D 6.2 Test and Reference Groups

Testing IMAILE PCP Phase 3

1 of October 2015

TEST AND REFERENCE GROUP

Project acronym: IMAILE

Project title: Innovative Methods for Award procedures within ICT Learning in Europe

Grant Agreement number: 619231

Coordinator: Halmstad Municipality

Project co-funded by the European Commission,

Seventh Framework Programme

Funding Scheme: FP7 – CP –CSA CALL 8.2.A

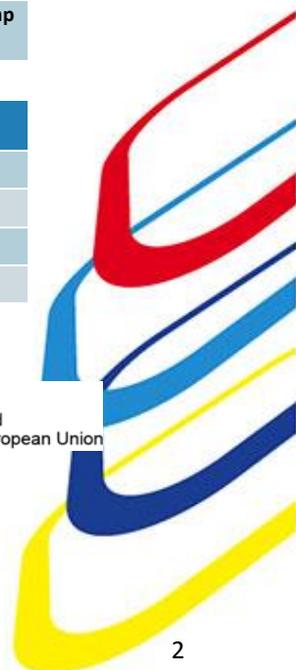| Due date of deliverable:	Month 13, 25.02.2015
Actual submission date:	Final version date
Start date of the project:	Feb 1, 2014
Project duration:	42 months

Workpackage	6
Task(s)	6.2
Lead beneficiary	Konnevesi
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Dissemination level		
PU	Public (after month 28)	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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1. Introduction

The aim of this document is to guide and support procurers, suppliers and project members in their work of performing the test and reference groups during phase 3 of the PCP process. For this purpose, the deliverable provides an overview of the different phases of the test and reference group including the schedule, expected contributions and responsibilities. Additionally, this deliverable addresses important gender issues, as a part of the test and reference groups and ethical aspects as private information and usage behavior of minors is being collected and analyzed.

IMAILE consortium has decided to use a method of test and reference group that represents real classroom settings, provided by the procurers, instead of test bed and lab environments provided by suppliers.

By providing access to potential end-users within their region, the procurers aim at ensuring that the developed services address the challenges and needs of all stakeholders. For the suppliers, the test and reference groups provide the opportunity to test their services in real classroom situations and to gain feedback directly from the end users. While the procurer provides the real classroom setting, decisions on how to use the test and reference groups are to be made by each supplier.

The IMAILE project doesn't force a specific procedure on to the supplier however some minimum requirements are listed in this document.

The IMAILE project provides the overall description of the aim of the test and reference groups, evaluates the plans and the results of each supplier. Accordingly, the test and reference groups are tightly integrated with the overall supplier evaluation process of the IMAILE project.

1.1 PCP Process overview and test and reference group integration

The IMAILE PCP process contains three main phases as following:

PCP in 3 stages (budget 3.8 million euro)

  I.   Solutions design (with up to 8 suppliers to be awarded – budget 380 000 euro)

  II.   Prototype (with up to 4 suppliers to be awarded –budget 1 520 000 euro)

  III. Smaller test series (with up to 2 suppliers to be awarded – budget 1 900 000 euro)

The common identified challenge among the IMAILE procurer group is the detected **increased demand of personalized learning solutions.**

The expected solutions of the PCP process will support both teachers and students (Primary /Lower Secondary Education) within our identified challenge. European teachers will be able to meet the students in a more **individualized** way despite increasing numbers of students in the classroom. And students will have greater opportunities to reach the STEM (Science, Math and technology) goals all over Europe which in a long term will lead to **reduction of "early drop outs".**

The aim of the test and reference groups is to test the acceptance of the new technologies by end-users and a potential impact on the identified challenges of the IMAILE project. This action will in a long term perspective contribute to a broaden and innovative use of learning technologies in Primary

/ Lower Secondary school as a result of effective public- private partnership and creates a SUSTAINABLE future of Technology – enhanced learning.

As part of the overall evaluation strategy of the IMAILE project, suppliers within the PCP process should address the test and reference groups within their application for the third PCP phase. Here, suppliers should describe their strategies, approaches for data collection and data analysis. The suppliers have to show, that their actions in the first two phases of the PCP process have contributed to the IMAILE goals. The results of the test and reference groups will be used to support the final evaluation result of the project in terms of recommendations for the future commercial deployment of the innovative PLE for STEM products. The result of the test and reference groups will not affect the awarding procedure as it will take place in the last PCP stage that lays within the timeline of the project.

- ❑ PCP to steer the development of solutions towards concrete public sector needs, whilst comparing/validating alternative solution approaches from various vendors

- ❑ PPI to act as launching customer / early adopter / first buyer of innovative commercial end-solutions newly arriving on the market
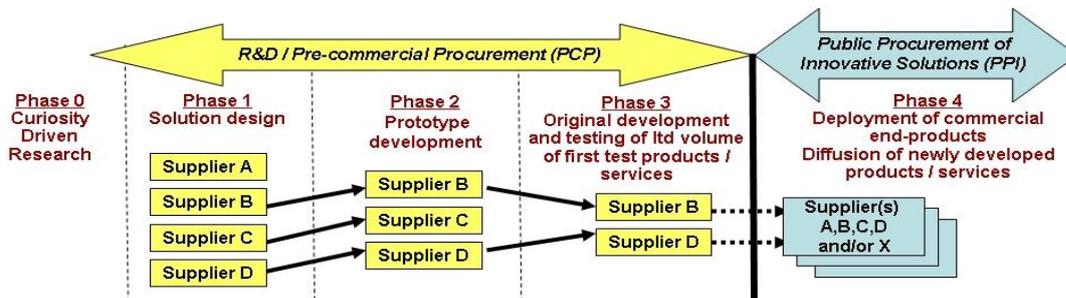
In the following, the background and the phases of the test and reference groups, as well as gender and ethical aspects are discussed in more detail.

2. Background & Pre-Phase

To describe the roles, responsible and actions of the test and reference group, three perspectives are taken into account:

I. Suppliers – the test and reference group act as facilitators of the test environment by setting up the minimum requirements. The suppliers can use these environments according to their needs.

II. Procurers –the test and reference group act to verify functionality of the ICT investment according to needs / challenges identified of the PCP. Also the test and reference group will give and share the local experiences to develop the pedagogical work in the communities.
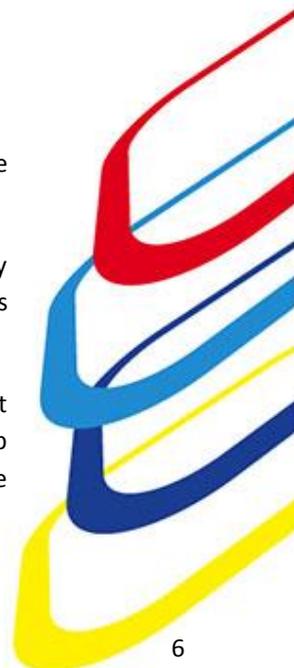
III.   End users –the test and reference groups act to represent the teachers, students and schools as a whole in the future

In the preparation of the test and reference group, the procurers of IMAILE project have decided to use real classroom settings (teachers and students) to test and analyze the developed services in a live school environment.

