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#### METHODOLOGY

- Method: online survey with 518 pupils from five schools in Estonia, nationally renowned for using ICT in education; one in-school observation; two focus groups with 13 pupils
- Age group: 15–18 years old
- Field work: performed in Estonia, August–September 2012

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### ESTONIA – A PIONEERING E-SOCIETY

After regaining independence in 1991, Estonia launched ambitious policies to rapidly improve the economy and positioned itself at the forefront of technological development. Two major government initiatives – Tiger Leap and X-Road – were centered on improving computer literacy among pupils and teachers, and on building a national IT infrastructure.

In 2002, Estonia launched a third program called eKool – a national e-school network that enables access to grades, schedules, homework assignments and so on.

Today, virtually all Estonian homes have internet access, and almost all schools have broadband access. Mobile phones are ubiquitous and pupils bring their private phones to school, both for leisure and schoolwork. However, the number of computers in schools is still relatively low.



98 percent of Estonian schools have a broadband connection

Source: Eurydice, 2011

#### **KEY FINDINGS**

- > ICT is blurring the boundaries
  Almost half of the pupils use school computers for leisure activities.
  Simultaneously, many students bring their own mobile phones and tablets to school, and use them for study purposes. This bring-your-own-device type of behavior further blurs the boundary between leisure and schoolwork.
- Computers in school and tablets
   brought to school
   Two thirds of students have access to
   computers in school. Although tablets in
   school are uncommon, one third of the
   pupils who have a tablet bring it to school
   for study purposes.

- > Bring your own phone the complementary study tool
  - A quarter of the pupils use their private mobile phones in school for work purposes. Mobile phones are mostly used as a complement to computers and tablets for communication services (for example, social-networking sites) that allow pupils to discuss collaborative work and school assignments.
- Personal strategies, personal boundaries With the boundary between work and leisure breaking down, the switch from "work mode" to "leisure mode" can be tempting. Adjusting to a more situation-based way of living, the pupils develop self-disciplining strategies to create personal boundaries.

# ICT IS BLURRING THE BOUNDARIES

Computers, tablets and mobile phones are blurring the boundary between leisure and school. Almost half of the pupils use school computers for leisure activities, while they also bring their private mobile phones and tablets to school for work purposes.



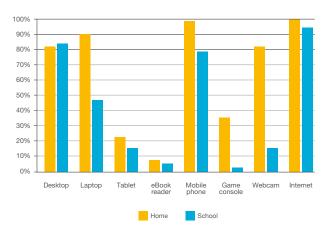
"I use Google pretty much just to search for things like pictures and videos to put in presentations. Google helps you find the solution yourself." – Estonian pupil

Although the school is still very important as a physical institution, it is also evident that schoolwork and leisure activities are performed anytime and anywhere. As Stephen Heppell – a professor of new media environments at the Centre for Excellence in Media Practice in the UK – puts it: "We have to stop thinking of learning as something just taking place within the walls in school. With the help of technology we can break down the walls around our schools, we can spill out learning into the community."

At the same time, the internet and ICT tools have become a way for pupils to break away from their parents' influence and achieve feelings of independence. By offering a way for pupils to search for answers to any question, the internet works as a freedom and independence tool.

It is interesting to note that as a source of information for study purposes, Google is only rivaled by consulting a teacher. Seventy-four percent of respondents find the internet most useful, while asking teachers is chosen by 72 percent. Searching for information in books or asking friends or parents seem to be completely outdated. Only 18 percent say parents are the most useful source of information.

Figure 1: Overview of devices and internet access



Source: Ericsson ConsumerLab 2013, ICT habits among Estonian pupils Study base: 15-18 year old pupils

## COMPUTERS AND TABLETS IN SCHOOL

One computer per student programs do not yet exist in Estonia owing to a lack of local resources. The most common way that pupils access computers, even in the five tech-savvy schools in this study, is to share them with other pupils. Most students do not have access to tablets in school, but one third actually bring their own tablets instead.

Sixty-six percent of pupils have access to computers in school, and about half (46 percent) of the time they spend on them is used for leisure activities. They evidently do not separate work and spare time.

Tablets are not widely used in school in Estonia. Although tablets were recently introduced as work tools for younger pupils, most respondents in this study didn't have access to tablets at school. Instead, one-third of the pupils bring their private tablets to school to do schoolwork, and 25 percent use tablets at home for the same purpose.

