

## THE REPORT OF ACTS-PROJECT BY FINNISH TEAM



### THE MAIN TEAM

#### The University of Turku

Department of Teacher Education: Juli-Anna Aerila (senior lecturer)

Teacher Training School: Hilppa Jankama, Merja Toivanen, Kirsi Urmson (class teachers)

#### Eura Kirkonkylä School

Susan Granlund (English Teacher)

Taina Pertola (Teacher of Special Education)

### ADDITIONAL TEAM

#### The University of Turku

Ramona Raynor-Karjalainen, Päivi Nillivaara, Teemu Mäkelä, Mari Siipola, Alex Black

### TECHNICAL SUPPORT

Esa Hakkarainen, Mikko Lehtonen, Kaisa Hyvärinen

## THE ACTS-PROJECT IN FINLAND: INTRODUCTION

Assessing the development of thinking skills in learners is a challenging task. The Finnish team has therefore aimed to provide tools for assessment where teachers and pupils can see regularly, in as concrete way as possible, what kind of progress is being made.

The Finnish team had very different prerequisites for reaching the aims of ACTS-project than the other partners, as the members of the Finnish team are teachers in a teacher training school (in Rauma) and in a state school for basic education (Kirkonkylä School), and the head of the project is a university lecturer in the University of Turku. They are not a part of any organization concentrating on thinking skills nor do they have a history of working as an individual team in a project. However, the teachers in the Finnish team (Urmson, Toivanen, Jankama, Granlund and Pertola) had for many years been interested in how to integrate thinking skills into subject lessons in the classroom. To that end, they had attended courses and conferences, particularly those organized by the TA Group in Latvia, and they had closely followed and observed in practice thinking lessons from the Let's Think organization.

In this context, where there is not a background of schools and teachers already incorporating thinking skills into their lessons, we have had to provide ways of doing this. We have tried to introduce tasks where the thinking can be ‘seen’ and ‘heard’ by making thinking visible and by developing the verbalizing of thinking through expanding pupil vocabulary for talking about thinking. In this way, it is easier also to assess if, when and how development is taking place.

This has meant, for example, an emphasis on discussion in the classroom, reflection during and after tasks, tasks where pupils mark, and thereby self-assess, their own skills, and regular documentation. The tools for making thinking visible in Finland cover learning to learn skills, self-assessment, questioning, reasoning and thinking games. Examples of all of these can be seen in our tools on our webpages.

In order to reach the goals of the ACTS-project, the Finnish team started by creating joint aims and a theoretical background for their part of the project. At the planning stage, we made a chart, which shows the thinking behind our tools: <https://flinga.fi/s/FXRE5QA> (Figure 1.).

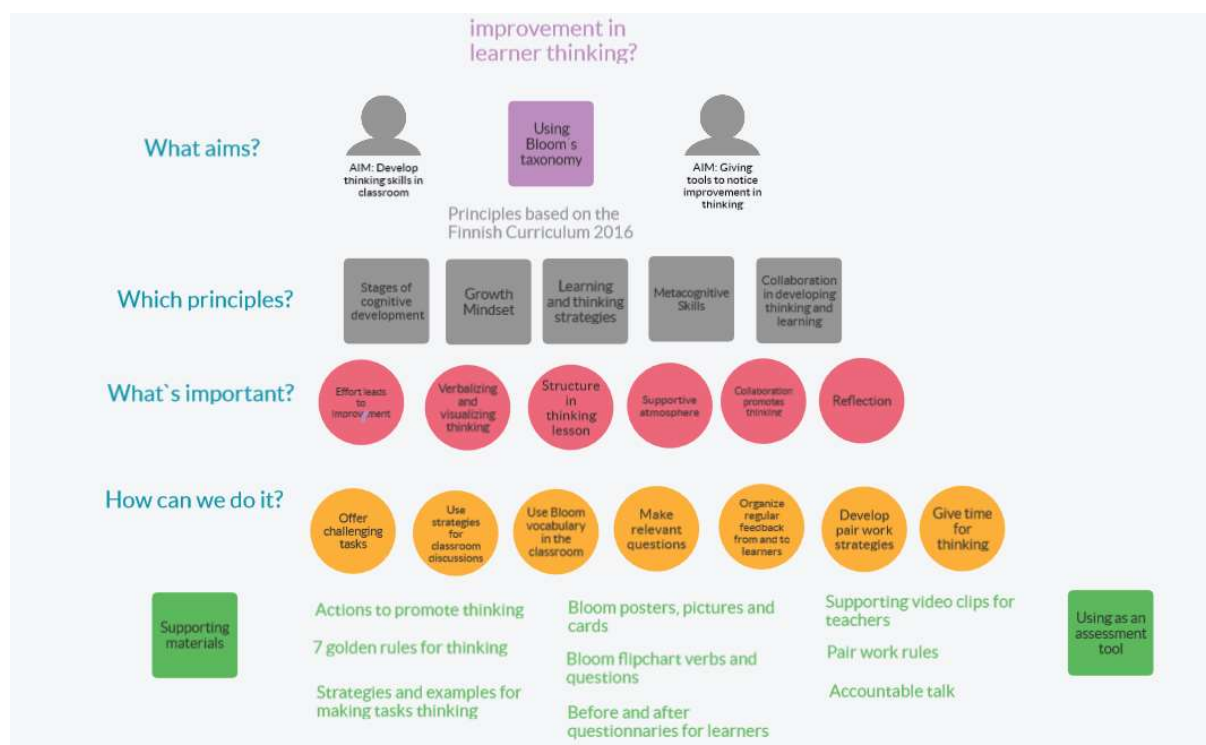


Figure 1. The chart of the first plan for tools

The aims of the project and the tools are in line with the Finnish National Curriculum for Basic Education. The national curriculum was renewed in the years 2014–2016 and there was a need for creating new ways of enhancing and assessing thinking. As one of the main theoretical bases for the

national curriculum is Bloom's taxonomy, it was also chosen as a starting point for the Finnish part of the ACTS-project.

