

On the Brink of Adulthood: a Qualitative Study of Adolescent Engagement with the Internet

Marianne Kinnula, Netta Iivari

Department of Information Processing Science
University of Oulu
P.O. BOX 3000, 90014 Oulu, Finland
{marianne.kinnula, netta.iivari}@oulu.fi

Tuula Ijäs

School of Business and Information Management
Oulu University of Applied Sciences
Teuvo Pakkalankatu 19, 90130 Oulu, Finland
tuula.ijas@oamk.fi

ABSTRACT

The Internet is one of the central media technologies that define technological change and has impact on lives of adolescents who are a significant Internet user group. Many of the earlier studies of adolescents' Internet use are quantitative, whereas this qualitative study gives voice to the adolescents themselves. The study provides a glimpse into the life of the young Finnish people on the brink of adulthood, in transition state, outlining some specific aspects concerning their engagement with the Internet. These adolescents are active and competent users who rely on divergent 'genres of participation' during their Internet use. Their Internet use also reveals some fascinating aspects that can be connected with 'becoming an adult'. They are not only 'hanging out' and 'messaging around' in the Internet, but carry out serious business, too. The study provides also insights for interaction designers ideating Internet based applications and services.

Author Keywords

Adolescent; youth; young people; Internet use; qualitative.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design; Human Factors.

INTRODUCTION

The Internet is one of the central media technologies that define technological change and has impact on children's and adolescents' lives. Besides console and computer games and cell phones children and adolescents have rapidly adopted the Internet for the means of social interaction [18]. The existing research shows that adolescents use the Internet extensively; in studies on Internet use almost all (98–99,9%) of the research subjects used the Internet [8, 12, 24, 27] and they used it nearly two hours a day on average on an ordinary day [8, 15, 19]. New

trends such as social networking sites, video sharing and online games have already become fixtures in today's youth culture [11, 18]. The Internet is under continual change and development that, naturally, strongly affects the ways how adolescents use it. This ongoing change makes studies on Internet use outdated very fast, due to which new studies on the matter are continuously needed.

Psychological and sociological development is very fast in adolescence and therefore it is important to study this age group, their activities and behaviour, including the ways they engage with the Internet. In sociology, the traditional view of adolescence has been that young people passively receive adults' influence, but nowadays youth is seen more as a social and historical construction than a common state of being. A psychological viewpoint maintains that adolescence is a period of time when adolescents process their growth of identity through self-reflection and self-defining. The continuous confusion of one's own identity is a sign of incomplete development and due to this, adolescence should be seen as a state of transfer, rather becoming something than being something. [5]

At this state, adolescents are soon coming of age to contribute to society. Therefore, it is important to consider their motives and readiness to act in society, through the Internet among other things. For instance, educators should know what adolescents' media culture stands for, which media adolescents use and how they express themselves by using media. All this helps educators gain knowledge for trying to raise adolescents' interest in being active citizens and contributing to society. [5, 13] In addition, this age group are not adults yet and there are numerous risks that the youth may encounter in the Internet [15], due to which understanding of their online behaviour is important.

Today's youth are also an interesting group of 'digital natives', many of whose parents can be considered only as 'digital immigrants'. These digital natives have been born in the era of computers, video games, mobile phones and the Internet. Information and communication technology (ICT) use has been a natural part of their life from the very beginning, unlike in the life of their parents. The digital natives have a different learning style compared to their parents. ICT enables new kinds of communication and interaction, and new ways for building communities. In addition, it creates new kind of learning and literacy, i.e.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

NordiCHI '12, October 14-17, 2012 Copenhagen, Denmark
Copyright © 2012 ACM 978-1-4503-1482-4/12/10... \$15.00"

media literacy. [21] Tapscott [26] has labeled this generation as a net generation, N-Gen, for whom ICT use is very natural. These adolescents do not have experience or memories of the time before the Internet. The Internet and ICT use in general is not exotic for them, but very mundane, if not even banal. [5] Therefore, we researchers are dealing with a generation markedly different from ours. Does this mean that we need to design our systems in a different way to satisfy the needs of these digital natives (cf. [28])? We should also understand how the needs of these users, being in a transitional phase of their lives, differ from the needs of small children as well as from the needs of adults. This study connects with the user- and child-centered design traditions (e.g. [7, 10]) arguing that before any ICT design, the designers should gain a thorough understanding of their target users, their skills, characteristics, needs, problems and their context of use. This paper provides glimpses into such issues related to today's adolescents and their Internet use.

In this paper we concentrate on the Internet use of adolescents and discuss some specific aspects related to this particular stage of life as well. We ask: "how do today's Finnish youth use the Internet in their everyday life in the context of their homes?" This is a qualitative, exploratory in-depth study on the matter, allowing eight Finnish 15-17 years old adolescents themselves describe these matters, instead of quantitatively depicting them, as is the case in many of the studies addressing adolescents' Internet use (e.g. [1, 19, 27]). We view their Internet use as an active and creative process, not just passive reception of encoded messages, through the concept of 'genres of participation' where the notion of 'participation', as an alternative to internalization or consumption, is intended to show that the adolescents' role is not to be mere audience to media or educational content but more active instead [11: 14-15].

The paper is structured as follows. The next section presents existing research connected with young people's Internet use. After that the research design and the procedures of data gathering and analysis are discussed. Then the empirical results connected with the young people's Internet use are outlined. Finally their implications are discussed, the limitations of this study are presented and paths for future work are identified.

