



HELSINKI

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Rhinoceros Oy

Designing the school of the future

Helsinki is revising school education to master the complexity of modern world

Finland arose to the awareness of the world educators in 2001 when the country ranked at the top in a new type of school test for 15-year-olds developed to measure skills that students needed to succeed in the modern world. Finnish students have continued to stay near the top in this international test called PISA – Programme for International Student Assessment – corroborating Finland’s position as one of the global powers in education.

The often cited factors that contribute to Finland’s success include high-quality teachers, general high respect for education, and a system built on trust in which schools and teachers are relatively independent to design the content of schoolwork.

Educators in Helsinki realise, however, that more is needed for schools to face the rapidly changing realities of the modern world. The Helsinki educators have undertaken a project titled *The School of the Future* to reform both basic and secondary education – the uniform comprehensive school completed by all students in Finland as well as the academic and vocational tracks of secondary education.

“Our work stems from a re-evaluation of the role of school in society,” says **Marjo Kyllönen**, a manager at the City of Helsinki Education Department. “We realise that the role of school today is much more than pouring information into learners, and we have to renew ourselves to respond to the constant change in

Children at the Torpparinmäki Comprehensive School in Helsinki

society and at the workplace. We’re asking ourselves, how do we educate the citizens and workforce of the future? How do we enable our students to master the advanced thinking and communication skills needed?”

In response to the demands of the modern world, Helsinki educators are revamping pedagogy. Learning no longer consists of memorising and repeating facts but mastering processes, and the teacher’s role changes accordingly. Learners no longer study subjects alone but phenomena in which various subjects meet.

An important area of revision is the applications of the information and communications technology. The physical school spaces are re-configured, so that learning happens in multiple and varied environments.

The School of the Future project will involve profound changes in the operational culture of schools – how the young learners and grown-ups function together. The project will necessitate new leadership in schools that promotes various forms of collaboration, networking and participation. The Helsinki school reformers envision an ecosystem in which all factors affecting learning interact. The reforms should be instituted by 2020.



Helsinki educates the citizens and workforce of the future.

Teaching thinking skills with ICT for lifelong learning

“The school of the future is not a building but a pedagogical culture in which students develop their competencies. It plays an active role in the progress and transition of the information society,” says **Pasi Silander**, Development Manager for the Helsinki City eCampus. The eCampus is a programme to go digital in secondary education in Helsinki, both in the academic and in the vocational tracks. Silander says, “We’re coaching students for life and work in the information society. We’re creating a new world.”

“Going digital in learning processes is crucial because society and the workplace are digitised, and young people today live in a digital world. School education has to follow,” Silander continues. In Helsinki’s virtual eCampus, going digital means more than laptops, tablets and smart phones in the classroom; the use of information and communications technology enables new learning processes and new tools for learning. The eCampus looks for the added value provided by this technology, seeing computers as more than manual tools to produce little more than what we used to produce by hand. “The computer is used in ways that change cognitive processes,” Silander explains. The eCampus develops pedagogics for deep learning.

Learning by problem solving

In the eCampus, students learn by searching for information, by processing information and by problem solving. For example, learning math is no longer repetition of mathematical formulas but learning to think mathematically, understanding what integrals, derivatives and the rest mean. Language learning happens by producing language, not by repeating. Learning happens in authentic situations with authentic learning materials.

All students who entered secondary education in Helsinki in the autumn of 2014 have personal ePortfolios. The students store materials – data, text, images, video and sound – analyse and process materials, complete assignments and produce projects in their ePortfolios. Vocational students in particular can use their ePortfolio projects when applying for jobs to demonstrate their



Mäkelänrinne Upper Secondary School

knowledge and skills, for example, in car repair.

The ePortfolio also allows learning to happen anywhere and at any time. Learning is no longer tied to time and space, such as scheduled classes and formal classrooms, and it may not always be necessary to attend classes. Silander says, “The ePortfolio can revolutionise secondary education.”

He concludes, “We aim at good learning, capacity building and enabling students to build good lives for themselves.”

Matriculation Examination goes digital

The Helsinki City eCampus paves the way for the gradual digitisation of the Finnish Matriculation Examination, the final test taken by students at the end of general upper secondary education, that is, the academic track of secondary education. The test qualifies students to move on to universities. The Matriculation Examination is the only national test that Finnish students take in school.

By 2019, the Matriculation Examination will be completely digital. The exam will be taken on computers by using diverse source and background materials and different computer programmes, with auxiliary devices and multimedia as necessary. The test situation will be one in which students build information, rather than repeating information from memory.

The digitisation of the Matriculation Examination will profoundly change the nature of general upper secondary education nationwide.

Participation becomes an integral part of school education

What if learners studied school wellbeing with criteria that they define themselves? Tilastrofi is an operational model developed for schools in Helsinki encouraging learners to examine their everyday environments and to produce information on matters meaningful to them. Tilastrofi helps schools to visualise how learners experience their everyday environments with the help of statistical tools. Tilastrofi is one channel for participatory planning and for engaging learners at schools – values that form some of the cornerstones of the school of the future.