Doing background reading for the project helped us all to increase our understanding of how to promote learning and thinking skills in the classroom and how to assess them. This was invaluable to us and helped us to start trying out new tasks and methods. Working as a team meant we had very fruitful discussions and exchanges of ideas about these. Without the project, we would not have had the time and opportunity to do this.

The Finnish team also benefited from the expertise of the project partners in the UK and Latvia and has also been influenced by their work and been able to adapt their aspects to be implemented in Finnish classrooms. Let's Think in the UK brought well-tested and researched ideas about metacognition and the social aspects of developing thinking in the classroom, particularly with respect to the theories of Piaget and Vygotsky. The input of the TA Group in Latvia offered theories of problem solving and how they can be adapted for the classroom to give the pupils strategies for thinking and for becoming learners that are more independent.

One impact for all of us, as participants in the project, is that we have had to reassess ourselves the way in which we try to integrate thinking skills into our lessons. Incorporating assessment tools into the activities has made us surer of what we are doing and has allowed us as teachers to progress along with our students, noticing as we go along what works, what does not, and what needs to be practiced more. It gives much more direction to our teaching.

The project has had the impact of letting us see what kinds of tasks provide development as required by the curriculum for thinking, problem solving and learning to learn skills. Development is slow and gradual. However, we can see an increased awareness of working skills, particularly those connected with thinking. We also see pupils' vocabulary gradually expanding, pupils asking and answering higher order questions, pupils reflecting better on their own work, and an improved awareness of discussion skills. Our self-assessment tasks have allowed our pupils to be active agents in following their own growing understanding and skills. The teachers who tested the material found various ways of using them either separately or together. They got ideas also from their pupils. The tools gave the teachers and the pupils the concepts they needed in talking about thinking. Furthermore, using the tools and becoming more aware of thinking skills has made the teachers and students focus more on these skills instead of concentrating merely on the subject contents.

We have also realized how much we have to pay attention to the impact of teacher behavior when trying to develop the thinking skills of learners. For this reason, we have made a checklist for teachers where they can reflect on and mark if they wish how much they use the suggested behaviors. These behaviors

include, for example, giving time for thinking, not saying if answers are right or wrong and keeping a neutral expression. This checklist can be found on our web pages. We personally have found it to be a very useful reminder, and it is ideal to be used by student teachers for reflecting on their own teaching and for observing others. There is no way of assessing thinking if the lesson does not allow the students to think and be active.

We gained a great deal from planning workshops together with the Finnish team members and letting other teachers test our tools. In their feedback, they described new ways they had found of using them, and they were able to describe the reactions of their own pupils to them. We were pleased that participants at the workshops felt they had gained new insights into how thinking could be incorporated into their lessons and assessed. Without the project, we would have not had a forum, resources nor courage to develop and share our ideas. All in all the ACTS project has given the participants in Finland the resources and time, as well as the chance to cooperate with expert colleagues from the UK and Latvia, to learn more, improve their own practice and to tailor their knowledge and experience to develop concrete tools for use by teachers in ordinary Finnish classrooms.

At the beginning of the project, we developed several tools for assessing thinking. We tested all these tools, but at the second phase decided to develop the most preferred tools further. However, all the tools are at our webpages. The most preferred tools were those containing possibilities for children to be active. Additionally, they had some concrete and ready-made materials for the classrooms. The tools, which we developed, were the Bloom's poster and the verb clouds, the wall sentences, yes and no - game and the keychain of questioning. All the tools have material to visualize thinking and a material to assess the development thinking. We have also created material for students to make notes on thinking progress.

These tools are helpful in a diagnostic and reflective way. The use of the tools is explained and the tools are easily accessible from the website. The teachers who tested the material found various ways of using them either separately or together. They got ideas also from their pupils. The tools gave the teachers and the pupils the concepts they needed in talking about thinking.

At the end of the project, we feel that the configuration of the Finnish team was successful. The main team consisted of members with different educational backgrounds, interests and experiences: we learned a lot and challenged each other all the way. Furthermore, the additional members all gave us new perspectives, critical feedback and encouraged us to develop the tools.

## **THE MORE SPECIFIC IMPACT TO MEMBERS OF FINNISH TEAM**

UNIVERSITY OF TURKU

*Department of Teacher Education*

The ACTS-project enabled the Department of Teacher Education, especially in the Rauma campus, to concentrate on enhancing the expertise of thinking skills and assessing the thinking of learners. The expertise was enhanced through time invested in literature and research reports as well as meeting with the international members and their contacts in the ACTS-teams. The literature resources on teaching thinking were improved by a collection of theoretical publications as well as children's literature. The students and the personnel of the department have used these books.

During the project, several different research contexts were constructed and data collected. At the beginning of the project, we collected children's drawings illustrating their understanding of the concept of thinking. There is data collected via an online questionnaire from the teachers testing the tools in the second phase. The illustrations collected for the project offer an interesting multimodal data of thinking in classrooms. Furthermore, we have collected feedback on implementing the ACTS-project in in-service training and have presented some results in the TA-conference in 2018 (the presentation is in the Finnish team's webpages). We have plans for follow-up studies on the use and usefulness of the ACTS-tools in both in-service training and for teachers who have participated in the multiplier-events. We had several meetings (especially with the members of Let's Think -team) about research-based approaches to visualizing children's thinking. One of them is using a story-formula invented by Let's Think.

