D7.1 Report on First Mainstreaming Workshop: National Policy Challenges

European Schoolnet

V.1. 27 May 2013
V.1.2. Updated March 2014
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OVERVIEW CCL PROJECT

How can tablets support new ways of teaching and learning in schools?

The Creative Classrooms Lab (CCL) project is developing innovative teaching and learning scenarios involving the use of tablets in and out of school.

It will validate these in policy experimentations involving nine Ministries of Education in Europe and 45 classes that are already making use of tablets from different suppliers.

Creative Classrooms Lab Partners

- European Schoolnet, BE
- University of Wolverhampton, UK
- Direção-Geral da Educação (DGE), PT
- Centre of Information Technologies in Education (CITE), LT
- National Education Institute, SL
- Bundesministerium für Unterricht, Kunst und Kultur (BMUKK), AT
- Dům zahraničních služeb, CZ
- Flemish Ministry of Education, BE
- Fédération Wallonie-Bruxelles, BE
- e-Learning Foundation, UK
- INDIRE, IT

Project facts

Start: April 2013
End: March 2015
Total budget: ca. 1 Million Euro
Coordinator: European Schoolnet
Partners: 10 partners from 8 countries
INTRODUCTION

CCL policy experimentations are conducted in order to prompt education ministries to introduce changes in their education systems/curricula and help them develop the capacity to foster large-implementation of innovative practice. The pilots should target concrete common policy concerns that MoE are already facing on how tablets can be integrated in schools. The project does this by providing three mainstreaming workshops for policy makers organized by EUN. The first policy maker workshop on national policy challenges was held on 21st May in Brussels. All CCL partners attended the workshop. Together, they identified national challenges (concrete policy concerns) and top priorities related to tablet integration in schools and considered to what extent existing infrastructure, classroom connectivity, equipment, funding, teacher education or support is inhibiting large-scale implementation of 1:1 computing strategies as stated in the workshop objectives. They also discussed concrete measures how to tackle the identified barriers to the further uptake of and innovative use of IT in their schools. The workshop was divided in 4 main sessions: (see Annex I: Agenda).

Session one dealt with policy challenges and measures related to 1:1 initiatives and provided an overview of input by policy makers provided prior to the workshop. In session two policy makers worked on the innovation matrix developed in the iTEC project. First results from the literature review were presented and discussed in session 3. Policy makers developed “Policy Maker Scenarios” around four identified key priorities content creation, collaboration, Flipped Classroom and personalisation. This report summarises the main outcomes of the workshop. A 1st report on the workshop was provided in form of a briefing paper the 27 May 2013. The following document is an updated version including the main documents drafted before and during the workshop and the final Policy Maker Scenarios provided on the website in June 2013.
The Creative Classrooms Lab project takes place in two cycles, which are repeated each year of the project, cycle one runs from May 2013- April 2014 and cycle two from May 2014- March 2015. Both cycles consist of the scenario development process and the pilot implementation and evaluation. The first CCL Mainstreaming workshop was the starting point for the first scenario development process (May 2013- September 2013), where a first set of scenarios was produced to be piloted by CCL teachers in schools from November 2013 to April 2014. During this first workshop, CCL partners developed four common Policy Maker Scenarios around identified key priorities: content creation, collaboration, Flipped Classroom and personalisation. On the basis of the scenarios developed during the workshop, policy makers and lead teachers developed together Learning Stories during a first Pedagogical Scenario Development workshop in June 2013 (see D.2.2). 45 CCL teachers derive their own lesson plans from the Learning Stories.
CURRENT CHALLENGES WITH 1:1 INITIATIVES

PILOT/SCENARIO THEMES PRIORITIZED BY COUNTRY

In order to fuel the discussions and the drafting of the scenarios during the workshop, prior to the workshop EUN systematically gathered and analysed information of CCL partners via an online questionnaire. The questionnaire should reveal topics of interests for possible tablet scenarios. In March 2013, CCL partners filled in an online questionnaire\(^1\) providing information on:

- A description of existing 1:1 tablet pilots in their country
- Current priorities (low, medium, high) with 1:1 tablet initiatives

A mapping exercise of common interests resulted in the following table:

<table>
<thead>
<tr>
<th>THEME</th>
<th>COUNTRIES INTERESTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERSONALISATION</td>
<td>Lithuania, Czech Republic, UK</td>
</tr>
<tr>
<td>EXPLORING BEST USE OF TABLETS (AS OPPOSED TO NETBOOKS)</td>
<td>Italy, Portugal, UK, Slovenia, Austria</td>
</tr>
<tr>
<td>FLIPPED CLASSROOM</td>
<td>Austria, Portugal</td>
</tr>
<tr>
<td>CONTENT CREATION (INCLUDING DIGITAL TEXTBOOKS GAMES, LINKS TO CURRICULUM)</td>
<td>Italy, Portugal, Slovenia, Lithuania</td>
</tr>
<tr>
<td>EXPLORING ACCESS MODELS/BYOD</td>
<td>Italy, Lithuania, Slovenia, Belgium (Flanders), Austria</td>
</tr>
<tr>
<td>ASSESSMENT</td>
<td>Italy, Slovenia</td>
</tr>
<tr>
<td>ADDRESSING THE ATTAINMENT GAP AND DISADVANTAGED STUDENTS</td>
<td>Slovenia, UK</td>
</tr>
<tr>
<td>OTHER TOPICS MENTIONED</td>
<td></td>
</tr>
<tr>
<td>EXPLORING PEDAGOGICAL USE OF THE TABLET</td>
<td>Broad themes that could be part of other themes, or to be further developed as a more specific scenario</td>
</tr>
<tr>
<td>EXPLORING THE MOBILE USE OF TABLETS</td>
<td></td>
</tr>
<tr>
<td>DEVELOPING MEDIA LITERACY</td>
<td></td>
</tr>
<tr>
<td>INTEGRATION WITH OTHER DEVICES (E.G. VLE’S, IWB)</td>
<td>Specific theme that could be part of a wider scenario, not only technology centred</td>
</tr>
<tr>
<td>USE OF SOCIAL MEDIA</td>
<td>Specific theme that could be part of a wider scenario, e.g. collaboration, content creation</td>
</tr>
</tbody>
</table>

\(^1\) Link to the survey: [https://www.surveymonkey.com/s/CQ6WK3M](https://www.surveymonkey.com/s/CQ6WK3M)
National Policy Challenges and Scenarios

In a second step, EUN sent a template to the CCL partners to gather more detailed information on the following issues:

- What are the current challenges and issues teachers in your country are facing in implementing 1:1 computing initiatives including tablets (e.g. infrastructure, training)?
- How could this scenario contribute to addressing existing problems challenges in the education system/schools (e.g. engaging disengaged learners)?
- What are the changes, improvements, pedagogical practices you wish to occur by implementing such a scenario? What, at the end of the pilot, should be a desired outcome of having implemented such a scenario?

The exercise revealed an interest in the following topics (for more detail see Annex I):

<table>
<thead>
<tr>
<th>Country</th>
<th>Key Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>Personalisation</td>
</tr>
<tr>
<td>Italy</td>
<td>Content creation/ Flipped Classroom</td>
</tr>
<tr>
<td>Lithuania</td>
<td>BYOD, content creation, personalization</td>
</tr>
<tr>
<td>Portugal</td>
<td>Flipped Classroom</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Collaborative project work</td>
</tr>
<tr>
<td>UK</td>
<td>Closing the attainment gap</td>
</tr>
</tbody>
</table>

Defining Common Policy Challenges

During the workshop, policy makers discussed their policy challenges and measures related to 1:1 initiatives in two groups in order to identify common policy challenges.