Minimum requirements suppliers

Below are some specific requirements that the contractors will have to take into consideration to design their approach to the testing/pilot stage:

1. Provision of an instructions/user guide for teachers on how to use and implement the solutions- This guide will have to be provided in English and will have to contain clear instructions enabling teachers of using the solutions properly.
   (Despite contractors approach to the testing phase an almost final version of the instructions/user guide for teachers will have to be presented with the end of phase 2 report and services offer for phase 3)

2. Provision of an instructions/user guide for IT experts how to use and implement the solutions - This guide will have to be provided in English and will have to contain clear instructions enabling IT experts in schools to support the installation of the solutions and monitor its utilization properly.
   (Despite contractors approach to the testing phase an almost final version of the instructions/user guide for IT experts will have to be presented with the end of phase 2 report and services offer for phase 3)

3. Provision of a web training seminar in English for teachers – Just before starting the piloting stage a webinar will have to be implement with the teachers of the 4 countries involved as trainers. The aim is to clarify doubts (after the provision of the instructions/user guide) and to uniform teachers approach in order to assure coherent data for the assessment of this stage.
   (Despite contractors approach to the testing phase an almost final version program and information on how the seminar will be implemented will have to be presented with the end of phase 2 report and services offer for phase 3)

4. Follow up and keep track of impact during the pilot stage based upon appropriate method- the testing phase will occur simultaneously in 4 countries and thus a proper methodological approach will have to be designed, including the provision of an i) interim short data collection form to collect data from the reference groups, analyse the data and implement corrective measures if necessary; ii) final data collection form to collect data from the reference groups, analyse the data and provide final assessment on the PCP 3 end of phase report gathering the results of the pilots in the 4 countries.
   (despite contractors approach to the testing phase the full methodological approach will have to be presented with the end of phase 2 report and services offer for phase 3)

Minimum requirements procurers

For this purpose, the procurers have to create the conditions and the test-bed for the piloting and establishing the minimum requirements for the pilot. Each procurer's responsibility is to offer the minimum conditions for the test-bed:

- The needed IT–infrastructure for online working with broadband connections

- Minimum **one (maximum 3) Primary School teacher and minimum one (maximum 3) Primary Schools class** (min. 15 students, age 7 – 12) and minimum **one (maximum 3) Lower Secondary School teacher and minimum one (maximum 3) Lower Secondary School class** (min. 15 students, age 13 – 17). Every procurer need to nominate the piloting school(s) and teachers

The project has decided that every procurer can increase the number of the piloting teachers and classes. The main issue is that each procurer has to nominate the responsible teachers and deliver their contact information before the start of the PCP process to ensure transparency of the process.

The basic information of the piloting schools, schools infrastructure and teachers and classes has been collected. Each procurer has collected the basic information of the schools infrastructure, the current the Internet connection and the Wi-Fi connection.

Also the procurers have been asked about the development plans for the schools IT – infrastructure for the next school years 2016 – 2017, the possibility to increase number of computers per student and the number and vision of the usage of the mobile devices and laptops. The procurers were asked to estimate the increase of numbers of the student and teachers' computers until the school year 2016 – 2017.

Through the identification of suitable schools and their IT-Infrastructure, the test and reference groups have been enabled. In the next section, the piloting scenario with the included phases is described in more detail.
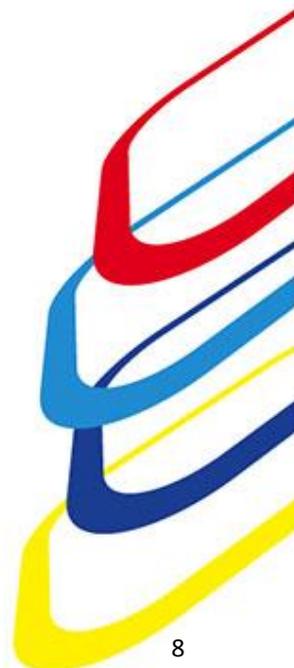
Procurer:	HALMSTAD		KONNEVESI		VILADECANS		Region SACHSEN-ANHALT	
	Current status	by 2016	Current status	by 2016	Current status	by 2016	Current status	by 2016
Primary School's name:	Vallhallaskolan		Kirkonkylän koulu		Sagrada Família		Dreispachige International Grundschule.	
Internet connection	100 Mbit	1 Gbit	100 Mbit	100 Mbit	Fiber Optic 300 Mbit	N/A	6-10 Mbit symmetric	6-10 Mbit
Number of PCs/student	1/4	1/2	1/2	1/1	1/10	N/A	1/1 from grade 3	1/1 from grade 3
Wireless connection	Yes (free)	N/A	Yes (free)	Yes (free)	Yes	N/A	Yes	Yes
Number of laptops	51	N/A	20	40	60	N/A	80	40
Number of tablet PCs	24	N/A	2	20	0	N/A	N/A	40
Lower Secondary School's name	Söndrumsskolan		Kooneveden yläkolu		Instituto Miramar		Ökomenisches Domgymnasium Magdeburg	
Internet connection	100 Mbit	1 Gbit	100 Mbit	100 Mbit	100 Mbit	N/A	50 Mbit symmetric	50 Mbit
Number of PCs/student	1/1	N/A	1/3	1/2	20/1	N/A	N/A	N/A
Wireless connection	Yes (free)	N/A	Yes (free)	Yes (free)	Yes	N/A	Yes	Yes
Number of lapops	56	N/A	20	40	20	N/A	N/A	N/A
Number of tablet PCs	455	N/A	2	20	0	N/A	30	60

Figure 1: The summary of the survey. (N/A = no information available)

2.1. The piloting scenario

In the 3rd phase of the PCP process, the selected suppliers will provide the prototypes for piloting in the real primary and lower secondary classrooms and with teachers and students. The following GANTT-chart provides a tentative time and content chart of the upcoming process of test and reference groups' competence building and networking:

	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M 34	M35	M36	M37
Network	Building the teacher network																	
Application			Submitting ERASMUS+ application															
Teacher team meetings	Team meeting		Team meeting		Team meeting		Team meeting		Team meeting					Team meeting		Team meeting		
Trainings for teachers		Online training		Online training		Online training		Online training								Online training		
PCP										2nd phase of PCP								
Pilot																		PILOTING

Figure 3: GANTT-chart of upcoming activities regarding the test reference groups

The piloting of the contractor's prototypes will start in the January 2017 (month 36 of the project). The piloting phase will take a total of 30 weeks.

Before the piloting the procurers and the test and reference group need to prepare themselves to the minimum requirements. The procuring communities need to secure that their IT–infrastructure is compatible with the prototypes; the needed Internet connections and equipment respond the both technical and pedagogical needs.

The procurers and the Test and Reference group will develop the competences of the teachers through online training sessions before the piloting period.

Minimum requirements teachers

The minimum requirements for the piloting teachers' competences:

- To know the basics of the classroom ICT -didactics

- To understand the cloud computing basics

- To understand the new pedagogical methods need to be used like project based learning, problem based learning, phenomena based learning

- To know the basic skill of using the e-materials to support the learning processes

- The plan for teachers competences

These preparations will occur before the pilot phase of the prototypes during months 20 – 35 (September 2015 – December 2016).

The preparation starts by networking between the participating teachers. When the piloting teachers group is nominated, they need to be trained for the pilots. Multiple different training sessions and online trainings will be prepared. The aim of the trainings is to ensure a suitable competence level of the teachers to allow them to handle the expected tasks in the test and reference group.

The goal of this networking is to create a European school network. The network will start working online and develop skills and experiences needed in IMAILE piloting.

In the project month 20 (September 2015) the Test and Reference group will gather in a web-meeting. In this meeting the basic lines for the co-operation and schedules are agreed.

