

FAROE ISLAND - Status of the University Train “Seturstokið”

In Tórshavn the children only attended one workshop, but on the outreach activities each child attended three workshops.

In addition, the Faroese train has got a grant from a fund supporting activities for children and youth. This means that we have got means for some more cultural input, and we are therefore able to have music (from local artists preferably and an entertainer/performer. He is a young guy, educated within pedagogy, and he will be available through the whole day – having a show for the youngest children at the school, so they also get something, and also help us (university staff and students) when we put on our show that we call science-bragg.

We have tried to copy the Icelandic concept for the train, including to get some relevant industries to participate in the feast. In the first outreach we tried to get a company to show us how trawl doors work, but they had to attend a conference abroad. Instead we have focused on local people with a special knowledge, such as birds and bird flees (Nólsoy) and lectures on local issues or by locals (Sandoy)

In Iceland they had the Feast the day after – this was in particular so that the children should promote the event at home, and hence the turn up would be greater. We have chosen to have all in one day, also because the schools seem to think that this is a too big effort for them. And the University staff and students are quite pleased with this decision.

It has been rather tricky to get the final settlements on the train arrangements. We had hoped that other departments would participate, but they still feel estranged from the concept, so this year it will be only the Department of Education running the train, together with some persons from other departments that have teaching duties at the Dep. Ed. as lecturers.

Science Circus

400 pupils from 7 different schools in Tórshavn got the opportunity to come for one workshop. The focus was on 7th grade (13-14 years old), with a few classes from 5, 6, and 8. grade. – All the school children + class 1-3 in one school (e.g. 110 pupils) experienced also the Science Circus show by Magne and Ivar, so in total around 500 pupils participated in the school part.

We started with a one-day course for 7 teacher students. These used their new skills the two next days in workshops with school children. 5 different types of workshops were held: 1- LED torch (7th grade), 2-Lie detector (8th grade), 3-Marble slide, 4-Newton’s car (younger pupils)/electric car (7.-8. grade tried both manual and electric cars) and 5-Air pressure rockets.

The only challenge was the marble slide – in some workshops the pupils caught the task and started competing with each other, in other workshops it was difficult to keep their attention on the task for one full hour. It would have been useful with some extra tasks here. However, there was only one teacher student at this workshop (due to illness), and that might be one of the explanations. Another observation was, that the accompanying teachers’ interest was very important – some

teachers were eager participants, while other more or less evaporated. Where the teachers participated, the pupils were much more engaged. Maybe one hour is too long time for this activity alone, and some supplement activities are needed for some groups.

The Faroese University had 50 year anniversary in May, and we built a train for display on the day. It was painted with the approved colours of the University Logo (approx.) – The visit of the Norwegian Science Circus was also promoted as part of the celebrations.

The programme for the event was as follow:

Programme for “Vísindasirkus” 12.-13. May 2015

Date	Events	Comments
10. mai	2 “volunteers” from Jærmuseet arrive	

11. mai	Set up and buy what is left	
11. mai	Preparatory course for teacher students	2 nd year teacher students, 7 students in total

12. mai	08.30-11.00 – Course for students	Same as the day before
12. mai	11.30-12.30 – workshops for 4 classes – all grade 7.	Teacher students lead the workshops – with support from staff from Jærmuseet
12. mai	12.30-13.00 – Science Circus for 7 classes	Jærmuseet presents – the classes are those immediately before and after the show
12. mai	13.15-14.15 – workshops for 3 classes, two grade 8, one grade 7	Teacher students lead the workshops

Date	Events	Comments
13. mai	08.30-09.30 – workshops for 3 classes, two grade 5, one grade 6	Teacher students lead the workshops
13. mai	09.30-10.00 – Science Circus for 7 classes	Jærmuseet presents – the classes are those immediately before and after the show
13. mai	10.15-11.15 – workshops for 4 classes, all grade 7	Teacher students lead the workshops
13. mai	11.15-11.45 – Science Circus for the four classes grade 7 coming after the show, and in addition 5 classes with pupils from 1., 2. and 3. grade	Jærmuseet presents
13. mai	11.45-12.45 – workshops for 4 classes, all grade 7	Teacher students lead the workshops

