Name of the learning community	Keminmaan keskuskoulu
The name of the best practice	Young people learning statistics
Please give a comprehensive description of the best practice of your learning community.	Young people learning statistics Developers of the learning procedure: Aira Karassaari ja Hanna Littow Upper comprehensive school of Keminmaa, Keminmaan keskuskoulu, Finland Good learning practise in our school A practise we have found good is combine of math and mother tongue studies together when our eighth graders study statistic. Students carry out a realistic statistic research of the topics they self desire to learn more about. The practise is strongly based on our new national core curriculum for basic education. Exploratory and inquiry learning have both been thought of, when this practise has been developed. This is also considered as one multidisciplinary learning module, which all Finnish students must have at least one in a year. This kind of working provides opportunities for experimentation, exploration and active learning. Students carry out this work which enables them to take long-term responsibility for their own work. What started eight years ago with pencil and paper has now evolved in using modern digital learning environment. The use of digital learning environment has made it easier to use the whole world as a possible research field. We have improved this practise every year and during this period we teachers work really tightly together to enable work to continue flexibly in both teachers' lessons. Other math and mother tongue teachers in our school have also used this practise with their students. Research topics that students choose surprise us teachers every year. Those topics reflect students wide interest in our society, to their lives and things that are related to their future. The recipe of our practise This work is carried out in the eight grade. Students can use seven lessons in a week for this work, both math and mother tongue lessons. The project takes approximately 6-8 weeks. We start the work by introducing the task and the aims. Their task it to carry out a realistic survey, write a report and introduce their results to their classmates. They train to collect and analyze information. Some students collect their information from ready-made digital materials. Students can choose either to work alone or in pairs. They get their individual learning diaries, which is the only thing they need pencils for. The rest of the work is the done in digital learning environment G-Suite by Google. It enables us to follow and comment their work in every step of the way. It is also possible for several students to work at the same time with the same documents. Students can easily find text processing app (docs), spreadsheet app (sheets), presentation app (slides) and questionnaire app (forms) in G-Suite. Students have all the material they need in the Google classroom: link to digital school books and a guide made by us teachers. They are advised to search Youtube tutorials for G-Suites apps. More advanced students have the possibility to show their talents and teach others. They are not necessarily the same students we usually think who are advanced in math or mother tongue. This method also makes it easy to pay attention to different kinds of learners. Also we teachers learn new things every year. The students may choose the topic and responders of their research themselves. After that they start to scheme their questions. At the same time they begin to form the hypothesis of their research. The final questionnaire includes approximately ten questions. This period takes lessons from two weeks. The questionnaire is nowadays mainly digital. When the questionnaire is ready students send it forward by email. While they are waiting forthe answers they start to build up the report and write the introduction chapter. They also search the digital reports from the same field than their own research to compare the results in the discussion part of their report. When the time limit of answering is up the students start to analyse the results, generate the different diagrams, transfer them to report, write a report and summarise their study into the digital presentation. The digital presentations are presented in the final seminar by the students. After each presentation the young scientists get a diploma from the teachers. The diploma includes the list of skills they have learned and the software they have used. The final seminar lasts about three hours and some snacks are also served. Our ambition is to organise the seminar as respectful as possible. The homeroom teacher of the students is also invited to follow the seminar. In this part of the practise the students get experience of summarising, performing, following others presentations not to mention giving and receiving feedback. After the final seminar the students start to write a column or a letter to the editor based on the topic and results of their own study. Some of those texts are sent to the local newspaper. In this turning point the objective researcher becomes the subjective commentating columnist. The aim of this period of practise is to offer for students an opportunity to become aware of the differences in the texts and their purposes. The report writing and the column writing together trains to change the register of the language in certain purposes. The referring to students' own research is also included here. The main concept here is multiliteracy. Questionnaire topics, associates and internationality We have seen really versatile topics. Students have wanted to know more about things like studyig habits, the use of social media, hobbies and freetime, pets, amount of energy drinks people drink in their teens, sustainable development, responsible consumption, health care services and living conditions of elderly people. Students can choose their topics freely. Usually their topics are dealing with things they are interested in, things that are concerning them or things they want to influence in. The associates we have outside the school varies every year depending on the topics student choose. Students have held their questionnaires in several places, for example in the meetings of local retired people (the topic was the use of social media of seniors), in the cafeteria of vocational school (the topic was the students' opinion of the school meal), in primary schools and in our high school (different topics about hobbies and studying habits), local child care centre (topic was to study users' satisfaction of the service). One of our questionnaire was traveling with the home care nurses to homes of elderly people to study what they thought about the quality of the services provided for them. Students are encouraged to contact their possible associates themselves. Schools nurse and counselor have also helped students. They have provided students with their knowledge on healthcare and confidentiality. This project has been a good opportunity to practise language skills. For example last year some students sent their questionnaire abroad through eTwinning. We started an eTwinning project for this statistics project. Other countries involved were Denmark, Slovenia and Republic of Moldova. This year one of our questionnaire has traveled to Italy, Croatia and Czech republic. Our english teachers have offered their help if needed. The sight of curriculum and assessment The contents based on math curriculum is to deepen students' skills on collecting and analyzing information and to learn basic concepts of statistic. Things to practise from the curriculum of mother tongue are thinking skills, interaction skills, versatile writing and multiliteracy. To express and interpret diagrams, referring, summarizing and presenting are also important contents. Transversal competences we focus mostly in this work on are in ICT competence and multiliteracy. The main ICT skills we like to see our students to improve are using and mastering digital tools and learn new properties like digital table of contents in digital word processing. In those moments we remind them of the attitude of lifelong learning. The aims of this project are set in our national core curriculum and they have been presented for our students already in the very beginning of the project. These aims guide our assessment work. Students also assess their own work and the work of their classmates. We also inform homes to participate and to encourage their children's work process. Students evaluate each others at least three times during the work: while

	they generate the ideas of questions, while they test the questionnaire before sending and after the presentation in the final seminar. Teachers give a lots of verbal feedback and comments during their statistic research in classroom. At the end of the work we teachers use selfmade evaluation tables and assess their learning diaries. Students get grades, The whole process is assessed, not simply the completed report or presentation. In all assessment we emphasize the importance of new acquired skills. We have encouraged students to introduce their skills for example when they are applying for summer job. We also advise students to attach their statistic diplomas in their resume. Communality What we have experienced with this practise is that it gives us new perspectives of many students. Activity level is really increased and students have a possibility to really master their learning. These versatile methods in school increase their possibilities to get excited and learn new things. This plays an important role in their school motivation and self-esteem. Getting help and helping others seems to be easier: “Will you show me how this is done?” is seldom a phrase heard in more traditional lessons. This practise has lifted the feeling of togetherness in our school when all our students go through this statistics project. Students in the seventh grade get their first contacts with this excellent practise when they answer all the questionnaires they get to their smartphones and emails. Statistics is equal for everyone.
In carrying out the reported best practice the learning community has carried out collaboration between different school subjects.	Yes
Please list the school subjects.	Math, Mother tongue and English if needed
Our best practice involved collaboration with other actors from outside of our school.	Yes
Please list the collaboration partners.	School nurse and conselor, eTwinning, Elderly home care, Local vocational school, retired people union, local schools
Type of participant	Best practice