



*Creative Emotional Reasoning Computational Tools Fostering Co-Creativity in Learning Processes*

[www.c2learn.eu](http://www.c2learn.eu)

## C<sup>2</sup>LEARN USER PILOTS

C<sup>2</sup>LEARN PROJECT DELIVERABLE NO. D5.3.2

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<b>1.0</b>	27/06/2014	EA	First full draft incorporating input from contributing partners
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<b>3.0</b>	31/10/2014	EA	Updated final version

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## Abbreviations used

### A) Abbreviated names of the project consortium partners

Abbreviation	Explanation
<b>EA</b>	Ellinogermaniki Agogi, Greece (coordinator)
<b>UEDIN</b>	The University Of Edinburgh, UK
<b>OU</b>	The Open University, UK
<b>NCSR-D</b>	National Center For Scientific Research "Demokritos", Greece
<b>UoM</b>	Universita ta Malta, Malta
<b>SGI</b>	Serious Games Interactive, Denmark
<b>BMUKK</b>	Bundesministerium Für Unterricht, Kunst Und Kultur, Austria

### B) Other abbreviations in alphabetical order

Abbreviation	Explanation
<b>C<sup>2</sup>Learn</b>	Acronym of the project (full title: Creative Emotional Reasoning Computational Tools Fostering Co-Creativity in Learning Processes)
<b>CER</b>	Creative Emotional Reasoning
<b>CTP</b>	Computational Tools Palette
<b>DLT</b>	Diagrammatic Lateral Thinking
<b>DoW</b>	Description of Work (Annex I of the Grant agreement no. 318480)
<b>EC</b>	European Commission
<b>ELT</b>	Emotive Lateral Thinking

Abbreviation	Explanation
<b>FP7</b>	The Seventh Framework Programme for Research and Technological Development (2007-2013)
<b>ICT</b>	Information and Communications Technologies
<b>LTC<sup>2</sup></b>	C <sup>2</sup> Learn's Lateral Thinking
<b>M#</b>	# <sup>th</sup> month of the project (M1=November 2012)
<b>RWG</b>	Random Word Generator
<b>SLT</b>	Semantic Lateral Thinking
<b>TEL</b>	Technology-Enhanced Learning
<b>WHC</b>	Wise Humanizing Creativity

## Executive summary

### *C<sup>2</sup>Learn at a glance*

C<sup>2</sup>Learn ([www.c2learn.eu](http://www.c2learn.eu)) is a three-year research project supported by the European Commission through the Seventh Framework Programme (FP7), in the theme of Information and Communications Technologies (ICT) and particularly in the area of Technology-Enhanced Learning (TEL) (FP7 grant agreement no 318480). The project started on 1<sup>st</sup> November 2012 with the aim to shed new light on, and propose and test concrete ways in which our current understanding of creativity in education and creative thinking, on the one hand, and technology-enhanced learning tools and digital games, on the other hand, can be fruitfully combined to provide young learners and their teachers with innovative opportunities for creative learning. The project designs an innovative digital gaming and social networking environment incorporating diverse computational tools, the use of which can foster co-creativity in learning processes in the context of both formal and informal educational settings. The C<sup>2</sup>Learn environment is envisioned as an open-world 'sandbox' (non-linear) virtual space enabling learners to freely explore ideas, concepts, and the shared knowledge available on the semantic web and the communities that they are part of. This innovation is co-designed, implemented and tested in systematic interaction and exchange with stakeholders following participatory design and participative evaluation principles. This happens in and around school communities covering a learner age spectrum from 10 to 18+ years.

### *About this document*

In this document we report the activities of the first main pilot cycle, which was completed in July 2014, as foreseen by the C<sup>2</sup>Learn User Evaluation Plan (deliverables D5.2.1 and D5.2.2). The main aim of this pilot cycle was to provide input to the processes of learning design and scenario development, game design, as well as to the design of the co-creativity assessment methodology, and test the first available versions of the integrated C<sup>2</sup>Learn technological solution.

The present report on the pilot activities focuses more on the procedures and conditions of the pilot activities. The outcomes and user feedback informs all relevant processes and deliverables of the project, and among them predominantly D5.4.1 'Co-creativity Evaluation Analysis'.

## 1 Introduction

This document constitutes a report on the activities of the first main pilot cycle of the C<sup>2</sup>Learn project ([www.c2learn.eu](http://www.c2learn.eu)), which was implemented in the three countries involved, i.e. Austria, Greece and the UK, and completed in July 2014, as foreseen by the C<sup>2</sup>Learn User Evaluation Plan (deliverables D5.2.1 and D5.2.2).

