



# Study of the impact of technology in primary schools

## Case studies

### 4. Harkujärve Lasteaed-Algkool, Harku, Estonia

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*This is one of 25 case studies produced for STEPS, the Study of the impact of technology in primary schools, to illustrate the impact of ICT, on schools, teachers and learners, and to highlight barriers and enablers to its effective use in the school. Further information can be found at <http://steps.eun.org>.*



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## 1. CONTEXT OF THE SCHOOL

Harkujärve Primary School is located in the countryside about 10 km from Tallinn. It is a small, old school in the middle of a wooded park by a lakeside. The kindergarden is situated some hundred metres away, where primary pupils have lunch. A new building sits just in front of the school, which was originally meant to become the new primary school but, didn't due to financial problems. The new building is mainly used for sport and events by both the school and the local community. It also hosts the first grade class, for which the school has to pay a rent. In the surroundings there is a church, where special events such as concerts or celebrations for the Harku community sometimes take place, and a bus stop.



The school provides primary education (from Grade 1 to 6) for children from the local community or living in other small villages in the area. After Grade 6 (there is no final examination) children have to go to another school (often in Tallinn) to complete their compulsory education (to Grade 9) and continue with secondary education (to Grade 12). This is one of the reasons why this type of school is considered less appealing and successful than comprehensive institutes such as Kildi Gymnasium where children receive their primary and secondary education in the same setting. However, the school has always received good feedback from ex pupils, who say they adapt easily to bigger classes and structures when they attend their new schools. The school has 6 classes, with an average of 15 pupils in each (the smallest has 11, the biggest has 19). Parents appreciate small classes and think children can learn more effectively with teachers taking better care of them. There are 10 teachers in the school including an English teacher, music teacher and sports teacher. Some of them work part-time.

The lessons last 45 minutes starting at 09.00 and ending at 13.00 for lower grades, and from 08.00 to 14.30 for higher grades, with lunch break from 11.35 to 12.15. The school is not able to offer extra-curricular activities due to lack of funding from the local authority, but children can stay at school to study and play until 16.00. Lots of outdoor activities including sports are available, which is seen as a bonus by parents.

About 10 years ago the school was one of the first in Estonia to have a computer lab, but now it has none. The lab was also used by the local community, but over time the equipment became obsolete and an internet point opened in the library. As a result, the local authority stopped investing in this facility. Moreover, as the number of pupils increased at the school, extra space was needed to create a music lab, which eventually replaced the computer lab.

Although the school is very small and offers limited facilities, children are very active. There are lots of examples of pupils work on the walls, and the atmosphere is warm and welcoming.

## 2. EXAMPLE OF PRACTICE

### An embedded and collaborative approach to using ICT

The school offers a collaborative approach, embedding ICT in daily teaching and learning activities. The scarcity of equipment, which hinders an individual learning approach, has been transformed by a co-operative learning strategy between teachers and pupils, and pupils and pupils.



During the case study visit, a science lesson for Grade 2 was observed. The teacher used her own laptop connected to a projector to show and explain the human skeleton alongside more traditional methods such as a plastic puppet, games and group work. A child sits at the teacher's desk to operate the laptop, clicking through the PowerPoint presentation which the teacher has prepared while the teacher explains what is shown on the projector screen. The teacher also used a PowerPoint presentation to assign group work activities and homework tasks.

During an observation of an Estonian language lesson, pupils in Grade 6 were divided into four groups, with three or four pupils in each group and a laptop. They listened to a recorded dialogue taken from a literary text, before completing a series of exercises about direct and indirect speech, and punctuation.

Students worked collaboratively on different activities on each laptop, with each laptop running a different exercise. On finishing the exercise, groups moved to another laptop with a different member of the group taking the lead in typing, continuing the work done by their peers in the previous group. Other pupils were involved in non computer-based activities, such as drawing.



One of the main aims of the lesson was to give pupils experience in using software such as Word, Excel and Paint. Even those pupils who are confident users of ICT for Web 2.0 and games only have a very superficial knowledge of software of this type. The teacher had initially planned an internet-based lesson, but the school Wi-Fi connection was suddenly down. This is a frequent problem at the school, and a major barrier to using internet-based learning systems and resources.



### 3. IMPACT, BARRIERS AND ENABLERS

#### 3.1 SCHOOL

##### ICT DEVELOPMENT PLAN, IMPLEMENTATION STRATEGY, ORGANISATIONAL CHANGES AND ATTITUDES

###### ○ Impacts

- At the moment the school has no ICT plan, but the headteacher would like to develop one in the coming year when all teachers will have finished their Tiger Leap Foundation training. The headteacher is very supportive of ICT integration in daily lessons and so, as a first step, wanted all teachers to have adequate training. Open lessons, where teachers help colleagues to integrate ICT into their teaching, are also in place. The school also plans to get involved in an eTwinning project next year.