The project offered both students and the personnel of the department of teacher education an opportunity to deepen their understanding of thinking pedagogies. We had several inspiring meetings with Alex Black (ABC-Learning in Switzerland) who visited the Rauma campus twice. He met both personnel and the students. In addition to international networking, the project enabled co-operation and networking nationally. In the Finnish webpages of ACTS, there is material from the most respected thinking experts in Finland: Minna Huotilainen (prof. the University of Helsinki), Najat Quakrim-Sirniö (lecturer, the University of Helsinki), Päivi Nillivaara (lecturer, University of Tampere).

For the project, we were able to employ one of our students, Teemu Mäkelä. He is a student very interested in developing thinking pedagogy and the project was very important for him. He had several face-to-face meetings with international thinking experts. He is currently involved in writing a research plan for his doctoral studies in the University of Turku and aims at investigating thinking skills more. Additionally, he acted as a teacher in a Thinking Skills –course in spring 2019. The course was a part of voluntary studies in the Department of the Teacher Education and it was based on the ACTS-tools. The participants of the course were students from class teacher and craft teacher education. Altogether five students have completed the course.

During the project, we co-operated with IKI-project in the University of Turku. University of Jyväskylä leads this project and it aims at enhancing multilingual pedagogies for basic education. There are plans

to continue cooperation with the Let's Think organization. Furthermore, Michael Walsh from Let's Think has been giving a workshop in a further education project called the Pathway lead by the University of Turku.

### *Teacher Training School of Rauma*

This Erasmus project has enabled the teachers participating in the ACTS project to deepen their own understanding and to develop and create concrete tools for working with both the pupils and teacher trainees, as described in the introduction. As well as helping to develop other materials, the Teacher Training School in Rauma concentrated particularly on pupil self-assessment and on the promotion and assessment of working skills. We examined the aspects of the curriculum, which deal particularly with the behaviours necessary to foster the growth of learning and thinking skills in the classroom. The concrete result of this, besides a checklist and self-assessment sheet on these skills, has been the wall sentences for working skills. These have been a great help to pupils, teachers and trainees in reminding them at all times of the importance of developing these particular skills. One positive side of wall sentences is that they are easy to carry around: you can take them to physical education, outdoor lessons and craft education.

The impact of much of this work, especially in terms of being able to help trainee teachers to promote and assess thinking in the classroom, can be seen in the sections below. The project enabled the school to buy books on teaching thinking, which will stay in classes and in the school library. The student teachers borrow these books as well. The project funding made it possible for the participating teachers to work during school days. Substitute teachers were employed. These days were used either together with the other participants or together with working alone. Working together opened up ideas and practices on teaching thinking. Busy full time workdays do not give the opportunity to do this.

### EURA KIRKONKYLÄ SCHOOL

It has been especially fruitful for Kirkonkylä School to cooperate and work closely as a team with the teachers from Rauma Teacher Training College and Turku University. We have met regularly, shared the same aims, given each other feedback and been able to try out each other's' tools, so that altogether we have a range of visible assessment tools to offer other teachers.

The same has been true at the international level. The transnational meetings in Lincoln, Riga and Rauma gave us invaluable support and feedback on how we could further develop and improve our tools. Let's Think and the TA Group have also organized and taught short courses in Kirkonkylä School for the staff to learn more about bringing thinking into the classroom and seeing its effect. Alexander Sokol from Latvia has visited the school, as well as Stuart Twiss from Let's Think in the UK and Alex Black from Switzerland. The staff were inspired by the workshops given and began to realise how they

could integrate thinking activities into their lessons. The participants of the project had very interesting conversations about the teaching of thinking and different ways of assessing it, gaining fresh ideas and perspectives.

In Kirkonkylä School, we have developed our own understanding of how thinking can be brought into everyday teaching in a motivating way that is straightforward and clear for teachers to access and in a way that can be assessed. We have concentrated particularly on developing tasks and assessment tools for questioning, reasoning and thinking games. This has helped the staff in our school as we have held short courses for them and had a whole school ‘thinking day. Additionally, we have given them information about what we have been doing. We have made thinking visible through the Bloom verbs and poster, through questions on the wall, through the keyring of questions and the forms and challenges, which teachers and the pupils can fill in when doing thinking tasks and or playing thinking games. We have also offered them the wall sentences on working skills. This means that thinking has become more prominent than it was before and pupils and teachers remember to pay attention to different aspects of it.

Through the project, we also bought resource books on thinking to be added to the thinking material available for teachers in the school to use. We built up a ‘Thinking Shelf’ for all to use, with books, copies, material for thinking games and suggestions for thinking lessons. As an English teacher and special needs teacher in the school, we are in regular contact with all the teachers, the classes and levels, and so have been able to spread our ideas among the teachers and pupils.

## **THE RESULTS AS IMPACT**

The main results are the ACTS-tools: the Bloom poster, the key ring of Bloom’s taxonomy, yes and no -game and the wall sentences. As presented earlier, we created also additional tools. They are all presented in our websites. However, there are other results, which we consider have an impact.

### **1. Webpages of the ACTS-project**

[\(www.utu.fi/ACTS\)](http://www.utu.fi/ACTS)

The webpages were published in Finnish and in English (Figure 2.). Previously neither the team members nor the University of Turku had webpages on thinking skills and assessing thinking. The web pages contain material for self-study purposes and for future workshops lead by the project members. The webpages are open to all interested in thinking skills and they are easily modified. They will also act as an information channel in case of future workshops. The materials in the webpages is versatile: there are ACTS-tools and other materials created by the team members, there is material for studying thinking skills and getting to know the Finnish perspective (national curriculum) for thinking pedagogy and assessing thinking. The material is multimodal containing both videos, articles, illustrations,

practical information and hands-on activities. The Finnish and English web pages correspond to each other but differ a bit in content. The webpages also contain our contact information and promotional material on our workshops.