The main aim of this pilot cycle was to provide updated input to the design and development processes of the project, and in particular to learning design (cf. deliverable D2.2.2 'C<sup>2</sup>Learn Learning Design for CER'), scenario development (D5.1.3 'C<sup>2</sup>Learn Scenarios, Use Cases and User Requirements'), game design (D4.1.2 'Game Design'), as well as to the design of the co-creativity assessment methodology (D2.3.2 'Co-creativity Assessment Methodology'), and test the first versions of the integrated C<sup>2</sup>Learn technological solution as they would start becoming available in the course of this pilot cycle.

The present report on the pilot activities focuses more on the procedures and conditions of the pilot activities. The outcomes and user feedback informs all relevant processes and deliverables of the project, and among them predominantly D5.4.1 'Co-creativity Evaluation Analysis'.

Pilots in the C<sup>2</sup>Learn project are conducted in close collaboration with communities of educators and students in the three countries, which the research teams of EA (Greece), OU (UK), and BMUKK (Austria) have started building since the very early stages of the project. Utilizing these communities and in close collaboration with schools and teachers the research teams have negotiated, planned and implemented pilot activities structured around the concept of testing the introduction of the proposed C<sup>2</sup>Learn innovation in various real-life learning settings, for the purposes of evaluation and input to the various design and development processes of the project. The latest details of the organisation of this piloting process can be found in deliverable D5.2.2 'C<sup>2</sup>Learn User Evaluation Plan'.

## 2 Activities realised in the 1<sup>st</sup> main pilot cycle

The 1<sup>st</sup> main pilot cycle formally took place in the period of M16-M21 (February 2014 – July 2014), as planned. However, relevant piloting activities had already started in November-December 2013, with play-testing sessions immediately when the first early version of the 4Scribes game became available. The purpose of this pilot cycle was to expose, for the first time, the interventions developed by the project up to that time, as well as the co-creativity assessment methodology, to real use in educational settings. User feedback from this mainly informed adaptations in the designs and the corresponding development. This pilot cycle also provided some first indications of the impact of the innovation in terms of co-creativity assessment.

Due to the timing of the 1<sup>st</sup> main pilot cycle in relation to the academic year (cf. restrictions such as end-of-year examination period and summer holidays), as well as in relation to the period of fine adjustments that followed the first project review and the overall project progress in terms of technological design and development, a lighter implementation than originally planned was unavoidable. In general, during this pilot cycle the research teams made efforts to secure the longest possible availability of young users for trials of those project elements that were available at each time.

In the following sections, the details of the pilot activities that took place in each of the participating countries, Austria, Greece and UK, are presented.

## 2.1 PILOT ACTIVITIES IN AUSTRIA

Austria hosts one of the four C<sup>2</sup>Learn case studies. The code name for this is: **AT-CS**. BMUKK has been building a community of teachers around C<sup>2</sup>Learn since the first stages of the project. The Austrian pilots concentrate on the age groups of 13-15 year-olds and 16-18 year-olds.

Plans in Austria foresee one pilot per main pilot cycle, each of them lasting about 20-25 hours. These hours may be distributed across a number of weeks of lessons, or concentrated in just one week (a 'project week'), depending on local school circumstances and availability.

The pilot activity in Austria for the 1<sup>st</sup> main pilot cycle took place in May 2014, following the 'project week' format. The overall duration of the activities was 25 hours. The activities were structured into five daily 5-hour sessions.

The school involved was the New Middle School Vienna 21, a lower secondary school located at Jochbergengasse 4, in the 21st district of Vienna. More precisely, the pilot engaged class 3B, which consisted of 24 students (6 girls and 18 boys) in the age range of 13-15 years. The teacher who ran the pilot was Thomas Weixelbaumer, who is also the head teacher of the school.

The pilot activity was structured around the C2Learn scenario entitled 'Teleporter', which had been developed and was now implemented by the teacher involved. The links to curriculum areas included English, German, History and Politics.

For ease of reference and overview of all pilot activities, the details of the Austrian pilot are included in Annex I. The outcomes and findings are reported and analysed in deliverable D5.4.1 'Co-creativity Evaluation Analysis'.