Group 1 (Belgium Flanders, Italy, Lithuania, Portugal) identified the following challenges:

<table>
<thead>
<tr>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Costs: who pays? Governments, parents, schools?</td>
</tr>
<tr>
<td>- Content:</td>
</tr>
<tr>
<td>o Who Pays? National regulation</td>
</tr>
<tr>
<td>o Tension between real tablet content and old school text books- role of educational publishers?</td>
</tr>
<tr>
<td>o Broadened field of content provision: UGC, publishers, apps</td>
</tr>
</tbody>
</table>
• e-safety (pupils) and e-security (technical issues, BYOD)
• Technical issues (BYOD concept being challenging for ICT coordinators)
• Communication: parents involvement as an emerging issue
• Professional development for teachers and ICT coordinators
• For Belgium: public debate about Wi-Fi networks possibly causing health risks

Group 2 (Austria, Czech Republic, Italy, United Kingdom, Slovenia) identified the following challenges regarding 1:1 implementation:

<table>
<thead>
<tr>
<th>CHALLENGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM LEVEL:</td>
</tr>
<tr>
<td>• CPD training needs to be better structured</td>
</tr>
<tr>
<td>• Connectivity (Broadband and wifi)</td>
</tr>
<tr>
<td>• Financing of devices</td>
</tr>
<tr>
<td>• Content (educational apps, school learning problems)</td>
</tr>
<tr>
<td>• Lack of evidence on the usefulness of tablets</td>
</tr>
<tr>
<td>• Curriculum: the learning generally being very textbook driven runs against the notion of students following individual ways of learning on a given topic</td>
</tr>
<tr>
<td>• Assessment of work</td>
</tr>
<tr>
<td>• Publishing industry pushing back (in some countries)</td>
</tr>
<tr>
<td>SCHOOL LEVEL:</td>
</tr>
<tr>
<td>• Teachers are sometimes resistant to new ways of working (as they do not want to be the first ones to experiment as they are concerned that new ways of teaching might jeopardize the effectiveness of students’ learning</td>
</tr>
<tr>
<td>• ICT skills are not necessarily the highest priority for parents</td>
</tr>
</tbody>
</table>

All workshop participants agreed upon a set of common challenges at system and school level.

<table>
<thead>
<tr>
<th>SYSTEM LEVEL</th>
<th>SCHOOL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Infrastructure/ eHealth</td>
<td>• Communication (teachers, parents)</td>
</tr>
<tr>
<td>• Continuing professional development</td>
<td>• Infrastructure (security)</td>
</tr>
<tr>
<td>• Content</td>
<td>• Curriculum</td>
</tr>
<tr>
<td>• Assessment</td>
<td></td>
</tr>
</tbody>
</table>
CONCRETE MEASURES TO TACKLE CHALLENGES

After an agreement on common challenges, policy makers discussed concrete measures that could address the identified issues. The main points emphasised were the need for more professional development opportunities for ICT coordinators, pedagogical advisors and teachers in both initial and in-service training. Teachers need to have access to adequate content to use with their students on tablets. Therefore, a legal framework on digital content must be in place, platforms to exchange content and a sufficient amount of localised and translated content (apps) must be available. Further, ICT needs to become part of the assessment process and teachers need support in their assessment role. Finally, more rigorous research on the impact of tablets on learning is necessary. The outcomes of the group discussions as agreed by the policy makers is presented in detail below.

1. CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD)
   - CPD for ICT coordinators: providers/ industry should play a role (for technical aspects)
   - CPD for pedagogical advisors
   - CPD for teachers:
     - Need for training on specific topics like Flipped Classroom, formative assessment, creation of digital resources
     - Need for more general training (media literacy, digital competence)
   - Give more incentives: CPD as a means of career progression
     - Problem: only small percentage of teachers motivated to try new innovative teaching
   - Create a regulatory framework (e.g. in Portugal, 25 hours of compulsory CPD) for both initial training and CPD
   - Initial teacher training needs to follow trends
   - ICT colleagues need to put 1:1/ tablets on their curriculum

2. CONTENT
   - Funding of UGCs/ Open content initiatives
   - Give teachers a platform (educational portal, LRE) to upload and access content (e.g. local app-store)
   - Localise and translate apps
   - Legal framework:
     - Beneficial TAX-VAT rates for digital content
### 3. **Assessment**

- Teachers need support in their assessment role.
- Any new form of assessment has to be engaging, has to include a choice of format and has to generate good data and analytics (so teachers can understand students improvement).
- Student should get something out of assessment process: eportfolio, dashboard.
- New assessment tools allow for teachers to personalise learning.
- Assessment hinders uptake of ICT, as long as students are not allowed to use ICT in final exams.
  - Mentality is often: what is not assessed is not important.

### 4. **Evidence**

- Appealing evidence has to be created on the importance of ICT in school education.
- Now 2 years of intensive use of tablets in isolated schools.
- CCL project itself will create evidence on the use of tablets.
- Now there are potentially enough tablets used to allow for more rigorous research.

- Simple copyright legislation
- Quality assurance: social ranking
- Tablet license for specific educational content for tablets
INNOVATION MATRIX

In order to develop scenarios that foster the innovative use of tablets, the iTEC project manager Will Ellis presented the iTEC innovation Maturity Model that was developed in the framework of the iTEC project to the workshop participants (http://itec.eun.org). The model shows a number of progressive stages of innovation maturity of schools. As schools move from one stage to the next in the direction of the arrow, their innovation maturity progresses. For example, the implementation of a scenario that moves a school from ‘Exchange’ stage of the model to the ‘Enrich’ stage would be defined as innovative in that school’s context.

The aim of the self-assessment was to:

1. make policy makers reflect on the current status of ICT in their schools and identify the stage their schools are currently in.
2. set a benchmark of progress (moving from one stage to another stage of innovation) when implementing the designed tablet scenarios.

Results of this exercise are explicit in each scenario developed and summarized below.

<table>
<thead>
<tr>
<th>COUNTRIES</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria, Belgium Wallonia, Slovenia</td>
<td>Extend</td>
<td>Empower</td>
</tr>
<tr>
<td>Belgium Flanders, Italy</td>
<td>Enhance</td>
<td>Extend</td>
</tr>
<tr>
<td>Italy, Portugal</td>
<td>Exchange/Enrich</td>
<td>Exchange</td>
</tr>
<tr>
<td>Czech Republic, Lithuania, Slovenia</td>
<td>Enrich</td>
<td>Enhance</td>
</tr>
</tbody>
</table>
EVIDENCE ON THE USE AND IMPACT OF TABLETS- THE LITERATURE REVIEW

In order to identify and document examples of the “Creative classroom’’ the CCL project carries out a literature review as part of WP2 Pedagogical Scenario Development. Valerie Thompson (UK, e-learning foundation) presented first findings of the CCL literature review during the workshop to inform ministries on the current evidence base and guide the discussions by clarifying key concepts related to the project such as innovation, creativity as well as outlining specific areas of investigation related to the use of tablets. Overall, the literature indicates a positive impact of tablets on students’ motivation, attention and self-directed learning. One major outcome of tablet interventions is the better collaboration between teacher and students and between students. On the topic personalized learning, interesting evidence and views already exist. Further, tablets encourage teachers to re-evaluate their role in the classroom. Beyond pedagogical questions, issues like the digital divide and the “BYOD” concept are widely discussed. The “BYOD” concept attracts a lot of attention but also critical remarks. Technical issues like the question of the “readiness” of the Android eco-system for education were also raised; apple devices appear to offer a superior user experience. While there seem to be only very few voices against the use of tablets in schools, hard evidence on their usefulness in particular to enhance students’ attainment is still missing. In the CCL partner countries, a shortage of evidence on the outcomes of the use of tablets in schools has been identified. The results of the CCL project are to contribute to existing research results.

Valerie Thompson identified 1:1 studies with a particular focus on tablets, in particular from Australia, New Zealand, the UK and the USA. The sources are from academic and rigorous research, literature reviews and case studies. However, as hard evidence on the use of tablets is only emerging, she also includes information from blogs and advisory websites. For the first version of the literature review presented, she focuses on key themes like engagement and assessment and priority themes identified by the policy makers, e.g. collaborative learning and personalization. Next to pedagogical issues, the literature review summarizes evidence around issues such as the nature and impact of tablets and digital platforms.
as funding, teacher development activities, availability of learning resources/apps and challenges related to the up scaling and mainstreaming of policy experimentations. The literature review is updated on an annual basis. The first version is available on the website.
POLICY MAKER SCENARIOS

DEVELOPMENT OF THE SCENARIOS

Definitions relating to the scenario development process are outlined in D. 3.1, Protocol of experimentation for policy experimentation.

POLICY MAKER SCENARIOS: are developed by the CCL project partners (policy makers) based on a methodology developed in the iTEC project where future classroom scenarios provide a vision for innovation and advanced pedagogical practice. CCL partners use this approach in order to describe the types of learning and teaching activities and processes to be supported by the use of tablets during the national pilots. These scenarios serve as a reference framework for the learning stories (or pedagogical scenarios) to be developed by the lead teachers and the policy makers of the project.

The scenarios submitted by each CCL partner were shortly presented during the workshop. Then countries were grouped according to common interest and Policy Maker Scenarios were developed around four core topics (content creation, collaboration, Flipped Classroom, personalisation). The main challenge of this process was to integrate and combine the essential ideas of several national scenarios and challenges provided by policy makers prior to the workshop into a group scenario, which reflects the ideas of several (2 to 3) countries. The template required:

- A description of the key challenges the scenario will respond to
- The scenario narrative planning (who is involved, what type of technology will be used/other resources needed, the core purpose of the scenario, when it takes place, and what happens when)
- The scenario narrative

The table below shows an overview of the developed Policy Maker Scenarios. In the following, a short version with basic information of each scenario is presented.