Figure 2. The front page of the webpages of ACTS-project in Finland.

## 2. The self-study material for a course on Thinking Skills (3 ECTS POINTS) and for the use of the teachers in the Teacher Training School

(<https://moodle.utu.fi/course/view.php?id=19020>)

The course material is published only in Finnish and attending the Moodle-area (Figure 3.) requires logging in with university's user ID. The course is divided into separate entities with one ECTS point (Bloom's taxonomy, Thinking in Finnish education and ACTS-tools). The course encourages the use of the ACTS-webpages and thinking pedagogies and promotes the ACTS-tools in in-service training. Furthermore, there is material from the partners of the ACTS-project in the area. The material was presented to the ECE-teacher students in autumn 2020 and there are several students taking the course. In addition to self-study material, the course is aimed at the teachers of the Teacher Training school of Rauma and the project members of ACTS-project. The material is going to be used in in-service training and in different workshops for different audiences. The area is easily updated and the assignments of the students are in most parts saved in a conversation zone to be read by anyone who is interested.

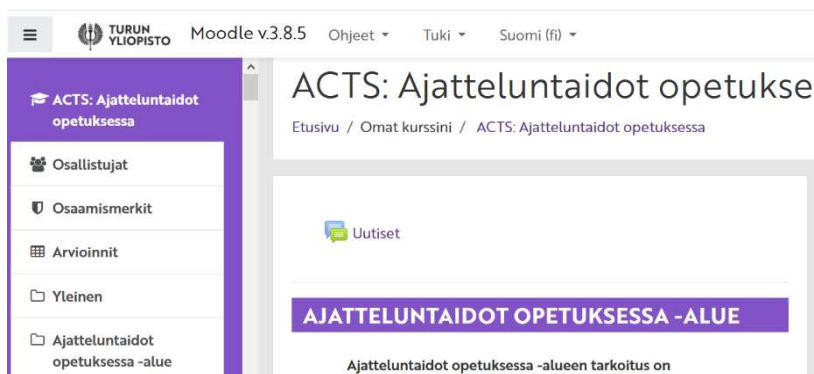


Figure 3. The front page of the Moodle area



### 3. Seafile-folders

Seafile is a secure online area hosted by the University of Turku. In the Seafile-folders (five different folders; Figure 4.), we have all the material created and tested during the ACTS-project. The materials are accessible only for the members of the Finnish ACTS-teams and they will be used for different educational purposes. One important material stored in Seafile are the illustrations (video clips and photos) which we were not able to publish in the public webpage due to security and ethical reasons.