LITERATURE REVIEW

The related work in this chapter focuses on the purposes of Internet use. We present it in the form of a table where we have collected the results from the earlier studies. Comparing the statistics is not straightforward as the target groups of the studies are not similar and the development of the Internet is so rapid that a difference of a few years in data collection can mean a lot when the results are compared. In addition, the data in some cases in the research reports is years older than the publishing year, and this fact has to be taken into consideration as well. The target group's age had also a big influence in the results as can be seen in Table 1. Moreover, collecting and

comparing the purposes of Internet use was not always easy because even though the same concepts were used, the researchers had not necessarily meant the same things. Also the scales (for example 'very much', 'much', 'little', 'very little' or 'daily', 'two-three times a week') could vary a lot. The categories collected in Table 1 were picked up from previous studies by names and/or explanations of how adolescents use the Internet. Some categories were named similarly in different sources whereas some had slightly different naming but the contents matched.

In Table 1 the percentages portray the importance of each purpose in children's and adolescents' lives. The rapid change in the purposes of Internet use can be seen in the variety of the purposes. Earlier studies have often concentrated on some specific purpose of Internet use, but still, some purposes can be found in almost every study seen in Table 1, such as playing games, instant messaging and chatting, listening and downloading music, and e-mail use. Other purposes found from the earlier studies include doing school work, information seeking, surfing, using online communities, watching and downloading movies, buying and selling things in the Internet (e-commerce), creating and updating a home page, blogging, watching television and videos, and watching, downloading and uploading pictures and graphics.

Some researchers have tried to build a more comprehensive understanding of adolescents' online behavior. For instance Ito and colleagues [11] have carried out extensive studies on youth and new media, based on which they suggest three genres of participation for young people's new media use: 'hanging out', 'messing around', and 'geeking out'. These genres show "varying levels of technology- and media-related expertise, interest, and motivation" and are an alternative viewpoint to the quantitative taxonomies of media engagement presented in Table 1 [11: 36]. Inspired by this work, we will also consider these genres of participation, in the context of adolescents' Internet use.

RESEARCH DESIGN

To gain understanding of how today's adolescents use the Internet in their everyday life we interviewed in March-April 2010 eight Finnish adolescents (2 girls, 6 boys) ages 15-17 (see Table 2) in semi-structured theme interviews lasting from 35 to 95 minutes. The interviewees were chosen selectively based on the age of the interviewee, available Internet connection at home and willingness to attend the research. The age range was chosen based on the researchers' own experiences as well as previous studies of Internet use showing that a lot of changes happen during adolescence. All the eight interviewees were already somehow familiar to the interviewing author but the amount, purposes and skills of the Internet use were not known in advance, only some assumptions rising from the previous studies. Six of the interviews were conducted at the adolescents' homes and two at the home of the interviewing author. The only persons present in the interviews were the interviewer and the interviewee. There

Country (age of target group)	USA (8-18)	Canada (9-17)	Australia (12-14/15-17)	New Zealand (16-19)	Greece (12-18)	Sweden (14)	Netherlands (13-15)	Korea (10-19)	Taiwan Girls/ Boys (14)	Finland (11 ₁₂ , 9-16 ₁₃)
Purposes of use (%)										
Games	35 ₁	77 ₂	59/69 ₃	58 ₅	38 ₆	65 ₇	66 ₈	97 ₁₀ leisure-time	23/84 ₁₁	62 ₁₂
School work	33 ₁	72 ₂	94/86 ₃	-	-	-	-	89 ₁₀	57/- ₁₁	-
Instant messaging, chatting	22 ₁	66 ₂	59/59,5 ₃	-	42 ₆	88/100 ₇	94 ₈	65 ₁₀	54/34 ₁₁	58 ₁₂
Music (listening and downloading)	62 ₁	65 ₂	73 ₃	-	58 ₆	73 ₇	84 ₈	-	58/52 ₁₁	17 ₁₂
E-mail	26 ₁	64 ₂	60/36 ₃	-	-	32 ₇	83 ₈	77 ₁₀	59/36 ₁₁	92 ₁₂
Information seeking	-	55 ₂	-	75 ₅	75 ₆	48 ₇	-	94 ₁₀	64/57 ₁₁	92 ₁₂
Surfing	34 ₁	36 ₂	68 ₃	-	-	47 ₇	92 ₈	-	-	-
Online communities	40 ₁	-	48/ ₃	79 ₅	-	-	50 ₈	59 ₁₀	-	67 ₁₃
Movies	-	-	40 ₄	-	33 ₆	52 ₇	-	-	-	-
E-commerce	-	25 ₂	11/38 ₃	-	-	11 ₇	-	68 ₁₀	44/30 ₁₁	-
Home page	-	30 ₂	-	-	-	-	-	70 ₁₀	-	-
Blogs	-	-	-	19 ₅	-	-	-	72 ₁₀	-	-
Watching TV	38 ₁	-	40 ₄	-	-	-	-	-	-	-
Watching videos (YouTube)	39 ₁	-	40 ₃	-	-	-	-	-	-	-
Graphics/pictures	14 ₁	-	-	-	62 ₆	-	-	-	-	-
References and publishing years:										
1) [22], 2010		4) [25], 2009		7) [24], 2009			10) [12], 2009		13) [15], 2011	
2) [16], 2006		5) [2], 2008		8) [8], 2010			11) [27], 2010			
3) [20], 2009		6) [1], 2008		9) [23], 2010			12) [19], 2009			

Table 1. Purposes of Internet use

can be doubts about how honest the adolescents' answers were, but during the discussions with the adolescents one can sense if there is something that s/he doesn't want to reveal or is lying about. During the interviews some things came up several times to ensure the interviewer that the thing was the way it was told (e.g. the time spent for gaming). Special attention was paid to creating a positive environment where the interviewees trust the interviewer, understand the questions and concepts used, and are eager to answer the questions. Atmosphere during the interviews was cozy (homely surrounding, chatting and drinking coffee before the actual interview) and the interviewees were assured that the answers remain anonymous. The feeling after the interviews was that there prevailed an open atmosphere and that the answers were honest. As all the interviewees were minors, a written consent was asked from their parents.

