

Sciïnnno



SCIINNO – Exchanging Cultures and Ideas

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SCIINNO is an exchange project between four schools in Finland and one in Denmark. The name of the project comes from its two main focuses: science and innovation.

In SCIINNO, the students are the backbone of the project. It's their energy and their willingness to learn that drives the project forwards. With this in mind, SCIINNO's goal is to create opportunities for the students to master new skills, be creative and take on new challenges.

During the project a lot of attention was given to the process of innovation. All of the students, the Finns in November and the Danes in February, visited the Aalto University Design Factory in Helsinki.

There they were taught about the process of taking an idea and making it a reality. The Finnish students travelled to Denmark in November. Flying over the Baltic sea, the goal of the trip was to provide both the Finnish and the Danish students with experiences to remember for a lifetime.

In Denmark, one of the days the students went to the historical town of Roskilde, its famous cathedral and a Viking ship museum. The students also paid a visit to the Roskilde university Fab Lab. On another day they took a bus across the Øresund bridge to Sweden where they visited the city of Lund. In Lund, the students explored a particle accelerator by the name of MAX IV. The students also took their time to explore Copenhagen and to see what the city had to offer.

Now that the Danes have arrived for their visit in Finland, everyone's expectations are high. The students have already visited Pyhäjoki and seen the construction site of the Hanhikivi I nuclear reactor. They are also going to visit the University of Oulu, the snow castle complex in Kemi and the Santa Claus Village in Rovaniemi.

For many the SCIINNO project made an international connection come true - the Finnish students lived with the Danish students and likewise the Danish students lived with the Finnish students.

"SCIINNO has given me an opportunity to experience a new culture, meet new people and get closer to the people I



already know. All this while getting a picture of modern-day education institutions.

SCIINNO is a nice opportunity to make friends while getting smarter" – Jens Bærentsen, Ørestad Gymnasium

"I have not only had a great time participating in SCIINNO,

but I have also learned a lot. I have seen a particle accelerator and a nuclear power plant construction site. In Denmark I came to learn many things about the history of the Nordic people, for example" – Elmo Hurskainen, Oulun Suomalaisen Yhteiskoulun lukio

"The project has given me so many new experiences and memories that I can't possibly describe them all. But just to mention, I loved the time we spent in Copenhagen with all the SCIINNO people.

The project also gave me my first experience of flying with an aeroplane." – Elina Mattila,

Pyhäjoen lukio

"SCIINNO is an opportunity to broaden my mind by working and talking and having fun with other young people from a culture and a country different from my own." – Hans Christensen, Ørestad Gymnasium

The importance of innovation

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Many people have heard the word innovation, but are uncertain of its meaning. Innovation is creating new ideas for easier solutions or solving problems and improving effectiveness. Innovation is about letting your imagination loose and finding new perspectives. To do that you have to be open to the world and never say no. There are no bad ideas in innovation.

Innovation will help you think outside of the box and come up with new solutions. Innovation exists everywhere and is used every day from small insignificant ideas to revolutionary inventions. It's all about coming up with alternative and different solutions to problems making everyday life easier. Innovation is needed because no problem is the exact same and therefore new solutions are necessary.

The process of innovation

Innovation process starts with creating and gathering



Students brainstorming about articles for the newspaper.

ideas. Different ways to do this include brainstorming, mind-mapping and index compassing. The piece of advice "never say no" is very important as it makes the process keep going. Instead of judging the ideas of

others, you should come up with ways to improve them.

However, gathering ideas is only a part of the whole innovation process. Having an open mindset is as important as the

creation of the ideas, if not even more. It enables the whole innovation process and working together to improve the different ideas.

Innovation in studying

Learning and studying have always been important, and it is therefore equally important to innovate the way we study. A way to innovate studying can be with so-called Studyhelpers.

Studyhelpers are innovative products, projects, and ideas to help students study both more efficiently and better in general. Examples of Studyhelpers could be an app to schedule your time better or a website where you can connect with other students and help each other with difficult homework. To innovate and rethink the way students study is important because students all over the world use the majority of their time studying, so by making this process easier, students will improve their grades and social life outside of school.

An easier studying process will relieve students' stress, anxiety, and other mental health issues, which are related to the high amount of pressure put on students. Innovation doesn't have to be a new invention, but can simply be an improvement which will help make someone's daily life easier.

