. 2011 for an overview). Several other studies, however, have used inductive explorative approach to categorize online activities, and therefore lack a clear theoretical insight (Horrigan 2007, Roberts et al. 2004). Differences in the proposed typologies are also evident. For instance, some researchers have drawn distinctions between the use of online social, leisure, and information services (Hamburger and Ben-Artzi 2000), or social, leisure, and academic Internet use (Landers and Lounsbury 2006), whereas others have applied technical, information exchange, and leisure motives for drawing their classifications (Swickert et al. 2002), or distinguished between ritualised and instrumental use (Papacharissi and Rubin 2000). Furthermore, motives for Internet use are often found to be culture-specific (Choi et al. 2004, Gombor and Vas 2008). It is also important to note that many of the suggested typologies have been drawn upon non-representative samples (Heim et al. 2007, Johnson and Kulpa 2007, Roberts et al. 2004), which obviously influences to what extent their findings can be generalized.

Recently, attempts have been made to offer more generalized accounts of motives for Internet use and user types. For instance, some literature reviews have claimed that the basic motivations underlying the use of the Internet are, in broad terms, similar, including information, convenience, entertainment, and social interaction (Kim et al. 2011). Also, based upon a meta-analysis of 22 previous studies, Brandtzæg (2010) proposed a unified Media-User Typology, claimed to be universal across different cultures.

Still intrigued by the multitude of previous typologies, we use a representative population sample in this study to establish a theoretically easily interpretable classification of online activities that would be applicable across different socio-demographic groups, as a solid set of dependent variables for the subsequent analysis of individual differences in Internet use.

1.2. Personality and Internet usage patterns

Several researchers representing the psychological approach have proposed that Internet behaviour depends to a large extent on people's basic personality traits (Amichai-Hamburger 2002, Anolli et al. 2005, Hills and Argyle 2003, McElroy et al. 2007, Orchard and Fullwood 2010), which have been defined as "enduring tendencies to think, feel, and behave in consistent ways" (Allik and McCrae 2002: 303). These findings come as no surprise as the recent research in other areas has also widely documented the usefulness of personality traits in predicting a variety of different important life outcomes including physical and psychological health, occupational choice, and community involvement among many others (Ozer and Benet-Martinez 2006). As for the Internet use, studies suggest that personality traits may not only predict adoption of new technologies (McElroy et al. 2007) and offer explanations why individuals take different approaches to using software applications (Ludford and Terveen 2003), but also act as a trigger for negative aspects associated with the Internet use such as for instance addiction (Hardie and Tee 2007, van der Aa et al. 2009, Young and Rodgers 1998).

Furthermore, personality traits have been found to have a significant role in predicting the use of various communication- and entertainment-related online activities, as well as online content creation. For example, Extraversion (one of the five basic personality traits, which is characterized by positive emotions, and the tendency to be active, seek out stimulation and enjoy the company of others) has been found to be positively related to the use of leisure services (Hamburger and Ben-Artzi 2000), using the Internet for instrumental purposes (Amiel and Sargent 2004), being actively engaged in social media (Correa et al. 2010, Ryan and Xenos 2011), or playing online games (Teng 2008). People who score high on Openness to Experience (intellectually curious and preferring novelty and variety) have also been found to be frequent social networking sites (SNS) users (Buffardi and Campbell 2008, Ross et al. 2006), bloggers (Guadagno et al. 2008), advice-givers on discussion forums (Tai-Kuei et al. 2010), and online game players (Teng 2008). Finally, people high in Neuroticism (prone to the experience of negative emotions

such as anxiety, depression, hostility, and the vulnerability to stress) are found to be using the Internet with companionship as a motive (Amiel and Sargent 2004, Gombor and Vas 2008), being more likely to use SNS (Amichai-Hamburger et al. 2002), and instant messaging (Ehrenberg et al. 2008). Negative correlation between Neuroticism and reported Internet use for Information Exchange and for Leisure has only been detected by Swickert and colleagues (Swickert et al. 2002).

It has to be noted that personality traits have only rarely been studied together with socio-demographic variables (e.g., age and gender; Correa et al. 2010), let alone other factors (e.g., habitus, lifestyle, etc.), to account for variation in Internet use. Thus, the uniqueness of this study lies in applying a broader perspective with the aim of detecting whether personality traits remain significant in predicting the motives for Internet use when analysed in combination with socio-demographic variables and other relevant factors.

1.3. User preferences as dependent on socio-demographics and other factors

Numerous previous studies have used socio-demographic variables and/or indicators of individual resources and situational factors to explain individual differences in Internet use. Representative population studies indicate that one of the most significant factors having an effect on Internet use is age (Dutton et al. 2009, Ewing and Thomas 2010, Jones and Fox 2009, Pierce 2010). For instance, studies suggest that compared to other age groups, young people are most active in entertainment- and leisure-related activities, and in content creation (Dutton et al. 2009, Jones and Fox 2009, Teo 2001), whereas buying products online, emailing and searching for health-related information are more popular among older users (Jones and Fox 2009).

Although several recent studies report that digital inequality between men and women is diminishing (Ewing and Thomas 2010, Losh 2009), notable gender differences still exist in new media use (Pierce 2010). For instance, men tend to be engaged in almost all activities related to communication, entertainment, leisure, and content creation more frequently than women (Dutton et al. 2009, Weiser 2000).

In addition to the possible impact of age and gender, indicators of socio-economic status, that is, income (Ewing and Thomas 2010, Smith et al. 2008) and education (Ewing and Thomas 2010, Liang 2007) have been found to have a significant impact on the Internet use. While it is suggested that users with higher income and education spend less time online compared to users with less privileged backgrounds (Goldfarb and Prince 2008), other studies indicate that "a user's social status is significantly related to various types of capital-enhancing uses of the Internet" (Zillien and Hargittai 2009: 287). For instance, engagement in online content creation (Hargittai and Walejko 2008) has been found to be dependent on socio-economic status.

It has also been proposed that Internet user types are related to levels of economic, cultural and social capital (Vengerfeldt and Runnel 2004), as well as to various lifestyle indicators (Pruulmann-Vengerfeldt 2006b). For example, com-

pared to other Internet user types, Versatile and Work- and information-oriented Internet users have been found to be more active in online civic and political participation (Runnel et al. 2009). Some authors have also proposed that personal values could be used for predicting Internet adoption (McElroy et al. 2007) and use (Engelberg and Sjöberg 2004).