Interviewing was selected as the research method to get a deeper understanding of the phenomenon than it would be possible to get when using quantitative methods. Especially in exploratory research this is beneficial. Observational methods would yield more objective data on the issues, while lacking all the explanations, rationalizations, interpretations and meaning making offered by the interview talk. In this type of exploratory research where small-scale qualitative interviews are used to understand a phenomenon better, we did not know in advance what new knowledge will be found (if anything), but wanted to be open-minded and gather as much and as versatile data as

possible from the research subjects' viewpoint. A quantitative study would be needed to reveal e.g. the frequency of the observed issues, but it is out of the scope of the present paper.

	15	16	17	Girl	Boy	Comprehensive school	Vocat. school	Upper sec. school
Age	2	4	2					
Gender				2	6			
School						2	2	4

Table 2. The interviewees

The interview themes related to the adolescents' Internet use were identified from the previous research. First, however, the interviewees were asked to describe their Internet use with their own words, and after that the interviewer asked more specific questions. The interviews were transcribed and analysed using content analysis, categorizing information based on the interview themes and the existing research results. When writing up the results, the names of the participants were changed.

EMPIRICAL RESULTS

All the interviewed adolescents had an Internet connection at home and six of them had Internet access in their own rooms. In Finnish legislation a high-speed Internet access is considered a basic right for all Finnish people, and Internet operators have to arrange that all over the country. People

need still pay for the connection. Seven of the interviewees used the Internet daily; the time used varying from half an hour to five hours. They hardly remembered the time when they didn't have access to the Internet. 12 years was the longest time one of the interviewees had been using the Internet and the shortest estimate for Internet usage was six years. Only one of them had learnt at school how to use the Internet. For some, parents had taught the basics and they had learned more by experimenting. Some had no memories of how they had learnt to use the Internet. Evidently, these digital natives have had plenty of opportunities for the Internet use, already during their childhood. Next we go through the purposes of the Internet use based on Table 1, as reported by our interviewees.

Games

All the interviewees used the Internet for playing, with differing amounts of time. One of the boys could be classified as a heavy gamer as he played online games for about 4.5 hours a day. The other interviewees played clearly less, ranging from practically not playing at all to playing about 2 hours a day. Six of the interviewees played online games that include social aspects, such as adventure, shooter, strategy and sports games. The interviewees played online games for entertainment purposes and for passing time: *Well, it's something fun to do when there's nothing else or I just don't feel like really doing something. You don't get bored right away. (Ian)* Some of them mentioned that they only played when they had nothing else to do: *It's like the last choice, if there really is nothing else to do, so it's nlike a certain time killer. An hour or two easily goes by once you start playing. (Jacob)*

The interviewees communicated with other online game players by using game specific text or voice chats or Voice Over IP applications such as TeamSpeak and Ventrilo. Other players were not necessarily familiar to the interviewees in the real world. The interviewees used both Finnish and English for communication as most of the games had international player base. Online games were typically played at home, unaccompanied. Playing team games was mentioned to give a confidence boost: *it's much cooler when you are good at something and the others see it also, how well you play. (Peter)*

The interviewees had also many reasons for not playing or for the decreasing time used for playing: hobbies took more time, parents did not accept playing, or the adolescents just wanted to do something else than playing. *The hours I've used for playing during one month, well it's like one or max two. I just don't use my time for playing anymore, I rather use my energy for something else than the virtual world. (Jacob)* They wanted to spend more time in their other hobbies: *I don't really even play much, 'cause I've got so many hobbies nowadays, so the amount has been decreasing. (Robert)* as well as with their friends: *I don't feel like starting to play is a good idea as I try to limit my computer time anyway ... it can take the rest of the day because you get hooked up with games. (Jane)*

Instant Messaging, Chatting

Instant messaging was valued by the interviewees as it is a free and quick way to contact friends. Only one of the interviewees had never used other instant messaging than Facebook chat. All the others used also Windows Live Messenger (WLM) and had used it for years. Instant messaging contacts included mainly school mates and other friends as well as relatives. Only one of the interviewees had in his contacts list also friends he had made when playing online games with them, and had never met in real life. He called them his "gaming friends". Instant messaging was used mainly for chatting with friends, often arranging when and where to meet: *where they are and if we can meet or what they are going to do. (Peter)*

The interviewees preferred chatting about their free time happenings over discussing about school and studying: *We discuss many things, what has happened and what is going to happen and have we bought something new, and about hobbies. (Robert)* Chatting with relatives was also mentioned but it happened rather rarely and considered mainly what had happened in their lives lately: *Well, how the day has been and when am I gonna visit her [granny] and such and how does it go with the school. (Jane)* Even though the adolescents liked chatting, they also valued face-to-face discussions: *Well the conversations that start at school, they will continue afterwards there [...] but you can't discuss everything there. For example Kate, she might say in messenger that I've got something to tell you but I'll tell it later when we meet. (Jane)*

E-mail

All the interviewees used e-mail and some of them had more than one e-mail account. E-mail was used for various purposes and some of the interviewees were more active e-mail users than others. Occasional communication with relatives and sending of summer job applications were mentioned: *If you send a job application or something. I don't really send any other messages. (Christina)* E-mail accounts provided by the educational institutes were used mainly for communication with teachers and receiving information on school events. The interviewees used e-mail rather sparingly for communication with their friends: *Nowadays I rarely send e-mail to my friends as we use messenger and Facebook. (Robert)* One of the boys mentioned that e-mails received from friends did not necessarily even need to be answered at all as the contents often was just some funny pictures and links.