The networking is started as an eTwinning –project, (*Project plan, Appendix 2*) where the participating teachers and school classes will meet and start collaboration.

Additionally IMAILE Coordinator will apply for a mobility network under Erasmus + Key Action 1 in March 2016 including all test and reference countries. This mobility project aims to strengthen and motivate the teachers and students on a European level of the described work in this deliverable as a democratic approach for teachers and students and their input to develop new ICT solutions for European Education. The test and reference group teacher's competence building trainings will start in project month 21 (October 2015) by the agreed schedule. This and the other trainings will be provided by the Konnevesi Community, which is the task leader and will coordinate the pilots, organisation of the trainings and the pilot process.

The tentative content of the trainings will cover the minimum requirement of the teachers' competences for the piloting.

The second phase of network collaboration contains implementation instructions of piloting functions and tasks. The third phase contains the piloting practises and execution instructions. Most of the training will be implemented as webinars.

This competence building, networking and then execution of the pilot of the contractors' prototypes means additional work for the test and reference group members.

In order to facilitate the task and provide an estimation of expected working hours for the teachers and schools involved the following tentative table is presented:

Task	Amount	Hours	Total	
Preparation				
Network meetings	8	2	16	hours
Networking the students	20	1	20	hours
OnlineTraining	4	2	8	hours
Personal drilling	6	2	12	hours
Pilot				
Learning the prototype 1	2	2	4	hours
Planning the lessons for pilot 1	8	1	8	hours
Reporting the experiences 1	1	4	2	hours
Learning the prototype 2	2	2	4	hours
Planning the lessons for pilot 2	8	1	8	hours
Reporting the experiences 2	1	2	2	hours
Total hours			86	hours

Figure 2: Estimation of expected working hours for the teachers and schools
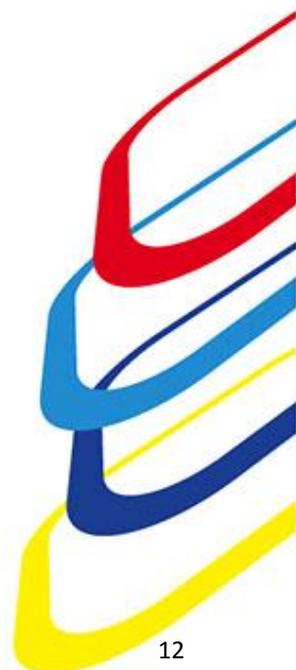
3. Method and the pilot process

The pilot phase starts in the project month 36 (January 2017) and contains 7 distinct phases.

The following Gantt provides a tentative time and content chart of the upcoming process:

Number of weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Startup phase	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓																				
Installation phase (2)											▓	▓																		
1st Testing phase													▓	▓	▓	▓														
Collection of inputs																	▓	▓												
Update and changes																				▓	▓	▓	▓	▓						
2nd Testing phase																									▓	▓	▓	▓		
Ending, reporting phase																													▓	▓

Figure 4: Weekly activity table of method and pilot process

Konneveden kunta (Konnevesi Community) is the task leader and will coordinate the pilots, organisation of the trainings and the pilot process. In the following, each phase including the tasks and responsibilities will be described.

3.1 Start-up phase

The piloting process begins with the Start-up–phase. The aim of this phase is the preparation of the test and reference group. The tasks of the preparation can be classified in three groups:

1. Technical preparation

2. Teacher and end-user preparation

3. Content preparation.

In terms of the technical preparation, the contractors have to handle the technical preparation of the task by adjusting the developed services to the local requirements of each test case. The contractors need to clarify the technical compatibility with each of the piloting school and the procurers' IT –departments in the start-up phase. Also the possibilities of implementation and the national regulations need to be mapped. According adjustments to the services have to be realized.

In terms of the teachers and end-user preparation, the contacting and networking of the piloting teachers, IT units and the local experts is a pre task for the contractors. The piloting needs preparations, plans and clear instructions. These instructions and plans ought to be sent to the test and reference group and procurers before the implementation of the prototypes start. Clear instructions for all stakeholders have to be provided.

The teaching subjects for the piloting are STEM subjects. To find possible STEM topics for the pilot lessons, a list of STEM topics in Finnish curriculum was made. The list of STEM learning topics was then reviewed by the procurers and filled, adjusted to match the curriculums and annual learning schedules. The summary of the STEM topics is presented in Appendix 4.

In terms of the content preparation, the contractors and the test and reference group need to agree on the tested STEM contents topics and lessons for both primary and lower secondary classes. The contractors have to choose the piloting learning/teaching topic out of this list and get an approval from the test and reference group. These topic and content need to fit in the annual local curriculum so they can be implemented in the everyday work as smoothly as possible. It is the responsibility of the contractors to provide the content.

Before installation phase the minimum requirements, expected outcomes and responsible for contractors are

- Evaluation of the technical infrastructure of the piloting community (schools, administration etc.) and adjust the prototype in this local IT systems.

- The localization of the prototype (curriculum connections, local specific instructions etc.)

- Design and creation of the STEM learning content for Primary and Lower Secondary Schools for piloting

- Development of the support for the users during the pilot of the prototypes

- Administrative work like agreement of parents for the participation to the pilots, data collection from the minors etc.

- Creation of the user accounts in the prototype platform for all the users

- Create a plan for piloting and apply for approval for it from the procurers

- Plan of the data collection to evaluate the pilots

The procurers are expected to support the IT process and deliver all the needed information to the contractors.

The und users (piloting teachers and -students) prepare to the pilot and practice the usage of the online materials, online assignments and web communication skills under the supervision of the task leader.

3.2. Installation phase

The installation phases' aim is to set up the prototype for the pilot. The installation phase is planned to be 2 weeks. Accordingly, the main aim of this phase is the integration of the supplier's services into the IT-Infrastructure of the schools. Hereby, the technical realization in terms of integration with existing systems and creation of user profiles to enable the personalized learning is in the focus of the contractors. This technical realization has to be handled in collaboration of the contractor and the procurer. The procurers need to ensure the functionality of the infrastructure.

Besides the technical realization, these weeks are also crucial for the teachers to implement and adapt the prototypes in their everyday' classroom work. The phase is mostly supporting the teacher, implementation the platform in the school's infrastructure and testing the functionality. The teacher need be guided through the system during the trainings. Also online help and support for the teachers is needed.

The requirements for the contractor's consideration to design their approach to the installation phase:

1. Provision of an instructions/user guide for teachers on how to use and implement the solutions; this guide will have to be provided in **English** and will have to contain clear instructions and tutorials enabling teachers using the solution properly. These user guides need to be presented during the application for the 3rd phase of the IMAILE PCP process.

2. Provisions of an instruction/user guide for IT experts how to implement, setup and use the solutions: this guide will have to be provided in **English** and will have to contain clear instructions enabling IT experts in schools to support the installation of the solutions and monitor its utilization properly. These user guides need to be presented during the application for the 3rd phase of the IMAILE PCP process.

3. Provision of a web training seminar (webinar) in English for teachers just before starting the piloting stage. The webinar need to reach all participating teachers involved. The aim of the training is to clarify doubts (after the provision of the instructions/user guide) and uniform teachers approach in order to assure

coherent data for the assessment of this stage. This webinar need to be recorded for future use.