Against the background of previous studies in this line of inquiry within sociology, media and communication studies, and gender studies, the majority of which tend to focus on one or few social characteristics, the current study represents one of the relatively infrequent attempts to involve all main socio-demographic variables (age, gender, ethnic majority or minority status, education and income), and indicators of habitus and lifestyle to explain individual variation in Internet use.

1.4. Research aims and questions

By combining insights from the two research approaches described above, this study sets a novel aim to identify the strongest predictors of individual differences in Internet use, taking into account personality traits, socio-demographic variables, and indicators of habitus and lifestyle. To realize this aim, we first develop an empirically robust and theoretically well-interpretable classification of online activities and their underlying motives as a set of dependent variables. Unlike many previous studies that have used college student samples (Gobor and Vas 2008, Hamburger and Ben-Artzi 2000, Landers and Lounsbury 2006, Swickert et al. 2002, Tosun and Lajunen 2010), we base our analyses on data from a representative population sample in order to achieve a better generalisability and wider applicability of the classification.

For the subsequent analysis, we set two research questions. First, we analyse how the motives for Internet use are related to users' personality traits and socio-demographic variables. Secondly, we explore the main predictors of the motives for Internet use, taking into account the dispositional factors, the socio-demographic variables, and other potentially significant factors such as the frequency of Internet use, and available indicators of habitus and lifestyle.

2. Method

2.1. Participants

Estonia as a country with relatively high Internet penetration (74% of the 16–74 year-old population used the Internet, and 68% of households were connected to the Internet in the first quarter of 2010; Soiela 2010) serves as a suitable case for our analytic purposes. Moreover, the Estonian society is clearly divided between two big ethnic groups: Estonian-speaking people form the majority (68%), and the Russian-speaking population, consisting of several ethnic groups, represents the largest minority group (Kalmus and Vihalemm 2008). This

provides an opportunity to analyse ethnicity vis-à-vis other socio-demographic variables as a predictor of individual differences in Internet use.

The data were derived from the third wave of the survey *Me. The World. The Media*, conducted in October 2008 (Kalmus et al. 2009*,* Pruulmann-Vengerfeldt et al. 2008). The survey covered the Estonian population aged 15-74 years, with a total sample size of 1,507 respondents. A proportional model of the general population (by areas and urban/rural division) and multi-step probability random sampling (realized through primary random sampling of settlements with a proportional likelihood related to the size of the settlement, followed by random sampling of households and individuals) was used. In addition, a quota was applied to include a proportional number of representatives of the ethnic majority and the minority, differentiated according to the preferred language of the survey interview (Estonian or Russian, respectively).

A face-to-face interviewing method was used. As 369 respondents answered that they had never used the Internet, and 38 respondents did not answer the question, 1,100 participants[1] remained in the further analyses with mean age of 38.29 years (*SD* = 14.76). Of the remaining sample, 55% were females; 70% of the respondents completed the questionnaire in Estonian and 30% in Russian, respectively.

2.2. Measures

Frequency of Internet use was measured by three items: How frequently do you use the Internet (1) at work or school, (2) at home, and (3) elsewhere (Internet cafés, public WiFi hotspots, at friends' places, etc.). The respondents were asked to answer each question on a 5-point scale, ranging from 0 – *not at all* to 4 – *almost every day*. Across all participants, people reported using the Internet most frequently at home (*M* = 3.36; *SD* = 1.16), then at work or at school (*M* = 2.32; *SD* = 1.82), and least frequently at other places (*M* = 0.85; *SD* = 1.15).

Online activities. The respondents were asked to indicate on a 4-point scale (0 – *not at all* to 3 – *quite a lot/frequently*) to what extent they use the Internet for 31 different activities (Table 1 lists the items). The core part of the indicators, used already in the first wave of the *Me. The World. The Media* survey in 2002, was adopted from the questionnaires of the World Internet Project (UCLA Center for Communication Policy 2001). Subsequently, the research team has developed additional indicators to measure engagement in the emerging Internet activities, for instance, online content creation (Pruulmann-Vengerfeldt et al. 2008).

Personality traits. The Ten-Item Personality Inventory (TIPI) (Gosling et al. 2009) is a 10-item measure of the Big Five personality dimensions. Each item consists of two descriptors, separated by a comma, using the common stem (e.g., "I see myself as extraverted, enthusiastic"). Each of the ten items was rated on a 5-point scale (1 – *disagree strongly* to 5 – *agree strongly*). The average of the two items per dimension makes up each scale. The Cronbach's alphas were .65, .55,

[1] The number of participants may vary in some analyses due to missing data.

.53, .21, and .53 for Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. Due to a very low internal consistency estimate, Agreeableness was not included in further analyses.

Education. Twenty percent of the respondents had primary or basic, 50% had secondary, and 30% had higher or university education. We used the indicator of the number of years in education (M = 13.26, ranging from 7 to 25 years; SD = 2.95).

Perceived income. The respondents were asked to indicate on a 4-point scale (1 – *very hard* to 4 – *comfortably*) how they cope with their household's level of income. Five percent of the respondents said that it was very difficult (1) and 22% that it was rather difficult (2) for them to cope with their present level of income. Furthermore, 58% of the respondents argued that they coped with their current income (3), whereas 14% of the participants said that they lived comfortably with their present income (4).

Civic participation. The database included a number of single indicators and composite measures of individual resources, habitus and lifestyle. After exploratory analysis we decided to continue with the index of civic participation, which was most strongly correlated with the emerging motives for Internet use. The index consisted of ten questions, developed by the research team, asking the respondents to indicate on a 4-point scale (1 – *not a member, not interested* to 4 – *an actively participating member*) how actively they participated in different voluntary activities, networks, and organizations such as "Charity clubs, voluntary work organizations, foundations", "Choirs, art, acting, and book clubs, etc.", "Political parties and organizations", etc. The Cronbach's alpha of the civic participation index was .79.

