

Iceland 12.-18.01.2019

A. Learned from the school visits

IC

Information (goals) about the digitalization and Ipads of Kopavogur IT supporters minds

The goals of one-on-one (tablets) ideology implementations in Kopavogur are related to the content and implementation of teaching, attitudes of students, teachers and parents to school's work, creativity, the performance of the students and so on.

Learning objectives:

1. Study better suited to each student
2. Students have more to say about their studies
3. More pleasure and interest in learning, increased responsibility and improved performance
4. Increased diversity in the learning environment - learning on the move
5. Learning moves closer to students' daily reality

Objectives related to teaching and school activities:

1. More diversity in teaching methods
2. Utilize technology to develop schools
3. Support for Inclusive schools and special needs education
4. Support for school independence where each school has its guiding light

Objectives related to both study and teaching, content of study:

1. The importance of creativity and innovation in learning increased
2. Increased technical skills of students and teachers
3. Improved students' information and media literacy, enhancing digital citizenship
4. Changed school practices, in particular new curriculum guide and the requirements of 21st century industry for skills
5. Changed roles in school activities - the student creates knowledge, instructs and assists the teacher instead of sharing knowledge

Community-related goals:

1. Increased cooperation between schools, between students, between teachers in and outside of Kopavog and Iceland
2. Better relationship between parents in student education and school activities as a whole

Information about the schools and about their specialty

Álfhólsskóli: Álfhólsskóli was founded in 2010 with the merger of two schools, Digranesskóli and Hjallaskóli. Álfhólsskóli is a comprehensive school with 650 students in grades 1 - 10.

Within the school is a major international student and special department for autistic students. The school is operated in two houses, Digranes Álfhólsvegi 100 and Hjalla Álfhólsvegi 120.

The youngest students, 1st - 4th grade, and the school's pastime, is in the school building in Digranes but middle level, 5th to 7th grade, along with the teenage level, 8-10th grade are in Hjalla. The activities of an international and autonomous community are also divided into two separate departments in both houses.

The school's motto is education, independence and satisfaction.

Specialty: Álfhólsskóli has much to offer regarding the use of technology in school work, but one of its main strengths is the use of technology for teaching students of foreign origin.

Hörðuvallaskóli: Hörðuvallaskóli is a comprehensive school with 920 students in grades 1 - 10. The school is located in Baugakór 38 (1st-7th class) and Vallakór (8th-10th class). The students of the school in the winter of 2018-2019 are about 920 and teachers are proud of them all.

The school's motto is It's fun at school!

Specialty: Hörðuvallaskóli has much to offer regarding the use of technology in education, but one of its main strengths is the use of technology with students in grades 8-10.

Kópavogsskóli: Kópavogsskóli was founded in the year 1949. He is in the center of Kópavogur and stands at Digranesveg 15.

During the school year 2018-2019, there are about 370 students in grades 1-10 at the school and the number of students has increased steadily in recent years.

The school has become multinational because about 20% of students are of foreign origin.

Specialty: Kópavogsskóli has much to offer regarding the use of technology in education, but one of its main strengths is the use of technology with students in grades 1-4.

Langholtsskóli: Langholtsskóli was founded in the fall of 1952 and is a comprehensive school for students in the 1st to the 10th grade. The number of pupils in the school year 2018-2019 is approximately 680 and employees are almost 100. The school's motto is respect, well-being and creative schooling.

Specialty: The creative school project Sprellifix is set up as a development project, which involves changing teaching methods in the youth department, integrating subjects, increasing

co-operation between teachers and students, with emphasis on creativity, key competences and the use of information technology in education.

Lindaskóli: Lindaskóli was founded in the year 1997 and is a comprehensive school for students in the 1st to the 10th grade. The number of pupils in the school year 2018-2019 is approximately 489.

Specialty: Lindaskóli has much to offer regarding the use of technology in education, but one of its main strengths is the use of technology with students in grades 5-7.

Salaskóli: Salaskóli started in the summer of 2001 and is a comprehensive school with 589 students in the 1st to the 10th grade. The school is located in Salahverfi, in Leirdal, which lies north of Rjúpnahaðir and south of Seljahverfi in Reykjavík.