The schools of SCIINNO – the 5 differences

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JENS BÆRENTSEN

The SCIINNO-Project is represented by 5 different schools, one from Denmark and 4 from all over northern Finland. The schools are very different, both design-wise, but also culturally and you can observe a diversity, both in and outside of the country's borders. The school that represents Denmark is Ørestad Gymnasium – A media- and IT-focused high-school, located in southern Copenhagen. The school is integrated into the surrounding area, as it is designer-made, just like the rest of Ørestad. The school was designed by the architect firm 3XN, with the goal of making an open, and flexible learning environment. The school has around 1200 students and 60 classrooms, which are divided into group classrooms and team classrooms. The school consists of two buildings, the main building and the media building, which is down the street by a shopping mall called Field's.

The school is known for their changemaker-culture, which is the thought that the students who graduate from Ørestad are going to be Changemakers. Because of the size of the school the students often have an impersonal relationship to the school even though it is full of people, most of the students see the school as a learning institution rather than a social contact point for the youth. Though there is a lot of sociality at Ørestad Gymnasium a student will never be able to know the entirety of the school, because of the sheer amount of students.

The students of SCIINNO visited a school placed in Pyhäjoki, a small community in the Finnish countryside. The school,

Pyhäjoen lukio, plays a major role both as an area of social interaction and as a school. The students of this school stay afterwards to hang out and do homework, but some students also have jobs on the school. The number of students is around 100 pupils and they come from all over Oulu. For this reason it makes sense to use the school as a contact point for the students, so they avoid the time consuming, public transport, when seeing friends. We asked a couple of students why they like to stay in their spare time. Both Aliisa Impola, Milla Ohvo and Janette Niinimäe, 3 students from the school, all agree that the small size of the school and classes contributes to the safe environment that makes the students wanting to stay at the school. They also mention the free mindset and the following responsibility, that is the main reason for the schools' attractiveness towards the youth. The school also has a safer feeling since there are so few attending the school, which creates a kind of safe space. You can also tell that the school is smaller since there is about 20 people per class, whereas at Ørestad Gymnasium there is about 25-30 people per class.

Laanila high-school, known locally as "rakkauden laanila", is located by the Oulu-river and is known to be a loving and supporting place to study. You can recognize the front entrance by the "Ruutuvihko" art work by Veikko Törmänen. The school has about 300, students per year, and even though the hallways are small the atmosphere is great. Laanila is a "greenflag school" which promotes green values. We take in consideration in our everyday actions. The school has a lot of different course options and international opportunities. The teachers treat the students as individuals and a lot of support is provided when needed.

"Wanhat" is a tradition in Finnish schools that started in the southern part of Finland. It's a ballroom event that celebrates the second year students becoming the oldest of the school. Laanila was the first school to bring this tradition to the city of Oulu.

OSYK or Oulun Suomalaisen Yhteiskoulun Lukio is a school located near the Oulu market. The building is described as old in the style of Jugend. It has around 600 students and it's known for its wholesome and accepting atmosphere. OSYK is the only school in Oulu that you can study drama and theater in. Teachers are known to be very nice and personal.

Lyseo highschool is in the centre of Oulu and used to be a all boys school. It is known as the "elite school" of Oulu even though there are still a variety of different people.. Two Finnish presidents have attended the school. The school has a international line where the students can get the international baccalaureate diploma.



Learning from another

KYLA CASTRO, GRETA MÄNTYKANGAS,
FILIPPA ENGHOLM, SOFIE KLAUSEN,
ZARA BARK, MATTHIAS KURT GLAS-
DAM AND SIV WINUM.

In our modern and international world, learning from another is one of the best ways to widen our perspectives. There are many ways in which you can do this, but here is how we succeeded in doing it.

The SCIINNO project is a collaboration project between young Danes and Finns revolving around science and innovation with a cultural twist. Visiting each other in Copenhagen and Oulu, we learn intercultural communication as we do projects in international study groups. Here we gain skills such as communication, we practice our English and group working skills. After arriving late in Copenhagen Airport, the Finns went home with their individual hosts where they would live and learn about the Danish culture for the whole week. For Finns the biggest culture difference would be the openness and friendliness of the Danes. While Finnish people are also really polite and caring, we tend to be more shy and closed-off. For example some Finnish people might be a little shocked if you try to greet them with a hug. But then again of course, it depends on the person. Since both countries have drastically different languages, the only way to communicate with each other was to use English and while many Finnish people's English might have become better, we believe that the social skills we gained were so much more important. During the trip, Finns were able to widen their cultural perspective about Denmark and its people. Even the shyest of the Finns were able to step out of their shells and socialize with others.