<table>
<thead>
<tr>
<th>POLICY MAKER SCENARIO</th>
<th>COUNTRIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration</td>
<td>Austria, Belgium Wallonia, Slovenia</td>
</tr>
<tr>
<td>Content Creation</td>
<td>Belgium Flanders, Italy</td>
</tr>
<tr>
<td>Flipped Classroom</td>
<td>Italy, Portugal</td>
</tr>
<tr>
<td>Personalisation</td>
<td>Czech Republic, Lithuania, Slovenia</td>
</tr>
</tbody>
</table>

It was agreed by partners that each scenario should focus on a distinct pedagogical approach/topic rather than on a specific subject or age group to allow for flexible implementation of the scenario.  

2 Finalized scenarios can be found in Annex 3-6 and on the project website: [http://creative.eun.org/scenarios](http://creative.eun.org/scenarios)

3 However, the scenario narrative can include a concrete example of implementation and referring to a subject for practical illustration.
SUMMARY POLICY MAKER SCENARIO: COLLABORATION

CHALLENGES THE SCENARIO IS RESPONDING TO

The challenges are:

- how to assess the individual work of students in project based learning (*final assessment*)
- how to ensure that all students contribute to the task

SCENARIO NARRATIVE PLANNING

WHO IS INVOLVED IN THE SCENARIO? WHAT ARE THEIR ROLES?

| Students: | • to research a topic using social media  
|           | • to carry out experiments  
|           | • to present results  
|           | • to create a collaborative document of the findings, using cloud computing  
|           | • to present and discuss in a forum (*possibly webinar*)  
|           | • to critically evaluate own views  
| Teachers: | • to identify topics  
|           | • to provide support  
|           | • to give feedback which encourages reorientation  
|           | • to assess (*ongoing*)  
|           | • to provide guidance on sources of research  
|           | • to signpost other resources (*external experts*)  
| Experts, professional bodies/ parents: | • to provide expert knowledge  
|           | • to use social media to involve/ interact with the learners  
| Famous people: | • to contribute with an alternative view to the topic  

WHAT IS THE CORE PURPOSE OF YOUR SCENARIO?

Why would those involved decide to change their practice? In response to which particular challenges or opportunities?

- to allow the learners to take responsibility for their work and to carry out the activities that match their strengths
- to allow the teachers to adopt a more supportive role in the lessons (*helping the students to perform better and to understand how to tackle their weaknesses*)
- the approach to recording group work using their tablets helps the teacher to assess the individual contributions of each student
SUMMARY POLICY MAKER SCENARIO: CONTENT CREATION

CHALLENGES THE SCENARIO IS RESPONDING TO

The challenges are to engage students with the use of interactive digital textbooks in STEM education:

- to improve their motivation, participation and achievement in STEM education;
- change the teaching/learning practices (lesson models, assessment, school work, teaching methodology) related to STEM;
- move from the use of traditional digital textbooks towards the use of digital interactive textbooks accessible on students’ devices;
- engage students reluctant to traditional models of teaching (which favour a passive role of the student) by considering different types of learning styles (as digital media can meet different learning needs); and
- investigate how upper secondary education students can contribute to the creation of digital textbooks.

SCENARIO NARRATIVE PLANNING

WHO IS INVOLVED IN THE SCENARIO? WHAT ARE THEIR ROLES?

<table>
<thead>
<tr>
<th>Teachers:</th>
<th>to guide students activities (e.g. group work)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>to monitor the process</td>
</tr>
<tr>
<td></td>
<td>to assign homework</td>
</tr>
<tr>
<td></td>
<td>to engage students in collaborative activities</td>
</tr>
<tr>
<td></td>
<td>to act as remote publisher</td>
</tr>
<tr>
<td>Students</td>
<td>to perform research activities in and outside the classroom</td>
</tr>
<tr>
<td></td>
<td>to do homework</td>
</tr>
<tr>
<td></td>
<td>to create and personalise digital learning resources</td>
</tr>
<tr>
<td>Remote experts:</td>
<td>to give webinars (from outside the school)</td>
</tr>
</tbody>
</table>

WHAT IS THE CORE PURPOSE OF YOUR SCENARIO?

Why would those involved decide to change their practice? In response to which particular challenges or opportunities?

- to motivate and engage students through involving them more actively in content creation, problem based learning, collaboration and peer assessment
- to raise students interest in STEM
- to improve learning outcomes of students
- to improve students research skills, 21st century skills (problem based learning) and their ability to cooperate
- to change the teaching practices in STEM education
- to foster collaboration among teachers
- to give teachers access to good learning resources
- to enable teachers to be remote publishers
SUMMARY POLICY MAKER SCENARIO: FLIPPED CLASSROOM

CHALLENGES THE SCENARIO IS RESPONDING TO

The challenges are to:

- engage disengaged learners
- address the home-school divide
- for the school to keep the pace with more flexible and engaging methods in order to:
  - meet students’ needs
  - fully exploit the potential of ICT

WHO IS INVOLVED IN THE SCENARIO? WHAT ARE THEIR ROLES?

- students
- teachers
- parents

WHAT IS THE CORE PURPOSE OF YOUR SCENARIO?

Why would those involved decide to change their practice? In response to which particular challenges or opportunities?

- flipping the classroom away from the teacher’s full control
- student empowerment and “self-sustainability”
- formative assessment as a pathway to success
SUMMARY POLICY MAKER SCENARIO: PERSONALISATION

CHALLENGES THE SCENARIO IS RESPONDING TO

The challenges are to:

- take account of students individual speed and style of learning
- take account of students home circumstances
- provide additional support for individual students
- provide students with tools for learning outside the classroom

SCENARIO NARRATIVE PLANNING

WHO IS INVOLVED IN THE SCENARIO? WHAT ARE THEIR ROLES?

| Teachers:                      | • to tailor the resources  
|                               | • to create a pathway     
|                               | • to pull in external support 
|                               | • to provide feedback and evaluation |
| Parents:                      | • to respond to teachers suggestions |
| Librarians:                   | • to harness resources    |
| Experts and mentors:          | • to provide input during 1:1 interaction |
| Students:                     | • to follow the programme with a positive attitude, including special needs students and particularly talented students |

WHAT IS THE CORE PURPOSE OF YOUR SCENARIO?

Why would those involved decide to change their practice? In response to which particular challenges or opportunities?

- to move from a teacher centric to a pupil centric approach
- to improve individual students’ self-esteem
- to improve student motivation and increase academic achievements
- to help every child to make the most of their talents and potential
- to give every child a fair chance of succeeding in their education
CONCLUSIONS

The first CCL Mainstreaming workshop proved to be an efficient way of capturing national challenges and engaging policy makers in the scenario development process. CCL partners specified and agreed upon priority topics as regards the use of tablets in schools and developed as part of a collaborative transnational exercise scenario ideas to be further translated into pedagogical activities and to be tested by teachers in their country in the first pilot phase.

The literature indicates a positive impact of the use of tablets, e.g. on students’ motivation and collaborative work between teachers and students and students. While there seems to be general consent that the use of tablets in schools is useful, there is still a lack of evidence in particular on their usefulness to enhance students’ attainment. The results of the CCL project are to contribute to the existing research results.

During the workshop, policy makers identified the most important barriers to the further uptake of tablets in schools. At system level, those were infrastructure /eHealth, continuing professional development, content, assessment, lack of evidence and at school level communication (teachers, parents), infrastructure (security) and curriculum.

Regarding possible measures to tackle barriers to the use of tablets in schools, main points emphasised were the need for more professional development opportunities for ICT coordinators, pedagogical advisors and teachers in both initial and in-service training. Teachers need to have access to adequate content to use with their students on tablets. Therefore, a legal framework on digital content must be in place, platforms to exchange content and a sufficient amount of localised and translated content (apps) must be available. Further, ICT needs to become part of the assessment process and teachers need support in their assessment role. Finally, more rigorous research on the impact of tablets on learning is necessary.

As the most important result of the workshop, four common Policy Maker Scenarios on the key priorities collaboration (Annex 3), content creation (Annex 4), personalisation (Annex 5) and Flipped Classroom (Annex 6) were jointly developed. These Policy Maker Scenarios are the starting point for the pedagogical scenario development process within the project. On the basis of the Policy Maker Scenarios, Learning Stories are developed jointly by policy makers and lead teachers during a Pedagogical Scenario Development workshop and will be implemented and tested by the 45 CCL teachers, who start their tablet experimentations in November 2013.