The school has excellent facilities. The school's accommodation is warm and good and the school is well equipped with teaching materials and equipment. Next to the school is the Sports Center Versalir and there are sports halls and swimming pools that the school has use of.

The school's environment is diverse and offers great opportunities for diverse teaching. Close to the school is the ideal outdoor area. Both Elliðavatn and Vífilsstaðavatn are rather short. In the immediate vicinity of the school there is a cemetery and a golf course. The school hall is designed i.a. with regard to outdoor lessons. It is diverse, with courses and playground equipment.

The school's motto is Friendship, respect and co-operation.

Specialty: Salaskóli has much to offer regarding the use of technology in education, but one of his main strengths is the makerspace ideology and the use of technology in natural science education.

Snælandsskóli: Snælandsskóli was founded in 1974 and is a comprehensive school with 432 students in the 1st to the 10th grade. Schooling in Snælandsskóli is characterized by good schooling which is based on mutual trust and respect in all communication. Emphasis is placed on each one to develop their abilities on their own terms. In Snælandsskóli, healthy lifestyles are worked out in harmony with nature and the environment.

The school's motto is wisdom, respect, liberality and kindness.

Specialty: Snælandsskóli has much to offer regarding the use of technology in school activities, but one of its main strengths is filmmaking and makerspace ideology.

Learning philosophy - in a modern classroom, you need a Well, Cave, and Campfire - explanation of that

Changes in teaching methods in Kopavogur had a long lead up. For a long time, the goal has been more meaningful education in Iceland. Many good things have been done over the years and many attempts have been made to change how we teach for example. Most of the changes have been minor and have affected specific areas of schooling, e.g. regarding specific subjects or they have turned to certain aspects of the school's activities. The biggest change in recent years was the introduction of the policy of *School for everybody*, but this policy is based on the principle that everyone has the right to appropriate education.

But when reviewing recent years, it turns out that a comprehensive change in teaching methods has not been the focus point. Admittedly, attempts have been made for change, but they have rarely become established. Changes in school activities generally revolve around the form. The essence of old teaching methods is in many ways untouched and unchanged and has been for a very long time.

The school system in Iceland has long been the market of the industrial revolution, with the aim of efficiently producing a low cost product. Students are the laborers who need to be educated into a predetermined and developed reality.

The information revolution, however, is accompanied by new needs and working methods, which means that educational requirements have changed. Key factors are no longer productivity and efficiency, but initiative, critical and creative thinking, ingenuity, imagination, collaboration, mediation, and so on because present time and the future are and will be based on research, scientific work and innovation in arts and crafts.

With the introduction of changed teaching methods, the school community is given the opportunity to take the right direction. The technology is the driving force of the change, and it can break up the old educational process.

This is all about the basis for communicating in one way or another, but in all cases it is the distribution channels that define the media. Now we have other and more diverse distribution channels than before and it is therefore important to understand that the media have changed.

The philosophy is based on opening doors into the world of the students and at the same time endeavoring to understand the needs of the business community and to combine this with two aspects of study, education and teaching. To name a few examples, the intention is to teach like we teach art (to make students more responsible for their own studies, etc.), creative schooling

needs to be strengthened and the weight of academic studying reduced, co-operation between students needs more focus, also co-operation between teachers and between students and teachers.

There is need to increase the number of practical exercises, utilize the inclusion methods and enhance expression, involve problem solving and teamwork in education and so on. Independent and creative work methods need to be strengthened and the weight of admission teaching must be reduced and, last but not least, student assessment needs to be broken up and teachers must quit large final examinations.

Thus, the aim is to make the education more fun, empower students by allowing them to pursue their own goals, increase individualization in the ways student learn, break up and redefine teaching space (e.g., campfire, caves and watering hole see below), enhance parenting, etc. Generally, the idea of activating students is more diverse, increasing their share of learning and utilizing technology to open up more creative learning, while at the same time learning different ways of teaching.

If nothing is done in education in Iceland, the gap between schools and society will only be wider and sadly the students will suffer for it.

Camp Fires: *The campfire is a space where people gather to learn from an expert. In the days of yore, wise elsewhere went down insights through storytelling, and doing so replicated culture for the next generation.*

In today's schools, the experts are not only teachers and guest speakers, but also students who are empowered to share their learning with peers and other teachers.