Arriving in Oulu, embraces were seen in the airport between the reunited Danes and Finns, as well as new acquaintances being made between the new Finnish hosts and Danish students. However, the culture clash was once again evident, even though the two Nordic countries lie so very close to each other. The language itself was a topic that never ceased, as the Danish people incessantly tried - and failed - to understand Finnish.

"I don't understand anything! Anything at all!", was a phrase that could be heard on the lips of all the Danes. For once, the Law of Jante was suppressed by the Danes' self-perception of being a people that are exceptionally good at foreign languages... Nonetheless,

the Finnish language would prevail and the Danes settled with mustering a kiitos or terve. This was, however, not a problem for the Finns as they generally dislike small-talk... to the Danes' great exasperation. The Danish students would amongst themselves conclude, "Finns do not talk a lot." But, when bringing up this issue to the Finns, they were not taken aback at all. "Yes, we do not talk a lot... Danes, on the contrary, small-talk a lot."

Despite of the culture clash, Danish and Finnish students managed to observe, analyse, conclude and laugh together about their social and cultural differences. It even brought along a philosophical talk amongst the Danish students about why Danish people feel awkward and stressed if a room is silent. They even talked even talked about how, they might be able to learn from the Finns' culture of being relaxed in a room that lacks a conversation.

Communication is one of the skills students develop when learning in international study groups. During SCIINNO, students have had to use various forms of communication. In addition to the contact periods in Denmark and Finland, students

have studied in e-learning environments. These ways of communicating differ from each other and it's really important to learn both ways because they emphasize different features. When communicating face to face, you can bring more depth into your message by using body language and facial expressions. On the other

hand, when communicating online, you have more time to form your message in a shape that's more tight and clear. One of the biggest parts of SCIINNO communication is also the language practice. As students from different countries don't share a native language, they use English to communicate. English is a widely known world

language and in today's world it is necessary to be able to use it. Conversations and writings about science and innovation - as well as everyday subjects - have advanced students' skills and courage to use English.

In conclusion, the international aspect of studying has posi-

tively added to the experience of being a part of SCIINNO. The study groups have improved our communication skills as we have gathered our knowledge from the different cultures we come from. All of these skills and experiences will definitely be helpful in the future when studying and eventually starting working life.



Kyla (Oulu) and Sofie (Copenhagen) in their international study group.



SciInno visited FabLab Roskilde to learn about different ways to innovate.



Going to school - Without being in School

HANS CHRISTIANSEN, EMILIA
UUSITALO, ANNA ANDERSEN,
JENNI KYLMÄNEN, INKA RANTALA,
NANNA WARMING, MAYA KRUSE AND
JOSEPHINE OLSEN

I have a dream. A dream that I don't have to wake up and walk through kilometres of snow to school but instead learn what I need to learn in the comfort of my home. This might sound far fetched but it is actually possible if you go to school in Denmark.

What is e-learning?

The Danish high school Ørestad Gymnasium has this year tried something different from normal classes. The school has introduced e-learning days where the students attend classes from home, through

the Internet. The students of Ørestad Gymnasium have one e-learning day almost every month. Learning at home is more relaxed and still it's easy to get help from the teachers through a shared Google Docs document. E-learning makes it easier for teachers to provide help, and for students to get individual attention in their studying. All an e-learning module requires for the student is to wake up, turn on their computer and have a decent internet connection.

The assignments are often individual or pair-work and they are handed in at the end of each lesson. If students don't perform the task they will get absence - as in a regular class. Sometimes the teachers give feedback on the completed work and then talk about the

tasks in class afterwards.

Since no student learns the same way, each student will benefit from the different tasks in the e-learning modules. We have talked with Sarah Bunch, a second year student at Ørestad gymnasium: "I believe that e-learning could be a good supplement to regular classes, but as it is right now there is still some issues and difficulties regarding e-learning which needs to be solved." The ideas and theories behind e-learning are quite good, but the system has a lot to improve. Most students only do the bare minimum to evade getting absence.

The IT teacher Claus Witfelt does also think, that the e-learning days should be reconsidered. He would like for each lesson to have 3 different

versions; one for a regular classroom, one for the open space environments (group work) and one for e-learning.

"The teachers should be able to decide for themselves whether a certain lesson should be virtual or not, instead of the administration deciding for them. This way each lesson would be more efficient and flexible as they wouldn't have to be held in a certain study space."