The finalized policy maker scenarios can be accessed at: http://creative.eun.org/scenarios
ANNEX I: AGENDA POLICY MAKER WORKSHOP

1st Mainstreaming Workshop on National Policy Challenges,

FINAL AGENDA

Brussels, 21 May, EUN Office 9.00-16.45

Objective:
The workshop will define national policy challenges (concrete policy concerns) related to 1:1 tablet integration and consider possible approaches to remove existing barriers to further spur the innovative use and wider uptake of ICT. Policy makers will work on the innovation matrix developed in the iTEC project and develop ideas/objectives on how to progress with innovation in their country by implementing the pilot. Another objective of the workshop is to arrive to a first set of policy maker scenarios that should be the reference framework for the pedagogical scenarios developed by lead teachers during the workshop on 7th June. The literature review will feed into this process.

9.00-9.15 Welcome and update on selection of schools/industry pilots

9.15-9.30 Introduction to the workshop

9.30-11.30 Session 1: Policy Challenges and Measures related to 1:1 initiatives Anja Balanskat (EUN) Introduction, Diana Bannister, Katja Engelhardt Facilitators

9.30.-10.00 Group work:

What are the current challenges and issues teachers in your country are facing in implementing 1:1 computing initiatives including tablets? (at system level, at organization level)

10.00-10.30 Plenary:

Reporting back on challenges and agree on a common set of main challenges to address

10.30.-11.00

What could be the concrete measures to tackle those challenges in the short term/ long term future?

11.00-11.30 Plenary Session: Reporting back

- Each group describes the measures that can be taken to address the challenges and feedback

11.30-13.00 Session 2: Innovative use of ICT Will Ellis (EUN, iTEC project manager)

A major aim of the project is to deploy innovative use of tablets and wider uptake of innovative practice. Therefore, policy makers/partners are asked to place their system on the innovation matrix developed by iTEC and outline where they would like to make progress.
1) The Innovation matrix: How innovative is your education system? Where do you want to be in one year/two years?
2) How can the pilot and related scenarios contribute to progress?

13.00-13.30 Lunch

13.30-14.00 Session 3: Evidence from the literature review Valerie Thompson, e-learning foundation

First results from the literature review will shed light on:

- What evidence is available on the use of tablets?
- What evidence is available on specific themes related to the scenarios (assessment, personalization, collaboration, innovation)?
- How can the literature review inform the scenario development process?

14.00-15.30 Session 4: Policy maker scenarios (Will Ellis Introduction, Anja Balanskat, Diana Bannister, Katja Engelhardt, Facilitators)

14.00-14.15
- Overview of submitted scenarios and organization in groups to work on developing the scenarios (by topics and industry pilots)

14.15-15.45
- Group work: Each group works on a specific policy scenario for the first round of pilots and writes a narrative

15.45-16.00 Coffee

16.00-16.30
- Plenary session: Reporting back on policy scenarios developed

16.30-16.45
- Discussion on use of results in pedagogical scenario development workshop

16.45 Closure of workshop
## ANNEX II: KEY PRIORITIES/ CHALLENGES BY COUNTRY

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>CHALLENGES/ KEY PRIORITIES</th>
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<tbody>
<tr>
<td><strong>CZECH REPUBLIC</strong></td>
<td><strong>PERSONALISATION</strong></td>
</tr>
<tr>
<td></td>
<td>• personalisation of learning</td>
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<tr>
<td></td>
<td>• use of tablets to support personalised learning</td>
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<tr>
<td></td>
<td>• simplify communication between teachers and students (no time limits)</td>
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<tr>
<td></td>
<td>• support of disengaged learners</td>
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<tr>
<td></td>
<td>• personal eportfolios for each student</td>
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<tr>
<td><strong>ITALY</strong></td>
<td><strong>CONTENT CREATION</strong></td>
</tr>
<tr>
<td></td>
<td>• To change the use of traditional digital textbooks towards a digital interactive textbooks accessible on students’ devices</td>
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<td></td>
<td>• To engage students in STEM education with use of interactive digital textbooks and to improve their motivation, participation and achievement in STEM education</td>
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<td></td>
<td>• To change the teaching/learning practices (lesson models, assessment, school work, teaching methodology), related to STEM education</td>
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<td></td>
<td>• To engage students reluctant to traditional/passive models of teaching, considering different types of learning styles (digital media can meet different learning needs)</td>
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<td></td>
<td>• To investigate how upper education students can contribute to the creation of digital textbooks</td>
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<td><strong>ITALY</strong></td>
<td><strong>FLIPPED CLASSROOM</strong></td>
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<td></td>
<td>• To improve classroom time management, by using digital free, open and good quality materials</td>
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<td></td>
<td>• To engage students in a wider range of hands-on activities and active tasks</td>
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<td>• To change the teacher’s role from a “transmissive medium” to a “knowledge mediator”</td>
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<tr>
<td><strong>LITHUANIA</strong></td>
<td><strong>BYOD, CONTENT CREATION, PERSONALISATION</strong></td>
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<tr>
<td></td>
<td>• Infrastructure (tablets), teacher training</td>
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<td></td>
<td>• The main aim of the scenario is to explore the impact of innovative pedagogical practices using tablets on learning achievements</td>
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<tr>
<td><strong>PORTUGAL</strong></td>
<td><strong>FLIPPED CLASSROOM</strong></td>
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<tr>
<td></td>
<td>• Investigating the use of tablets in implementing the flipped classroom model:</td>
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<tr>
<td></td>
<td>o Digital formative assessment</td>
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<tr>
<td></td>
<td>o Personalised learning</td>
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<tr>
<td></td>
<td>o Creating digital learning resources: learning through video</td>
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<tr>
<td></td>
<td>• Challenges and issues</td>
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<tr>
<td></td>
<td>o Lack of equipment</td>
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<td></td>
<td>o Widespread/Universal/Simultaneous wi-fi access (infrastructure)</td>
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<td></td>
<td>o Training teachers in adopting the flipped classroom model</td>
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<td>o Training teachers in the use of tablets</td>
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<td></td>
<td>o Training teachers in the creation of digital learning resources</td>
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<td></td>
<td>• Contribution to address existing problems</td>
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<td></td>
<td>o Engaging disengaged learners</td>
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</table>
### Changes, improvements, pedagogical practices
- The role of students (becoming more autonomous and active in the learning process)
- The role of teachers (becoming a facilitator in the learning process)
- The change of the learning environment (more collaborative and participated)
- Improving results
- Addressing the divide between school and family
- Working towards a more personalised learning environment

### Desired outcome
- Better results
- Improving collaborative, communication and problem solving skills

### Slovenia
- The current challenges and issues teachers in Slovenia are facing in implementing 1:1 computing initiatives including tablets are: how to identify the curriculum goal, that can be more effectively achieved with use of ICT, how to achieve higher levels of knowledge by using ICT.
- The scenario will guide the teacher while planning the lesson: what important facts and activities are to consider: connect pedagogical content with technological content.
- What are the changes, improvements, pedagogical practices you wish to occur by implementing such a scenario? What, at the end of the pilot, should be a desired outcome of having implemented such a scenario?
  - To prepare good examples for “other” teachers and this examples are prepared in the way, that “evary” other teacher can use it and implement in his class.

### UK
- The statistics of academic achievement spell out a persistent under-achievement of pupils from families with low incomes. The measure of Free School Meals in the UK serves as a useful, if not entirely accurate, measurement of the students at risk of the “attainment gap” that starts in Primary School and persists all the way through to University entrance. Notably, disadvantaged children often lack good access to a computer and the Internet at home and may begin secondary school with less experience in using technology.
- A growing number of schools are already deploying 1:1 programmes, with most of the new ones opting for tablet computers. Many more teachers would like their schools to adopt this approach but are not convinced the school could afford to provide a device for every pupils. Other teachers believe that there is insufficient evidence of educational improvement to justify the investment. There is also, currently, very little in the way of advice to help schools choose the correct device for their students or to...
support them in building this around a coherent, longer term, strategy for use of technology to support and enhance learning.

- Teacher CPD is highly fragmented in England (less so in Scotland and Wales) and many teachers lack any formal training on how to make the most of learning technology in the classroom, or how pupils and their families can make good use of the technology when it goes home.

- While Broadband is fairly good across the Secondary School sector in the UK, school infrastructure can be a limiting factor, especially wireless access. It is also difficult to access clear information on how to manage these devices effectively once they are part of a school network. For example, easily deploying apps, data security, managing the distractions which the devices have the potential to cause.

