Public case report : Life around the school/Santahamina primary school

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PUBLIC CASE REPORT
Life around the school/Santahamina primary school

Linked to the pedagogical activity:
Exploring growth factors. Applying inquiry learning and virtual forums, http://www.fictup-project.eu/index.php/Exploring_growth_factors._Applying_inquiry_learning_and_virtual_forums
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1. General information

This report describes the organisation of ICT-related class work by a novice teacher who was willing to be helped by an experienced teacher in the field.

1.1. Project information

The report has been produced within the framework of the FICTUP project, which involves four countries (Finland, France, Hungary and Italy). FICTUP's objective is to develop innovative training material describing specific pedagogical activities entailing the use of information and communication technologies (ICTs), combined with a closely-directed tutoring process, and to test the impact of both the material and personal support on teachers who are novices as far as ICTs are concerned. The training material devised for each case includes a report describing the activities in detail: the topic, the objectives, students' outputs, the material required (software, worksheets to be completed by the students, etc.), the different pedagogical stages, and for each of these a description of the role of the teacher and the tasks of the students, etc. Each case report is accompanied by three short training videos. During the first year of the project, this training material was jointly designed and developed by a teacher experienced in using ICTs in teaching and another who had never taught using them, to ensure it could be easily used by others.

During the second year, the material was tested in the classroom by a teacher who was a novice as far as ICTs were concerned. She was tutored by the expert teacher who had designed the material. This phase was observed (and filmed), analysed and evaluated by the partner researchers. The ultimate objective is to draw on the experience of the project in order to adapt and improve the training methodology tested (organisation of the tutoring, specifications for the content of the training material, etc.) and to offer it for future use in educational institutions.

Each country's researchers had the following material for each case:

- the report on the pedagogical sequence and the three related videos;
- reports (notes and/or videos) on the meetings between the expert teacher and the novice teacher during the tutoring process (the two meetings prior to the experiment, and the meetings between the expert and the novice between each session);
- the answers to a short questionnaire given to the novice teacher before and after each class, asking her what she felt about the session and what she planned to do in the next one;
- the video recordings and/or observations of the researchers for at least three class sessions;
- the novice teacher's activity book;

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- the final review meetings with the novice and expert teachers following the experiment;
- evaluation reports for materials that have been subject the interim evaluation by other teachers and trainers.

1.2. School background information

The name of the school where the case study was conducted is Santahaminan ala-aste (http://www.santaa.edu.hel.fi/), which is a primary school including grades 1-6 (age of the pupils is from 7 to 12). The school is located in Santahamina island in the beautiful sea-side scenery of Helsinki. At present the island is a military base and the access to the island is restricted. Many pupils at the school are children of the staff working at the military base, but otherwise it is an ordinary Finnish primary school. There are about 100 pupils in the school. Classes participating in the FICTUP project were from the third grade (Expert teacher's class) and from the fourth grade (Novice teacher's class).

1.3. Participating teachers

The Expert teacher (ET) of the case is a male teacher having 20 years' teaching experience, 19 of them at the current school. He is 44 years old and had used ICT for 20 years in teaching, 24 years altogether. He is the teacher in charge of ICT issues at his school. He has been an active developer concerning ICT in education also outside the school for several years, working as a teacher trainer and scriptwriter of educational materials.

The Novice Teacher (NT) is a 29 years old female who has been working as a teacher for four years, two years in the Santahamina school. She has used ICT somewhat in her teaching since she started working as a teacher, and 13 years altogether. She had used the web-based learning environment, Fronter, somewhat during the previous year but had never created a new virtual room there by herself, or uploaded digital photos in it. (Fronter is a virtual environment which the local school administration has chosen for all schools in Helsinki.) She had not used the interactive white board (IWB) before, but local administration is widely equipping classrooms with IVB and encouraging teachers to use them. In her other school-related activities she does not use ICT.