The e-learning still needs improvement and further optimization. Right now the concept does not function optimally - but it has a lot of opportunities in the future.

It is clear that the system is comfortable for both teachers and students but that isn't necessarily a good thing. Comfort is relative and the more comfortable we make our lives the more comfort we demand. It's actually quite good to step out of the comfort zone and for example get up in the morning and go to school.

What's up for the future then?

E-learning has increased during the past few years, and it's likely to become even a bigger part of studying in the future. Virtual reality is already entering the classrooms all over the world, allowing students to go to field trips even to space! It also has great practical advantages, for example medical school students could perform

surgeries in VR without pressure.

Also robot teachers have been seen in a few Finnish schools as learning assistants. Still they are unlikely to replace human teachers any time soon. The next step could be using artificial intelligence (AI) in education. Artificial intelligence is an area of computer science. It means that people create intelligent machines that could work and react like humans. Computers with AI can be used to perform tasks that would normally require a human.

There are two different levels of artificial intelligence - strong AI and weak AI. Strong AI is a form of machine intelligence that is equal to human intelligence: it would be self-aware. Human-like robots with strong AI could replace teachers in the future, if strong AI was designed. Weak AI is an algorithm that has been trained to do one thing and it does that one thing very well. A good example of weak AI is Apple's Siri which has the Internet serving as a powerful database. Weak AI doesn't have human-like cognition, but can automate basic activities in education, like grading.

Compretecture

- The Architecture of the modern North



VIBE JOHANSEN, HETTA OJALA,
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ANNA LESKINEN, TILDE SILLESEN AND
JOHANNE HERSKIND

City Planning

Copenhagen and Helsinki. Both harbour cities and trading ports, two nordic capitals so similar yet so different.

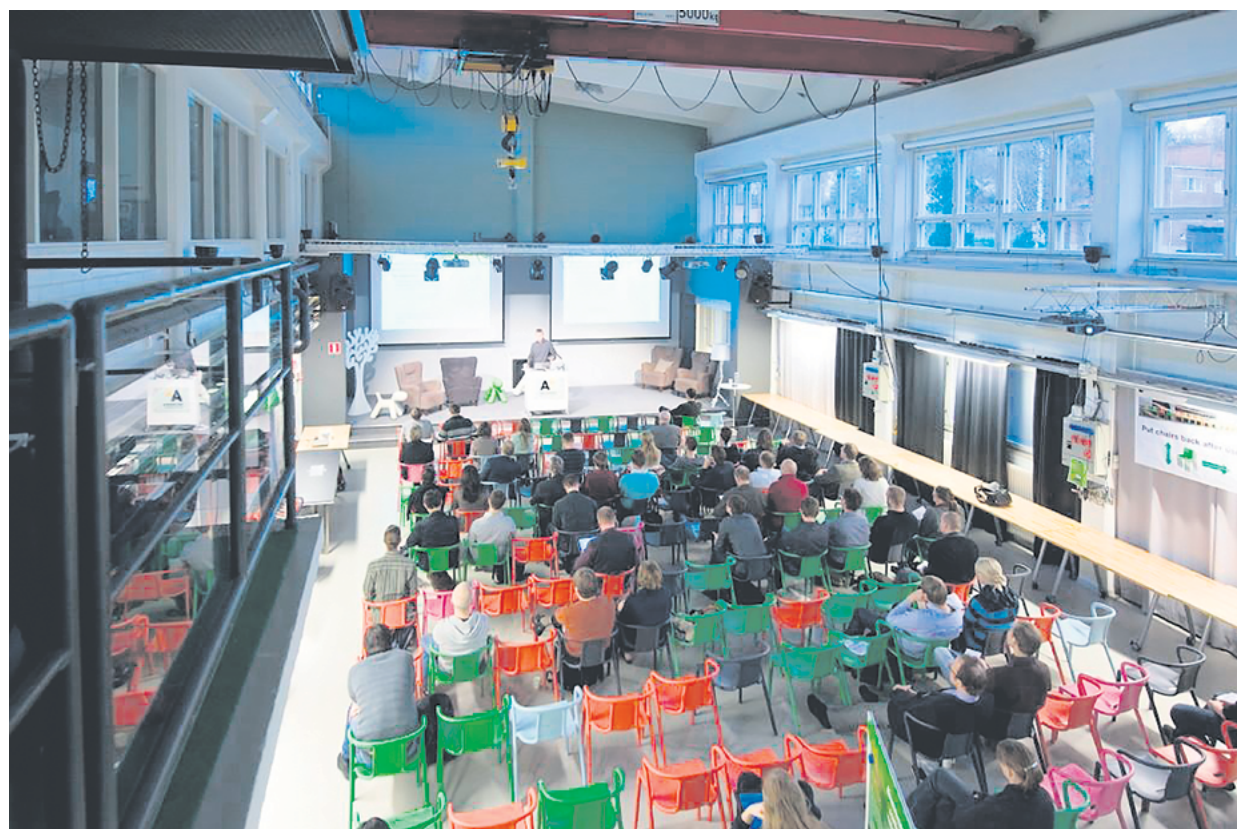
Denmark has established a "five finger plan" for their infrastructure, which is an ongoing program to develop the of city of Copenhagen towards a modern society.