13. mai	15.00-18.00 – Science feast	
13. mai	15-00-16.00 – Workshops and	Students (both teacher and

	exhibitions 16.00-16.30 – Science Circus 16.30-18.00 – Workshops and exhibitions	natural sciences), university academic staff, and staff from Jærmuseet present
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Workshops and suitable age groups:

- 1.-2. grade (6-8 years): Ball track, Air pressure rockets
- 3.-5. grade (8-12 ár): Air pressure rockets, Newton’s car, Ball track
- 6.-7. grade (12-14 ár): LED-torch, Newton’s car
- 8.-9. grade (14-16 ár): El-car, Lie detector, LED-torch

At the Science feast these workshops, activities and challenges were on offer:

- Marble slide - activity
- Air pressure rockets - activity
- LED-torch - activity
- Computer games and GIS (from computer science department) - demonstration
- Geology and minerals (from natural science department) – demonstration
- Tower of light (bottles with different coloured water) and light - exhibition
- Holograms - exhibition
- Biophilia (Crystalline) – activity and demonstration
- Lye to me – challenge with (readymade homemade) lye detector
- The eight queens – chess challenge
- Table with a range of math riddles – math challenge
- Puzzles with different figures – challenge

The turn-up to the feast was not as big as we had hoped for, partly due to some misunderstandings around the announcement to the press, in particular the radio. The result was that the announcement was never sent. What we can learn from this is that new methods create confusion in a rigid university universe, and we should be prepared for that.

We estimate that around 100 children attended the Science Feast, together with around the same number of adults.

Persons reached in Tórshavn: 750-800.

	Children	Teachers	Students	University staff	Other adults
School event	500	30	7	10	
Science feast	100		15	15	100

After the Science feast the students declared that this had been a very good experience. They had been very confused in the beginning, because they did not understand the concept, but now they realised how much they had gained from this – and it had been funny as well. They recommended to continue using students for the workshops.

This newsletter from Jærmuseet was sent to NSCF:

Jærmuseet Science Circus visits Faroe Islands

Science Circus is Jærmuseet's "science centre on wheels". Usually Science Circus travels to schools in the southwest of Norway with shows and experiments.



Figure 1: Some pupils built their own multi colored LED-lights

Jærmuseet Science Circus visited the University of the Faroe Islands from 11-14 of May. During three hectic days at the University (Fróðskaparsetur Føroya) Science Circus had courses for teacher students, workshops with school children, science shows, and participated at an open day at the university.

For the activities for the school children, four different workshops run simultaneously, with different activities in each. These workshops were run by teacher students (after their course) with support from staff from Science Circus. The children were mainly from class 7 (13-14 years old), and they came all from the central area of the islands.

At the open day some of the same activities were run, in addition to other puzzles and tasks, which also were brought by the Science Circus. Close to 10% of the school children in the Faroe Islands met Science Circus these days.



Figure 2: Ivar Reed Nakken drinks liquid nitrogen

The timing of the visit was planned so it became the start of the celebrations of the 50 years anniversary of the university.

This visit was part of Jærmuseet contribution to the Nordic Ministry councils' project: Biophilia-Knowledge train. The activities and workshops brought by Science Circus will be used by the Faroe Islands own knowledge train called "Seturstokið", which will travel to the more remote parts of the islands this autumn.

The Knowledge Train

The purpose of the Knowledge Train is to travel around, loaded with science and fun, which are used to ignite the interest of young people in science, higher education, and universities.

The aim is for the Knowledge Train to "travel" through selected regions of the Nordic countries, with knowledge and scientific workshops on board. As it travels, it stops in nursery schools, primary schools and secondary schools where the pupils will be offered scientific workshops and lectures.

More info of the project here: <http://www.norden.org/no/tema/nordic-bioeconomy/nordbio/prosjekter/biophilia>

And then the Faroese "Seturstok" was ready for preparations for the take off to the remote places.

Hvalba

The first trip went to Suðuroy, which is one relative large, but remote island – it takes 2 hours with a ferry (new standards, as it took much longer previously). The train was on one of the remote schools on the island, but other remote schools were invited also, so in total 4 small schools were assembled in the largest of the small schools. These schools have in total around 80 pupils in class 4-9.