1.4. Pedagogical material

The example scenario used in the case was titled "Exploring growth factors: Applying inquiry learning and virtual forums". In the example scenario created by the ET, primary school students (3rd grade, 9 years old) study wild courtyard plants and practice the construction of a simple experimental design related to growth factors. They carry out an inquiry project

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in teams, practicing complex scientific skills such as the formulation of research questions and hypotheses, information search, making and documenting observations, writing, etc. The 10-lesson inquiry process is coordinated, documented and shared using a Web-based collaboration environment and its virtual forum.

The example scenario and videos are available in the following web address: http://www.fictup-project.eu/index.php/Exploring_growth_factors._Applying_inquiry_learning_and_virtual_forums.

2. Documentating the activities

2.1. The realised tutoring process

At the beginning of the case study, the teachers were provided with the tutoring model created in the FICTUP project, including suggestions about the exploration of the example videos and case description, pre- and post-meetings and some minor tutoring exchanges during the novice teacher's classroom implementation.

2.1.1. Detailed summary

In the table below is a summary of activities actually conducted by the novice and the expert teacher during the entire process. The table is constructed based on the novice teachers' diary, interviews, those tutoring meetings in which the researcher was present, and classroom observations.

Type of activity	Date	Duration	Modality	Participants	Remarks
Introduction of the case study	18/02/2010	1 h	Teacher room at school	NT and researcher	Explaining the FICTUP-project, the materials and the case study
Meeting with a colleague	24/02/2010	20 min	F2f discussion	NT and a colleague from another school	Planning of possible collaboration in the project between two classes through Fronter
Pre-meeting 1	26/04/2010	1.5 h	F2f discussion in computer lab	NT, ET, research observer	Demonstration of the functonalities of Fronter and ET's previous projects; NT explained her draft plan; discussions both about

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					technological issues and pedagogical ideas
Meeting with a colleague; Scenario planning	17/04/10	15 + 30 min	F2f discussion; individual work at school	NT and a colleague from another school	Sharing materials; Exploring the videos and case description; planning the time table of own scenario; wondering about the challenges of the topic
Scenario planning	10/05/2010	About 1 h	Individual work at school	NT	Writing the teaching plan directly at the front page of the virtual room in Fronter
Sending scenario by email	11/05/2010		E-mailing	From NT to ET and research observer	NT send by email an elaborated written plan where she had underlined points for which she wanted to have help from ET (technical issues, guidance practices)
Phases 1-3 of the classroom implementation	18/05/2010	3*45 min lessons; tutor's help about 20 min	Regular classroom (1 lesson) and computer lab (2 lessons)	NT, research observer; ET during the breaks	ET helped NT in putting the digital cameras in order before the second lesson and uploading the photos to Fronter before the third lesson
Tutoring session	21/05/2010	1 h	F2f discussion in computer lab	NT and ET	Mainly practicing the use of Fronter (e.g. creating folders and discussion forums for groups)
Phases 4-5 of the classroom implementation	24/05/2010	2*45 min lessons	Computer lab	NT and ET, research observer	ET was present in the lessons and participated in guiding pupils mainly about proper discourse practices in web forums.
Short tutoring exchanges	Not known	Not known	School premises	NT and ET	Discussing the progression of the process
Phase 6 of the classroom implementation	25/05/2010	1*45 min lesson	Computer lab	NT	NT conducted an additional session with pupils to make them self-

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					evaluate and improve their contributions in Fronter
Short tutoring exchanges	Not known	Not known	School premises	NT and ET	Planning the finalization of the process
Phase 7 of the classroom implementation	02/06/2010	1 h lesson	Computer lab	NT, research observer	
Post-meeting	02/06/2010	1 h	F2f discussion in computer lab	NT, ET, research observer	The teachers discussed the experience , examined pupils writings in web, and ET gave feedback to NT about the classroom implementation.

2.1.2. Similarities and differences between the proposed tutoring model and realized process

Before NT's classroom implementation started, NT and ET had only one long session together (not two as suggested in the tutoring model) but during that they covered issues related to scenario planning quite comprehensively. After NT had carried out the first 3 lessons, NT and ET had another long session where ET helped NT very concretely to create and structure the working areas of the virtual learning environment and gave advice about proper ways to organize pupils' collaboration; the issues discussed were both technical and pedagogical.