##### RESOURCING

###### ○ Impacts

- ICT equipment at the school consists of one mobile projector, eight laptops and two desktop computers, and a Wi-Fi connection. The desktops are quite old and used for administrative purposes. Two of the laptops came from the Tiger Leap Foundation programme which provided 4,000 Estonian teachers with a laptop. Other teachers bring their own laptop to school.
- Teachers are aware of learning resources and are inspired to use them thanks to the training they have received from the Tiger Leap Foundation. They are aware of, and sometimes use, online learning platforms and software such as Miksike, MyStudio (especially for natural science), the Koolielu learning resources repository, Hot Potatoes, and so on. They prepare and use PowerPoint presentations and self-made digital sheets and exercises
- The school has already started to participate in Spring Day.
- As soon as the weather will allow it, the school plans to install and use a Vernier International digital datalogging system, called Go!Motion, for studying motion through live outdoor experiments and measurements.
- The school has a basic but good website which is mostly used as a tool for communicating useful information to parents. The school does not use the e-diary system: it is not compulsory in Estonian schools, and the decision to subscribe, or not, is left to the local community.

- **Barriers**

- As resources are scarce, teachers and classes have to share equipment on the basis of 'first come, first served'. Teachers would like to have at least one other mobile projector and an interactive whiteboard which would be shared as with existing equipment. However, they are dependent on the local authority to provide funding of this type.
- The lack of equipment, the fact that some students don't have a computer or internet access at home, and the unreliable Wi-Fi connection at the school inhibit the frequent use of online learning platforms and resources. At the same time however, teachers are able to experiment with teaching methods and create tailor-made materials.

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## THE CURRICULUM AND ICT

- **Impacts**

- ICT is a cross-curricular competence aimed at enhancing skills in the main curriculum subjects (Estonian, maths, natural sciences, social sciences, and English at primary level). As the school defines its own curriculum within the national framework, it is free to organise extra-curricular activities including specific ICT lessons, prior to the headteacher approval and funding from the local authority.

- **Barriers and enablers**

- The school has no computer lab or funding for extra-curricular activities. Furthermore, the headteacher, although very keen on integrating the use of ICT in the teaching process, doesn't see the necessity of having ICT lessons as all pupils are already at ease with ICT. On the contrary, teachers would like to have such lessons, as they think pupils are more experts in Web 2.0 technologies (social networks, chat, email, blogs, games, and so on) rather than possessing a good range of generic ICT skills. Therefore ICT is mostly used as a further pedagogical tool to enhance learning in the core subjects, even if some teachers target basic ICT competence (for example, knowledge of software such as Word, Excel and Paint) as well.

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## ASSESSMENT OF ICT AND ICT FOR ASSESSMENT

- **Impacts**

- As ICT is not a core subject in the National Curriculum, there is no official assessment of pupils' ICT competences. Some teachers teach and assess their pupils' competence in basic software such as Word or Paint, but this is not formally part of the curriculum.

- **Barriers**
  - ICT is sometimes used for assessing competences in other subject areas (such as English, mathematics and Estonian) through online exercises or homework, but not in a systematic way. Issues already described, such as problems with the school Wi-Fi connection and lack of connectivity from home, are barriers to this approach.

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## ORGANISATION OF SUPPORT

- **Impacts, barriers and enablers**
  - The only ICT support the school receives comes from the Tiger Leap Foundation, both in terms of equipment (hardware and software) and teacher training (learning resources and methodologies). The local authority is not very active in this respect. The school should also have its own educational technologist next year, provided by a new Tiger Leap Foundation initiative.

## 3.2 TEACHERS

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### ICT AS A TOOL FOR COMMUNICATION AND COLLABORATION

- **Impacts**
  - Teachers work collaboratively at the school, sharing equipment and learning resources. Open lessons are held each month, where teachers assist colleagues in lessons using ICT and learn from each other. The school is also part of a network of six other schools which collaborate on different activities such as drama performances, hiking days and sports events.

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### ICT AS A TOOL TO IMPROVE THE QUALITY AND EFFICIENCY OF PLANNING AND ADMINISTRATION

- **Impacts, barriers and enablers**
  - The school doesn't use the e-diary system, as it is not compulsory and the decision to subscribe or not is left to the local community. Additionally, the size of the school (being just six classes) does not warrant a planning tool for sharing resources.