4. Creation of the user accounts, roles and rights of the pilot users in the prototype.

5. Follow up and keep track of impact during the pilot stage based upon appropriate method. The testing phase will occur simultaneously in 4 countries and thus a proper mythological approach will have to be designed, including the provision of an

   i) Interim short data collection form to collect data from the reference groups, analyze the data and implement corrective measures if necessary

   ii) Final data collection form to collect data from the reference groups, analyze the data and provide final assessment on the PCP 3 end of phase report gathering the results of the pilots in 4 countries. (Despite the contractors approach to the testing phase the full approach will have to be presented during the application to phase 3 of the IMAILE PCP process)

Additionally, in this phase the contractors and the test and reference group will agree on the lessons contents, learning processes, student assignments and the level and methods of communication need to be described and agreed with the teachers.

3.3. First testing

In the first testing phase, two contractor's prototypes will be tested within real classroom situations. Hereby, half of the teachers will pilot one prototype and the second half will pilot the other.

Teachers need to follow the instructions and execute the tasks in their classrooms. This process needs to be supported by the contractor by following up the processes, tracking the technical functionality and offer online support for the users.

For this purpose, the contractors should be present in the schools to support the teachers and students. The contractor can collect live data during the test and reference groups to analyze the usage behavior. The collection of data and the purpose of the collection have to be agreed beforehand with the involved parties.

The testing phase should thus be used by the contractors to gather first impressions, feedbacks and usage behavior. The contractor can decide if they want to collect all relevant data directly in the classroom or follow up with a detailed data collection as described in the following phase.

3.4. Collection of inputs

After the first testing the input and experiences are collected by the contractors. The contractors can use appropriate methods (such as surveys or questionnaires) to collect the feedback of all involved stakeholders (students, teachers, IT staff etc.) The test and reference group will gather is the experiences, good practices and teaching hints for the competence building of the procurers educational personnel. It is the responsibility of the contractor to analyze the feedback and summarize the findings providing appropriate evidence for the claims made.

The contractors will provide the report of the analyzed feedback to the test and reference group, The IT units of the procurers and the evaluation group of IMAILE project.

3.5. Update and changes

The results of the first testing phase and the data analysis should be used to update the prototype, solve bugs and address the wishes of all stakeholders.

Based on the changes, new instructions and support material has to be developed and provided to the procurers. Additionally, change logs should be kept for the purpose of transparency to ensure all comments have been taken into account. After developing the new version, a new installation and training session has to take place. The test and reference group will have an online seminar to share the experiences and collect the good practices of using the prototypes.

The minimum requirements and responsibilities for the contractors in the second testing phase are

- Addressing all feedback and comments by all stakeholders

- Provision of a change log to ensure transparency

- Provide updated support and training materials

- Update the installations in the procurers infrastructure to the latest version

3.6. Second Testing phase

In the second testing phase the tested prototypes are switched between the classes. This means, that every teacher and class is presented with a new prototype. The aim of this phase is to get the information of the prototypes learning, teaching and pedagogical functionalities. Additionally, it should be analyzed if the actions of the contractor in the updating phase were successful and the identified issues with the prototype were sufficiently addressed.

With the experience of the first testing the teachers can concentrate more pedagogical and didactical processes. The test and reference groups' teachers and student have practical skills from the first testing and they are more familiar with the new pedagogical approaches.

The expected outcome is that the individual students' PLE work, personalized learning materials and analyses of the learning data can be piloted.

With the more experienced piloting groups more accurate information can be collected from the testing.

Similar to the first testing phase, the contractor is responsible for the data collection and can select the appropriate approach. The contractor again has to analyze and report the results appropriately.

The second testing will have a big role for the procurer communities' education section for the future development. With these testing experiences, the strategic development can be created. The shared practices and experiences, good and bad, from the test and reference group can be refined for the local use to develop the pedagogical practices of using PLE in STEM education.
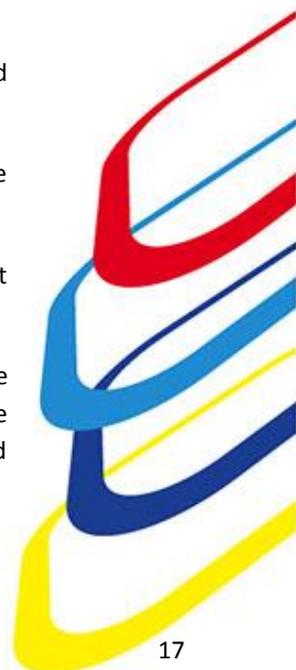
3.7. Ending and reporting phase

In the final phase the systems have to be cleaned and the user accounts and other personal information deleted. However, students and teachers work in the prototypes should be saved if requested. Therefore, the prototypes need to have reasonable possibility to export the outcomes, work and other information/files for the user's personal use.

Each contractor has to produce a final report on the test and reference group based on their results. The report should in particular showcase that all plans and promises of the contractor have been followed up during the first two phases of the PCP process, and that the prototype has the potential to provide an impact on the IMAILE challenges.

The report of the contractor has to be provided together with the final report of the PCP phase.

4. Evaluation of the pilots

The test and reference groups will be evaluated by the evaluation panel of the IMAILE project and as part of task 5.3: Monitoring the development of PLE for STEM in school education.

For the evaluation process, the different reports provided by the contractors will be taken into account. Here, the evaluation panel will in particular analyze the suitability of the approach, the results, how well the results of the first round have to be taken into account, and the evidence provided for the results.

Based on the results of this analysis, the evaluation panel will provide recommendations to the IMAILE steering board an in the final IMAILE evaluation report regarding the different prototypes. The results of the test and reference groups will be used to support the final evaluation result of the project in terms of recommendations for the future commercial deployment of the innovative PLE for STEM products.

5. Gender action in the Test and Reference group

5.1. Measures to be taken in several tasks

IMAILE need to take the gender perspective into consideration in the following activities:

- Capacity building seminars of PCP (participation of project members and others)

- Evaluation panel of ICT solution (buyers group and technical support)

- Test and reference groups consisting of students , teachers and head teachers

Gender equity is of importance as the test and reference groups are formed in order to create an evaluation of solutions based on end users representing both boys and girls. The procurers will be informed regarding the IMAILE Gender Action Plan GAP (D1.2 Section 4).

6. Ethical aspects IMAILE

6.1. Introduction

This is the IMAILE action plan on Ethical issues for task that involves children. Responsible of this work is Coordinator Halmstad and Project manager in the day to day project management and updates on Quality assurance. The Strategic Advisory Board member Rita Freudenberg will supervise the work.

In the IMAILE project we have specific tasks that require the involvement of children as students in Primary and Lower Secondary Education.

- task 6.2 RTD / test and reference groups in participating countries

There are basic ethical principles that apply to all tasks. These include:

> I. a commitment to the well-being, protection and safety of participants
>
> II. a duty to respect the rights and wishes of those involve;
>
> III. an obligation to address the issue of who ought to receive the benefits of task and bear its burdens
>
> IV. a responsibility to conduct high-quality scientific task

All these principles will be included in the IMAILE Ethical work.

According to FP 7 program task that involves children should demonstrate awareness and provide solutions upon the following information:

> I. Recognition that ethical issues exist
>
> II. Identification of aspects of the task that need to be addressed including an assessment of potential risks to participants
>
> III. Justification of the procedures and the need to involve children including balance of risk and benefit to participants and/or others and Demonstration that alternatives approaches are unsatisfactory
>
> IV. Informed consent and the information to be provided to participants and their legal representatives.