## 2.2 PILOT ACTIVITIES IN GREECE

Greece officially hosts two of the four C<sup>2</sup>Learn case studies. The code names for these are: **GR-CS1** and **GR-CS2**. In addition, an extrovert approach followed in conjunction with the dissemination and exploitation efforts has attracted the attention of educators in Greece who are willing to contribute to piloting C<sup>2</sup>Learn in their teaching contexts as volunteers motivated by the strong pedagogical innovation and value of the project approach. This movement has grown to form an additional, third Greek case study, encoded as **GR-CS3**.

The overall plan and intention in Greece is to cover the whole age range falling within schooling, as follows:

- 10-12 year-olds: mainly year 5 and year 6 in primary school, and possibly year 7 (1<sup>st</sup> grade of lower secondary school)
- 13-15 year-olds: mainly year 8 or year 9 (2<sup>nd</sup> and 3<sup>rd</sup> grades of lower secondary school), and possibly year 10 (1<sup>st</sup> grade of upper secondary school)
- 16-18 year-olds: years 11 and 12 (2<sup>nd</sup> and 3<sup>rd</sup> grades of upper secondary school).

EA has been building a community of teachers in Greece around C<sup>2</sup>Learn since the first stages of the project.

### 2.2.1 PILOTING WITHIN THE SCHOOL OF EA

Within EA's school, twelve teachers have been closely following C<sup>2</sup>Learn from the very early stages engaged in co-design and piloting activities. They are working in two independent groups, one in the primary school, and one in the secondary school. The division between primary and secondary education has been the working definition of the two main Greek case studies (GR-CS1: primary school; GR-CS2: secondary school).

The fact that EA is the C<sup>2</sup>Learn consortium leader makes access to a variety of classrooms an immediate, very helpful possibility, which allows for considerable flexibility to address the needs of the project for pilots as these may be emerging or changing in the course of the project. Pilots in EA relate to various curricular areas serving as starting points for cross-curricular work, implementing a variety of the developed scenarios.

Besides offering its staff and classrooms for the pilots, EA enables the involvement of more teachers and schools in Greece in the pilot activities, drawing from a wide network of education professionals with whom EA has strong collaboration links. As stated above, pilots involving volunteer teachers who offer to contribute to C<sup>2</sup>Learn trials in their own teaching contexts form the additional, third Greek case study, GR-CS3. In this case study, the emphasis is on helping cover less-served areas of the project design, such as informal learning activities outside school and activities addressing the 18+ age group, as well as contributing to a wider dissemination and stronger exploitation of the project results and thus generating enhanced project impact.

The heart of the 1<sup>st</sup> main pilot cycle coincided with a period of intensive game design work and decisions about the concrete shape of the C<sup>2</sup>Learn solution in winter and spring 2014. For this reason, in case studies GR-CS1 and GR-CS2 the pilot activities in EA were realised flexibly, having as a priority to provide direct input to the game and pedagogical/methodological design processes whenever a need for that arose.

This piloting activity included testing of the games and pedagogical/methodological activities with teachers and students in the school without the full application of the co-creativity assessment methodology, as the outcomes of design and development in the project were not yet mature enough to sustain longer, richer classroom activity. In this context, which required flexibility, the choice of the scenario to be implemented in each activity and the degree of methodological formality of the activity were kept as open options.

Activities with students included piloting in the upper secondary school. In one case, those were combined with the teacher and researcher training workshop that took place in EA on 5<sup>th</sup>-6<sup>th</sup> February 2014 (cf deliverable D2.3.2 'Co-Creativity Assessment Methodology'). The purpose of this workshop was to train all participating researchers in co-creativity assessment methodology. The piloting activity included testing the early version of the 4Scribes game that was then available, in one 3-hour session. Participants included 5 high-school students (3 female 2 male); 1 EA researcher simulating the role of the teacher; 1 UEDIN research simulating the role of a student and participating in the game; 1 UEDIN researcher, 1 OU researcher and 1 EA researcher acting in their role as researchers. The whole research process was simulated around a group of EA students ages 14-16, playing a paper prototype of 4Scribes. Besides its training objective, this simulated session served to pilot and fine tune the assessment methodology. It also provided important data for the design of the C<sup>2</sup>Learn suite of 4Scribe storytelling games, especially since it produced high quality video of the student game-play and a subsequent researcher led discussion. This material was perused by the research teams repeatedly in the months leading up to the formal pilots. More details of findings relating to 4Scribes can be found in Annex II.