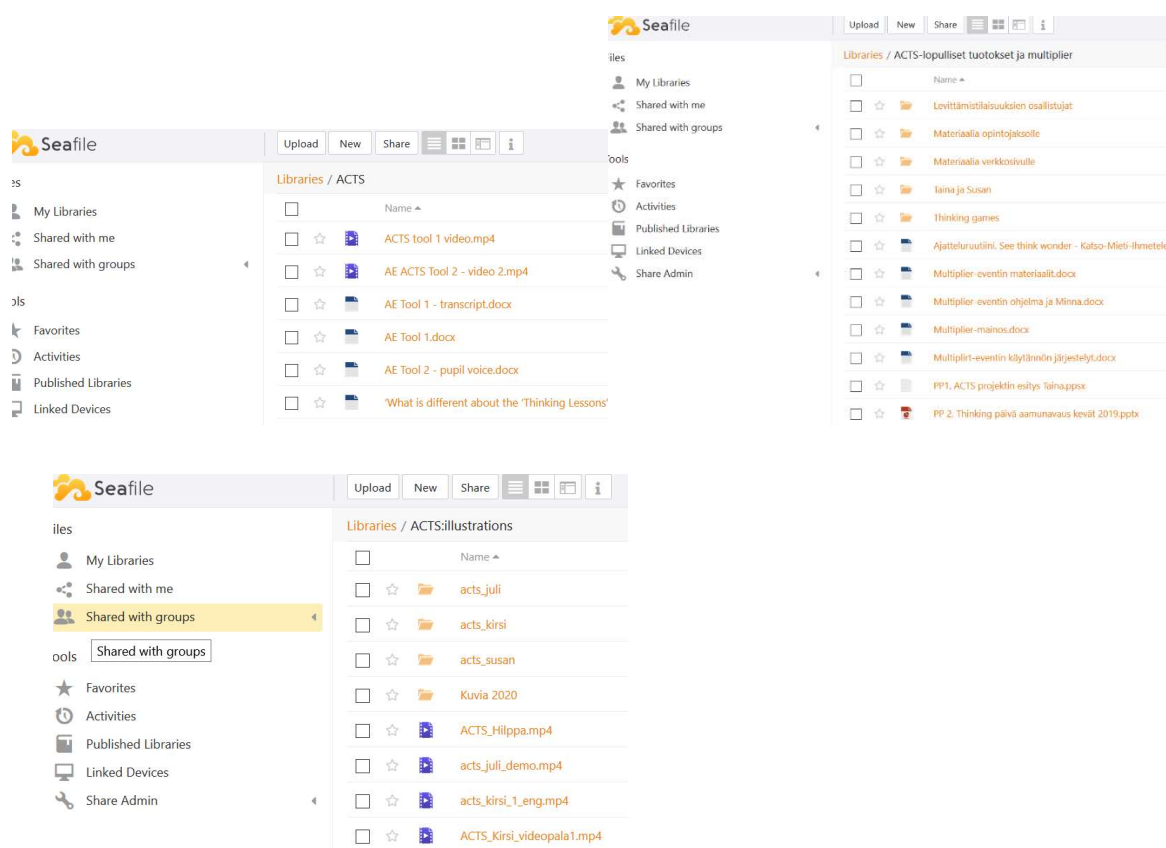


Figure 4. Screen shots of part of the content of the Seafile folders

### 4. Several courses and training during the ACTS-project

During the project, we were able to offer several courses on thinking approaches to different target groups. Alex Black from ABC-learning visited Finland in spring 2018. He had a course for local language teachers on incorporating thinking skills to language education, a voluntary course (3 ECTS) for the teacher students on thinking skills and workshops for teachers in Eura Kirkonkylä School and in the Teacher Training School of Rauma. Additionally, he observed some lessons and gave feedback to teachers and teachers trainees from the perspective of thinking. One of the workshops was a part of the dissemination of ACTS-tools. Additionally, he worked in in-service with the teacher trainees. Stuart Twiss from Let's Think visited Finland in spring 2018. He had workshops for teachers in Eura Kirkonkylä School as well as teachers and teacher trainees of the Teacher Training School. Additionally, the team members had some special courses for local teachers.

## 5. Conference and other presentations

Presentations in TA-conference in Latvia year 2018

*Using pictures to motivate young learner thinking*

*Thinking as a Tool for Collaborative Learning*

*Finnish Teacher Trainees' Perspectives to Enhancing the Thinking Skills of Primary School Students*

Workshop in EduGrow-event in Turku year 2019

Presentation in TA-conference in year 2020

*Assessment tools for thinking skills from the perspective of Finnish early childhood and primary education*

## 6. Thinking material in the webpages of IKI-TARU ([www. utu.fi/IKI-TARU](http://www.utu.fi/IKI-TARU))

Material to enhance thinking during reading fiction. Part of the material is translations based on materials of Let's Think and part of them are created by Teemu Mäkelä. The materials are currently in Finnish (Figure 6.). The material is linked to Let's Think –webpages.

### Ajattelutehtäviä saduista ja runoista

+ Silta-tarina

+ Mitä Lululle on tapahtunut?

+ Halvar ja peikot

### Lisää ajattelutehtäviä

[Let's Think -sivusto, jossa englanninkielisiä ajattelutehtäviä](#)

Figure 6. Thinking tasks in the IKI-TARU-webpages

## TARGET GROUPS OF ACTS-PROJECT IN FINLAND

### TEACHERS

The aim of our ACTS-project was to create tools, which would be applicable to all school subjects and to students of different ages. Therefore, we also aimed at contacting different teachers from different

levels of education. The aim was also to enhance the sharing of good practices by giving the participants time to present their own thinking approaches. Most of the teachers participating in the dissemination events were class teachers. The class teachers participating to our dissemination events were from all the levels of primary school and the secondary school teachers represented language education (second language), mathematics education and student counselling. There was only one high school teacher in our dissemination events and she was a teacher in philosophy. The early childhood educators participating in the events were mostly second language oriented. There were a few university teachers and teachers of special education. The following figure (Figure 7.) illustrates the variety of the teachers participating in our project.

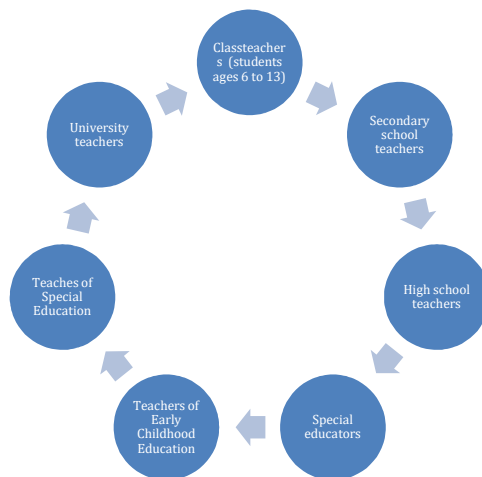


Figure 7. Teachers participating in different dissemination events.

Based on the experiences of these teachers it is safe to say that ACTS-tools can be accommodated to learners of almost all ages. The teacher working at the high school said that for her students and in her subject the tools do not offer many new perspectives for students or teachers. However, according to her the tools visualize thinking and learning to learn skills to students in a very concrete way.

The class teachers described their approaches to using the tools in a way that would make them useful for a longer period. During our dissemination, we encouraged the teachers to take the tools to classrooms gradually: maybe choosing the most interesting tool and testing it and then adding another tool. According to the feedback, the most used tool was the wall sentences. They had a clear contact to the Finnish national curriculum for basic education and they were easy to comprehend for children and teachers. Furthermore, they were in accordance with the requirement for self-assessment by the children and for assessing the working skills. There was a clear need for this kind of a tool for Finnish teachers. The teachers participating in the dissemination developed our tools further and invented their own pedagogical applications. For example, one of the teachers decided to use the working sentences and the assessment form attached to it as a part of a meeting with parents.

Teachers had different ways of implementing the tools in practice. In general, the smaller the students were the less material they started with. For example, some of the teachers only used one sentence or one Bloom's verb cloud at the time. There were also opposite ways: one of the teachers gave all the clouds to students (fourth graders) and asked the students to choose the one cloud that illustrated their learning in a certain lesson.