- Nearly all Secondary Schools operate some form of VLE, but their use varies enormously, and there is a disappointingly low level of evidence of the use of the platforms for personalised learning for under-achieving pupils. Not all schools know how to make most effective use of the masses of data they have at their fingertips where their VLE is able to interact effectively with their management information system or how to use this to provide a personalised experience for individuals in their school community.

- The main scenario we have identified, Closing the Attainment Gap, seeks to involve our group of teachers in developing practical solutions to the challenges listed above. Through the establishment of good practice in their teaching approach a replicable model can be defined and disseminated.

- We wish to explore how these devices can be used to develop learning dispositions/habits such as those set out in Guy Claxton’s “Building Learning Power”. A good body of research has been carried out by authors such as Geoff Petty and John Hattie (“Evidence based teaching”, Geoff Petty and “Visible Learning”, John Hattie), which outlines teaching and learning activities which are shown to have the largest impact on learning. We seek to investigate how this technology can be used to offer efficient ways of facilitating these ‘high impact’ activities in order to increase attainment, particularly with students from disadvantaged background. We wish to explore how these devices can be used to engage students in their learning whom are, perhaps, not so engaged with more traditional methods of learning.

- In addition to the above we seek to see how this technology can impact when part of a wider pedagogical change in culture. Some schools are altering their curriculum to facilitate more ‘Enquiry Based Learning’ and ‘Project Based Learning’. We look to investigate what role a flexible ICT tool such as a mobile tablet can play in a more flexible classroom employing this type of pedagogy and of course whether or not this is leading to an increase in attainment. Again, a particular focus will be placed on those students from disadvantaged backgrounds.
ANNEX III: POLICY MAKER SCENARIO COLLABORATION

POLICY MAKER SCENARIO COLLABORATION

Scenario facts

PROJECT: Creative Classrooms Lab

TOPIC: Collaboration

AUTHORS:
Bernard Racz (Austria)
Francoise Galoux (Belgium Wallonia)
Anita Poberznik (Slovenia)

DEVELOPED: Policy Maker Workshop 21 May 2013, Brussels

TO BE IMPLEMENTED: Pilot Cycle 1 (November 2013 - April 2014)
**BACKGROUND**

During the 1st Capacity Building Workshop of the project in May 2013 in Brussels, CCL policy makers developed **four Policy Maker Scenarios** on the topics personalisation, collaboration, content creation and flipped classroom.

On the basis of the Policy Maker Scenarios, policy makers and lead teachers developed **learning stories** together during a Scenario Development Workshop in June 2013. Finally, all the CCL teachers will derive their **lesson plans** from these learning stories.

This outcome of this process will guide the CCL teachers in the use of the tablets during the **first round of pilots** starting in November 2013. Hence, this Policy Maker Scenario serves as the basis for learning stories/ activities and lesson plans guiding the use of tablets on the topic **Personalisation**.

**CCL Project Lifecycle**

1. **1st Capacity Development workshop**  
   *May 2013*

2. **Development of the first set of Policy Scenarios and Learning Stories**  
   *Jun - Sep 2013*

3. **First round of classroom pilots using the developed Scenarios and Learning Stories**  
   *Nov 2013 - Apr 2014*

4. **Initial observation results and 2nd Capacity Development workshop**  
   *Jun 2014*

5. **Development of the second set of scenarios and Learning Stories based on the initial results**  
   *May - Sep 2014*

6. **Second round of school pilots with the new set of scenarios**  
   *Oct 2014 - Jan 2015*

7. **Final observation results and 3rd Capacity Development workshop**  
   *Mar 2015*
POLICY MAKER SCENARIO: COLLABORATION

CHALLENGES THE SCENARIO IS RESPONDING TO

The challenges are:

- how to assess the individual work of students in project based learning (final assessment)
- how to ensure that all students contribute to the task

SCENARIO NARRATIVE PLANNING

WHO IS INVOLVED IN THE SCENARIO? WHAT ARE THEIR ROLES?

| Students: | • to research a topic using social media  
• to carry out experiments  
• to present results  
• to create a collaborative document of the findings, using cloud computing  
• to present and discuss in a forum (possibly webinar)  
• to critically evaluate own views |
|---|---|
| Teachers: | • to identify topics  
• to provide support  
• to give feedback which encourages reorientation  
• to assess (ongoing)  
• to provide guidance on sources of research  
• to signpost other resources (external experts) |
| Experts, professional bodies/ parents: | • to provide expert knowledge  
• to use social media to involve/ interact with the learners |
| Famous people: | • to contribute with an alternative view to the topic |

WHAT TECHNOLOGY IS USED IN YOUR SCENARIO? HOW IS IT USED?

- **tablets** to use google maps (*to find locations*) and social media (*to find experts and famous people*)
- **project blog** for learners to upload progress and outputs
- **virtual learning environments/ learning management systems** for teachers to give guidance/provide support
- **collaborative document tools** to show who has contributed
- **audio/video recording** of each students’ progress

WHAT IS THE CORE PURPOSE OF YOUR SCENARIO?

Why would those involved decide to change their practice? In response to which particular challenges or opportunities?

- **to allow the learners to take responsibility** for their work and to carry out the activities that match their strengths
• to allow the teachers to adopt a more supportive role in the lessons (helping the students to perform better and to understand how to tackle their weaknesses)
• the approach to recording group work using their tablets helps the teacher to assess the individual contributions of each student

**WHERE DOES THE SCENARIO TAKE PLACE?**

Subject dependent:

• museums and science study centres, science institutes *(for experiments)*
• music lab, studios, music shop, theatres
• cultural department of the embassy *(for connections with other young people)*
• Twinspace using the eTwinning environment
• home
• youth centre, community centre, faith centre

**WHEN DOES THE SCENARIO TAKE PLACE?**

• outside of school time *(arranging meetings, carrying out research and contracting experts)*
• during lessons *(planning, evaluating progress with the support of the teacher, workshop sessions on research skills)*

**WHAT HAPPENS?**

| Teacher: | • to provide a supporting role/ guide each team and student  
|          | • to assess the progress of individuals  
|          | • to provide regular guidance on how to improve the performance |
| Student: | • to work collaboratively  
|          | • to negotiate the tasks of each student  
|          | • to take responsibility for his/her own contribution  
|          | • to work on authentic tasks such as planning, communicating ideas, providing progress reports, carrying out research |

**WHAT OTHER RESOURCES ARE NEEDED IN THE SCENARIO?**

• most of the resources will be web based tools, accessed via tablet devices
• the students will also need presentation tools which they can use with their tablets
COLLABORATIVE WORK: RESEARCH VIEWS ON A CONTROVERSIAL TOPIC

The teacher Herman provides his students with the challenge to research views on a controversial issue which they are interested in (and which fits within the curriculum). The students need to work in teams to carry out the research. Teams are formed and each team selects a team name and creates a blog where they will report on their progress. Each member of the team will take different role:

- **Team leader, Nathalie:** to plan the activities and to help each team member to complete its work
- **Team reporter, Samir:** to report on the teams progress and individual progress
- **Organiser, Jozi:** to organise the online tools, meetings and webinars
- **Lead researcher, David:** to lead most of the research

The lead researcher, David, starts by identifying people who have strong views on the topic of their research. The team leader, Nathalie, takes responsibility for using social media (e.g. twitter) and the internet to identify suitable people, and posts a list of these people with their profiles on the project blog. She asks the organiser, Jozi, to arrange a meeting outside of school hours to plan how to contact the identified people. He finds a number of locations on an online map: He first checks if he can use a local community centre, but it is booked on the date his team needs it, so he decides that they will meet in a local museum. He lets the others know the details of the meeting via the project blog.

In the meantime, the lead researcher, David, did some background research on the issue and found a number of films and articles providing differing points of view. At the meeting he shares his findings with the group, using his tablet. Then the reporter, Samir, asks each of the team members to record an audio clip of what they have done so far. These audio clips are also uploaded to the blog. On this basis, the team leader, Nathalie, allocates further tasks to each team member. These tasks include interviews with local experts that have been identified, including a person working in a museum, a parent who works in the area of interest and a local university lecturer who gives lectures on the topic. Before the interviews, the team meets during an online collaboration session using a shared editing tool (which identifies which contribution has been made by whom).

In the next lesson, Herman who has reviewed the blog and audio reports, provides each student with a progress report, a team report and guidance on what additional work he/she should complete, using further support materials. Herman holds regular support meetings with each team and builds up a progress record for each student. During the meetings, the students agree together on who has achieved which results, and who needs to contribute more for the following activities, in order to ensure that everybody contributes equally to the work.