The school of the future is planned with feedback from learners through Ruuti, a system and process to make young people heard in the Helsinki City administration and to turn young people into active participants in Helsinki’s democratic decision making. Ruuti’s core group of 20 delegates is actively engaged in the planning process, and feedback is also sought from secondary-school student bodies.

From subjects to phenomenon-based learning

In their last study period of the school year, students in general upper secondary schools (16- to 19-year-olds) in Helsinki depart from learning subjects and focus on phenomena. Instead of learning math, sciences, languages, history and other subjects, one at a time, the students study a particular theme such as “energy” and “the human being”. The School of the Future project plans to expand this type of phenomenon-based learning and to take the approach to the comprehensive school.

The focus in phenomenon-based learning is on exploration and discovery, rather than memorising facts. Students put the theory that they learn in their subject studies to practice. The digitisation of learning strongly supports the new approach.

“The phenomenon-based learning approach will require us to re-think and to reorganise teaching practices,” says **Liisa Lind**, the coordinator of the School of the Future project. She explains that teachers of different subjects will be planning classes together. “The approach requires teachers to share responsibilities for instruction. As a result, leadership is an important theme in the project.”

The pedagogical focus will be on the processes of learning. Learning happens in longer and deeper processes. The teachers’ roles are to steer the learning processes, and they also learn in the processes together with the students.

No more separate classrooms

“The school of the future will no longer have rows of desks, and school groups may no longer have their own classrooms. School houses will adapt to the new pedagogy, and spaces and spatial solutions will be reconsidered,” says Liisa Lind. School spaces will be defined by functions, and groups move from one space to another.

Schools will increasingly move out of their four walls, and learning also happens in other spaces than the school house. “The whole city is learning space,” Lind explains. “Public organisations such as museums and different City administrations are recruited to open their facilities for learning. Other experts than teachers can give lessons. And ICT can allow learning to happen everywhere.”

The opening up of schools to the surrounding community also happens in the reverse direction: schools offer their spaces for other activities such as sports and community groups.



A combined day care centre and school house in the new Kalasatama district of Helsinki will incorporate novel spatial concepts.

Pop-up schools open education to outside experts

What if learners, teachers, parents and people living nearby taught one another? Starting from this premise, the Arabia Comprehensive School held a pop-up school day in the spring of 2014. Anyone who wanted to share their skills and knowledge with the school’s children and teenagers could give workshops. “We had fun!” the children and teenagers rejoiced afterwards. Many other schools in Helsinki organise similar school days. Topics are highly varied and can include Afro-Brazilian dance and martial arts, sea life, drama and role play, how to train a dog, architecture and crafts.

How to learn best? Online brainstorming finds answers

The planning for the school of the future included online brainstorming by learners, teachers and parents on good learning. What factors help to create a good learning environment?

The answers reflected the basic needs of children and young people, who stressed the importance of good teachers, sufficient sleep and good nutrition at schools. Teachers stressed a safe school environment where issues are discussed, and parents agreed with them on safety. All respondent groups brought up information and communications technology, but not as their first priority.

Specifics of Finnish schools

- All Finnish children go through the uniform comprehensive school, comprising grades 1–9, and all schools follow the same national curriculum.
- Yet, schools and teachers are highly independent in designing the content of schoolwork.
- All teachers have a master's degree and have completed teacher training.
- There is no national or municipal testing or ranking of schools by the learners' performance. The only national test is the Matriculation Examination taken by students at the end of general upper secondary education (usually at ages 18–19).
- School administrations apply the principle of positive discrimination: the schools with the greatest challenges are given more funds than less challenged schools.
- Schools are quick to intervene if a learner shows signs of slipping. About a third of all learners in comprehensive school receive some special help at some stage.



Hannes Victorzon / City of Helsinki

University of Helsinki and Rovio collaborate to develop playful learning



Rovio Entertainment

Rovio's Angry Birds Playground

The University of Helsinki's Department of Teacher Education studies playful learning with education specialists and Finnish companies at Playful Learning Centre. The centre includes a Rovio Fun Learning Research Lab, which focuses on learning solutions based on Rovio's fun learning philosophy and the Angry Birds Playground early education project. Rovio Entertainment is a Helsinki area based media company and the creator of the globally successful Angry Birds franchise.

The Angry Birds Playground is a Rovio title built on Finnish educational expertise. The subject matter and skills to be learned are presented in a playful and exciting way. Children are encouraged to become actively involved in the learning process, while having plenty of fun at the same time. The Angry Birds Playground enables children to learn in a creative, multifaceted way, making the best of technology-enriched learning environments. Children learn within and beyond the classroom with the help of Angry Birds learning materials.

Helsinki includes sports in Social Guarantee for Young People

The current Finnish Government Programme includes implementation of a social guarantee for young people, requiring that each person under age 25 and each recent graduate under age 30 be offered work or a place in training or education within three months of becoming unemployed.

The City of Helsinki contributes to the Social Guarantee for Young People programme by offering young people opportunities for diverse sports activities free of charge. The objective of Helsinki's project is to support young people's ability to work, function and study.

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