6.2 Recognition that ethical issues exist

Suppliers / project team members of IMAILE should be informed and demonstrate that they understand the vulnerability of children as students in that:

- they are under the control of others (teachers, adults, project team members)

- they are not legally able to provide informed consent

- informed consent is required from the child's legal representative (Appendix F)

- the child's assent should be sought in order to get successful input from focus groups Children and students in IMAILE are selected as task participants as their input is crucial to the success of developing innovative solutions in the IMAILE project

6.3 Identification of aspects of the task to be addressed

Task 6.2 Test and reference groups in participating countries according to initial DOW (1 of February 2014)

Number of students in each country participating

- minimum 15 children with 1 teacher Primary School (real classroom situation)

- minimum 15 children with 1 teacher lower Secondary School (real classroom situation)

In order to lower the effects of the individual participant in consideration IMAILE will increase the amount of students participating the number above is a minimum. Possibilities of blind/ double blind studies will be explored and explained in D 2.1. By participating in prototypes tested in schools student data might be collected during use. Therefore in the PCP call we request from each supplier together with the ICT solution a register of processing operations (EU Directive 95/46/EG article 21.

Procedure of inclusion/ exclusion

IMAILE will work to include the children out from a classroom situation. If one class is chosen all children, teachers and parents will have the possibility to participate from the same class.

Recruitment of test/ reference groups 6.2

The choice of school and class will be made with support from head teachers supporting IMAILE consortium in 4 countries. Template of information sheets both for teachers, children and their parents are presented as appendix F) Informed consent IMAILE

After the participants in the schools have read the information sheets they can decide whether they wish to join.

I. the schools will make a decision to participate or not
II. the management of the school will make a decision of which class/ classes will participate
III. the children / students and parents will make a decision to participate or not

6.4 Justification of the procedures and the need to involve children

Suppliers / project team members should be able to:

- explain that the purpose of the task is to obtain knowledge relevant to develop innovative solutions that can support children/ students to reach their goals in Science, Math and technology

- demonstrate that the age-group selected is appropriate (Primary and Lower Secondary School)

- explain how task results will potentially produce real and direct benefit to the participating child's education progress in a personalized way within the topics of Science, Math and technology

- understand that the age and vulnerability of the child should also be taken into account

6.5. Informed Consent and Assent

Informed consent must be obtained from the child's legal representative (parent or guardian) A template developed from WHO World Health Organisation is presented as Appenidix F and will be translated into all the languages of the test and reference groups.

This includes one information sheet (to share the information about the IMAILE test and reference groups) and Certificate of Consent (for signatures)

The child/ student should receive information on the task and benefits from the teachers appropriate to its capacity to understand and the child's assent should be sought wherever possible.

As IMAILE includes children from 6 – 16 years, the nature of the child's involvement in the decision-making process will depend on their age and maturity, as well as on an evaluation of their ability to understand the nature, purpose and implications of what is involved and to make a decision about this.

Information provided in the IMAILE informed consent form

  I.   Introduction and purpose of the task

 II.   Type of task intervention

III.   Selection of participants

IV.   Voluntary participation

 V.   Duration

VI.   Right to refuse or withdraw

6.6. Protection of Participating Children

IMAILE project team has not detected any risks for the children/ students taking part in the test and reference groups. We ensure that level of burden is assessed by the teacher that enjoy the special confidence of the child in a familiar environment of the classroom Additional possible steps to minimise risk and burden and to safeguard the well-being of participating children includes enabling the legal guardian or representative to have opportunity to observe the trial in order to be able to withdraw consent if they consider it in the child's best interests if desired in the classroom together with the teacher and student.

As we at this stage do not know the character of the innovative solutions it is not possible to identify any risks by testing them in the classroom. An analysis/ risk assessment need to be done before initiating stage 2) prototypes of the PCP process in order to identify whether the testing of solutions would include any additional risks to the children in task 6.3

IMAILE will also have appropriate procedures for follow-up and monitoring from WP 1

- T.1.4 Quality assurance plan, risk management analysis and evaluation method D1.2 Quality assurance and evaluation plan

Data protection IMAILE in general

Task 2.1 questionnaires to teachers, task 3.2 Selection indicators and task 5.2 ethical issues monitoring PCP stages will all respect data protection and privacy of the students according to the European legislation and regulations.

Potential solutions to be delivered by the services providers will possibly include the recording and processing of a large amount of personal data from students and teachers. In regard to this aspect, tenderers will have to assure (and demonstrate how) the observance and compliance with the provisions of the EU Directive regarding data protection (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:en:HTML)

Data protection task 6.2

Participant's information will be kept locked, confidential and separate from the testing reports and material. The information to provide a thorough understanding of the user experience of PLE will be based on a group level in a real classroom situation. If a system needs to be tested the children will be given nicknames to avoid revealing information about the students. IMAILE ICT expert Markku Lang (SAB) will monitor this aspect in task 6.2.

Children's participation in the task process

Children/ students   have a right to be involved in many aspects of the task process and their participation in IMAILE will enhance the quality of the task in the role as end users of ICT solutions. Successful participation of children in IMAILE is associated with:

- their understanding of the testing process

- having the opportunity to become actively involved in different stages of evaluation of the task of several different ICT solutions

IMAILE project team, head teachers and teachers have a responsibility to provide whatever assistance is required to ensure successful participation. This can include:

- design of an appropriate methodology;

- inclusion of children, when appropriate, in key decision-making aspects, including ethical issues and the interpretation of results;

- dissemination of task findings to children in appropriate formats

- making every effort to ensure that positive change for children is an outcome of the task

Confidentiality

There is a distinction between anonymisation and pseudonymisation, in the first meaning there is no way whatsoever to connect the data to a person at all, whereas the second means that no personal identification is given, but somewhere there exists a list, which could link the dataset to the person again. For instance, if numbers are used instead of names for the students, but keep a list with information which name belongs to which number, that would be pseudonymisation. Also, in order to have at least pseudonymisation, no other methods of identification must be possible. For example, if you know the age, course, gender of students and your group consists of 2-3 girls and otherwise boys, you might obtain identification for the girls.

Key points of the IMAILE data protection legislation include:

- Compliance of all delivered services with European and Swedish law

- Data storage within the European Union

- Specification of privacy declaration to show which data is stored, how the data is stored, who has access to the data, and how the data is used

- Anonymizing the data as much as possible

6.7 A child centered task Ethical requirements and guideline sources

The rights of children in IMAILE in relation to their participation in task are covered in the United Nations Convention on the Rights of the Child (UN, 1989), which applies for all EU member states. This provides for free expression for children who are capable of forming their own views (Articles 12 and 13) and the right to access appropriate information (Article 17).

http://www.unicef.org/crc/

The IMAILE project will additionally be compliant with the following ethical guidelines and codices of practice both on international, European and national level.

- European Convention on the Exercise of Children's Rights http://conventions.coe.int/treaty/en/Treaties/Html/160.htm

- [Recommendation 1864](http://assembly.coe.int/Mainf.asp?link=/Documents/AdoptedText/ta09/EREC1864.htm))Promoting the participation by children in decisions affecting them (IMAILE decision making process to develop their personal learning environments) http://assembly.coe.int/Mainf.asp?link=/Documents/AdoptedText/ta09/EREC1864.htm

- FP7 Annex 5: Ethical Guidelines for undertaking ICT task in FP7 ftp://ftp.cordis.europa.eu/pub/fp7/docs/guidelines-annex5ict.pdf

- FP 7 Ethical aspects of participation of children in task http://cordis.europa.eu/fp7/ethics_en.html

Local ethical rules and regulation will be respected in Sweden, Finland, Spain, Hungary and Germany where test and reference groups will be formed consisting of students in the age of 6 – 16 years (children).