NT had examined the example scenario and the videos before the meeting, but during the tutoring sessions, NT and ET did not concentrate on that example very much. They started discussing NT's own ideas about the scenario. In the example scenario, ET had followed so-called progressive inquiry model in structuring pupils' activities and had also thought the model for the pupils. The model presents sustained process of inquiry through certain phases, such as context creation, generation of research questions, creation of own theories, critical evaluation, searching deepening knowledge, generating subordinate questions, and developing new theories. NT told that she did not want to use that model in such detail, but have pupils explore signs of spring through a shorter exploration process, without systematically going through all phases. NT thought that the project would be too challenging and complex for the pupils if she includes the teaching of progressive inquiry model into it. Therefore ET introduced to NT another previous project that he had conducted (were pupils observed, photographed and recognized plants in school courtyard), which was more similar with the pedagogical ideas that NT wanted to implement in her scenario.

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During the classroom implementation, NT and ET had some short discussions together about the progression of the process (we do not have detailed data of them) and ET was also concretely present in two lessons because NT felt that she could use his help with organizing and guiding pupils' activities in web discussions. (Such tailored support based on NT's needs was in line with the tutoring model.)

2.2. Documenting the classroom implementation

The description of the classroom implementation is constructed by the researchers based on the plan written by NT and the classroom observations of actualized process.

The general idea in the implemented process was that pupils study the signs of spring in the nature and improve their knowledge in plant recognition. First pupils listed together, in the classroom, what they already know about signs of spring. Then they observed and documented signs of spring around the school courtyard in small groups and photographed their observations. In the computer lab, pupils shared their observations, questions, comments and explanations through a virtual learning environment. In the table below is a detailed description of the phases in the process.

2.2.1. Detailed summary

Pedagogical sequence/unit	
Subject(s)	Science (signs of spring in nature, plant recognition);
Class level	4th grade, age 10-11 years (N=15)
Duration of sequence/ unit	The duration of the sequence was 7 lessons, which were distributed in four days during about two and a half weeks (18/5-2/6) in the following way: 3, 2, 1 and 1 lessons.
ICT tool(s)	
Tool 1: Name, official website, tool type	Web-based collaboration environment FRONTER; http://com.fronter.info/, https://fronter.com/helsinki/
Tool 2: Name, official website, tool type	Interactive white board in the computer lab
Tool 3: Name, official website, tool type	Three digital cameras
Description of the sequence/unit	
Objectives of the teacher	• Learning to make and interpret observations (about signs in nature) • Learning to identify and categorize wild courtyard plants • Learning to use digital camera and basic functionalities of the virtual learning environment

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Description of the phases of the sequence	(Phases 1-3 were conducted in succession at the same day.) **Phase/lesson 1**: Sharing current knowledge and starting the research group work. First pupils were instructed to think alone their observations about signs of spring in nature. Then NT put pupils in pre-planned groups (3 pupils/group) and instructed them to write down there joint observations in a paper. Groups presented their list to others. NT gave each group a map of their observation area in school courtyard and described the phases of the process by showing the written plan in Fronter. **Phase/lesson 2**: Making field observations and documenting them in photos. The class went outside in the school courtyard. NT gave pupils digital cameras (one/2 groups) and instructions for using them. The task was to take photos of signs of nature from the group's observation area in courtyard. Groups returned to computer lab and reported their work to NT. **Phase/lesson 3**: Sharing and interpreting observations. Groups' photos were uploaded in the school's server by ET during the lesson break. In computer lab, pupils were first guided to read written instructions and guiding questions from Fronter. NT led an orienting discussion about some basic concepts related to the topic. NT showed all photos one by one on the interactive white board and pupils were asked to tell about their own photos and related observations to others. Finally pupils were instructed to go in their groups and wrote down in a piece of paper questions to other groups about their photos. (Phases 4 and 5 were conducted in succession at the same day.) **Phase/lesson 4**: Collecting and naming groups' photos. Pupil groups were asked to copy their own photos from a joint server to their group's own folder in Fronter. Each pupil moved at least one photo individually and gave a title to it. **Phase/lesson 5**: Making and answering questions about observations in discussion forums. Pupils had a task to look at other groups' photos in Fronter and write questions about them concerning signs of spring, plant recognition or environmental issues in general. Then they were supposed to answer questions presented to their own group. Pupils