3. Results

3.1. Motives for Internet use

To unveil the underlying motives for Internet use, we conducted an exploratory principal-component factor analysis of 31 online activities, followed by varimax (normalized) rotation. Seven factors had eigenvalues above one but Cattell scree-test clearly supported two-factor solution accounting for 37.3% of the total variance. The two-factor solution also provided a very simple structure with all items, except one, loading above |.35| on only one factor. As the item *#8: Using e-school* had equally low loadings on both factors, it was dropped from further analyses. Consequently, the final analyses included 30 indicators of online activities with two factors explaining 38.2% of the total variance (Table 1). The factor structure of 30 items remained simple and stable also in principal factor analyses using different communality estimates (multiple R^2 and principal axis method). The factor scores generated by 30 items were calculated and saved for the subsequent analyses.

In addition to empirical robustness, theoretical considerations favoured the two-factor solution. The first factor contains items such as *#27: Searching for and managing information regarding friends and acquaintances on social networking*

Table 1. Factor loadings of the indicators of online activities (*n* = 989)

No	Items	Factor 1	Factor 2
	Social media- and entertainment-related Internet use		
#27	Searching for and managing information regarding friends and acquaintances on social networking portals (e.g., Orkut, Facebook, Rate.ee, MySpace, LinkedIn, etc.)	**0.73**	0.00
#28	Posting and updating information about myself on social networking portals	**0.73**	0.02
#24	Uploading pictures and photos on the Internet	**0.68**	0.04
#9	Searching for entertainment (games, music, films)	**0.66**	0.02
#29	Using forums to express my opinion on topics I consider important	**0.63**	0.20
#16	Participating in forums, blogs, surveys	**0.62**	0.31
#26	Sharing music, films, programs (Bittorrent, etc.)	**0.61**	–0.02
#25	Uploading videos (e.g., YouTube, Toru)	**0.60**	–0.01
#23	Updating my website or blog	**0.57**	0.03
#12	Watching TV or listening to radio online	**0.55**	0.29
#19	Communicating with friends and acquaintances	**0.51**	0.22
#10	Searching for interesting and exciting information	**0.50**	0.24
#30	Commenting articles in online newspapers or information portals (e.g., Delfi)	**0.49**	0.16
#11	Online cultural activities (visiting virtual art exhibitions, reading prose, watching art films, etc.)	**0.48**	0.28
#31	Participating in gaming environments	**0.45**	–0.09
	Work- and information-related Internet use		
#1	Searching for information on public institutions, ministries, courts, etc.	–0.09	**0.72**
#2	Searching for information from web pages of local governments	–0.10	**0.68**
#21	Communicating with officials, management of public business online	–0.04	**0.68**
#6	Using e-services (e.g., tax board, forms, citizens' portal, etc.)	–0.01	**0.67**
#22	Internal communication in organizations (intranet, lists, etc.)	0.02	**0.66**
#4	Using online databases (libraries, data banks, etc.)	0.16	**0.63**
#20	Work-related communication with clients and colleagues	0.04	**0.63**
#3	Searching for practical information (e.g., weather, timetables, etc.)	0.12	**0.57**
#5	Using online banking	0.01	**0.56**
#7	Searching for information related to work and studies	0.22	**0.53**
#15	Searching for information on job vacancies, real estate, tourism, etc.	0.24	**0.52**
#17	Participating in civic initiatives, signing online petitions	0.32	**0.51**
#14	Online shopping and gathering relevant information for making purchases	0.25	**0.50**
#18	Following online newspapers and information portals (e.g., Delfi, etc.)	0.25	**0.49**
#13	Searching for information and tips on relationships, family, children, child-rearing, health and other aspects of personal life	0.30	**0.45**
	Total % of explained variance		38.2%

Note. Loadings greater than |.35| are shown in boldface. The items are sorted by the size of their factor loadings on a respective factor.

portals; #9: Searching for entertainment; #16: Participating in forums, blogs, surveys, and writing comments; #19: Communicating with friends and acquaintances; #26: Sharing music, films, and programs, etc. We labelled the factor as *Social media- and entertainment-related Internet use*, hereafter SME, indicative of personal need for entertainment, fun, self-expression, and maintaining social relations. The second factor includes variables such as *#1: Searching for information about public institutions, ministries, courts, etc.; #6: Using e-services (e.g., tax board, forms, citizens' portal, etc.); #22: Work-related communication with clients and colleagues; #3: Searching for practical information (e.g., weather, timetables, etc.); #22: Within-organization communication (intranet, lists, etc.)*, referring to people's motives to use the Internet for practical and work- or institution-driven purposes, thus suggesting to label the factor as *Work- and information-related Internet us*e, hereafter WI. Moreover, the second factor is clearly related to institutional roles and the related needs (incl. familial roles and needs as expressed in item *#13: Searching for information and tips on relationships, family, children, child-rearing, health and other aspects of personal life*). We suggest that these two broad motives for Internet use that emerged in our factor analysis correspond to two aspects of an information environment – a personal/relational aspect and an institutional aspect – delineated by Lievrouw (2001) in her insightful theoretical essay but rarely confirmed by empirical studies.

3.2. Relationships between socio-demographic variables and the motives for Internet use

SME was strongly and negatively correlated with age ($r = –.62$; $p < .001$), being highest among the youngest age group and decreasing steadily throughout the lifespan. The correlation between WI and age was near zero ($r = .01$; $p = .789$). Figure 1 shows the mean levels of the two Internet use motives in age groups. WI trajectory across the lifespan is better described as curvilinear, with this motive for Internet use being relatively low among the youngest and the oldest age group, and reaching its highest level around 30–44 years of age. (Indeed, adding the quadratic component of age to the model accounted for an additional 9% of the variance in WI). The difference between age groups in WI and SME scores was statistically significant, $F(5, 983) = 16.28$ and 125.04 ($p < .001$), respectively.

Women ($M = 0.12$, $SD = 1.00$) scored significantly higher than men ($M = –0.15$, $SD = 0.98$) on WI, $F(1,987) = 17.90$ ($p < .001$), whereas men ($M = 0.13$, $SD = 1.01$) used the Internet more than women ($M = –0.10$, $SD = 0.98$) for SME, $F(1, 987) = 13.03$ ($p < .001$).