Additional information regarding Ethics

Procurement of solutions (WP 5 task 5.1 administration of contracts and 5.4 Evaluation panel)

IMAILE consortium, evaluation panel and constellation of procurers will include the aspects of ethical issues in the award procedures of the solutions from the suppliers.

Task 6.4 Prepare European standards / Ethics audits

For this task it is of importance that an Ethics audit is made in M 30.
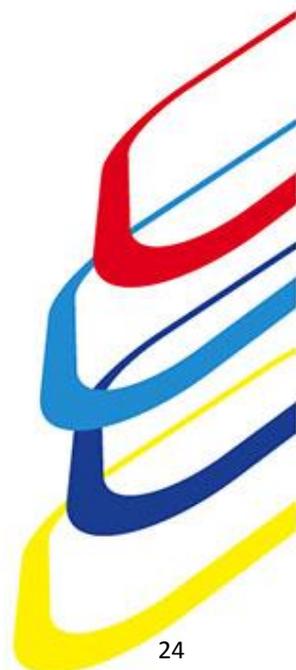
7. APPENDIX

Appendix 1: TEMPLATE Informed Consent Form IMAILE 619320

This template is developed out from the WHO World Health Organization informed consent template for task involving Children (Qualitative studies)

The template is to be translated into Swedish, Finnish, German, Hungarian and Spanish (depending on collaboration between Innovamais and Primary and Lower Secondary Schools in Porto also in Portuguese)

This informed consent form is for parents of adolescent girls and boys participating in the IMAILE project which is a project that develops Personal learning Environments (PLE) for students in Primary and Lower Secondary Education on a European level. The project is based on developing innovative solutions within Math, Science and Technology that will support the students to reach the goals in an individualized way. The children will take part in the project a democratic process to influence the future solutions upon their demands and needs forming part in test and reference groups of the real classrooms.

Name of Organizations

Halmstad municipality, Oulu University, Konnevesi Municipality, Region Saxony Anhalt, Viladecans, Innova Eszak-Alfoeld

Name of EU funding program

FP7 program European Commission

Name of Project and Version

IMAILE project Grant Agreement number 619 320

This IMAILE Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)

- Certificate of Consent (for signatures if you agree that your child may participate)

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

I am *Ellinor Wallin* and I work at *Halmstad municipality in Sweden*. We coordinate project IMAILE where we do some task which might help your school to do more to support children/ students in Primary and Lower Secondary Education to reach their goals in Science, Math and Technology by developing innovative technological support solutions. In our task we will involve many students from Sweden, Finland, Hungary, Germany and Spain both girls and boys, and let them test and evaluate various different ICT solutions in the classroom together with their teachers.

Whenever tasks involve children, we talk to the parents and ask them for their permission.

After you have heard more about the study, and if you agree, then the next thing I will do is ask your daughter/son for their agreement as well. Both of you have to agree independently before I can begin. You do not have to decide today whether or not you agree to have your child participate in this task. Before you decide, you can talk to anyone you feel comfortable with. You can contact any of the project members of IMAILE project or your school team.

Purpose

Results in Math, Science and technology are decreasing in our European classrooms. More and more students require a more personalized learning to reach their goals and to get challenged to increase their results. We also have a common problem with many students that leave school after Lower Secondary School without continuing with Upper Secondary School (this group is called "early drop outs")

In IMAILE we will develop innovative solutions together with the ICT industry that will support the students in a more personalized manner in order to increase the results and in the long term avoid the" early drop outs".

The IMAILE solutions therefore need to be tested by the end users – your children. We will invite the students together with their teacher to test and evaluate several different solutions in order for them to have a say which one works in the best manner in a democratic process.

Type of Task Intervention

Focus groups (test and reference groups) in the classroom together with the teacher

Individual surveys confidential without any names

Selection of Participants

IMAILE develops solutions on a European level and therefore several countries are involved in the project. From Sweden, Finland, Germany, Spain and Hungary the school of your child has been selected from the participating organizations in our project. We would like your son or daughter to participate because he/ she belongs to a selected school and a selected class within the project.

State clear*y* why you have chosen their child to participate in this study..

Voluntary Participation

You do not have to agree that your daughter/son participate in the project. You can choose to say no and any services that you and your family receive from the school will not change. Your son and daughter will also have input into the decision.

Protocol

Your daughter/son will take part in a collective discussion and individual questionnaires together with the rest of the class (mixed groups with boys and girls) The collective discussion will be guided by their teachers and will take place in their classrooms.

The discussion will start with information about the project, learning Science, Math and Technology and how important it is that the children can influence their way of learning. Then the ICT solutions will be introduced to the classroom group and the teacher will answer questions from the children.

The discussions will be led by the teacher and the children will comment on the different solutions out of the same award criteria/ evaluation set of questions. The individual opinions of the children in form of surveys will be summarized and collected confidentially without names. If your daughter/ son does not wish to answer any of the questions during the interview, she may say so and the interviewer will move on to the next question.

Duration

We are asking your child to participate in this discussion which will take about 1 hour of her/his time during school hours. There is also a questionnaire that we will either provide to your child or which we will do together with her/him. This also takes about an hour. Altogether, we are asking for about 2 hours of your child's time. We are asking your child to participate up to 3 times during a period of 20 months

Risks and Discomforts

We do not see any risks or discomforts by taking part in the IMAILE project as it will be performed in the classroom together with the teacher of the normal day to day school hours.

Benefits

In the long term there will be direct benefits to your child and to you by co creating an innovative solution that might follow your child from actual school age until Upper Secondary where Science, Math and technology will be supported in a more personalized way. This gives the equal opportunity to all children to reach their goals and creates better opportunities for the future.

Incentives

Your daughter/son will not be provided with any payment to take part in the task as it will be conducted in their school and during school hours.

Confidentiality

Because something out of the ordinary is being done through task in your school it will draw attention. If your daughter/son participates, she and you may be asked questions by other students in the school.

We will not be sharing information about your son or daughter outside of the IMAILE project team. The information that we collect from this task project will be kept confidential. Any information about your child will have a number on it instead of his/her name.

Sharing of Task Findings

At the end of the study, IMAILE will be sharing the awarded solution with the schools and classes who have participated in the task both on a local level and on a European level. We will do so by

presenting the solutions to the teachers of you son/ daughter class and by publishing the result on the web page www.imaile.eu

Right to refuse or withdraw

You may choose not to have your child participate in this study and your child does not have to take part in this task if she/he does not wish to do so. Choosing to participate or not will not affect either your own or your child's future service in the school. here in any way Your child may stop participating in the discussion/interview at any time that you or she/he wish without either of you losing any of your rights here.

Who to Contact

If you have any questions you may ask them now or later, even after the study has started.