One of the main reasons to have an e-mail account was the need to use it for registering at different online games and Internet services, and that was also the main reason for having several e-mail accounts: *Not really for anything [...] if some forums need registration, then I need an e-mail address. (Josh)* For some messing around for leisure in the Internet [...] like if you join some page to play a game, you can give your e-mail address there. (Ian)

E-mail was used most by those adolescents who had hobbies in which online communication with adults was

necessary: *For example my conductor might send some new information about our orchestra, that's my main use for e-mail. (Robert)* Another reason for active e-mail use was e-commerce: *You know, for example to contact someone, when you are selling some stuff, they can contact by e-mail. (Alex)* For both of these purposes e-mail was used daily or almost daily. Also the less active e-mail users did check their e-mail regularly, however.

Online Communities

All our interviewees told that they used Facebook, first and foremost for communicating with their friends whom they knew well also in the real world: asking for news, making appointments and plans, and discussing common issues such as hobbies, movies or things that had happened at school. Many of the interviewees mentioned that the issues discussed were similar to those discussed through WLM. Some of them told, however, that the Facebook chat feature had replaced WLM. Still, many of the interviewees had both Facebook and WLM on at the same time and they could be involved in conversations with their friends simultaneously using both applications. Regarding the reasons for joining Facebook, the adolescents quite coherently brought up that all or most of their friends were using it: *I knew one person in our school who was not in Facebook. But a couple of weeks ago she added me as a friend and thus she was the last person of our age that I knew who really wasn't there. (Jane)* Well, all my friends were there, so I kind of find everyone there. (Ian) One person mentioned that there was no reason for not belonging to this online community. Facebook was also seen as a substitutive tool for other communication tools such as phone or instant messaging: *Well, you can keep in touch in some other way than just giving a call. (Christina)*

The interviewees had c.150 – 300 Facebook friends; not all of them even remembered exactly how many friends they had. For all but one interviewee all their Facebook friends were friends or half-acquainted people from real life. There were also relatives as Facebook friends. With relatives, the adolescents also exchanged news and made future plans: *For example [...] as she lives abroad, with her we catch up and everything. And as I'll go visit her next summer, we've planned when will it happen and all such. (Jane)*

The adolescents liked to check out what the other people had announced of their doings on their walls. Even though they had not been in contact with many of their Facebook friends, they told that it was anyway nice to see what was going on in their life: *You can see what all of them have done. And there are some I really never rub elbows with or not much but yet you can see how things are going in their lives. (Jane)* Well, I read the stories they write and comment on them. (Josh) The ease of communication with a large group of people at the same time was also brought up: *I have currently more than 300 friends there. I can contact all of them with just pushing a couple of buttons [...] as I don't have phone numbers of all my Facebook friends, it's an easier way to contact hundreds of people in*

a couple of seconds. (Jacob)

In addition to communication, reading and commenting on friends' texts and pictures was considered entertainment. The interviewees also played games, chatted, took tests, added pictures to their profile and viewed other people's pictures. Some of them told they used a feature with which they could, by pressing a 'like' button, easily comment on their friends' texts. *I write on the wall what I do. And then I put pictures there and view other's pictures and what they think and write. (Peter)* Then if my friends put new pictures there, I comment on those [...] maybe the best thing in Facebook is that you can write what you do right now. For example that Jacob is working or at school, you can comment on that. You can choose if you like it [...] and then you can write in general how your day has been, it's got some blog like characteristics, but in blog you easily use hundreds of words and in Facebook just couple of them. (Jacob)

The second most popular online community was IRC-Galleria, a very popular Finnish service for exchanging pictures and comments. However, some interviewees who had already completed the comprehensive school had quit using it. Based on these interviews it seems that IRC-Galleria is a community for children in comprehensive school. Adolescents who had already moved to upper secondary schools and vocational schools had quit using the community and removed their profiles and pictures. A trend seemed to be that when these adolescents get older they move on to Facebook: *I've been in IRC-Galleria earlier, when I was younger, but after I started using Facebook I felt it was rather pointless to be in two places as I can find the same friends in both of them. (Jacob)* Regarding online communities, two of the interviewees mentioned that they used hobby related discussion forums.

School Work

All the interviewees used the Internet for school work. They sent exercises to teachers by e-mail and occasionally used school administrative applications for contacting the teachers. All of them also used the Internet for seeking information for their school assignments. This happened at least weekly and some did it several times a week. They appreciated teachers who used diversified teaching methods and made the students seek for information for their school assignments, and they reported that they had learned more when they had had to really make an effort for finding something out: *When we had geography, then we had to do some group work, for example [...] And the teacher gives always that sort of exercises, that you really need to think them over yourself [...] I really learn there 'cause we always do things differently. (Jane)*

Information Seeking

All the interviewees used the Internet for information seeking purposes. In addition to school assignments, information was also sought often for various free time purposes. Some of the interviewees had hobbies where they needed information on schedules, materials and equipment,

sometimes even daily. Information about e.g. movies and travelling were also looked for. Google search engine was used by all the adolescents. All of them felt that they did not have problems in information seeking: *It's kind of easy, when you have some search engine, like Google, you just write something and you find the correct page.* (Peter) Some felt, however, that their skills in information seeking were still limited and in need of improvement: *[...] surely rather narrow [skills] as I just put some keyword in Google and then view the pages, that's about the only way I do it [information seeking].* (Christina)

Surfing the Internet

All the interviewees commonly entertained themselves by surfing the Internet, and four of them did it daily. Most of them visited their favorite web sites, e.g. afternoon paper sites, YouTube, and various hobby and clothing related sites. Seven of them reported surfing Facebook. Only one of the adolescents habitually clicked banners, and one told that he checked sites recommended by friends. Surfing and other media use was also simultaneous: *It often happens like, first you think that you do something in the net and then if there's TV on close-by, then you just look at PC sometimes and then go astray watching TV and then you start over what you were doing on PC [...] and then during commercial breaks, there's this five minute pause, then you can end your surfing.* (Jacob)