There have been few activities for 1-3. grades, mainly because we right now do not have activities for this age group. Neither do any of the students within natural sciences work with this age group – this would however be suitable if other disciplines would work with the young children.

These workshops were in Hvalba:

For 4.-5.-6. grade: Newton's cars, Biophilia (Crystalline, sentence structure and none-sense rhymes), Waterpressure rockets.

For 7.-8.-9. grade: Air pressure rockets, Storm P. (invent an interesting method to burst a balloon), LED-torches

The programme in Hvalba was as follows:

08.00-08.15	Morning assembly
08.15-08.30	Intro to the train + divided into groups
08.30-09.00	1.-3. grade to a children performance
08.30-09.30	First workshop
10.00-11.00	Next workshop
11.15-11.30	Science bragg
11.30-12.00	Lunch (they bring backed lunch)
12.00-13.00	Third workshop – at the end they fill out a questionnaire
13.00-15.00	Preparations for the Science feast
15.00	The Feast opens
16.00	The entertainer performs for children and adult
17.00	Science bragg
18.30	Music performance with Pól Arna Holm and Jón Áka Egholm
19.00	End

The workshops at the Feast were Air pressure rockets, Water pressure rockets, Newton's cars (will probably not be repeated, since it was difficult to control the cars, and ensure that we got the wheels back), and LED-torch. Everything worked fine.

In addition there was a table with different challenges (several bought at the Heureka shop), including the Gordic knot, find ways to release the washer from the nut and bolt and to find solution for how to launch a rocket inside a tube without touching.



Tiltøk í Hvalbiar skúla

The Science Bragg performance had some elements from Science Circus, including “happy birthday” and loudspeakers, Star Wars (you can actually see the sound), which we did together with the pedagogical entertainer. The steady ball in the middle of a air stream, Light, water and colour (to show hot (red) and cold (blue) water), light in a glass soaks up water, napkins-bags and lung capacity, fountain inside a bottle – and then there was a task that has become quite popular in the Faroes, namely fire-foam: Soap and lightergas into an open container: First the arm is made wet, and then foam of lightergas is taken into the hand and set on fire. – Very popular. The alighted hand was swept with a wet cloth to prevent any burns.

Persons reached in Hvalba: ~230.

	Children	Teachers	Students	University staff	Other adults
School event	100 (75 workshops, 25 entertainment)	10	9	4	1
Feast	100	10	9	4	50

Many of the children that were in the afternoon were the same as those in school.

Nólsoy

Nólsoy was the next trip. This is an island just outside Tórshavn, that can be reached with a boat – it takes 20 minutes. As there are very few pupils, three small schools

from small villages around Tórshavn were invited to join us. One of these schools chose not to attend. Hence the total number was 55 children.

In contrast to Hvalba we decided to try with some 1-3. graders.

These workshops were in Nólsoy:

For 5.-6.-7. grade: LED-e, Newton's cars and Waterpressure rockets, Creative workshop on light and colours

For 1.-2.-3. grade: Creative workshop on light and colours, Biophilia (sentence structure and none-sense rhymes together with Solstice), marble-slide

The programme in Nólsoy was as follows

07:55	With boat from Tórshavn
08:30	Introduction at the school
08:45	Workshop 1
10:00	Workshop 2
11:00	Science bragg (stutt útgáva)
11:15	Break with fruit
11:30	Workshop 3
12:30	Evaluation sheets and lunch (we had lunch all together from the train budget)
13:00	One school took the boat back to Tórshavn, the other continued with the science feast
13:15	Rógvi Dam, entertainer, with a one-man performance on "The importance of the positive word" (on mobbing)
14:00	Sing along with Lív Næs and Trónd Enni (children's songs)
15:00	The Feast opens for the public, with a special invitation for the kindergarden to join us, which they did
15:30	The entertainer performs for children and adult
16:45	Science bragg, with some of the same themes as in Hvalba, but it ended with the task of identifying "gulls" – and that lead to the lecture on birds.
17:10	Lecture with Jens-Kjeld Jensen on birds
17:30	Music performance with Lív Næs and Trónd Enni
18:00	End

Persons reached in Nólsoy: ~110.