We were satisfied with all the materials since the teachers mentioned all the tools. Besides the wall sentences and clouds the teachers started implemented different thinking games in their teaching. The Yes and no –game was a success and teachers reported using it on many different occasions. Part of the feedback the teachers gave us, surprised us and made us realize the usefulness of our tools. Some of teachers told us that the Bloom's poster actually helped them to understand what Bloom's taxonomy really means and learn it: it helped them to assess their lesson plans and the way they led conversations during classes. It seems that many teachers had misunderstandings concerning Bloom's taxonomy. One of the teachers thought that the taxonomy describes the stages of thinking development and that a student cannot be creative if he or she is not able to make an argument. One of the aims of our tools was to help the children to verbalize their thinking, Therefore we chose to use the Bloom's verbs. During the project, the teachers noticed some problems with the language skills of children: the children are not able to define words and explain the difference between two words. They felt that the tver clouds really enhanced the language growth of children.

Alongside with the multiplier event and the training phases of the project we organized some other training activities. In January 2018, the ACTS-members were asked to organize a workshop for teachers in Rauma as a part of a large educational event for all the teachers in the city of Rauma and 32 teachers participated in the workshop. In November 2019, one of the primary schools (Unaja) contacted us and asked for a workshop on thinking skills. The personnel came to the Teacher Training School of Rauma and participated in the training. There was also one workshop at Eura Kirkonkylä School and workshops for the teachers in the Teacher Training School of Rauma. In addition to these ACTS-members' own workshops we also offered workshops implemented by international experts to teachers in Rauma, Eura and areas close to them. At the very beginning, the multiplier-event was supposed to be a part of a compulsory staff training of the city of Laitila. This was cancelled due the Covid 19 -crisis, but it is likely to happen in the future.

## STUDENT TEACHERS

Since two of the organizations in Finnish ACTS-team are involved in teacher training it was natural to incorporate the project in teacher education. The aim of the project was to create sustainable and flexible tools for the use of teacher training. In Finland, most of the in-service training is implemented in the teacher training schools. In Rauma campus, both the student teachers in class teacher and craft teacher

education have in-service training in the teacher training school. This means, for example, three courses of class teacher students (about 250 students) held in the school per year. The ACTS-tools were used in all these courses during 2018 - 2020 at least in the classrooms of Toivanen, Jankama and Urmson.

Additionally, the teachers organized group tuition to all interested in thinking skills. These tuition for the whole group of students and smaller combinations of students according to their interests and tuition in the class where they are practicing. Many student teachers took up these opportunities to take part in these tuitions also from other classes, not just from the classes whose teachers were working in the project. The concrete ways of teaching thinking does not come up so strongly in their educational studies. It is good that the student teachers start with this important part of teaching right away while practicing. These tuitions have given opportunities to deal with teaching thinking and ACTS project. The trainees got deeper understanding about teaching thinking and were introduced into an international project. Via visits by Alex Black from Switzerland and project participants Stuart Twiss from UK and Alexander Sokol from Latvia, they had opportunities to take part in workshops. Teaching and assessing thinking got new perspectives.

In spring 2018, all the classes in the teacher training school were given a peer assessment tool (currently in ACTS-webpages). This tool was about enhancing the discussions in the class - more room for thinking in the class - with which the students could get ideas of the elements, which according to the literature give more room for thinking during the lessons. This paper focused on making questions and the looking at the dialogue in the class that follows the questions. There was a tuition for the whole group of students about this paper. The paper would help the students to plan the lessons and it would work as tool in observing the activities in the classroom. The students could focus on a couple of issues at the time out of ten.

In 2019 - 2020, many tuitions were held for the student teachers on teaching thinking skills by introducing thinking tasks and games. The ACTS-tools were shared in classes with a folder containing all the materials. Since the training also involves observing the lessons of other students and the guidance of the personnel of the University of Turku. It is safe to say, that the ACTS-tools became familiar among students and personnel.

In the feedback of teacher students, they explained that it was good that they were informed beforehand about the ACTS-tools and they were given them to study before the teaching started. The Bloom verb clouds with the Bloom poster helped to visualize the thinking verbs and have a discussion about their meaning with the pupils either in the beginning of the lesson or in the end of the lesson. The tool worked in a diagnostic and reflective way. It gave words, which are important when the teacher is talking about the thinking process. Because the clouds were placed on the wall, they were easy to use systematically and spontaneously during the lesson. Furthermore, the teacher students thought that the wall sentences

were concrete and helped to set aims by the teacher and the pupils. There was discussion in the classes about the skills: have we been practicing them, do they still need practicing and which ones are going to be practiced next. The wall sentences were easy to move around in the class and put on the board. A feedback from one trainee: *“Asking the pupils to reason their answers is important. I let the pupils choose their aims from the wall sentences when they worked in small groups. They reflected on reaching these aims at the end of the class. I practiced a neutral way of responding to the answers the pupils gave and realized that it made them talk more.”*

The ACTS-tools and other materials created during the project will be actively used in the teacher training school of Rauma by the teachers and during the in-service training. There are ACTS-tools in classrooms, the Moodle area is easy to use during tuition and the webpages are available to all. The members of ACTS-project plan to update the materials and develop the pedagogy further.

The student teachers of early childhood education in Rauma campus do not have in-service training at the teacher training school. They implement their in-service training in kindergartens in different parts of Finland. For them, the ACTS-tools were introduced as a part of their last in-service training. They had a workshop presenting the tools and they were given the key rings as well as guidance to print the other tools. Four members of the personnel participated in this lecture. The students were third year students and the number of the course is over 100 students. Because of the lecture, five students are currently taking the self-study course in the Moodle.

There were also other teacher education departments and teacher training schools involved in the ACTS-project. As a part of the multiplier activities, we had a multiplier-event in the universities of Jyväskylä and Eastern Finland. The multiplier-event in Jyväskylä involved teachers having further education and one teacher educator and in the University of Eastern Finland over 100 hundred class and subject teachers participated in the event. They were all given the keychain and a possibility to print the other ACTS-tools. The feedback from these groups were good and among other things they thought that concentrating on Bloom’s taxonomy was well-focused as well as giving concrete tools to illustrate and assess the thinking goals of the national curriculum.