Listening and Downloading Music

Seven of the interviewees listened to music almost daily in the Internet, and all of them preferred YouTube for that: *Mostly in YouTube, I don't know where else the quality of the sound is so good and clear.* (Robert) One of the adolescents listened also Internet radios and Vimeo (a video sharing service). One of them mentioned also links to music sent by friends. Listening to music in the Internet and especially in YouTube was valued as it is easy and free: *You can find [in YouTube] almost everything you want to listen, and it doesn't cost a penny.* (Peter) *It [YouTube] is free, no need to download.* (Josh)

The possibility to select music pieces individually as well as the smaller amount of commercials in YouTube was valued, compared to listening to the radio: *Well you can listen to exactly those pieces you like. As earlier I only used to listen to radio, but then, the ads annoy me and they are always the same ones. You know them by heart.* (Jane)

Four of the interviewees regularly downloaded music from the Internet. Two of them did it more rarely and two of the interviewees had never done it. Downloading was sometimes considered to take too much time, and, as it is always possible to listen to the same piece again in YouTube, downloading was not seen as necessary: *I sometimes do [download music], but haven't done for a long while. It's so slow, at least for me, so I can't stand waiting. I just listen to YouTube, it's easier that way.* (Christina) However, some of the interviewees liked to listen to music when on the move and transferred it to their cell phones or MP3 players: *I can put them on my mp and*

then I can listen to music on my way to school or sometimes when jogging or in the gym. (Jane)

Watching Movies

Four of the adolescents watched movies in the Internet and three of them used Fintv.fi web pages. They were watching action, fighting and comedic movies but rarely, only once or couple of times a month. Downloading movies was not that popular among these adolescents as they felt that downloading was too slow with their Internet connections: *My friend downloaded one movie but it took about two days. I haven't tried it myself, I like to buy a real DVD and watch it in the DVD player.* (Christina)

Watching TV

Three of the interviewees used the Internet for watching television programs but it was not a very common activity. Mostly the reason for watching the television program via the Internet was that they had missed the program when it had originally been broadcasted in television.

Watching Videos

Only one of the interviewed adolescents did not use the Internet for watching videos. All the others told that they watched e.g. music videos, mainly in YouTube. YouTube music videos were also used for dancing practices and for rehearsing the lyrics: *I've started to do that recently, I practice sometimes.* (Christina) *Then sometimes you don't know the lyrics or you can't make out what they say, so then you watch such versions that have the lyrics, so I may watch them more often than actual videos.* (Jane)

Viewing Pictures

Two of the adolescents told that they viewed pictures only in Facebook and/or in IRC Galleria. Others told that they searched and browsed pictures from other sites as well. Pictures were searched for leisure activities and for studying purposes. More precise explanation was that they searched the internet for pictures if they wanted to know what some items or persons looked like: *Yeah, so if I want to know what some item looks like I add it to picture search.* (Robert) They also told they looked for pictures of celebrity clothes, viewed pictures that users had posted in different forums and of course pictures of their friends in Facebook, using Google for searching pictures. They did not download pictures because they were confident of finding them also later on in the Internet.

E-commerce

Six of the interviewees had bought something from the Internet, either by themselves or with the help of their parents. Help was needed in paying for the purchases; two of them took care of that as well by using their own e-service user IDs or PayPal accounts: *Well, I've bought train tickets and such but my mother has always paid them, but I've done everything else myself until the payment. And ski buses and all such tickets I buy myself.* (Jane) Two of them had not bought anything from the Internet. They brought up that they had had no need to buy anything from there: *You save money when you can download for free [from the*

Internet][...] there has not been any need and I don't have an online banking account, so I haven't been able to pay anything myself. Everything I need I can get from that store nearby [...] you can see better what's included when you buy it, so you don't pay for unnecessary. (Peter)

On the other hand, those who had already utilized the possibility to buy something from the Internet had a very positive view of that. Reasons for buying from online stores were mainly that the products were not available in the local stores, it was easy to purchase the products from the Internet, and the products were cheaper. The interviewees had bought e.g. clothes, train and bus tickets and equipment related to their hobbies (fan merchandise, products related to music hobby, air-soft products and supplements): *There are no shops here that sell them, and so cheap. (Robert). It's easier to get things from there and faster and you don't need to queue anywhere and go anywhere [from home]. (Jane) Alternative is of course to walk to [a global clothing store] and buy similar jeans as ten other school kids have. But if you want something more unique, then very often the online stores are the only option. (Jacob)* However, the adolescents did not use the Internet for buying things very often, only ranging from once a month to once a year.

Selling things in the Internet was not as popular as buying. Three of the interviewees told they had sold things in the Internet, mainly on the discussion forums related to their hobbies but also in the online auctions, to reach a wider audience with the sales ad, and reach a specific target group (e.g. in some forum related to some specific hobby): *If you put an ad on a local paper or on a wall in a shop, very rarely somebody buys it [...] in the Internet it's much easier to sell. (Robert)* Also the idea of recycling came up when the interviewees mentioned selling things in the Internet gave a possibility to get rid of some things they did not need any more but someone else might: *I didn't use them anymore. Or they were too small-sized, when you talk about clothes. (Alex) There's no point to leave stuff there just to collect dust as it's easier to put it for sale and somebody gets what he needs in a cheaper price and I get some coins to my pocket. (Jacob)*

Despite using the Internet for buying things, the interviewees also valued brick and mortar shops and the possibility to see the product before paying for it, or trying on the clothes. Returning the clothes bought from the Internet was considered difficult. The nature of the product also affected whether the interviewee wanted to buy it from an online store: *[The Internet] is good for a store that has a limited clientele as it can reach the clients much easier [in the Internet]. But then, a grocery shop, it's maybe stretching too far to put it in the Internet. (Jacob)*