	Children	Teachers	Students	University staff	Other adults
School event	55	10	11	3	5
Feast	60	7	5	3	20

Again, many of the children that were in the afternoon were the same as those in school, however, since kindergarden attended the feast, there were also around 20 "new" children.

Sandoyar Meginskúli

On Nov. 6th the island of Sandoy was visited by the train with two separate events. In the small village school “Sands skúli” one group of 25 teacher students had 5 different workshops with the theme of art, identity, literature, locality, rhymes and music (Biophilia theme). This is a school with children from 1.-5. grade.

From 6th grade the children on this island continue on an intercommunity school (Sandoyar Meginskúli) for children in 6th - 10th grade. This school also got a visit by the train on the same day, but with a separate crew, consisting of 13 teacher students with 6 workshops.

The programme on Sandoyar Meginskúli was as follows:

- 08.30 Introduction
- 09.00 Workshops 1
- 10.00 Song event (with their local composer Sunleif Rasmussen)
- 10.30 Break with fruit
- 10.45 Workshops 2
- 11.45 Lunch (we had lunch all together from the train budget)
- 12.15 Rógvi Dam, entertainer, with a one-man performance on “The importance of the positive word” (on mobbing)
- 13.00 Workshops 3
- 14.00 Evaluation sheets
- 14.15 Science bragg for school
- 14.45 End of school event
- 15.00 Public event start
- 15.15 Music performance with the local (but well known) duo Arnold Ludvig and Anna Iachino.
- 16.00 The entertainer performs for children and adults
- 16.30 Public science bragg.
- 17.00 Public lecture with Zakaris Svabo Hansen on language diversity, with special focus on results from interviews from people from Sandoy
- 17.30 Public lecture with John Dalsgarð on the youth movement which from start was active on the island of Sandoy. The youth society still exist.
- 18.00 Reflections with Sunleif Rasmussen: Between dream and waking. Public lecture.

Only 30-35 people attended the public part (apart from the Train crew). One important reason for this was probably that we choose the “Meginskúli” rather than the local school in the village. The Meginskúli is situated between two villages, so people need to take the car to get there. Another reason is probably that the programme had too many lectures.

Persons reached in Sandoy: ~220.

	Children	Teachers	Students	University staff	Other adults
School event Sands skúli	57	8	25	1	1
School	84	11	13	3	3

event Sandoyar Meginskúli					
Feast	30	5	10	3	15

These workshops were in Sandoy Meginskúli:

For 6.-7. grade: Creative workshop on light and colours, marble-slide and cars, LED-torch, the sweet life (on blood sugar and food)

For 8.-9.-10. grade: Air pressure rockets, Newton's cars, the sweet life (on blood sugar and food), LED-torch

In total, around 1400 persons were reached during 2015.

To summarize, the Faroese train did in 2015 reach around 1,400 people, and had around 750 children from 16 schools attending workshops.

In addition to this, the Norwegian train people were invited by the National National Heritage to have a show at the annual "Heystfagnaður", an autumn museum festival, with a theme of light. This invitation came as a follow up after the Norwegian performance in Tórshavn earlier that year: a new way of presenting science, which both was entertaining, fun and the children learned.

Activities in 2016

The Faroese train got an inquiry from Tórshavn Municipality on providing a workshop on energy for children in 5th grade, and here the train network showed its impact, as they could provide immediately answers to how we should approach this inquiry. Both Norway and Iceland had experiences and recommended windmill workshops.

During the network we found the excellent solution, that an Icelandic expert would come and have a course for the teacher students that later would do the workshops. It was also decided upon what types of windmill we should use.

The course for the students was held 27.-28. April by Baldur Brynjarson. The workshops with children were held from 10.-13. May, for pupils in grade 5 in Tórshavn municipality, and the next week it was repeated in Klaksvík, also for 5th graders.

Persons reached with the windmill workshops: ~350

	Children	Teachers	Students	Number of schools	Number of classes
Schools in Tórshavn	280	15	6	6	12
School in Klaksvík (1)	79	6	6	1	3

The Train activities have had their impact on the working methods with the Natural Science Teacher students, as working with workshops has proved being a very efficient method of improving the students teaching, since they can repeat the sessions in a row, correct mistakes, and test new approaches.