Those who completed the questionnaire in Estonian, that is, representatives of the ethnic majority, ($M = 0.09$, $SD = 1.01$) used the Internet significantly more for WI than those who responded to the survey in Russian ($M = –0.22$, $SD = 0.94$), $F(1,987) = 20.72$ ($p < .001$), whereas Russian-speakers ($M = 0.10$; $SD = 1.02$) used the Internet more for SME than Estonian-speakers ($M = –0.04$; $SD = 0.99$), $F(1,987) = 4.60$ ($p = .03$).

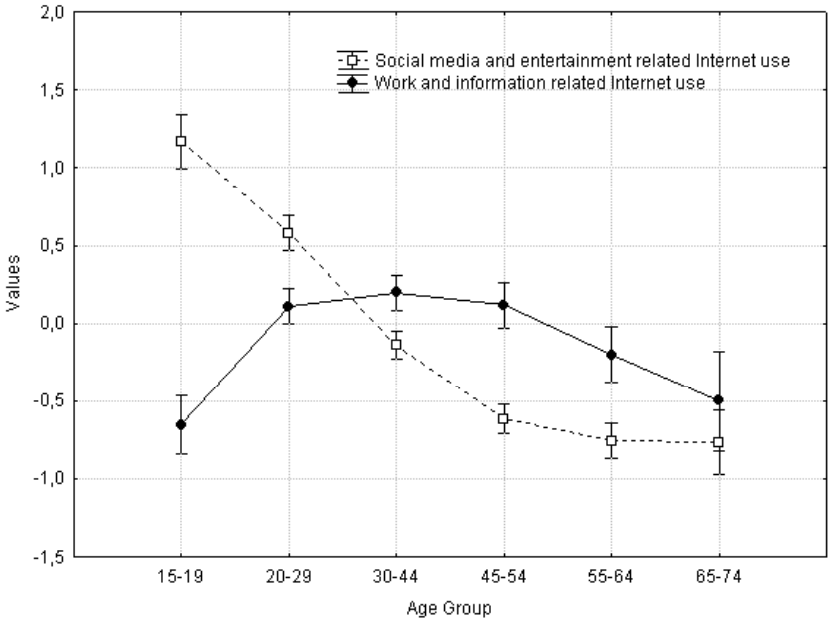

Figure 1. The motives for Internet use in age groups (n = 989).

WI was positively correlated with the number of years in education (r = .37) and perceived level of income (r = .20). SME was negatively correlated with education (r = –.19) but positively with perceived income (r = .11; all correlations significant at p < .001).

3.3. Relationships between personality and the motives for Internet use

Correlation analysis showed that people higher in Openness to Experience (r = .12) as well as in Conscientiousness (r = .07) use the Internet more for WI (Table 2). People who score higher in Openness to Experience (r = .18) and Neuroticism (r = .09), but lower in Conscientiousness (r = –.16), use the Internet more for SME (all correlations significant at p < .01).

Table 2. Correlations between the motives for Internet use and personality traits (n = 989)

	Work- and information-related Internet use	Social media- and entertainment-related Internet use
Neuroticism	–.01	.09**
Extraversion	.03	.05
Openness to Experience	.12***	.18***
Conscientiousness	.07*	–.16***

* p < .05; ** p < .01; *** p < .001.

3.4. Predictors of Internet use motives

Finally, we were interested to find out the main predictors of the motives for Internet use. To this aim, we conducted a series of general linear modelling (GLM) analysis (Table 3), which is a generalization of the linear regression model, so that effects can be tested for categorical as well as for continuous predictor variables.

Table 3. General linear models exploring how personality traits, socio-demographic variables, civic participation, and frequency of Internet use predict the motives for Internet use (*n* = 941)

	Work- and information-related Internet use			Social media- and entertainment- related Internet use		
	Beta (ß)	*p*	Partial eta-squared (%)	Beta (ß)	*p*	Partial eta-squared (%)
Frequency of Internet use						
At work/at school	0.32	0.000	11.95	–0.05	0.057	0.39
At home	0.21	0.000	5.83	0.20	0.000	7.04
Elsewhere	0.04	0.206	0.17	0.31	0.000	13.18
Age	0.14	0.000	1.94	–0.40	0.000	18.56
Age squared	–0.20	0.000	5.40	–	–	–
Gender	–0.05	0.074	0.35	0.04	0.110	0.28
Language	0.12	0.000	2.07	–0.06	0.006	0.80
Gender x language	–0.07	0.010	0.72	0.01	0.562	0.04
Education in years	0.19	0.000	4.31	–0.07	0.009	0.73
Perceived level of income	0.06	0.025	0.54	–0.00	0.899	0.00
Civic participation	0.17	0.000	3.84	0.05	0.026	0.53
Personality traits						
Neuroticism	0.04	0.126	0.25	0.04	0.135	0.24
Extraversion	–0.08	0.008	0.76	–0.01	0.644	0.02
Openness to Experience	0.04	0.156	0.22	0.09	0.001	1.27
Conscientiousness	0.02	0.499	0.05	–0.05	0.051	0.41
Total % of explained variance			39.62%			52.66%

Note. Frequency of Internet use, elsewhere – Internet cafés, public WiFi hotspots, at friends' places, etc. Language of the survey (1 = Estonian; 2 = Russian); gender (1 = male; 2 = female).

As expected, the strongest negative predictor of SME was higher age. The reported frequency of Internet use at public places or at friends, as well at home together explained 20% of the variance. The ethnic minority status, lower education, and higher level of civic participation were also statistically significant predictors of SME but explained together only 2% of its variance. From personality traits, only Openness to Experience made a significant positive contribution.

WI was best predicted by the reported frequency of Internet use at work or school as well as at home, but also by higher education, higher level of civic

participation, the ethnic majority status, and higher perceived income. Both the age and the age squared variable (the latter was added to the model because of the curvilinear relationship between WI and age) also contributed to the prediction of WI-related Internet use with younger and older people using the Internet less for WI-related purposes than people around the mean age of the sample (i.e., 38 years). From personality traits, Extraversion made a tiny, yet significant, contribution, with introverts using the Internet more for WI than extraverts. A statistically significant language and gender interaction also predicted the WI-related Internet use. A more detailed analysis revealed that Estonian-speaking females (M = 0.25; SD = 1.00) used the Internet more than Estonian-speaking males (M = –0.10; SD = 0.99) for WI; such a difference, however, did not exist among Russian-speaking respondents (M = –0.18; SD = 0.94, and M = –0.26; SD = 0.96 for females and males, respectively).