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	worked mainly individually but discussed with their group members. **Phase/lesson 6**: Self-evaluation of written questions and answers. NT carried out with pupils a session, not originally in the plan, to make them self-evaluate and improve their contributions in Fronter because she was not satisfied with the outcomes so far. The teacher gathered pupils in front of the interactive white board in computer lab and showed them how to edit and improve the message texts. Then pupils had some time to work themselves with computers. **Phase/lesson 7**: Elaborating answers to observation questions and finalising the research process. At the beginning of the lesson, NT showed again to pupils with the interactive white board, how to answer properly to questions in discussion forums and how to edit messages. NT provided pupils with some plant books that could be used to construct answers. Then pupils had time to finalize their answers individually; NT walked around the classroom and gave guidance when needed.

2.2.2. Main similarities and differences compared to the example scenario by expert teacher

There were many similar elements in the NT's scenario with the ET's scenario (pupils own questions related to a phenomenon in nature, observations in school courtyard, group work, written process guidelines in the virtual learning environment, web discussions about the observations etc.), but the basic approach of the scenario was not designed completely according to the progressive inquiry model as the example scenario. NT said that she would not like to follow that model directly or put time or teaching the working model itself for pupils; she wanted to carry out a lighter project. Therefore, at the first tutoring session ET described and showed another project to NT, which he had conducted with pupils earlier about spring life in school courtyard. In that project pupils took photos with digital camera, discussed their observations and identified plants that they had photographed. NT used that project as a model for her scenario. The duration of NT's classroom project was 7 lessons, when the example project had been 10 lessons.

One differing element that NT planned in her scenario was collaboration with a twin class of English-speaking pupils. She also had meetings and common planning with the teacher of the twin class but, eventually, they were not able to actualize the collaboration during the classroom implementation.

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3. Lessons learnt for improving the materials and the tutoring model

3.1. Suggestions for using and improving the materials

The scenario text and the videos about the expert teacher's practices (see http://www.fictup-project.eu/index.php/Exploring_growth_factors._Applying_inquiry_learning_and_virtual_forums) appear to best work as orientation materials, but based on this case, teachers necessarily do not want to implement a totally similar scenario themselves. The case showed that it is valuable for a beginning teacher to get acquainted with several example scenarios that give more ideas and alternatives for own scenario. At least in Finland, teacher profession is based on much independence and autonomy in deciding how to teach, and teachers are not necessarily ready to adopt any plan as such, although they like to have practical and concrete examples.

In this case, especially the videos got positive feedback from NT. The written case description provided a good overview of the process, but was for NT even too detailed. She suggested that it would be good to have more concise scenario descriptions of various topics so that they are also explicitly linked to curriculum (which domains, which grades). This hope might be difficult to actualize if materials are produced internationally, because curriculums are different in each country.

One suggestion from NT was that if there is not a tutor available for a beginning teacher, it would be nice to have a help phone where the teacher can phone and ask advice. Perhaps the suggestion was not made very seriously, but apparently it would be quite useful for beginning teachers.

3.2. Suggestions for applying and developing the tutoring model

The tutoring model as such appears to include important elements for structuring the tutoring, and the participating teachers of the present case reported all activities as important: ET available at the school, pre-sessions with concrete pedagogical and technical suggestions and support, ET's presence in classroom, written scenario plan, and feedback after the implementation. Perhaps direct, even also critical feedback immediately after each lesson is one issue that could be emphasized more, which also includes that ET's presence in the classroom is important. However, this requires resources and might often be difficult to arrange in practice.

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There could be compact guidance material about the tutoring; at the present case the teachers received only the picture of tutoring model and the researcher's oral guidelines for organizing their activities.

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