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### THE PEDAGOGICAL ROLE OF ICT TO IMPROVE LEARNING AND TEACHING

- **Impacts**
  - The headteacher, and most of the teaching staff, are firmly convinced of the pedagogical value of ICT for improving teaching and learning, but they don't consider ICT as the only tool to be used and at every cost. They all make self-

reflective use of technology and decide to use it only when it is good or necessary according to their pupils' needs or the subject lesson. On average, they use ICT two or three times a week depending on the topic and subject (usually natural science, history, mathematics, Estonian and English). They have observed that ICT improves science and mathematics teaching in particular, and it is also an enabler for English learning. In general, ICT helps with visualising abstract concepts or complex information (for example, in history), keep pupils focused, and helps to solve disciplinary issues with hyperactive pupils. Pupils are also more active and motivated when using ICT. Teachers find that preparing lessons with ICT doesn't require more time or create more stress than traditional methods: on the contrary, the use of ICT allows them to provide their pupils with personalised learning opportunities.

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## ICT SKILLS

- **Impacts**

- Teachers are not required to have specific ICT skills, but due to the headteachers initiative, all teachers receive Tiger Leap Foundation training for half a day each week. During this training they learn how to use wikis, learning communities, online resources and so on. Teachers attend training with other colleagues from the municipality (20-25 persons) and have access to a Tiger Leap Foundation co-ordinator for follow-up. Each week, once back in the class, they immediately have to put what they have learnt into practice. All teachers have a laptop, supplied by the school in conjunction with the Tiger Leap Foundation or purchased themselves.

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## PARTICIPATION, MOTIVATION, CONFIDENCE AND PERFORMANCE

- **Impacts and enablers**

- All teachers at the school take part in the Tiger Leap Foundation training sessions. They are motivated and feel confident in using ICT. However, in this school there is a significant difference in the attitudes to ICT among new or young teachers and older ones. Younger teachers are the most eager to use ICT, and new teachers in particular are keen to put what they have learned at university into practice (even if this has focused more on generic ICT skills than educational use specifically). Older teachers, who were initially more skeptical and less sure of themselves, have been motivated by the training and all of them have now integrated ICT into their teaching methodology without encountering any significant problems. However, one older teacher, despite following the training, still does not feel confident using ICT in the classroom but uses it at home for preparing lessons.
- As part of the Tiger Leap Foundation laptop programme for teachers, schools were given laptops to be assigned to the best teachers but were free to decide how to identify them. At Harkujärve, the teachers had to write an essay outlining

how they would use the laptop for teaching and learning activities. The authors of the two most interesting papers received the laptops.

### 3.3 LEARNERS

#### ICT SKILLS

- **Impacts and enablers**

- As there is no computer lab, and ICT is not part of the school curriculum but a tool for collaborative learning, no assessment of ICT skills takes place. Therefore it is difficult to individually evaluate pupils' ICT competence. All of them, at least in the higher grades, have basic ICT competences mainly autonomously acquired outside school in their everyday life. At home almost all of them have a computer with internet connection. They use ICT mostly for fun and leisure, such as chatting, emailing, gaming, social networking, and surfing (but not on school-related websites). If they have to do homework using ICT, they use online dictionaries (mostly for English and Estonian), Wikipedia or similar, and online exercises. They are aware of online risks (such as privacy, personal information, photos, and dangerous behaviours) and are careful in this respect. They provide very little information about themselves online, aware that their teachers check their online presence. Children have been warned about e-safety by parents and teachers, even if no specific e-safety initiatives or lessons are in place.

#### MOTIVATION, PARTICIPATION AND CONFIDENCE

- **Impacts and enablers**

- Pupils are very motivated when they use ICT at school, and are perfectly at ease in front of the computer screen. When they have to decide who is going to use the laptop during the group work, everybody wants to. Boys are more technology literate than girls, while girls use the internet as a faster way to get information on any topic, so helping them with their school research, homework and translations. Pupils use ICT in all lessons, but prefer to use it during mathematics and science lessons.

#### PARTICIPATION IN ALL ASPECTS OF SCHOOL LIFE: ACADEMIC, SOCIAL, PERSONAL

- **Enablers**

Pupils are successful in every of these aspects even if there is no final exam to assess it (the first exam is at the end of Grade 9). However, teachers receive very positive feedback about subject competences, social skills and personal development from ex pupils attending the last years of compulsory education (Grades 7 to 9) in bigger schools which are usually considered more successful in this respect.

## 4. REFERENCES

- **Sources:**
  - Interviews with 10 teachers, 2 lesson observations, and interviews with 10 students from Grade 6.
- **Further information:**
  - School website ([www.harkujarve.edu.ee](http://www.harkujarve.edu.ee)).
  - Tiger Leap Foundation ([www.tiigrihype.ee](http://www.tiigrihype.ee)).
  - Koolielu ([www.koolielu.ee](http://www.koolielu.ee)).