4. Discussion

Our analysis of the data from a representative population survey clearly revealed two main underlying motives for Internet use: *Social media and entertainment* (SME) and *Work and information* (WI). In the first case, the driving force behind Internet use appears to be personal need for communication, self-expression, and entertainment, as well as people's free will and agency, while the second factor is related to structure-driven duties and obligations, as well as institutional roles and the related needs (including familial roles). In broad terms, our classification of the motives for Internet use is in line with the previous distinction between ritualised and instrumental use (Papacharissi and Rubin 2000), or between social, leisure, and information services (Hamburger and Ben-Artzi 2000). It is noteworthy, however, that the two motives for Internet use that emerged in our analysis perfectly correspond to the personal/relational aspect and the institutional aspect of an information environment as delineated by Lievrouw (2001) in her theoretical essay. Our analysis, thus, suggests that in addition to classifying Internet uses according to the types of services (e.g. information, entertainment, etc.), a broader overarching taxonomy, relating particular uses to more general dimensions and theoretical concepts explaining social behaviour such as personal and institutional, or agency and structure, might be useful. Furthermore, our study spotlights that activities performed in social media (such as social networking portals, blogs, and forums), characterized by the prevailing part of the content as generated by users, clearly fall under the personal/relational aspect of Internet use.

Our analysis suggests that in comparison to other age groups, young people are considerably more likely to be using the Internet for SME. Moreover, age was the strongest predictor of SME, with younger people using the Internet more than older for social networking, content creation, and entertainment. Our results, thus, correspond to the findings of other studies (Dutton et al. 2009, Jones and Fox

2009, Zickuhr 2010), suggesting that young people's motives for using the Internet indeed largely derive from their agency, free will, and interest in interactive opportunities offered by the new media. This conclusion, in general, lends support to the conceptions of the 'digital generation' (Papert 1996), the 'Net generation' (Tapscott 1998), or 'generation C' (Bruns 2006), which emphasize the existence of remarkable differences between age groups with regard to the agency-related aspects of Internet use. More detailed findings of our study, nevertheless, warn against overlooking individual variation in younger generations, as certain personality traits, other socio-demographic characteristics, as well as greater civic participation also predicted SME as a motive for Internet use.

The relationship between age and WI, however, can be best described as curvilinear. This suggests that the importance of the institutional aspect of an information environment is related to one's lifespan and social roles, referring also to the fact that older age groups are still more deprived of the opportunity or emotionally more reluctant to interact with societal institutions via new media.

Similarly to the findings of Dutton, Helsper and Gerber (2009), our results indicate that compared to men, women use the Internet less for SME (and more for WI). These gender differences might be explained by the so-called second shift (Hochchild and Machung 1989), meaning that women are mainly responsible for taking care of household and childcare in addition to their daily paid labour and, thus have less spare time compared to men. Studies (Vainu et al. 2010) indicate that this phenomenon is particularly prominent in Estonia as the gender regime, while favouring women's active participation in the labour market, simultaneously associates home-making and childcare almost exclusively with females. Thus, the overwhelming importance of institutional duties, including gendered role division in families, hinders women from pursuing those motives for Internet use that are related to their agency and personal needs. Similar explanations to gender inequalities in Internet use have also been proposed by other authors (e.g., Hargittai and Shafer 2006). However, the gender differences in Internet use disappeared when socio-demographic and other variables were controlled for.

Consistently with previous studies (Junco et al. 2010, Vengerfeldt and Runnel 2004), we found differences in Internet use between the ethnic majority and minority groups. Compared to the Estonian-speaking majority, Russian-speakers as the minority group used the Internet significantly less for WI, that is, the institutional aspect of the information environment. SME as a more personal use of the Internet was higher among Russian-speakers. These findings may be indicative of a weaker vertical integration of the minority group in the Estonian society, that is, their looser ties with state institutions (Ehin 2009), and lower use of national online and offline news media (Vihalemm 2008). Our findings, nevertheless, point at the potential for horizontal integration of the ethnic minorities through SNS and interpersonal online communication.

In consistence with several others studies (Dutton et al. 2009, Howard et al. 2001, Zillien and Hargittai 2009), our results suggest that the institutional aspect of Internet use (WI) is more characteristic of users with a higher level of education

and income. On the one hand, users with a higher social status may be driven by pragmatic motivation as they might benefit from WI-related activities much more compared to SME-related use. On the other hand, specific value orientations or habitus may determine correlations between social status and user preferences (Zillien and Hargittai 2009). Furthermore, our GLM analysis indicated that less active engagement in SME was predicted by higher education, but not by perceived income level. It is possible that more highly educated Internet users, by virtue of their values and lifestyle, prioritise work and information-related activities over more casual and entertainment-oriented uses.

Our results, indicating that people higher in Openness to Experience and in Neuroticism tend to use the Internet more for SME, are consistent with other studies where Openness to Experience was found to be positively related to entertainment usage (Tuten and Bosnjak 2001), especially in social media (Correa et al. 2010, Tai-Kuei 2010), or proposing that people high in Neuroticism are more likely to use the Internet with companionship as a motive (Amiel and Sargent 2004, Gombor and Vas 2008), or to avoid loneliness (Butt and Phillips 2009). The modest effect of Openness in predicting the SME use of Internet remained significant also when socio-demographic factors were controlled for.

Given that people scoring higher in Conscientiousness tend to be dutiful, organized and responsible in their tasks (Goldberg 1992), it is no surprise that they use the Internet more for WI. The small positive correlation between Openness to Experience and WI was unexpected; this effect, however, lost its significance when controlling for socio-demographic variables.

In the overall linear model, WI was best predicted by the frequency of Internet use at work or school. Moreover, higher education level, more active civic participation, and the ethnic majority status made a significant contribution to predicting WI. All these indicators are related to institutional establishments of society. Furthermore, the higher perceived income level, higher age, and being an introvert as significant predictors of using the Internet for WI indirectly refer to a possible conclusion that the institutional aspect of ICT use is related to maintaining one's social status and performing one's role without openly challenging or debating it.