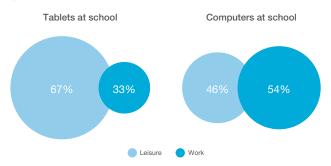
Computers and tablets are used in very much the same way. Pupils use computers to do much of their schoolwork, such as writing papers and preparing presentations (in PowerPoint or Prezi). Tablets are also used for these purposes, but pupils additionally find them useful for illustrating, programming and reading e-books.

Computers and tablets are used for both communicative services (e-mail, instant messaging,

chat and social-networking sites) and noncommunicative services (writing papers and preparing presentations).

The pupils say they prefer the mobility and flexibility of a tablet, as well as the feeling of independence that comes with a lightweight device. In this respect, tablets have an advantage over laptops, and they may well start replacing desktops and laptops in the near future.

Figure 2: How tablets and computers are used in school



Source: Ericsson ConsumerLab 2013, ICT habits among Estonian pupils Study base: 15-18 year old pupils



### MOBILE PHONES AS COMPLEMENTARY WORK TOOLS

A total of 99 percent of Estonian pupils use a mobile phone in their homes and 78 percent use one in school. The difference can be accounted for by the restrictions that many schools put on usage.



Figure 3: Top 10 mobile phone services used inside and outside school.

	WORK PURPOSE	LEISURE PURPOSE
1.	Taking notes	1. Phone calls
2.	Browsing the internet	2. SMS/MMS
3.	E-mail	3. Taking photos
4.	Taking photos	4. Visiting social networking sites
5.	Phone calls	5. Browsing the internet
6.	SMS/MMS	6. IM & Chat
7.	Writing papers	7. E-mail
8.	Reading newspapers	8. Playing games
9.	Visiting social networking sites	9. Watching video-clips
10	. IM & Chat	10. Downloading apps

Source: Ericsson ConsumerLab 2013, ICT habits among Estonian pupils Study base: 15-18 year old pupils

The number of smartphones is rapidly increasing in Estonia. In 2012, 71 percent of all mobile phones sold were smartphones (Source: EMT, 2012). Based on their reported use of mobile phone services, most of the tech-savvy pupils in the study use smartphones.

Although mobile phones are not officially accepted as work tools in school, teachers tend to have a pragmatic attitude toward them. About a quarter of respondents (23 percent) say they use mobile phones in school for study purposes, such as taking notes, photographing the whiteboard and searching the internet. In this way, mobile phones complement computers and tablets.

However, it is quite clear that pupils use their mobile phones mainly as communication devices and for leisure activities – at home and in school. Pupils report that they use their mobile phones for leisure purposes about 80 percent of the time.

At the same time, pupils use e-mail, text messages and phone calls to discuss, share and collaborate with each other. Looking solely at the usage for schoolwork, the mobile phone is used 42 percent of the time for communicating with other students.

Pupils say ICT tools, such as mobile phones, are great for individual work and for collaboration. With the help of services such as Facebook, MSN Messenger and Skype, they can discuss and share information, and work together on the same document using Google Docs.

## PERSONAL STRATEGIES AND BOUNDARIES

Although it is clear that computers, tablets and mobile phones offer many benefits, such as enhanced ways of engaging in collaborative schoolwork, they also present challenges that can be hard for pupils to handle.



This is the case when ICT-related activities start interfering with pupils' schoolwork. Above all, this is true when it comes to Facebook. The social-networking site is always present on mobile phones and computers, and it is perfect for filling time while taking a break from studies or waiting for a program to start.

In the age of 15-18, when youngsters are curious and have a lot of interests outside school, a few moments on Facebook can easily turn into minutes and sometimes hours.

Listening to the pupils' narratives, it is clear that devices can be perceived as quite "pushy." The sound and light from push notifications from different apps can effectively damage any self-imposed study discipline by distracting pupils and tempting them to find out what the message is all about.

"Music is what helps me. I turn on the music player and it separates me from the outside world. I even forget about Facebook." – Estonian pupil

When pupils have the opportunity to have work and leisure time anywhere and anytime, the switch from work to leisure and back again becomes too easy. To deal with this situation, they develop personal self-disciplining strategies to uphold the boundary between leisure and schoolwork.

Pupils say they have several personal strategies – mental and material – to help them get the job done. Mental strategies include having clear prioritization – work first, leisure later – and using music to create a distance to the temptations. Material strategies include limiting screen time or totally disconnecting from the internet.

Thinking ahead, the strategies and skills that individuals develop when they are young will guide them on their journey to adulthood.

"Last year I had limits. By 10pm my computer had to be turned off, and by 1pm I had to be in bed."

- Estonian pupil

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