If you wish to ask questions later, you may contact any of the following:

Ellinor Wallin project manager IMAILE ellinor@euprojektkonsult.se

Name, address/telephone number/e-mail from IMAILE representative in respective country

PART II: Certificate of Consent

Certificate of Consent

I have been asked to give consent for my daughter/son to participate in this task study which will involve her/ him in discussions in the classroom with the teachers and one individual questionnaire .I understand that she/he will also be asked to give permission and that her/his wishes will be respected. I am aware that there may be no benefit to either my child or me personally and that we will not be compensated beyond travel expenses. I have been provided with the name of a task leaders/ project members who can be easily contacted using the number I was given for that person.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily for my child to participate as a participant in this study and understand that I have the right to withdraw her/him from the study at any time without in any way affecting our service from the school.

Print Name of Parent or Guardian	
Signature of Parent of Guardian	
Date (Day/month/year)	
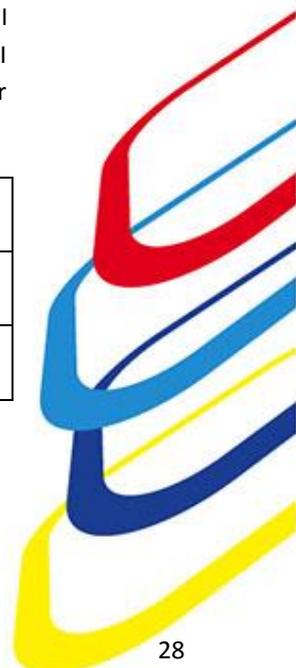
I have accurately read or witnessed the accurate reading of the consent form to the parent/guardian of the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Name of tasker/ IMAILE project team member	
Signature of tasker	
Date Day/month/year	

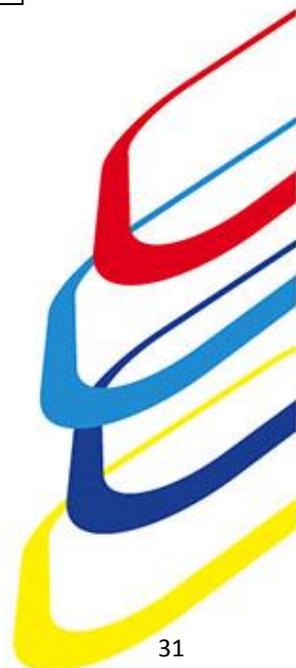*A copy of this Informed Consent Form has been provided to the parent or guardian of the Participant*
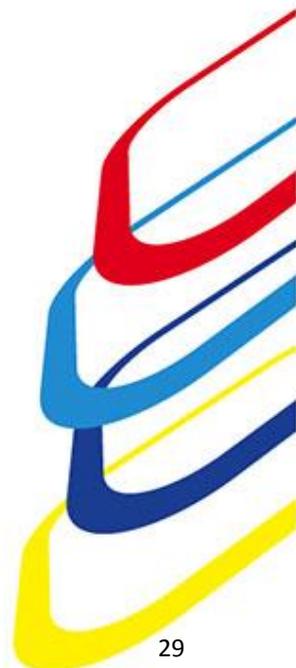
Appendix 2: The e-Twinning project plan
e-Twinning project plan – IMAILE created in May 2014

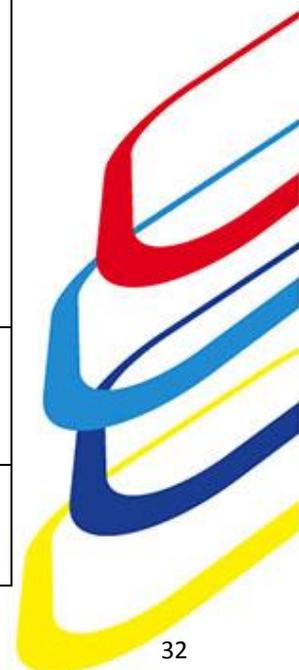| Name of the project	***ICT and STEM***
Partners:	An eTwinning project will be developed between Sweden, Hungary, Spain Finland and Germany. Scope of project is to create democratic process for teachers and students in Primary and Lower Secondary Education to influence future personal learning environments in STEM subjects.
Details:	Age of the students: 7 – 14 Used language: English
Short description:	Through international cooperation and interactive use of ICT both teachers and students can acquire improved knowledge, skills and values. The participants will also gain conditions to become aware and active students, able to interact internationally with ICT, able to deal critically and creatively to the future challenges by: - share ideas and information about the use of technology in education - inspire to explore new ways of teaching through technology - raise questions and seek answers about technology and education
Goals:	This project aims to • Focus on teachers' and students' use/skills of ICT (Information and Communication Technologies) in STEM subjects. • Share and evaluate science initiatives, and enhance, enrich and widen access to better practices with ICT.
ICT tools:	E-mail, Skype, Google Docs, other software, Web publishing
Pedagogical basis:	Children will work according to their strongest intelligence: Linguistic/ verbal smart – Write short articles/stories about their locality Mathematical smart- Create a maths and geometry problems using data from the statistics related to their locality Visual smart- Take photos/ Draw / Paint/ Make posters about the locality Musical smart- Singing songs related to their locality

|	
	Naturalistic smart- Describe the flora and the fauna of your local area Kinesthetic smart- Play sports games specific to their community Interpersonal smart- Find the best strategy for presenting your locality to the tourists.
Working methods:	By fully exploiting the multimedia potential of new technology, it is therefore possible to activate multiple communication channels, and to increase the level of individualization and personalization of teaching/learning processes. Moreover, it is possible to transform distance from a limitation into a resource, activating distributed (in space and time) and collaborative learning mechanisms.
Communication	How will we communicate and how often?
Flexibility	Give the project possibility to develop Check if necessary change strategy
ICT Tools Usefull	• E-mail, chat sessions, forum • Specific multimedia tools (MovieMaker, Podcast, Slideshow, etc.) • Video conference • YouTube, web sites or other for hosting the galleryTwinSpace

Time / period	Task description – tools to be used
First Phase GETTING TO KNOW EACHOTHER	Ice-breaking activity; introduce you and your students interactively by Skype or another platform. Present your surroundings (country, city, community) and school (classroom/students) by using a free choice of digital tool. Exchange – questions and answers. Experience with eTwinning. Let the creativity flow!
SCHOOLDAY	My school, your school - comparison and analysis Each partner school describes a typical school day / features of individual schools
LEARNING ENVIRONMENTS	Students/teachers learn about differences and similarities in the participating schools with focus on STEM subjects. Areas that may be examined: Schedule, topics, procedures, times, homework etc.
AVAILABLE ICT	ICT skills of teachers and students Equipment of schools Present available digital tools that you use in the learning process (present the result on Twin Space) about the use of ICT in education in their country, its use in their school, and in their professional practice. 1. What digital devices could you use in classrooms (eg. tablets/laptops/mobile phones) 2. How do you use free or open-source software? 3. How would you use social software in your school? 4. How to get other people involved (colleagues, students, parents, other networks)?
FREQUENCY OF ICT USE	ICT use in subjects Is ICT more or less used in different STEM subjects? How come and why?
Second Phase	Use of computers in lesson planning and preparation Show good examples when digital tools support the pedagogical work

ICT SUPPORT STEM	within the STEM-subjects.
HOW TO TEACH... in your country	Practical descriptions, which could be shared and tested in other countries.
	What do you think?
	Problem solving
	Compare distribution of tasks. Try and error.
HOW DO YOU GET INSPIRATION TO DEVELOP THE LEARNING PROCESS?	Present/describe how you get inspiration to learn and use digital tools (further training, digital network, social media groups etc.).
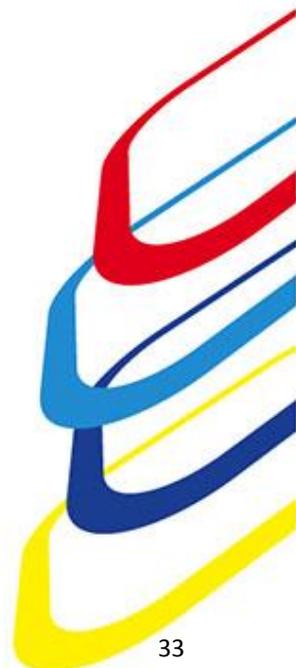
Appendix 3: Templates for the questionnaires for test and reference group

IMAILE; Test and reference groups

Pre-Questionnaire Teacher/Student

ID: 2

1) Have you previously used learning environments in your teaching/learning?