Home Page

None of the interviewees had published or was planning to publish their own home page. One of them had made one as an exercise related to a computer course, and one had noticed that making one might become topical in the future

studies. However, they did not view a home page as necessary and did not know any of their friends having one either: *No, I don't have [...] there has never been a need to make one and I have never even considered making one. (Ian)* Four of them mentioned that a profile in Facebook is replacing home pages, being very easy to implement: *It loses its point, as Facebook in itself is kind of a home page. You can tell things about yourself, putting status updates there is easier than editing some code. (Jacob)*

Blogs

When asked questions about social media and online communities none of the interviewees mentioned that they had produced content to blogs. One of them knew few girls who were keeping blogs. One girl had stopped updating her blog because of lack of time. From the interviewee's point of view keeping a blog updated took too much time: *It's such a pain for some people as, if you want to write something every day and if you want your blog to be popular, then you have to think what to do for it. (Jacob)*

E-Citizenship

In addition to purposes of Internet use mentioned in Table 1 our interviewees told they had also used the Internet for applying for religion related confirmation class, for using a central school application service, for using services of the police, and for using online banking services. These activities relate to the civic engagement in the Internet, the importance of which already has been extensively discussed (e.g. [17]), but which did not seem to interest our research subjects much beyond the uses listed above.

CONCLUDING DISCUSSION

This study concentrated on the adolescents who are on the 'brink of adulthood' – not children anymore, while not yet adults either –, and this influences their Internet use. The Internet use purposes found in our study somewhat differ from the ones identified in earlier studies, as some of the previously mentioned ones were not significant at all and others had gained a more prominent role in these adolescents' lives. Our data also implies a slight modification to the genres of participation (cf. [11]) by adding a new genre labeled as 'serious business'. These issues are discussed in more detail below.

Internet Use on the Brink of Adulthood

The interviewees of this study were in a transition phase in their lives (cf. [5]); the change from the comprehensive school to vocational institutions and upper secondary schools, as well as the hovering on the edge of adulthood, caused parents to be more relaxed with curfews and to give the adolescents more responsibility on the use of their free time, and this showed in their Internet use in different ways (continuing the trend brought up in [18], related to 14 years old). Six of our eight interviewees had Internet access at their own rooms, showing parents' increasing trust on their children's judgment concerning their Internet use. These young people preferred WML and Facebook for communication rather than e-mailing, blogging or writing their own web pages, differing from the earlier reported

more prominent role of e-mail in communication (e.g. [8, 19]), still in line e.g. with Noppari and colleagues [18] who report email being viewed by teenagers as an oldish tool, appropriate for the work context. It is interesting to note that the teenagers of our study used email only for more formal purposes as well. Perhaps this shows how these adolescents are on their way to adulthood, as e-mail is indeed very commonly used by adults for work purposes. The fact that they could distinguish the use of social media applications from more formal e-mail is a sign of growing knowledge of how to behave when communicating in formal way in the grown-up world. In some of the earlier studies children and youngsters have been reported to be active e-mail users [12, 20]. Maybe in the earlier research the effect of current active Facebook use did not show yet? As mentioned, Internet services are continuously evolving. Communicating by using instant messaging or Facebook probably is simply faster and more convenient than by email, particularly with friends.

Gaming in previous research has been in a significant role in young people's lives but in our study only one of the interviewees was an active gamer, and even though the others played online games as well, gaming was not very important to them. This may be coincidental as significance of gaming as a pastime has been found in many studies, but it also might be partly due to the fact that in many earlier studies there have been younger children involved (e.g. [12, 16, 18, 19]) who have more free time for gaming and are perhaps also more eager for it. The interviewees in our study had growing amount of responsibilities due to their age, as well as due to school changing to be more demanding, and also new interests and very active social life, and thus gaming had lost big part of its attractiveness; one interviewee specifically mentioning that she tried actively to limit her computer time and especially gaming.

Furthermore, e-commerce had entered their lives. The youth connected their e-commerce behavior to recycling - they used the Internet for selling the stuff they did not need anymore and also gained little money by doing so. They also bought new goods; either cheaper or ones not available in local stores, and thus e-commerce was natural to them. They had their own Internet banking and PayPal accounts, so they could also buy goods by themselves. Related to coming of age, interestingly, our interviewees had also changed their online communities when getting older, from the limited environment of IRC-Galleria to the 'more adult' environment of Facebook. In the lives of our research subjects, online communities and social networking were also in a very important position, in line with other studies reporting on research subjects of different ages [15, 18].

The interviewees, altogether, were on the verge of adulthood where their Internet usage habits were changing when they had gained more responsibility over their own lives and use of their free time. They also had to use their own PCs, laptops and mobile phones responsibly, deciding themselves what kind of content they like and use in the

Internet, which online communities they belong to, what applications or content they download on their computers, what kind of content they create themselves, and with whom they were in contact in the Internet, with minimal parental supervision.

Multiple 'Genres of Participation'

Concerning the already identified genres of participation, both the 'hanging out' and the 'messaging around' genres [11] could be easily identified from the data. The 'hanging out' genre is about young people finding opportunities to hang out, to have social contacts, to spend time with friends and peers. This genre was evident in our data, where the significance of social life and social contacts were pertinent. For the interviewees the Internet was an important but also very mundane extension to their face-to-face contacts with their friends, as discussions in instant messaging services or Facebook were largely about the same topics as discussed face-to-face (as reported by e.g. [9], [4] as well). The most important discussions are held outside the Internet [4, 14], as was the trend in our study, too. Social networking services are rather places for maintaining the existing network instead of creating and broadening one [3, 18] even though opposite indications were also found in our study in the case of one interviewee.