This method has also proved suitable when working with outdoor teaching, and the same students worked with class 1-6 on nature: plants, geology, and animals.

Persons reached with the outdoor classroom workshops: ~50

	Children	Teachers	Students	Number of schools	Number of classes
Frískúlin í Havn	40	6	6	1	3

The train activities have had an impact on the central educational center (Nám), and again the Norwegian team was sent for, this time to have a course for teachers at secondary school (both lower and higher) on mechanics and electronics. The evaluations from this course were very good, and the course should (and hopefully will) be repeated.

The last activity in 2016 was participating in the Nordic Knowledge Train arrangement in Harpa and in Fossvogskólan in October 2016. Here two teacher students participated with a Biophilia workshop (Virus), with two supervisors. They had 3 workshops for around 60 children.

It is decided that the train activities will run again next year, with energy and nature as focus areas, and with Biophilia, windmills and cars as the workshop provided.

Evaluation:

The experiences from the train is that the pupils really enjoy and appreciate the train visit. Further that they are both motivated and focused, and we also think that they learn from the activities. However, it is not straight forward to measure issues as motivation and learning. The workshops have been evaluated and observed (see “Summary Faroese Evaluation Sheets”), and students have done surveys to test what the pupils have learned. Several essays have been written on the workshops, both on methods, on motivation and on outcome. These results, together with more focused observations and surveys made in spring 2017 will be combined with literature studies to an article on motivation and learning with outreach activities. The article will be an exploration of to what extent the intentions of the train has been achieved.

Thoughts on the future:

There are no science center facilities in the Faroe Islands, and this project has demonstrated very clearly the importance of such activities, as the children both enjoy it, and are very keen on working in workshops, but have few opportunities to do so. However, this project has also demonstrated that there is a lack of both material and knowledge on how to run such workshops. In this project we have had several occasions of exchange of staff to teach and instruct the local teachers, that shall run the workshops, and this is crucial for a successful outcome of the workshops. Exchange of both staff, material and ideas has made all the difference for the Faroese Train. In the future, there is a need of both short inspiring courses, and for coursework qualifying for ECTS.

Dissemination:

The Faroese train has had a facebook page, with information on what we are doing.

<https://www.facebook.com/seturstok/>

The activities at the Umhvørvisvikan (environmental week) has been mentioned at the municipality driven facebook page.

<https://www.facebook.com/umhvorvisvikan/photos/pcb.1033760223384166/1033754163384772/?type=3&theater>

Presentations

Olsen, E. & Ólavsstovu, V. (2016) *Kreativ, aktiv og tvørfaklig undirvísing* (Creative, active and interdisciplinary teaching). Presentation at Frændafundur 9, 27. aug. 2016 in Reykjavík. This presentation combines surveys and workshops done as train activities. An article will be written as a chapter in a peer-reviewed conference book in 2017 – see below.

Thesis

Sigurðsson, A.S., Olsen, I.F. & Hansen, S.K. (2016) *Seturstokið – The Knowledge Train*. Bachelor thesis at the Department of Education, University of the Faroe Islands. In addition other theses have been inspired by the train, although they did not directly write about it. (The impact of participating in the Train is visible).

Articles (in progress)

Olsen, E. & Ólavsstovu, V. (2016) *Kreativ, aktiv og tvørfaklig undirvísing* (Creative, active and interdisciplinary teaching). Frændafundur 9. – submission januar 2017.

Motivation and learning with outreach activities, formal and informal teaching and learning, – expected finished autumn 2017.

Portals where we have been mentioned:

<http://www.in.fo/news-detail/news/royna-at-gera-tad-stuttligt/?L=0oral.fo&cHash=da234c3d991af05021305a1f6723f16a>

<http://sudurras.fo/?p=46799>

School homepages:

Nólsoy:

<http://www.nolsoyarskuli.fo/?m=201510>

Skúlatrøð in Klaksvík:

http://skulatrod.fo/?p=17&_sp=albumcollections_albums&AlbumId=349

http://skulatrod.fo/?p=newsgroup&_sp=newsarticle&_NewsarticleId=134