On the contrary, using the Internet for SME was strongly predicted by younger age, the frequency of Internet use at public places or at friends and at home; also, Openness to Experience, lower education level, and the ethnic minority status made a significant contribution. Such a remarkable difference in the predicting factors of the two motives for Internet use and, correspondingly, in the social groups carrying these motives can be interpreted as a sign of the still-existent differentiation of ICT use along the borderline between 'system' and 'life-world', or even "signal the development of new tensions between the institutional and the personal" (Lievrouw 2001: 21).

5. Concluding remarks

One of our contributions was joining the personality traits, socio-demographic variables, and other factors in common linear models. The analyses revealed that when controlled for other factors, the personality traits lose their (already minor) significance in predicting the motives for Internet use. This suggests a tentative answer to our overall question: community norms, social roles, and the corresponding behavioural patterns, obtained in the course of socialization, play a more important role than dispositional factors in influencing people's ways of, and their underlying motives for, using the new media.

A limitation of this study lies in the fact that the used personality inventory – the TIPI – only included two items per subscale. Although the TIPI have shown strong correlations with widely used Big Five measures as well as high levels of test-retest reliability (Gosling et al. 2003), it is nevertheless possible that a longer and a more comprehensive personality test would have been a more reliable predictor of Internet use. Another question for future research lies in testing whether the findings obtained on the sample of the Estonian population could be generalised on a broader scale.

Based on our findings we suggest that one of the greatest challenges facing the society, in particular younger generations, is bridging the gap between the institutional and the personal aspects of ICT use, and employing agency, enthusiasm and creativity, now mostly reserved for interpersonal communication and self-expression, more actively in the public sphere to help to democratise mainstream institutions and society at large.

Acknowledgements

The writing of this article was supported by the grants from the Estonian Ministry of Education and Research (SF0180029s08 and SF0180017s07) and the Estonian Science Foundation (No. 8527).

Addresses:
Veronika Kalmus
Institute of Journalism and Communication
University of Tartu, Ülikooli 18
50090 Tartu, Estonia
Tel.: +372 5662 3583
E-mail: veronika.kalmus@ut.ee

Anu Realo
Department of Psychology
University of Tartu
E-mail: anu.realo@ut.ee

Andra Siibak
Institute of Journalism and Communication
University of Tartu
E-mail: andra.siibak@ut.ee

References

Allik, Jüri and Robert R. McCrae (2002) "A five-factor theory perspective". In *The five-factor model of personality across cultures*, 303–321. Robert R. McCrae and Jüri Allik, eds. New York: Kluwer Academic/Plenum Publishers.

Amichai-Hamburger, Yair (2002) "Internet and personality". *Computers in Human Behavior* 18, 1, 1–10.

Amichai-Hamburger, Yair, Galit Wainpel and Shaul Fox (2002) "On the Internet no one knows I'm an introvert: extroversion, introversion, and Internet interaction". *CyberPsychology & Behavior* 5, 2, 125–128.

Amichai-Hamburger, Yair and Elisheva Ben-Artzi (2000) "The relationship between extraversion and neuroticism and the different uses of the Internet". *Computers in Human Behavior* 16, 4, 441–449.

Amiel, Tel and Stephanie Lee Sargent (2004) "Individual differences in Internet usage motives". *Computers in Human Behavior* 20, 6, 711–726.

Anolli, Luigi, Daniela Villani and Giuseppe Riva (2005) "Personality of people using chat: an on-line research". *CyberPsychology & Behavior* 8, 1, 89–95.

Brandtzæg, Petter Bae (2010) "Towards a unified media-user typology (MUT): a meta-analysis and review of the research literature on media-user typologies". *Computers in Human Behavior* 26, 5, 940–956.

Brandtzæg, Petter Bae, Jan Heim, and Amela Karahasanović (2011) "Understanding the new digital divide – a typology of Internet users in Europe". *International Journal of Human-Computer Studies* 69, 3, 123–138.

Bruns, Axel (2006) "Towards produsage: futures for user-led content production". In *Cultural attitudes towards technology and communication 2006,* 275–284. Fay Sudweeks, Herbert Hrachovec, and Charles Ess, eds. Murdoch: Murdoch University.

Buffardi, Laura E. and Keith W. Campbell (2008) "Narcissism and social networking web sites". *Personality and Social Psychology Bulletin* 34, 10, 1303–1314.

Butt, Sarah and James G. Phillips (2008) "Personality and self reported mobile phone use". *Computers in Human Behavior* 24, 2, 346–360.

Choi, Junho, James Watt, Ad Dekkers, and Sung-He Park (2004) "Motives of Internet uses: crosscultural perspective – the US, the Netherlands, and S. Korea". Paper presented at the annual meeting of the International Communication Association, New Orleans Sheraton, New Orleans, LA. http://www.allacademic.com/meta/p_mla_apa_research_citation/1/1/2/8/3/p112833_index.html. Accessed 21.02.11.

Correa, Teresa, Amber Willard Hinsley, and Homero Gil de Zùniga (2010) "Who interacts on the web? The intersection of users' personality and social media use". *Computers in Human Behavior* 26, 2, 247–253.

Dutton, William H., Ellen J. Helsper, and Monica M. Gerber (2009) "Oxford Internet survey 2009 report: the Internet in Britain". Oxford: Oxford Internet Institute, University of Oxford. http://microsites.oii.ox.ac.uk/oxis/publications. Accessed 21.02.11.

Ehin, Piret (2009) "Political support and political participation: comparison of Estonians and non-Estonians". In *Estonian human development report 2008*, 91–95. Marju Lauristin, ed. Tallinn: Estonian Cooperation Assembly. http://www.kogu.ee/public/EIA2008_eng.pdf. Accessed 09.04.11.

Ehrenberg, Alexandra, Suzanna Juckes, Katherine M. White, and Shari P. Walsh (2008) "Personality and self-esteem as predictors of young people's technology use". *CyberPsychology & Behavior* 11, 6, 739–741.

Engelberg, Elisabeth and Lennart Sjöberg (2004) "Internet use, social skills, and adjustment". *CyberPsychology & Behavior* 7, 1, 41–47.

Ewing, Scott and Julian Thomas (2010) "CCi digital futures 2010: the Internet in Australia". ARC Centre of Excellence for Creative Industries and Innovation. Swinburne University of Technology. http://www.cci.edu.au/sites/default/files/sewing/CCi%20Digital%20Futures%202010%201.pdf. Accessed 21.02.11.