As a next step, the students email the experts and famous people that Nathalie identified, to get their opinions on the topic. Herman guides his students to make sure that they are critical about the information they receive and think carefully about whether their sources are reliable. One group receives a response from a famous musician which they had contacted.

Finally, all the information collected is used to plan a webinar which the teams deliver to the other students in the school. The other students who participate in the webinar are able to vote on the issues being discussed, and the results are put into a final report. The students’ final grade is based on the contributions they have made, which can be accessed in the project blog.
### iTEC INNOVATION MATURITY MODEL

The iTEC Innovation Maturity Model has been developed in the framework of the iTEC project ([http://itec.eun.org](http://itec.eun.org)). The model shows a number of progressive stages of innovation maturity of an institution, e.g. school. As educational institutions move from one stage to the next in the direction of the arrow, the innovation maturity of the institution progresses, e.g. the implementation of a scenario that moves an institution from the ‘Exchange’ stage of the model to the ‘Enrich’ stage would be defined as innovative in that institution’s context. In this self-assessment activity an organisation’s/institution’s stakeholders and/or workshop participants identify the organisation’s current position on the maturity model. The aim of the self-assessment (which was part of the CCL Policy Maker workshop in May this year) is to reflect on the aim of introducing new technologies in school and to ensure through this process the quality of produced scenarios.

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<tr>
<th>From:</th>
<th>To:</th>
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<tbody>
<tr>
<td>Extend</td>
<td>Empower</td>
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</table>

#### 5 Empower
**Redefinition & innovative use**
- Technology supports new learning services that go beyond institutional boundaries.
- Mobile and locative technologies support ‘agile’ teaching and learning.
- Learner as co-designer of the learning journey, supported by intelligent content and analytics.

#### 4 Extend
**Network redesign & embedding**
- Ubiquitous, integrated, seamlessly connected technologies support learner choice and personalisation beyond the classroom.
- Teaching and learning distributed, connected and organised around the learner.
- Learners take control of learning using technology to manage own learning.

#### 3 Enhance
**Process redesign**
- Teaching and learning ‘redesigned’ to incorporate technology, building on research in learning and cognition.
- Institutionally-embedded technology supports the flow of content and data, providing an integrated approach to teaching, learning and assessment.
- Learner as ‘producer’ using networked technologies to model and make.

#### 2 Enrich
**Internal Coordination**
- Technology used interactively to make differentiated provision within the classroom.
- Technology supports a variety of routes to learning.
- Learner as ‘user’ of technology tools and resources.

#### 1 Exchange
**Localised use**
- Technology used within current teaching approaches.
- Learning is teacher-directed and classroom-located.
- Learner as ‘consumer’ of learning content and resources.
ANNEX IV: POLICY MAKER SCENARIO CONTENT CREATION

POLICY MAKER SCENARIO

CONTENT CREATION

Scenario facts

PROJECT: Creative Classrooms Lab
TOPIC: Content Creation
AUTHORS:
Jan de Craemer (Flemish Ministry of Education, Belgium Flanders)
Elena Mosa (INDIRE, Italy)
DEVELOPED: Policy Maker Workshop 21 May 2013, Brussels
TO BE IMPLEMENTED: Pilot Cycle 1 (November 2013 - April 2014)
BACKGROUND

During the 1st Capacity Building Workshop of the project in May 2013 in Brussels, CCL policy makers developed four **Policy Maker Scenarios** on the topics personalisation, collaboration, content creation and flipped classroom.

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This outcome of this process will guide the CCL teachers in the use of the tablets during the **first round of pilots** starting in November 2013. Hence, this Policy Maker Scenario serves as the basis for learning stories/ activities and lesson plans guiding the use of tablets on the topic **Personalisation**.

CCL PROJECT LIFECYCLE
**POLICY MAKER SCENARIO: CONTENT CREATION**

**CHALLENGES THE SCENARIO IS RESPONDING TO**

The challenges are to engage students with the use of interactive digital textbooks in STEM education:

- to improve their motivation, participation and achievement in STEM education;
- change the teaching/learning practices (lesson models, assessment, school work, teaching methodology) related to STEM;
- move from the use of traditional digital textbooks towards the use of digital interactive textbooks accessible on students’ devices;
- engage students reluctant to traditional models of teaching (which favour a passive role of the student) by considering different types of learning styles (as digital media can meet different learning needs); and
- investigate how upper secondary education students can contribute to the creation of digital textbooks.

**SCENARIO NARRATIVE PLANNING**

**WHO IS INVOLVED IN THE SCENARIO? WHAT ARE THEIR ROLES?**

| Teachers: | • to guide students activities (*e.g.* group work)  
|           | • to monitor the process  
|           | • to assign homework  
|           | • to engage students in collaborative activities  
|           | • to act as remote publisher  
| Students  | • to perform research activities in and outside the classroom  
|           | • to do homework  
|           | • to create and personalise digital learning resources  
| Remote experts: | • to give webinars (*from outside the school*)  

**WHAT TECHNOLOGY IS USED IN YOUR SCENARIO? HOW IS IT USED?**

- tablets with built in cameras, multimedia production tools, measurement apps, mind mapping tools and STEM subject specific apps (*to gather/edit data*)
- interactive whiteboards or 3D projectors to showcase results
- virtual learning environment/cloud computing systems to store files and to collaborate
- blog to store and display content
- wiki like environment to edit and publish content
- wireless connection
- printer
WHAT IS THE CORE PURPOSE OF YOUR SCENARIO?

Why would those involved decide to change their practice? In response to which particular challenges or opportunities?

- to motivate and engage students through involving them more actively in content creation, problem based learning, collaboration and peer assessment
- to raise students interest in STEM
- to improve learning outcomes of students
- to improve students research skills, 21st century skills (problem based learning) and their ability to cooperate
- to change the teaching practices in STEM education
- to foster collaboration among teachers
- to give teachers access to good learning resources
- to enable teachers to be remote publishers

WHERE DOES THE SCENARIO TAKE PLACE?

- inside school, for example in the library (for group work and presentations)
- outside of school during after school activities (for data collection)

WHEN DOES THE SCENARIO TAKE PLACE?

- mainly during school lessons
- during follow-up activities after school

WHAT HAPPENS?

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Students create digital resources in STEM education</th>
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<tbody>
<tr>
<td>Teacher:</td>
<td>• to provide/ suggest a theme to be researched by students</td>
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<tr>
<td></td>
<td>• to initiate a brainstorming session</td>
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<td>• to divide students in groups (with different roles for each student)</td>
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<tr>
<td>Students</td>
<td>• to identify research questions around the themes (problem based)</td>
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<td></td>
<td>• to collect and analyse data</td>
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<td>• to produce/edit the interactive digital learning resource</td>
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<td>• to present the final product via the interactive whiteboard to other students</td>
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<td>• to use digital portfolios to showcase the results of the work</td>
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<td>• to select the best digital resources to be included in an e-book (to be published)</td>
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<td>• to peer assess the digital resources produced by the other groups</td>
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<thead>
<tr>
<th>Phase 2</th>
<th>Teachers select learning resources produced by students and publish the best ones</th>
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<tbody>
<tr>
<td>Teachers</td>
<td>• to edit the resource (adding interactivity options)</td>
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<td>• to add didactical guidelines to the resource</td>
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<td></td>
<td>• to discuss the resources to be included in the online working environment with other teachers from other topics (e.g. via videoconferencing)</td>
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<td></td>
<td>• to edit the content for the publication (e.g. wiki, digital textbook) using multimedia tools</td>
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**STUDENTS FROM GRADE 10 STUDYING BIOLOGY DEVELOP DIGITAL CONTENT**

Students from grade 10 studying biology are to develop learning resources in a wiki like environment or as part of an interactive e-book:

**Phase 1: Creation of the digital learning resources by students**

The biology teacher decides on the topic “protected plants in the region” for students to work on and collects first ideas on the topic during a brainstorming session. Students will work in groups, according to the plants they are interested in. Each student has a specific role in the group according to their learning preferences and capacities:

- **Marc is responsible for digital content retrieval**: He needs to look for digital materials for the research.
- **Jane is the coordinator**: Her main task is to help the teacher in the organization of the workflow and deliverables.
- **Bruce is the editor**: He collects the digital resources and gives them coherence.
- **Katja is the critical fellow of the group**: She assesses the work of the other groups providing hints and new ideas to her own group.

Group A formulates a research question and collects evidence where needed (*online, offline, expert consultation, libraries, inside school, outside*), analyses the data and creates the learning resource.