( ) Yes

( ) No

ID: 3

2) For which purpose did you use learning environments previously?And what were your experiences?

_____

_____

_____

_____

ID: 4

3) Which kind of training material have you received and actively used as a preparation for testing the prototypes?

[ ] Online Training

[ ] User Guides

[ ] Documentation

[ ] Face-to-face training

[ ] Other - Write In (Required): _____ *

ID: 5
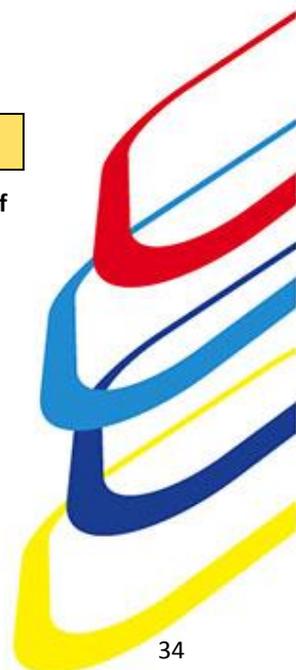
4) How useful were the provided training materials? Please answer for every different kind of material offered.

_____

_____

_____

_____

ID: 6

5) How well prepared do you feel for testing the prototypes?

( ) Ver unprepared ( ) Unprepared ( ) Neutral ( ) Well prepared

( ) Very well prepared

ID: 7

6) How do you think the prototype will improve your teaching/learning? What do you expect from the tool in terms of functionality?

_____

_____

_____

_____

ID: 8

7) Do you have any worries about testing the prototype? Do you have any worries regarding applying a similar tool in your teaching/learning?

_____

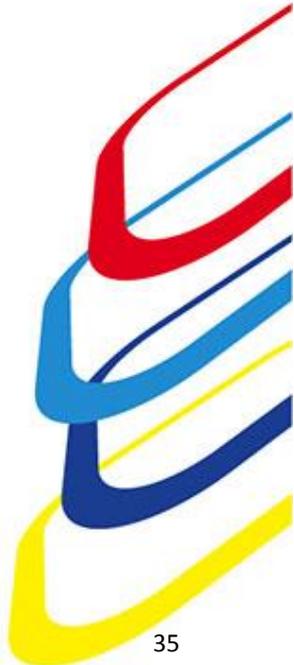_____

_____

_____

Post-Questionnaire Teacher/Student

---

1) How do you rate the overall experience you had with the prototype?

( ) Very Dissatisfied   ( ) Dissatisfied   ( ) Neutral   ( ) Satisfied

( ) Very Satisfied

2) How easy was the prototype to use for you?

( ) Very hard   ( ) Hard   ( ) Neutral   ( ) Easy   ( ) Very easy

3) Please describe any problems you had while handling the tasks in the prototype.

_____

_____

_____

_____

4) How well did the prototype match your expectations?

( ) Not at all   ( ) Not very well   ( ) Neutral   ( ) Well   ( ) Very well

5) Please describe the functions you liked best **about the prototype. Please also describe why these functions were especially outstanding for you.**
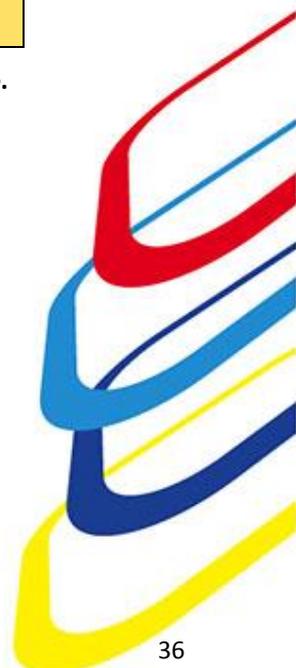
_____

_____

_____

_____

ID: 6

6) Which functions created the most problems for you during the completion of the tasks? Please describe the problems you had and provide any suggestions for improvement.

_____

_____

_____

_____

ID: 7

7) Which functions were you missing from the prototype? Please describe the functionality and their integration into the learning/teaching process.

_____

_____

_____

_____

ID: 8

8) How useful do you think the software will be for your teaching/learning?

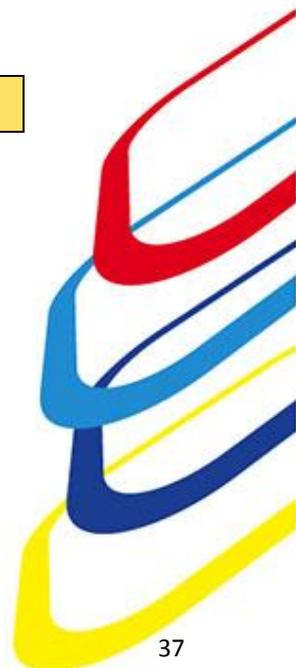( ) Not useful at all   ( ) Not very useful   ( ) Neutral   ( ) Useful   ( ) Very useful

ID: 9

9) Do you think using the software will improve your teaching/learning?

( ) Not at all   ( ) Not very much   ( ) Neutral   ( ) much   ( ) Very much

ID: 10

10) Would you like to use the software in your teaching/learning?

( ) Yes

( ) No

ID: 11

11) Please provide a reason why you would like or not like to use the software in your teaching/learning.

_____

_____

_____

_____

ID: 12

12) If you could change anything in the prototype, what would you change?

_____

_____

_____

_____
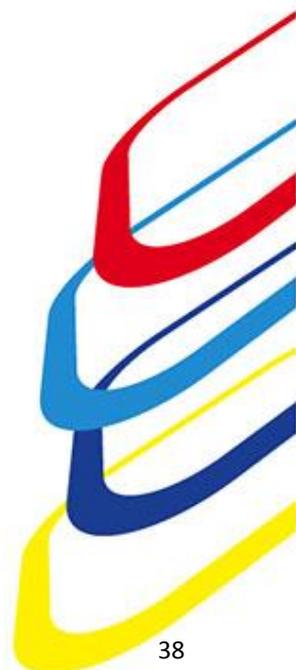
Appendix 4: STEM subject analysis

Please find below the following link to get access to the external appendix:

IMAILE STEM TOPICS

Additionally here follows our STEM definition

STEM Scope of the IMAILE Project

While STEM stands for Science, Technology, Engineering and Mathematics, the IMAILE project will focus on the aspects of Mathematics and Science and more particular Mathematics, Biology, Chemistry and Physics. This is based on the availability and comparability of these subjects and related topics within the procuring countries as well as on the reduction of complexity. Within the IMAILE Project, STEM should thus be understood as subjects and topics related to Mathematics, Biology, Chemistry and Physics.