Caves: *The cave is a private space where an individual can think, reflect, and transform learning from external knowledge to internal belief.*

Schools have both posters and places to encourage this private individual.

Watering Hole: *The watering hole is an informal space where peers can share information and discoveries, acting as both learner and teacher simultaneously.*

This shared space can serve as an incubator for ideas and can promote a sense of shared culture.

Challenges faced and solutions (now and in the future):

The challenges that currently exist and will exist in the future in Kopavogur regarding the use of information technology in school activities are various. For example, a political support and trust

is very important (e.g. regarding funding), that school administrators in the schools in Kopavogur believe that technology in education is and will be a normal part of school activities, that the school community as a whole expresses itself and explains what is being done to do in the schools and why, and to seek to grow with the technology used by society at any given time.

The challenges are many and diverse but they are not insurmountable. The best way to solve those challenges is based on having an open conversation between all the parties (politicians, teachers, parents etc). Certain trust must exist as well as the recognition that we are living in a moving society. Standing still in schools and do things as always is not an option, as schooling is about educating students for participation in the community that exists now and tomorrow.

Open critical conversations between parties where the search for the best solution at any given time is the foundation of progress in education. A conversation must take place between the computer department of Kopavogur and teachers, between the managers of the town and the education department, between teachers and educational authorities, etc. and the goals always need to be clear. The technology is not going away and it is important to seek ways to mobilize it in schooling in the most effective and responsible manner.

Without the conversation, the political support and the consistent search for the best ways, there will be few. The basis of all this is then positive, purposeful work that involves the technology working at all times, systematically renewing the equipment, a conversation about pedagogy, etc.

EST

Schools with enriched technology, good internet and changed learning philosophy.

Kópavogsskóli - School emphasizes on children welfare with showcasing their faces in the art, showcasing students work - it's like a big family. Computer class has recently changed equipment, creativity and drawing are thought as part of informatics lessons. Computer class has a mirror in the back, to keep eye on the student's presence doing the schoolwork. School also introduces career options and possibilities to children. Lots of visual and funny posters or other to remind students about educational basic knowledge.

School specialty is that they have implemented the **SeeSaw program** and app with students. SeeSaw is useful for primary students, cooperation and visibility with parents. The program is opened with a **QR code** and it can be a teacher own account or school account (not free). Most teachers use the tool and share exercises between each other - it saves time. To make lesson teacher can post up a picture, write instructions and talk (audio) instructions that students can use when needed - saves the time of teaching and repeating. Students have different options to

answer - text, audio, drawing or other. The feedback system is also provided and only the acceptable work is shown to others.

Álfhólsskóli - school deals with different challenges like special needs, teaching migrants, language education. Learned a lot about challenges in Iceland and its growth regarding migrants. Teacher training possibilities, sharing ideas on how to tackle the challenge inside the community, not pushing all the students into one school, but rather share the responsibility. Developing new materials and help from the technology - translation and visibility tools. Technology has become a vital part of the education given. For the IT manager, there are many different challenges as the school is divided into two building - things are happening everywhere, same applies to the management that has to share their focus between the houses. Also when updating several apps at the same time, you need to plan as in the morning the network can get too slow - was pointed out. Also, the tablets have fewer challenges for the IT crowd as more problems there is still every day of teachers and staff use of technologies (PC and printers).

We also had the possibility to be part of EdCamp. Teachers showcased different programs and methodology from **Sphero** robots to textile (**Inkscape**) to cartoons or other. Teachers from another community gather once a month to share best practices and get feedback from the peers. This is the easiest way to confirm to other teachers that they are doing the right thing regarding a new way of teaching and learning, at the same time sharing ideas raises one motivation, reputation and also skills of analyzing and presenting your work. Teachers feel supported and appreciated.

Hörðuvallaskóli - sharing best practices of a goal about creating a makerspace to the school - a place where students can use their hands to do different STEAM projects and robotics - shown different devices like **LittleBitts, Sphero, VR and AR technologies, 3D printing and other**. The computer lab is in the middle of the hallway - as then everyone will have access. School walls have posters as reminders, that students can be creative if they have a free time from **CodeCombat to HopsCotch to Blender and Unity** (gamification engine). The school has a label maker and a nice Unity program for those that want to develop games. Examples from students 6-week course results were shown. Technology is used as a supportive tool, also to create videos with green screen and look for information.