All groups use tablets with a range of tools and applications, e.g. built in cameras for taking pictures inside and outside the classroom, multimedia production tools for the presentation of the e-book, specific apps for collecting data, mind mapping tools and other subject specific STEM related apps. Students and teachers also use some of the following tools: interactive whiteboards or 3D projectors, virtual learning environments, cloud systems to store documents and to collaborate, wiki like working environments and eportfolios for assessment.

After the completion of the tasks, group presenters present the final product to the other groups in class. Students from other groups assess the resources developed (*using voting systems and an interactive whiteboard*). The biology teacher also assesses the resources and the teacher and students decide together on the best resources to be included in the e-book/online wiki based environment.

**Phase 2: Teachers publish the resource with didactical guidelines in the online environment (*e.g. wiki*)**

The biology teacher gets in contact (*via an online space, conference tools*) with other biology teachers of the same or other schools in order to exchange about the resources developed by their students. The biology teacher edits the learning resources (*multimedia, interactive*), adds pedagogical guidelines and publishes them online.
**iTEC INNOVATION MATURITY MODEL**

The iTEC Innovation Maturity Model has been developed in the framework of the iTEC project ([http://itec.eun.org](http://itec.eun.org)). The model shows a number of progressive stages of innovation maturity of an institution, e.g. school. As educational institutions move from one stage to the next in the direction of the arrow, the innovation maturity of the institution progresses, e.g. the implementation of a scenario that moves an institution from the ‘Exchange’ stage of the model to the ‘Enrich’ stage would be defined as innovative in that institution’s context. In this self-assessment activity an organisation’s/institution’s stakeholders and/or workshop participants identify the organisation’s current position on the maturity model. The aim of the self-assessment (which was part of the CCL Policy Maker workshop in May this year) is to reflect on the aim of introducing new technologies in school and to ensure through this process the quality of produced scenarios.

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- Technology supports new learning services that go beyond institutional boundaries.  
- Mobile and locative technologies support ‘agile’ teaching and learning.  
- Learner as co-designer of the learning journey, supported by intelligent content and analytics. |
| 4     | Extend | Network redesign & embedding  
- Ubiquitous, integrated, seamlessly connected technologies support learner choice and personalisation beyond the classroom.  
- Teaching and learning distributed, connected and organised around the learner.  
- Learners take control of learning using technology to manage own learning. |
| 3     | Enhance | Process redesign  
- Teaching and learning ‘redesigned’ to incorporate technology, building on research in learning and cognition.  
- Institutionally-embedded technology supports the flow of content and data, providing an integrated approach to teaching, learning and assessment.  
- Learner as ‘producer’ using networked technologies to model and make. |
| 2     | Enrich | Internal Coordination  
- Technology used interactively to make differentiated provision within the classroom.  
- Technology supports a variety of routes to learning.  
- Learner as ‘user’ of technology tools and resources. |
| 1     | Exchange | Localised use  
- Technology used within current teaching approaches.  
- Learning is teacher-directed and classroom-located.  
- Learner as ‘consumer’ of learning content and resources |
ANNEX V: POLICY MAKER SCENARIO PERSONALISATION

POLICY MAKER SCENARIO PERSONALISATION

Scenario facts

PROJECT: Creative Classrooms Lab

TOPIC: Personalisation

AUTHORS:
Valerie Thompson (e-learning foundation, UK)
Pavla Sabatkova (DZS, Czech Republic)
Kristina Valantinienė (CITE, Lithuania)

DEVELOPED AT: Policy Maker Workshop 21 May 2013, Brussels

TO BE IMPLEMENTED: Pilot Cycle 1 (November 2013 - April 2014)
BACKGROUND

During the 1st Capacity Building Workshop of the project in May 2013 in Brussels, CCL policy makers developed four Policy Maker Scenarios on the topics personalisation, collaboration, content creation and flipped classroom.

On the basis of the Policy Maker Scenarios, policy makers and lead teachers developed learning stories together during a Scenario Development Workshop in June 2013. Finally, all the CCL teachers will derive their lesson plans from these learning stories.

This outcome of this process will guide the CCL teachers in the use of the tablets during the first round of pilots starting in November 2013. Hence, this Policy Maker Scenario serves as the basis for learning stories/ activities and lesson plans guiding the use of tablets on the topic Personalisation.

CCL PROJECT LIFECYCLE

1st Capacity Development workshop
May 2013

Development of the first set of Policy Scenarios and Learning Stories
Jun - Sep 2013

First round of classroom pilots using the developed Scenarios and Learning Stories
Nov 2013 - Apr 2014

Initial observation results and 2nd Capacity Development workshop
Jun 2014

Development of the second set of scenarios and Learning Stories based on the initial results
May - Sep 2014

Final observation results and 3rd Capacity Development workshop
Mar 2015

Second round of school pilots with the new set of scenarios
Oct 2014 - Jan 2015
POLICY MAKER SCENARIO: PERSONALISATION

CHALLENGES THE SCENARIO IS RESPONDING TO

The challenges are to:

- take account of students individual speed and style of learning
- take account of students home circumstances
- provide additional support for individual students
- provide students with tools for learning outside the classroom

SCENARIO NARRATIVE PLANNING

WHO IS INVOLVED IN THE SCENARIO? WHAT ARE THEIR ROLES?

| Teachers:          | • to tailor the resources
|                   | • to create a pathway
|                   | • to pull in external support
|                   | • to provide feedback and evaluation
| Parents:          | • to respond to teachers suggestions
| Librarians:       | • to harness resources
| Experts and mentors: | • to provide input during 1:1 interaction
| Students:         | • to follow the programme with a positive attitude, including special needs students and particularly talented students

WHAT TECHNOLOGY IS USED IN YOUR SCENARIO? HOW IS IT USED?

- individual mobile devices (tablets)
- assessment tools (optional)
- cloud computing storage (e.g. Google Docs) or school server
- software and apps
- remote access to school server (teachers, students and parents)
- interactive whiteboards
- voting systems

WHAT IS THE CORE PURPOSE OF YOUR SCENARIO?

Why would those involved decide to change their practice? In response to which particular challenges or opportunities?

- to move from a teacher centric to a pupil centric approach
- to improve individual students’ self-esteem
• to improve student motivation and increase academic achievements
• to help every child to make the most of their talents and potential
• to give every child a fair chance of succeeding in their education

WHERE DOES THE SCENARIO TAKE PLACE?

Whenever and wherever students would like to learn, for instance:

• in the classroom
• the local library
• at home
• at grandparents
• with friends (homework, projects)
• outdoors
• online (alone and with friends)

WHEN DOES THE SCENARIO TAKE PLACE?

• in the classroom, possibly working in groups who share common aspects
• after school activity (different homework can be set for individual students)

WHAT HAPPENS?

<table>
<thead>
<tr>
<th>Teacher:</th>
<th>• to assess students learning needs and skills and interests in order to be able to form groups where feasible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• to set work according to that information</td>
</tr>
<tr>
<td></td>
<td>• to involve parents in activities that will support their child</td>
</tr>
<tr>
<td>School:</td>
<td>• to set up the device to help with special needs (dyslexia, hearing impaired, vision impaired, etc.)</td>
</tr>
<tr>
<td></td>
<td>• to set up a template for an individual e-portfolio/journal</td>
</tr>
<tr>
<td>Parents:</td>
<td>• to have access to information about their child</td>
</tr>
<tr>
<td></td>
<td>• to support their child’s learning</td>
</tr>
<tr>
<td>Experts and mentors:</td>
<td>• to be invited by teachers</td>
</tr>
<tr>
<td>Students:</td>
<td>• to create their content</td>
</tr>
</tbody>
</table>
ONE TYPICAL SCHOOL DAY FOR GEORGE

George wakes up and while eating breakfast he checks his timetable App for the day on his tablet. He sees a reminder that he must remember to email the essay he was set last week.

Off to school. First lesson is literacy and the class breaks into 4 groups (the teacher has carefully chosen the groups). Each has a different task to complete within their ability. George’s group has been working on their fluency and he feels he can succeed in the task as he is on the same level so does not feel intimidated by anyone. If the teacher sees that George is struggling with a task, he will contact either the parents, or his mentor to suggest he spends some time reading with him that evening.

Next lesson, George’s favourite, maths. George is in the top set and they have been asked to develop an “app” to present to the rest of the class.

The teacher has noticed George could be slightly dyslexic so she suggests that George does an online assessment to test for it. She is right so she sends him to see the ICT co-ordinator to get the font and background colour changed on his tablet.