Goldberg, Lewis R. (1992) "The development of markers for the Big Five factor structure". *Psychological Assessment* 4, 1, 26–42.

Goldfarb, Avi and Jeffrey Prince (2008) "Internet adoption and usage patterns are different: implications for the digital divide". *Information Economics and Policy* 20, 1, 2–15.

Gombor, Anita and Liliana Vas (2008) "Differences between motives for Internet use and life satisfaction among Hungarian and Israeli medical students". http://hej.sze.hu/INF/INF-080514-B/inf080514b.pdf. Accessed 21.02.11.

Gosling, Samuel D., Peter J. Rentfrow, and William B. Swann, Jr. (2003) "A very brief measure of the Big Five personality domains". *Journal of Research in Personality* 37, 1, 504–528.

Guadagno, Rosanna E., Bradley M. Okdie, and Cassie A. Eno (2008) "Who blogs? Personality predictors of blogging". *Computers in Human Behavior* 24, 5, 1993–2004.

Hardie, Elizabeth and Ming Yi Tee (2007) "Excessive Internet use: the role of personality, loneliness and social support networks in Internet addiction". *Australian Journal of Emerging Technologies and Society* 5, 1, 34–47.

Hargittai, Eszter and Steven Shafer (2006) "Differences in actual and perceived online skills: the role of gender". *Social Science Quarterly* 87, 2, 432–448.

Hargittai, Eszter and Gina Walejko (2008) "The participation divide: content creation and sharing in the digital age". *Information, Communication & Society* 11, 2, 239–256.

Heim, Jan, Petter Bae Brandtzæg, Birgit Hertzberg Kaare, Tor Endestad, and Leila Torgersen (2007) "Children's usage of media technologies and psychosocial factors". *New Media & Society* 9, 3, 425–454.

Hills, Peter and Michael Argyle (2003) "Uses of the Internet and their relationships with individual differences in personality". *Computers in Human Behavior* 19, 1, 59–70.

Hochchild, Arlie and Anne Machung (1989) *The second shift: working parents and the revolution at home*. New York: Viking Penguin.

Horrigan, John, B. (2007) "A typology of information and communication technology users". Pew Internet & American Life Project Report. http://www.pewinternet.org/~/media//Files/Reports/2007/PIP_ICT_Typology.pdf.pdf. Accessed 03.05.11.

Howard, Philip E. N., Lee Rainie, and Steve Jones (2001) "Days and nNights on the Internet: the impact of a diffusing technology". *American Behavioral Scientist* 45, 3, 383–404.

Johnson, Genevieve Marie, and Anastasia Kulpa (2007) "Dimensions of online behavior: toward a user typology". CyberPsych*ology & Behavior* 10, 6, 773–779.

Jones, Sydney and Susannah Fox (2009) "Generations online in 2009". Washington, DC: Pew Internet & American Life Project Report. http://pewinternet.org/~/media//Files/Reports/2009/PIP_Generations_2009.pdf. Accessed 21.02.11.

Junco, Reynol, Dan Merson, and Daniel W. Salter (2010) "The effect of gender, ethnicity, and income on college students' use of communication technologies". *Cyberpsychology, Behavior, and Social Networking* 13, 6, 619–627.

Kalmus, Veronika, Margit Keller, and Pille Pruulmann-Vengerfeldt (2009) "Quality of life in a consumer and information society". In *Estonian human development report 2008*, 102–214. Marju Lauristin, ed. Tallinn: Estonian Cooperation Assembly. http://www.kogu.ee/public/EIA2008_eng.pdf. Accessed 09.04.11.

Kalmus, Veronika and Triin Vihalemm (2008) "Patterns of continuity and disruption: the specificity of young people's mental structures in three transitional societies". *Young* 16, 3, 251–278.

Kim, Yoojung, Dongyoung Sohn, and Sejung Marina Choi (2011) "Cultural difference in motivations for using social network sites: a comparative study of American and Korean college students". *Computers in Human Behavior* 27, 1, 365–372.

Landers, Richard N. and John W. Lounsbury (2006) "An investigation of Big Five and narrow personality traits in relation to internet usage". *Computers in Human Behavior* 22, 2, 283–293.

Liang, Guo (2007) "Surveying Internet usage and its impact in seven Chinese cities". Research Center for Social Development, Chinese Academy of Social Sciences. http://www.policyarchive.org/handle/10207/bitstreams/16013.pdf. Accessed 21.02.11.

Lievrouw, Leah A. (2001) "New media and the 'pluralization of life-worlds': a role for information in social differentiation." *New Media & Society* 3, 1, 7–28.

Losh, Susan Carol (2009) "Generation versus aging, and education, occupation, gender and ethnicity effects in U.S. digital divides". In The Proceedings, Atlanta Conference on Science and Innovation Policy, 1-8. Florida. http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=5367820. Accessed 21.02.11.

Ludford, Pamela J. and Loren G. Terveen (2003) "Does an individual's Myers-Briggs type indicator preference influence task-oriented technology use?". In *Human-computer interaction INTERACT '03,* 623–630. Mathias G. W. Rauterberg, Marino Menozzi, and Janet Wesson, eds. Amsterdam: IOS Press. http://www-users.cs.umn.edu/~ludford/MBTI_Interact.pdf. Accessed 06.09.11.

McElroy, James C., Anthony R. Hendrickson, Anthony M. Townsend, and Samuel M. DeMarrie (2007) "Dispositional factors in Internet Use: personality versus cognitive style". MIS Quarterly 31, 4, 809–820.

Orchard, Lisa J. and Chris Fullwood (2010) "Current perspectives on personality and Internet use". *Social Science Computer Review* 28, 2, 155–169.

Ozer, Daniel J. and Veronica Benet-Martinez (2006) "Personality and the prediction of consequential outcomes". *Annual Review of Psychology* 57, 401–421.

Papacharissi, Zizi and Alan M. Rubin (2000) "Predictors of Internet use". *Journal of Broadcasting & Electronic Media* 44, 2, 175–196.

Papert, Seymour (1996) *The connected family: bridging the digital generation gap*. Atlanta, GA: Longstreet Press.