Denmark is a city of bikes, nearly 40% of the population rides their bike on a everyday basis. The 170 km s-train lines, along with an extensive bus system, four lines of waterbuses and a small, but efficient metro, make up Copenhagen's city public transportation system. The latest developments in Urban Design suggest that all residences in a city should

be no further than 300 meters from a green space. This has led to an interest in creating small green spaces, rather than larger parks and open areas. While these are often less popular among politicians, the intimate nature of these spaces often means that they are used more frequently by more people than big green spaces.

Because Finland has been in many wars, towns in Finland have been destroyed many times in just a few centuries. As a result, towns have been rebuilt in the most convenient and fastest way; using cement. That's why houses in Finland all look similar and aesthetics are not prioritized. Town and city roads are narrow because in the 1700s-1900s, before cars, people used to use horses and wagons as transportation and they took less space than cars. Today trams are still in use in for example Helsinki.

Finland is known for their



many forest landscapes; exactly 75% of Finland is covered in forests. Despite of this fact, only a small portion of central Helsinki has visible green areas, compared to Copenhagen, where there are several parks. Nature is a big part of finnish culture, therefore the Finns often commute to the forest and other green areas. Possibly why they aren't implemented in the city planning of Helsinki; it isn't pure. They don't find it necessary in the city because they would rather travel the short distance to a more pure and real forest. In Ørestad the parks and other greenery are implemented in the city planning, as a contrast to the many cement buildings. Furthermore, Finland makes use of trams, though the high practical use of convenient public transport

Churches of the North

Four different cities, four different churches. All serves the



same purpose but the architecture goes in different directions.

The dome in Roskilde is a church in Denmark is from 1030 and it is build in a very old style. It is the biggest church in Denmark and the royal family is buried there. It is a protestantic church and you can notice it by the style, which is filled with wealthy architecture. The same applies to the church in Lund, though it is build a bit later in the 1080. It is a church for all christian religions. It is clear that it is a older because we can see the touch of time on the walls.

The two other churches is from earlier epoqe and more modern. Modern style can

be seen in Helsinki where the Temppeliaukio Rock Church is placed. This church is from 1969 and it lays under the ground. The unordinary location makes the church more calm and quiet even though it is in the middle of the capital. It is possible for the light to pass through the windows and lighten up the room because of the 180 windows in the ceiling. Each window is about 3 metres high. The same lightness can be found in the church in Oulu which is from the 1800 century. It is important to notice that this church is build on the ground which even increases the amount of light. It is painted white inside, so compared to Lund cathedral the light

is reflected developing an additional fresh touch in the church.

In general there can be seen differences between churches in Finland and Denmark/Sweden because of the kind of christian religion. The main religion in Finland is christian lutheran and it is noticeable by the churches which are more simple and humble.

Modern design - Implemented functionality

Modern teaching demands modern environments. Our environment affects our ability to learn, understand, create and invent. Both Aalto Design Factory and Ørestad Gymnasium are aware of this and strives

to provide the best possible learning conditions for their students. The goal of Ørestad Gymnasium is to make an open innovative school, where the school functions as an open community, so that thoughts and innovative ideas are free to fly! Aalto design focuses more on making an open community where people are in some way forced to interact despite of them being less extroverted compared to the Danes, which are slightly more open and outgoing.

Both places have high ceilings, white walls, lots of natural light and splashes of bright colour. Therefore their design is quite similar since they have a common goal; a good innovative

learning environment. A lot of common spaces, ideal for relaxing and eating together, are to be found in both places. Here ideas and viewpoints are encouraged to be shared and discussed.

In conclusion, similar ideas and necessities are taken into consideration when creating an effective learning environment encouraging creativity. Yet the different needs of the two different societies are respected and taken into account.

Participants

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