School has different possibilities and surroundings inside the classroom - soft sofas to group work, mainly group work. E-school alike system was shown - grading has changed to a more goal-oriented approach, grading is explained, rubrics are used. Students and parents are more aware of what is expected of them and the results have improved. **Google classroom** solution was shown.

Also, we got to meet Olympic handball silver medalist 2008 ([Olafur Stefansson](https://startupidceland.com/2016/11/10/keywe-startup-profile/)) that has developed KeyWe app - to gather ideas from different books and ideas that pop into our mind from systematic thinking to crazy. <https://startupidceland.com/2016/11/10/keywe-startup-profile/>

Salaskóli - a school with many different looks - to create a different suitable environment for students and teacher is the key. We saw many different furniture options, lighting options, and activity games showcased all around the school. Also, the school used students to tell their story - what is happening in the classes from science to art to whatever. Technology is used when needed, anti-bullying systems are in place. Every year there is a survey to schools - parents, teachers, and students what results are used to make decisions - what to change to make the school a good place to study and interact with each other. Students are empowered to speak their mind and suggest changes, things are voted on like in a government. Students are also empowered to raise money for the good cause. A lot of green screens around the school premise. **Google Classroom** was also used.

People at the school seemed happy and in peace what they do, good environment to let the creativity flourish. Good school for children to study. Innovation is lead by students happiness.

Snælandsskóli - school uses possibilities in online and offline to be creative. The example we saw **QR code** enhanced book recommendations. Also, a real maker space was shown where different students used different equipment from smalle green screen boxes to make an animation, tear up the old computer to learn how stuff works, **OSMO** - the primary creative tablet and gadget playground, **Sphero** used as stop-animation tool, **MakeyMakeys** used as a game or piano, and all that is there is gathered to a book or evidence. A lot of books and magazines with **VR, AR** extras were shown. Maker-Space lessons last ususally 80-90 minutes (2x40) as it gives time to focus and or test many different new things.

Students creativity projects were shown. They are 3-week projects where you can work in a team but have their own special tasks as well, that makes the work unique for all the students. Usually, the works are related to using technology - create games, videos or other around the subject matter. We were shown the use of scenario-based video development about climate change and use of **Minecraft** to develop a model for the sustainable island.

Lindaskóli - a school with a working library, that has not taken the hit or changed into a technological playground. Also, a school that used flipped classroom inside the learning system - do first, tell and explain later. Students behavior has changed, some even come early and stay late because they want to have free time with entertainment with the technology and good internet, at the same time it has not changed the communication to less active in real life. Has support from the learning manager/educational technologist/IT teacher whose task is also to find apps and motivate teachers to use it (a lot of apps are widely used) example **Mimo, Playgrounds, Tynker, CodeSpark, Box Island, Light Hour, CargoBot, SpriteBox, Kodable, Explain Everything, Book Creator, Garage Band, Kahoot!, Coding Jam, Padlet** etc. Technology is used when needed and with teachers that find that is useful - some still struggle. Technology is seen as a useful tool to gather evidence, find additional materials. Has also nice different open rooms that the students can use, also in the class time - to do group work. Innovations are lead by the management.

Langholtsskóli - school in Reykjavík. The school has developed less in technology wise as schools in Kopavogur municipality that has a special program in place to change the learning and teaching through technology use 1:1 tablet per child. Challenges are similar to most of the school - internet and WiFi solution must improve to provide access to students gadgets to fully use the provided tools. Students in upper classes have the possibility to use Ipads, lower level the emphasis is more on the use of hands in the real creativity. In the upper level, there is a possibility to use green screens, to make music, special places to do handicraft. For now, the management works more to the philosophy - what we need to use technology in education and combine with real-life challenges. Also, different science experiments were shown where youth to youth sharing practices are emphasized. For more advanced teachers use of technologies is a bit struggle, but only because of the access quality - it will probably find its solutions in becoming years.

LV

It was a very interesting visit that provided a lot of valuable insights in the system of education in Iceland and awareness of the use of IT in learning and teaching processes.