When George gets home he will save the app into his e-portfolio for future reference. He shows his mum the app that his team has developed, she is impressed.
The iTEC Innovation Maturity Model has been developed in the framework of the iTEC project (http://itec.eun.org). The model shows a number of **progressive stages of innovation maturity of an institution**, e.g. school. As educational institutions move from one stage to the next in the direction of the arrow, the innovation maturity of the institution progresses, e.g. the implementation of a scenario that moves an institution from the ‘Exchange’ stage of the model to the ‘Enrich’ stage would be defined as innovative in that institution’s context. In this **self-assessment activity** an organisation’s/institution’s stakeholders and/or workshop participants identify the organisation’s current position on the maturity model. The aim of the self-assessment (which was part of the CCL Policy Maker workshop in May this year) is to reflect on the aim of introducing new technologies in school and to ensure through this process the quality of produced scenarios.

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<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Exchange</td>
<td>Localised use</td>
<td>o Technology used within current teaching approaches. o Learning is teacher-directed and classroom-located. o Learner as “consumer” of learning content and resources</td>
</tr>
<tr>
<td>2 Enrich</td>
<td>Internal Coordination</td>
<td>o Technology used interactively to make differentiated provision within the classroom. o Technology supports a variety of routes to learning. o Learner as ‘user’ of technology tools and resources.</td>
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<tr>
<td>3 Enhance</td>
<td>Process redesign</td>
<td>o Teaching and learning ‘redesigned’ to incorporate technology, building on research in learning and cognition. o Institutionally-embedded technology supports the flow of content and data, providing an integrated approach to teaching, learning and assessment. o Learner as ‘producer’ using networked technologies to model and make.</td>
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<td>4 Extend</td>
<td>Network redesign &amp; embedding</td>
<td>o Ubiquitous, integrated, seamlessly connected technologies support learner choice and personalisation beyond the classroom. o Teaching and learning distributed, connected and organised around the learner. o Learners take control of learning using technology to manage own learning.</td>
</tr>
<tr>
<td>5 Empower</td>
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</tr>
</tbody>
</table>

### The stage of the innovation

<table>
<thead>
<tr>
<th>From:</th>
<th>To:</th>
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</thead>
<tbody>
<tr>
<td>Enrich</td>
<td>Enhance</td>
</tr>
</tbody>
</table>
ANNEX VI: FLIPPED CLASSROOM

POLICY MAKER SCENARIO

FLIPPED CLASSROOM

Scenario facts

**PROJECT:** Creative Classrooms Lab
**TOPIC:** Flipped Classroom
**AUTHORS:**
Silvia Panzavolta (INDIRE, Italy)
José Moura Carvalho (Direção-Geral da Educação, Portugal)
**DEVELOPED:** Policy Maker Workshop 21 May 2013, Brussels
**TO BE IMPLEMENTED:** Pilot Cycle 1 (November 2013 - April 2014)
**BACKGROUND**

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On the basis of the Policy Maker Scenarios, policy makers and lead teachers developed **learning stories** together during a Scenario Development Workshop in June 2013. Finally, all the CCL teachers will derive their **lesson plans** from these learning stories.

This outcome of this process will guide the CCL teachers in the use of the tablets during the **first round of pilots** starting in November 2013. Hence, this Policy Maker Scenario serves as the basis for learning stories/ activities and lesson plans guiding the use of tablets on the topic **Personalisation**.

**CCL PROJECT LIFECYCLE**

- **1st Capacity Development workshop** May 2013
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- Second round of school pilots with the new set of scenarios Oct 2014 - Jan 2015
POLICY MAKER SCENARIO: FLIPPED CLASSROOM
CHALLENGES THE SCENARIO IS RESPONDING TO

The challenges are to:

- engage disengaged learners
- address the home-school divide
- for the school to keep the pace with more flexible and engaging methods in order to:
  - meet students’ needs
  - fully exploit the potential of ICT

WHO IS INVOLVED IN THE SCENARIO? WHAT ARE THEIR ROLES?

- students
- teachers
- parents

WHAT TECHNOLOGY IS USED IN YOUR SCENARIO? HOW IS IT USED?

- tablets
- apps (e.g. note taking, 3D images)
- software (e.g. DisplayNote)
- email
- virtual learning environment

WHAT IS THE CORE PURPOSE OF YOUR SCENARIO?

Why would those involved decide to change their practice? In response to which particular challenges or opportunities?

- flipping the classroom away from the teacher’s full control
- student empowerment and “self-sustainability”
- formative assessment as a pathway to success

WHERE DOES THE SCENARIO TAKE PLACE?

- in the classroom
- outside of the classroom during after school activities

WHEN DOES THE SCENARIO TAKE PLACE?

- at home (for class preparation)
- at school (during class)
**WHAT HAPPENS?**

<table>
<thead>
<tr>
<th>At home:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students:</strong></td>
<td>• in preparation of the biology class:</td>
</tr>
<tr>
<td></td>
<td>• to watch a video</td>
</tr>
<tr>
<td></td>
<td>• to identify an app suitable for note taking</td>
</tr>
<tr>
<td></td>
<td>• to take key notes, each on a different organ of the human body</td>
</tr>
<tr>
<td></td>
<td>• in addition:</td>
</tr>
<tr>
<td></td>
<td>• to do homework for other lessons</td>
</tr>
<tr>
<td></td>
<td>• to receive information from the teacher, e.g. on school club activities</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>During class:</th>
<th>--</th>
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</thead>
<tbody>
<tr>
<td><strong>Teacher:</strong></td>
<td>• to discuss with the class how to take notes; present examples of students’ notes</td>
</tr>
<tr>
<td></td>
<td>• to ask each group to identify the key facts about the organ and any missing information</td>
</tr>
<tr>
<td></td>
<td>• to make assessments of the students’ work and records in their digital profile</td>
</tr>
</tbody>
</table>

| **Students:**       | • to form groups with other students having prepared other organs |
|                     | • for each group to prepare a presentation for the rest of the class (*including videos*) |
ONE TYPICAL SCHOOL DAY FOR PEDRO

It is Tuesday morning and Pedro (13 years) knows that he must check his lesson task board on his online profile, in preparation for the Science lesson on Thursday. The task board says that at home he must watch two videos and take key notes. The videos are about the organs of the human body. He links to the videos directly via the online learning environment and has access to a relevant website on his tablet. He notes that there is a message from his tutor to see if he wants to express interest in the new after school arts club and he forwards it to his parents for approval.

There is also a reminder on his task board to prepare the next Mathematics lesson. This is to take photos of ten bottles separately showing their capacity. He is slightly confused about changing litres to millilitres, but this is the objective of tomorrow’s lesson and he will ask the teacher. Pedro found it really helpful last week that the teacher gave him some targets throughout the lesson and showed the types of questions that he will need to be able to do for the next level.

It takes Pedro only a few minutes to watch the video for the Science lesson, but it takes him longer to make notes and to watch the video a second time, just to be sure that he has enough information. The teacher has asked the students to find an appropriate app to take notes and Pedro downloads a new app called Picture Note which allows him to draw his own diagrams into the notes. He also makes a quick mind map.

On Thursday in the Science lesson, the teacher first has an initial discussion with the students about how to take key information from a video and asks the students to share examples of their notes. The teacher is pleased because Pedro has paused the video at particular sections and linked a digital post it note and diagrams using Picture Note. He explains to his teacher that he finds it easier to take notes using pictures.

Then, the teacher asks each group of four to identify the key facts about their organ. During the lesson, each group must check their notes with each other and identify any gaps. After this, the teacher asks them to form a different group with other students who have been working on different organs. Pedro joins with two others (one has been working on the liver and the other on kidneys). The students have to work collaboratively on a presentation for the rest of the class. This can be done using Display note which allows the students to work on their presentation and the teacher to make regular assessments throughout the lesson by bringing the work onto the centrally display and highlight significant points. This is really helpful to Pedro’s group as they see that another group has included a video and decide to do this as well. Pedro loves rhythmical sound and manages to find a website with drums which sound like the human heart beat. One of the other groups focuses on 3D images and does a presentation with a 3D app. They create a voice over to their rotating human body with an Avatar.

At the end of the lesson, Pedro is pleased because he got much more support from his teacher in the lesson. He was able to share his key questions and show how much preparation he has done. He feels confident that the key questions and the presentation with the others will help him to revise for the test in two weeks time. During the lesson, the teacher was able to recognise that he had identified a good app for note taking and has shown his drawings as an example, using the interactive projector. The teacher made some assessments of his work and recorded this in her digital profile of him. Pedro knows that his work has really improved this year, as he finds it much easier to focus on the class time activities.
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![Diagram of iTEC Innovation Maturity Model](image)

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