Also the 'messaging around' genre emerged in our data, relating to the interest and engagement with new media [11]. Other studies have highlighted this creative content production and experimentation type of Internet use as well [15, 18]. All the interviewees of our study were avid media consumers. They listened to music, watched movies and TV on the Internet, surfed and searched for information, looked for pictures and posted material to discussion forums and online communities. Some of these activities have not been common in the earlier research, possibly due to not having services available. However, quite few of the online activities identified in our study could be associated with the 'geeking out' genre, which Ito and colleagues describe as showing "high levels of specialized knowledge attached to alternative models of status and credibility and a willingness to bend or break social and technological rules." [11: 66] This genre of participation was hardly observable in our data, even though the only active gamer can be associated with it.

On the other hand, many online activities we identified during our study did not fit this categorization of genres. Our results indicate that these young people were on the verge of entering the world of adults. This finding bears interesting implications on the genres of participation. We wish to extend the assortment of the genres of participation with a more serious or adult-like one which we term as 'serious business' genre of participation. It refers to dealing with various everyday matters online: shopping and selling – being at the same time conscious of the economic as well as ecological aspects, taking care of own finances in an online banking system, communicating with teachers and other adults, and acting an e-citizen using e.g. public

services provided by church, the police or educational authorities. This genre may not be as relevant in a younger Internet user group but in this age group it shows clearly.

Practical Implications

For interaction designers, the paper offers a glimpse into what is hot and what is not in young people's life, which can provide valuable information for the design of Internet based applications. First of all, we need to consider in which ways these users are different from their elders (cf. [28]) – these digital natives probably are different type of Internet users compared to their parents who are mainly digital immigrants. Our results offer us some understanding of 'the user' of this age group, of her skills, experiences and characteristics, of her needs and of the home context in which the technology is used. The data can also be used to inform the design for power and pleasure [6], helping in figuring out what is valuable for users [6], allowing the designers to settle the users' most important goals to be achieved and associated scenarios of use, as well as issues that are particularly desired and valued by users. Clearly, for this age group 'hanging out' is very important, as well as 'messing around'. The 'hot' applications and services could be utilized or at least acknowledged while offering new services and applications. The most popular ones could be utilized e.g. in the educational or e-participation context to arouse interest in the target group.

Regarding the distinction between the digital natives and their immigrant parents, one must note that in the current society the Internet is extremely significant in the young people's lives, but it is true for many of their parents as well. The difference between the generations is not as remarkable in Finland as in many other European countries [15]. However, most of the public services their parents used when they were young are now in the Internet and many of the services have only limited availability outside the Internet. Also, the parents have e.g. bought their music recordings from stores whereas our interviewees for the most part listen to music in the Internet, without even downloading it on their computers. Many similar kinds of differences can be observed. But does it mean that the digital natives are more skilled users of the Internet? Not necessarily (cf. [15]). And does it truly mean that we need to design systems differently for the digital natives, as proposed [28]? Based on this study, we do not get any definite answers yet, but we can see that these young people live in substantially altered world compared to that of our youth. More research is needed to understand what this entails. Also worth considering is that new is not always better than old – it is possible that we digital immigrants possess cultural knowledge that should be preserved and passed to the next generation. It might be, e.g., that the digital natives, not having used the old-fashioned, non-digitalized human-to-human services at a service desk, are far more inexperienced and uninformed users of (public) services in the Internet. If so, how can one transmit and revive our cultural knowledge in the world

that is digitalizing ever more and businesses and public services are predominantly moving into the Internet for the convenience of their customers and for cost savings?

ICT educators and parents, on the other hand, need to understand better the implications of this rapid change in Internet usage habits on the lives of the youth, who need guidance and advice when they grow to become full members of society. The adolescents are a vulnerable Internet user group. As they age they are given more power and more responsibility over their own lives. Their information seeking skills are, however, sometimes lacking and they possibly are not critical enough considering information impartiality. It is possible that they do not understand all the risks and dangers in e.g. e-commerce and in sharing their personal data publicly. The adolescents in our study had learned the Internet use skills on their own and had not received media education. Even though they manage in the Internet rather well, we still argue that these issues need to be targeted in school syllabi, and their parents would benefit of some education as well to be better able to advice their children. This causes pressure in the society and in the public services offered through the Internet. Educational institutions have a significant role in teaching civic involvement, media literacy, and media use [13]. Finland is categorized as a 'high use' country like other Nordic countries regarding young people's Internet use and high use implies that youth are also in high danger of encountering online risks during their use. The risks can be mitigated e.g. through awareness-raising campaigns and regulatory strategies [15], however, understanding the online behaviour of the youth is important when planning for these preventive actions.

Limitations and Paths for Future Work

This study has obvious limitations due to its explorative nature. Only eight adolescents were interviewed and of those six were male and two female; it is possible that their gender affected their use patterns (see e.g. [27]). Also, only one was an active gamer. With another sample of users the results might be somewhat different, even though we feel that the general trends in the results would still remain the same. Additional interviews could still be made and the interviewees chosen as representatives of some user 'archetypes'. Quantitative data could also be collected regarding the key findings of this study. We also need more understanding of how the age group of our study differs from younger and older Internet users. One limitation is that the age difference between the interviewees and the researchers may have affected the interpretation of the results, the interviewees being digital natives and the researchers immigrants, even though their difference in Finland is not remarkable. Finally, comparing our results with earlier studies is difficult as the Internet and its use change so rapidly that difference of only some years in the data may affect the results significantly.