Pierce, Justin (2010) "World Internet project report finds large percentages of non-users, and significant gender disparities in going online". USC/Annenberg: School for Communication and Journalism. http://www.digitalcenter.org/WIP2010/wip2010_long_press_release_v2.pdf. Accessed 21.02.11.

Pruulmann-Vengerfeldt, Pille (2006a) "Exploring social theory as a framework for social and cultural measurements of the information society". *The Information Society* 22, 5, 303–310.

Pruulmann-Vengerfeldt, Pille (2006b) *Information technology users and uses within the different layers of the information environment in Estonia*. Tartu: Tartu University Press.

Pruulmann-Vengerfeldt, Pille, Veronika Kalmus, and Pille Runnel (2008) "Creating content or creating hype: practices of online content creation and consumption in Estonia". *Cyber-psychology: Journal of Psychosocial Research on Cyberspace* 2, 1. http://cyberpsychology.eu/view.php?cisloclanku=2008060202&article=1. Accessed 21.02.11.

Roberts, Donald F. and Ulla G. Foehr (2004) *Kids and media in America*. New York: Cambridge University Press.

Ross, Craig, Emily S. Orr, Mia Sisic, Jaime M. Arseneault, Mary G. Simmering, and Robert R. Orr (2009) "Personality and motivations associated with Facebook use". *Computers in Human Behavior* 25, 2, 578–586.

Runnel, Pille, Pille Pruulmann-Vengerfeldt, and Kristina Reinsalu (2009) "The Estonian Tiger leap from post-communism to the information society: from policy to practice". *Journal of Baltic Studies* 40, 1, 29–51.

Ryan, Tracii and Sophia Xenos (2011) "Who uses Facebook? An investigation into the relationship between the Big Five, Shyness, Narcissism, Loneliness, and Facebook usage". *Computers in Human Behavior* 27, 5, 1658–1664.

Shah, Dhavan V., Nojin Kwak, and Lance R. Holbert (2001) "'Connecting' and 'disconnecting' with civic life: patterns of internet use and the production of social capital". *Political Communication* 18, 1, 141–162.

Smith, Philippa, Nigel Smith, Kevin Sherman, Karishma Kripalani, Ian Goodwin, Charles Crothers, and Allan Bell (2008) "The Internet: social and demographic impacts in Aotearoa New Zealand". *Observatorio Journal* 2, 3, 307–330.

Soiela, Mari (2010) "Use of information technology". In *Information Societ*y, 59–67. Kairit Põder, ed. Tallinn: Statistics Estonia. http://www.stat.ee/publication-download-pdf?publication_id=21188. Accessed 29.12.10.

Swickert, Rhonda J., James B. Hittner, Jamie L. Harris, and Jennifer A. Herring (2002) "Relationships among Internet use, personality and social support". *Computers in Human Behavior* 18, 4, 437–451.

Tai-Kuei, Yu, Lu Long-Chuan, and Liu Tsai-Feng (2010) "Exploring factors that influence knowledge sharing behavior via weblogs". *Computers in Human Behavior* 26, 1, 32–41.

Tapscott, Don (1998) *Growing up digital: the rise of the net generation.* New York: McGraw-Hill.

Teng, Ching-I (2008) "Personality differences between online game players and nonplayers in a student sample". *CyberPsychology & Behavior* 11, 2, 232–234.

Teo, Thompson S. H. (2001) "Demographic and motivation variables associated with Internet usage activities". *Internet Research: Electronic Networking Applications and Policy* 11, 2, 125–137.

Tosun, Leman Pinar and Timo Lajunen (2010) "Does Internet use reflect your personality? Relationship between Eysenck's personality dimensions and Internet use". *Computers in Human Behavior* 26, 2, 162–167.

Tuten, Tracy L. and Michael Bosnjak (2001) "Understanding the differences in web usage: the role of need for cognition and the five factor model of personality". *Social Behavior and Personality: An International Journal* 29, 4, 391–398.

UCLA Center for Communication Policy (2001) The UCLA Internet Report 2001 – "Surveying the Digital Future". http://www.worldinternetproject.net/_files/_Published/_oldis/ucla-internet-2001.pdf. Accessed 18.05.11.

Vainu, Vaike, Liina Järviste, and Helen Biin (2010) Soolise võrdõiguslikkuse monitooring 2009. Uuringuraport. [Gender equality monitoring 2009. Research report.] (Sotsiaalministeeriumi toimetised, 1.) http://www.sm.ee/fileadmin/meedia/Dokumendid/V2ljaanded/Toimetised/2010/ toimetised_20101.pdf. Accessed 21.02.11.

van der Aa, Niels, Geertjan Overbeek, Rutger C. M. E. Engels, Ron H. J. Scholte, Gert-Jan Meerkerk, and Regina J. J. M. Van den Eijnden (2009) "Daily and compulsive Internet use and well-being in adolescence: a diathesis-stress model based on Big Five personality traits". *Journal of Youth and Adolescence* 38, 6, 765–776.

Vengerfeldt, Pille and Pille Runnel (2004) "Behind the digital divide: capitals and user practices". In *Proceedings of the fourth international conference on cultural attitudes towards technology and communication 2004*, 282–296. Fay Sudweeks, and Charles Ess, eds. Murdock: Murdock University.

Vihalemm, Peeter (2008) "The infosphere and media use of Estonian Russians". In *Estonian human development report 2007*, 77–81. Marju Lauristin, ed. Tallinn: Estonian Cooperation Assembly.

Young, Kimberly S. and Robert C. Rodgers (1998) "Internet addiction: personality traits associated with its development". Paper presented at the 69th Annual Meeting of the Eastern Psychological Association in April 1998. http://www.netaddiction.com/articles/personality_correlates.pdf. Accessed 06.09.11.

Weiser, Eric B. (2000) "Gender differences in Internet use patterns and Internet application preferences: a two-sample comparison". *CyberPsychology & Behavior* 3, 2, 167–178.

Zickuhr, Kathryn (2010) *Generations 2010*. Washington, DC: Pew Internet & American Life Project. http://www.pewinternet.org/~/media//Files/Reports/2010/PIP_Generations_and_Tech10.pdf. Accessed 28.02.11.

Zillien, Nicole and Eszter Hargittai (2009) "Digital distinction: status-specific types of Internet usage". *Social Science Quarterly* 90, 2, 274–291.