During the project, we have also cooperated with the Universities of Helsinki (Minna Huotilainen, Najat Quakrim-Sirniö) and the University of Tampere (Päivi Nilivaara). We had plans to have a multiplier-activity for the teacher students in Helsinki in autumn 2020 but it was cancelled due some problems with the schedule. However, our partners in these universities are familiar with the tools and they have material on our webpages. The following figure (Figure 8.) shows the students teachers participating the project.

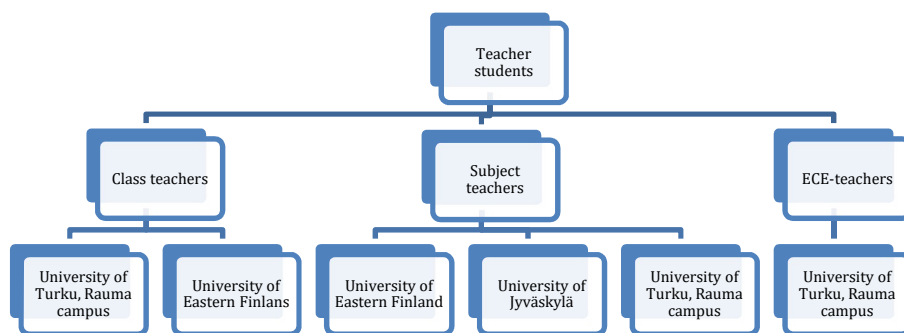


Figure 8. The student teacher participating in the project

#### OTHER RELEVANT STAKEHOLDERS

Since the beginning of the project, we found it important to offer the tools for the use of different stakeholders close to school and involved in educating children. We had participants from students of school attendance assistants from Eurajoki's Kristillinen opisto and students of educational sciences from the Summer University. One librarian participated in our events as well as the whole personnel of the Eurajoki's Kristillinen opisto. The students of school attendance assistance found that all the tools could be useful in small group tutoring they will be implemented in schools. According to them, they make the aims of thinking skills visual and might help the students to understand what is thinking and what kind of thinking is expected in different assignments. They also found the material useful for them and they felt that material like ACTS-tools is not commonly used in Finnish schools.

Additionally, we worked, on two occasions, with museum pedagogues. The museum pedagogues from Tampere contacted us and asked for training in thinking skills. Due to Covid 19 –crisis the training was postponed, but all the pedagogues participated in one multiplier-event activity. The other occasion was a national event of pedagogues working with home museums. Both of the museum pedagogy groups gave us positive feedback and they found the tools related to Bloom's taxonomy useful. Additionally, they liked the thinking games and other activities. They found that an example of using the taxonomy to observe photos, drawings and environment is very useful, makes the learning in museums more student-oriented, and visualizes children's thinking in museum environments.

#### THE ESTIMATED IMPACT ON LOCAL, NATIONAL AND INTERNATIONAL LEVEL

The impact of Finnish ACTS-project can be assessed from local, regional and international level. Locally, we have been disseminating the ACTS-tools in Rauma, Laitila and the Eura region. Besides the schools and teachers of our own team, several schools and their teachers participated in our dissemination events during the project and at the multiplier-event. For example, in Rauma teachers from Pyynpää, Kari, Unaja, Syvärauma, Pohjoiskehä basic schools participated in the events and we had a workshop for all the teachers in Rauma district.

The local impact also comes with the connection to the University: the Teacher Training school and the Department of Teacher Education. They both now have the material available for the use of all personnel and students (the webpages and Moodle-area). The material is being actively used in the classrooms of Teacher Training School and during courses of Teacher Education. There is going to be a lesson on our tools for the teacher students of special education in spring 2021 and there are students implementing the voluntary course constantly. The voluntary course contains a project assignment in which the student will be testing the materials in a school or in an ECE-center and the materials are being disseminated. Aerila has some materials in her office the students can loan and use during these projects. Additionally, we still have about 100 key chains to disseminate (other materials can easily be printed on our webpages).

The impact at the national level is extensive. We have been offering the multiplier events (online) to many sources. At the moment, four of the Finnish universities have at least some knowledge of our project. In Jyväskylä University and in the University of Eastern Finland we have implemented a multiplier-event for students, in the University of Turku at the Turku campus we participated in an event (Edu Grow -conference) open to all students and personnel and we cooperated with personnel in the universities of Tampere and Helsinki. The students in the University of Eastern Finland have been using the tools in their in-service training. They gave us feedback informing us that the event and the materials are very practical and help them to visualize, assess and teach thinking skills to children. Additionally, they felt that the event and the materials contained new and useful information for them.

Alongside with the teacher students we were able to address other target groups of students: we had some events aimed at school teaching assistants and students of educational sciences. Educating the school assistants was meaningful, since all the teachers at Eurajoki Kristillinen Opisto participated in the events. Eurajoki Kristillinen Opisto is a school which offers versatile (both with costs and free) courses for different target groups. Some of the courses aim at professions and some at professional development.

The multiplier-events for teachers were promoted in many ways: we had open-for-all advertisements in Facebook (both in our personal areas as well as areas aimed at teachers), in our web pages and we sent emails to targeted groups of teachers (teachers involved in our other projects etc.) and we sent emails



to the educational offices in different cities. Since we offered the multiplier-event as a three-hour event and promised to give the participants a certificate of participation, the event was valid as a part of the teacher's obligatory education (in Finland every teacher has to attend two 3-hour courses or one 6-hour course of in-service training every year). This made the event even more appealing.