REFERENCES

1. Aslanidou, S. and Menexes, G. Youth and the internet:

- Uses and practices in the home. *Computers & Education*, 51, 3 (2008), 1375-1391.
2. Bell, A., Crothers, C., Goodwin, I., Kripalani, K., Sherman, K. and Smith, P. *The Internet in New Zealand 2007. Final Report*. Institute of Culture, Discourse and Communication, AUT University, Auckland, NZ, 2008.
 3. Boyd, D. and Ellison, N. Social Network Sites: Definition, History, and Scholarship. *J. of Computer-Mediated Communication*, 13, 1 (2007).
 4. Bryant, J.A., Sanders-Jackson, A. and Smallwood, A.M.K. IMing, text messaging, and adolescent social networks. *J. of Computer-Mediated Communication*, 11, 2 (2006).
 5. Buckingham, D., Weber, S., Mitchell, C., Willet, R., Herring, S.C. and Stern, S. *Youth, identity, and digital media*. MIT Press, Cambridge, MA, 2008.
 6. Cooper A. & Reimann R. *About Face 2.0. The Essentials of Interaction Design*, Wiley Publishing, Inc., Indianapolis, 2003.
 7. Druin, A. The Role of Children in the Design of New Technology. *Behaviour and Information Technology*, 21,1 (2002), 1-25.
 8. van den Eijden, Spijkerman, R., Vermulst, A.A., van Rooij, T.J. and Engels, R.C.M.E. Compulsive internet use among adolescents: Bidirectional parent-child relationships. *J. of Abnormal Child Psychology*, 38, 1 (2010), 77-89.
 9. Gross, E.F. Adolescent Internet use: What we expect, what teens report. *J. of Applied Developmental Psychology*, 25, 6 (2004), 633-649.
 10. Iivari, J. & Iivari, N. Varieties of User-Centeredness: An Analysis of Four Systems Development Methods. *Information Systems Journal*, 21 (2011), 125–153.
 11. Ito, M., Baumer, S., Bittanti, M., Boyd, D., Cody, R. and Herr, B. *Hanging Out, Messing Around, Geeking Out: Living and Learning with New Media*. MIT Press, Cambridge, 2009.
 12. Kim, W. and Ju, Y. *Survey on the Internet Usage*. Korea Internet & Security Agency. NIDA statistics report, 2009. Online [browsed 28.4.2010]: <http://isis.nida.or.kr/eng/board/?pageId=040100&bbsId=10&itemId=310>
 13. Kotilainen, S. Participación cívica y producción mediática de los jóvenes: “Voz de la Juventud” (Promoting youth civic participation with media production: The case of youth voice editorial board). *Comunicar*, 16, 32 (2009), 181-192.
 14. Lenhart, A., Madden, M., McGill, A. & Smith, A. *Teens and Social Media*. Pew Internet & American Life Project, 2007. Online [browsed 22.8.2010]: http://www.pewinternet.org/~media/Files/Reports/2007/PIP_Teens_Social_Media_Final.pdf
 15. Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. *Risks and safety on the internet: The perspective of European children. Full Findings*. LSE, London: EU Kids Online, 2011.
 16. Media Awareness Network. *Young Canadians in a wired world*. Ottawa, ON. Media and Internet Education Resources, 2006. Online [browsed 11.4.2010]: <http://www.media-awareness.ca/english/research/YCWW/phaseII/keyfindings.cfm>
 17. Montgomery, K., Gottlieb-Robles, B. and Larson, G.O. *Youth as E-Citizens: Engaging the Digital Generation*. Center for Social Media. School of Communication in American University, 2004. Online [browsed 28.4.2012]: <http://www.centerforsocialmedia.org>
 18. Noppari, E., Uusitalo, N., Kupiainen, R. and Luostarinen, H. “Mä oon nyt online!”: *Lasten mediaympäristö muutoksessa* (“I’m now online!”: Children’s changing media environment). University of Tampere, Journalism research and development centre, Taju [jakaja], 2008.
 19. Oinas-Kukkonen, H. and Kurki, H. Internet through the eyes of 11-year-old children: First-hand experiences from the technological environment children live in. *Human Technology*, 5, 2 (2009).
 20. Pink, B. *Household Use of Information Technology*. Australian Bureau of Statistics, 2009. Online [browsed 10.4.2010]: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8146.02008-09?OpenDocument>
 21. Prensky, M. Digital Natives, Digital Immigrants. *On the Horizon*, 9, 5 (2001).
 22. Rideout, V. *Generation M2: Media in the Lives of 8- to 18-Year-Olds*. The Kaiser Family Foundation study, 2010. Online [browsed 11.6.2010]: <http://www.kff.org/entmedia/mh012010pkg.cfm>
 23. van Rooij, A.J., Schoenmakers, T.M., van de Eijnden, R.J.J.M. and van de Mheen, D. Compulsive Internet use: The role of online gaming and other Internet applications. *J. of Adolescent Health*, 47,1 (2010).
 24. Skoog, T., Stattin, H. and Kerr, M. The role of pubertal timing in what adolescent boys do online. *J. of Research on Adolescence*, 19 (2009), 1-7.
 25. Sutton, T. *Children's participation in cultural and leisure activities*. Australian Bureau of Statistics, 2009. Online [browsed 3.4.2010]: [http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/691D5CEBE88905BCCA25765C0019E8D2/\\$File/49010_Apr%202009.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/691D5CEBE88905BCCA25765C0019E8D2/$File/49010_Apr%202009.pdf).
 26. Tapscott, D. *Growing up digital: the rise of the net generation*. McGraw-Hill, New York, 1998.
 27. Tsai, M. and Tsai, C. Junior high school students’ internet usage and self-efficacy: A re-examination of the gender gap. *Computers & Education*, 54, 4 (2010).
 28. Vodanovich, S., Sundaram, D. and Myers, M. Research Commentary: Digital Natives and Ubiquitous Information Systems. *Information Systems Research*, 21, 4 (2011), 711–723.