It is a great privilege for students and teachers in Copavogur schools, that one-on-one (tablets) ideology is applied there and the process of administration of the tablets is successfully realized. School visits showed us, how strong accents are placed on creativity and innovation in the learning process by the use of IT and not only by that. It is important that the use of IT is not the only tool in the learning process. Pupils use notebooks, are writing (not only typing), read books (real books). IT is just a tool that helps to diversify the learning process, make it interesting, effective. By using IT technical skills of students and teachers are increasing, students' information and media literacy is improving.

The support from the learning manager/educational technologist/IT teacher at schools is great, and also methodologists (our hosts), who care about multiple schools do an essential job, because it is very important, that there is somebody, who is looking for new apps and helping teachers to acquire the usage of them. In this case also the EdCamp, which is taking place every month, seems to be very valuable. Teachers show and share their experience of using different programs and methodology. This sharing of ideas can get teachers inspired for using new materials and methods of teaching in their everyday work.

It was interesting to get acquainted with the use of various apps (Mimo, Playground, Tynker, CodeSpark, Box Island, Light Hour, CargoBot, SpriteBox, Kodable, , Garage Band, Kahoot!, Coding). Some of them are known to our teachers, but there were also apps, which created a lot of interest and a desire to try them in our work (Explain Everything, Book Creator, Pick Play Post, Pixton etc.)

Creating a Maker Space at school, a place where students can make different STEAM projects, is a great idea. There students can use their knowledge in practice.

In the schools seen, the creativity of pupils is promoted in a variety of ways. Green screens were common, including mini-screens used by pupils to make their video materials (movies, cartoons)

After coming back we have already shared many interesting materials with our teachers. Merge cube and other AR materials seemed so interesting for them, that we are planning to get some also for our teachers to use in the lessons. (CleverBooks Geometry, CleverBooks Geography, CleverBooks Science, Virtuali Tee shirts, Merge cubes, Osmo materials etc.) We believe that using the mentioned apps and AR materials will increase students motivation in their schooling process.

GR

Overall comments:

The enriching visit to the Icelandic schools provided us with a much needed insight in several aspects of using technology in education. We specially noticed>

a/ the variation in use of ICT-tech in classrooms.

Each school has adapted the Ipads &IT tech to its needs or level, so as the report of the schools show, it is inspiring to see the “maker space”, the zones for use, the use in action, the apps in everyday use.

b/ the way the teacher interacted with the technology was also based on their abilities and interest but was clearly a sign of how to proceed with didactical use.

c/ the impression that the school leaders had given good support to the staff, the pupils and the project of ICT in education, so it has become an acceptable every day way of learning.

All in all we took many good inspiring ideas with us to look into or explore further.

Also the Icelandic schools were glad to hear our questions, feedback, notifications and ideas, and as the municipality team said during our meeting and so did one of the school principals: “We learned a lot and saw new perspectives in your dialogue and questions with us, that can help us improve or make changes.”

Positive problem solving seen:

1/ trouble with misuse was solved with a good pedagogical method and support from the school administration

2) there were no forcing or pressure on either pupils nor teachers to do their teaching in certain ways. The ICT is seen as an additional technology to inspire new learning methods, and therefore available for interested teachers and pupils.

3) The maker space zones are very good creative spaces for trying outs and experimenting using both ICT and other tech.

4) the students seemed familiar with the ipads and its use, and some of them had already adopted a confident in making video productions, assignments and finding information to solve tasks at hand.

5) some teachers needs back up and help, and the teacher in charge of the project in each school has been a major drive for new learners to get started.

B. Tasks overview form the project

Survey with parents

EST - OK

LV - finalizing

GR - pending (until April visit)

IC - finalizing Björn?

Interview with school leaders

EST - OK

LV - finalizing

GR - pending (until April visit)

IC - pending (until April visit)

Teachers insights apps

EST - OK

LV - finalizing

GR - pending (until April visit)

IC - sharing the list of apps used (2 weeks)

Students forecast for the future school regarding technology

EST - OK

LV - finalizing

GR - pending (until April visit)

IC - pending, deciding who will do it (until April visit)

C. Latvian visit overview

At the end of April

- Conference
- School visits
- CLIL lessons watching
- Workshops
- Latvian culture and innovations (local Hollywood)