In addition to these, we had some special multiplier events: A special target group of teachers was the teacher participating in ILO-further education. It is a further education project led by the University of Helsinki and we offered its participants one dissemination event. The feedback was positive and they implemented our materials in their later materials. The capital city of Helsinki asked us to organize a multiplier-event for the responsible persons of different projects in their ECE-centers. After the event, we have had contacts from a couple of their units. Additionally, in Lohja city, Muijala School asked us to come and have a multiplier event at their school. The school focuses on child-centered approaches and children's self-assessment with the focus on Daily 5 –pedagogy. In their school, all the teachers and the principal participated and they have been actively incorporating our tools and materials in their pedagogy. Feedback from Lohja: *I got new points of view into my teaching. The games were interesting. I want to try them out in my class. The examples given were good and concrete. My understanding about a systematic approach in teaching thinking opened up. This workshop made me think about my teaching. Furthermore, there is going to be one dissemination event as part of Pathway-studies. Pathway is a further education project led by the University of Turku for teachers of all levels.*

The ACTS-project cooperated in Finland with the IKI-project. Some materials for enhancing thinking skills are found in their webpages ([www.utu.fi/iki-taru](http://www.utu.fi/iki-taru)) and the material is being used in their events (as well as the ACTS-webpages). This project is one of the spear projects of the Ministry of Education and Culture.

At a national level, we also have some publications to disseminate the ideas of the project. We had an article in the online news of the University of Turku <https://www.utu.fi/fi/ajankohtaista/uutinen/turun-yliopisto-mukana-parantamassa-perusopetuksen-opettajien-ja-oppilaiden> (Figure 9.) Additionally, Kirsi Urmson has published an article in a book (2018) published to celebrate the Teacher Training School of Rauma. The book is called *Oiva opinahjo, katsaus vuosiin 1997-2018* (The best school 1997 – 2018) and the article *Syväsukellus ajattelutaitojen opettamisen kulttuuriin* (A deep dive into the culture of teaching thinking). The article illustrates the ACTS-project. The book is being sold in the online store of the University of Turku. We have plans for a joined publication in spring 2021.



Figure 9. The article in online news

Before the project, we were familiar with the other project members, but during the project, our knowledge of their approaches to thinking deepened. Being a part of this project was a challenge to the Finnish team, since the other members of the project already had a solid theoretical background and a lot of experience in implementing the pedagogy of thinking skills. We had been working with thinking skills mostly using the pedagogy of these partners and other, mostly, international pedagogical approaches. At the beginning of the project, we started to create an approach of our own and it was a challenge: we read many studies and talked with each other a lot. Furthermore, the feedback and guidance of the international partners was very valuable: they made us argue and ponder our perspectives on thinking more critically.

We have plans for co-operation with the Let's Think organization and Michael Walsh has had a workshop in one of our other projects. Additionally, we have made a contract to translate some of the materials implemented by Let's Think. They are placed in IKI-TARU-webpages and are freely available to all. During the project, we have had several presentations in TA-conferences organized by the Latvian team. In autumn 2020, we had a presentation (online conference) in TA-conference presenting our ACTS-tools and the webpages. According to the organizers, there were about 80 people listening.

All our materials as well as tools are also available in English via our web pages. During the project, we worked actively with Alex Black from ABC-Education. His help and working for the project has been extensive. Furthermore, during his stay in Rauma, he made several connections to the personnel of our university and there are plans for future projects.

### **THE EFFECTS OF COVID-19 –CRISIS TO OUR PROJECT**

The dissemination events prior Covid 19 –crisis were planned as face to face –events and until the beginning of February we planned to have one multiplier event at 8<sup>th</sup> of March 2019 in the University of Turku. We had program for the teacher trainees as well as the teachers. The program was also planned for the English audience. The keynote speakers were Minna Huotilainen and Alex Black. The number of participants was about 100 and for example, almost all the teachers of the city of Laitila were planning

to participate. Due to the Covid 19 -regulations of the university we first moved the event to August (the plan was similar to March), then separated it to smaller units (one in Rauma and one in Laitila). After the new Covid 19 –regulations we changed the face to events to online events. At that point, Laitila city informed that they will have to cancel the event, since they must concentrate to Covid 19 – situation. We contacted the persons’ registrated to the event in March actively and due to problems with the schedule, we decided to organize several multiplier events. We were able to have one face to face – event in August for those originally registrated to the event. This event was held in local library.

Due to Covid 19 –situation we decided to have several additional events. The program would be the same as well as the length. We kept the length in three hours to be able to make the multiplier event more tempting to teachers. We promoted the events and possibility to organize small group events online or face to face in social media and through our networks. The events in Eurajoki Kristillinen opisto (2 events), one event in Muijala School and in Freinet school of Rauma as well as one event for the museum pedagogies were face to face. These we were able to organize since they involved small groups of people working or studying in the same place. All the other events were organized online. It was easy since we were able to use the university’s zoom-connection and the teachers already had experience on teaching via internet. We all participated the first two multiplier events and practiced to be able to implement the events individually. Furthermore, at the first event we had an online lecture from Minna Huotilainen. This lecture was recorded and edited. This recording was then used in the later multiplier events. For online participants we decided to send the tools. This was done prior the event and they had them before the event. After the event, we send them a certificate and a questionnaire asking for feedback. We have plans to investigate the experiences on ACTS-tools later in the spring 2021. We were very satisfied with the online events; they were perhaps not so hands on activities but we had many good conversations and the participants had many things to say on thinking and our tools. Based on this feedback, it is safe to say that all the participants are using some of the tools and they have noticed a significant change in their ways of implementing conversations in classrooms. The feedback of one of the teachers: *Not so many things have changed, but I have been asking for arguments to the answers from students. This is an important change.*

SOME PHOTOS OF THE PROJECT AND THE ACTS-CLASSROOM