In addition, pedagogical concepts and concepts related to the role story-telling gaming can have in the C<sup>2</sup>Learn approach were tested in a 4-session pilot activity in regular lessons of the 'Research Project' curriculum area in year 11 (upper secondary school, 16-year-olds). More precisely, in the duration of four weeks in March-April 2014, a group of 14 students who had selected to do a research project related to Astronomy were challenged to think creatively about the consequences and possibilities arising from the hypothetical fact that extra-terrestrial life has just been found by scientists. The sessions were designed according to the C<sup>2</sup>Learn pedagogy. The focus in that case was not on testing a specific game (i.e. the early version of 4Scribes that was then available), but more generally on looking deeper into details of using story-telling for the generation of creative ideas and courses of action in light of sudden unexpected developments, in a context of applying the C<sup>2</sup>Learn theoretical and pedagogical approach. Students were divided into four groups who took over the role of four stakeholder groups respectively: scientists, politicians/economists, theologians, and philosophers. In their story-telling they were bound to play these roles and approach the problem from corresponding perspectives. Various interesting insights gained from this activity were communicated to the design teams of the project. The most salient message was that the story-telling game approach seems to lead naturally to more light-hearted creations (stories) by the students, the tone and approach of which may appear in some conflict with the more serious intentions of the teacher. It was found, however, that this can be kept under control through appropriate design and management of the classroom activities.

In addition to work in classrooms, pilot activity in EA also included extensive checking and testing by the members of the research team and teachers of all interim and final elements of the C<sup>2</sup>Learn solution, as they became available. This flexible piloting activity started already in November-December 2013 with the play-testing of the first provided version of 4Scribes and continued up to the end of the pilot cycle and beyond, to the end of the second project year, with various instances of play-testing and continuous feedback from EA researchers and teachers to the design and development teams.

An important episode in this line of continuous testing and feedback was the play-testing of the story-telling games in paper prototypes:

#### ***Playtesting with Teachers of a 4Scribes paper prototype***

- *Dates and Duration:* November and December 2013, 2 sessions of 1.5 hour each.
- *Participants:* 6 teachers in 2 groups: 3 primary 3 secondary
- *Summary:* In this trial primary and secondary teachers from EA played an early paper version of the basic 4Scribes games which involved rolling a dice to get a premise for their story and trying to steer the story toward their individual secret endings. An EA researcher served as the game-master. Data collected included, researcher observations, photographs, and player feedback on a short questionnaire and in a debriefing discussion right after the play session. Details can be found in Annex II.

#### ***Summative recommendations on 4Scribes storytelling games***

- *Date:* May 2014
- *Summary:* At the game design team request, the EA research team codified in a short informal report points about the C<sup>2</sup>Learn storytelling games. These were points that came up in early playtesting with teachers but also in the trial that we had with students in the

February workshop in Athens, as well as in informal experimentation with storytelling within an astronomy class in EA. Details can be found in Annex Iii.

#### **Playtesting ICONOSCOPE among research teams**

- *Dates and Duration:* September 2014, conducted over 10 days via Skype and e-mail.
- *Participants:* 2 Researches from EA, 1 Researcher from OU, 1 Researcher from UEDIN
- *Coordinator:* EA
- *Summary:* In this trial researchers from the theoretical and pedagogical teams of C2Learn simulated the experience of the ICONOSCOPE to assess the meaningfulness and enjoyment of the play experience as well as its educational usefulness and congruence with the theoretical framework of Co-creativity that guides C2Learn. Iconoscope was simulated using MSWord and MSEXcel. A researcher from EA acted as a coordinator and as a game-master. The findings were synthesized in a short report, which together with all material produced during the pilot (concepts, icons, etc) were communicated to the game designers and shared within the consortium. More details can be found in Annex IV.

#### **2.2.2 PILOTING IN SETTINGS OUTSIDE EA**

In case study GR-CS3, i.e. beyond the immediate school context of EA, in the 1<sup>st</sup> main pilot cycle the research team of EA concentrated on combining additional piloting with dissemination and exploitation efforts through which educators and stakeholders in Greece were approached and motivated to offer opportunities for piloting the C<sup>2</sup>Learn innovation in their teaching contexts. The evolution of this additional, third Greek case study in the second project year was very satisfactory, providing rich user feedback from contexts such as places of non-formal and informal learning (e.g. museums, creativity clubs and summer camps) as well as addressing the 18+ age group.

In the 1<sup>st</sup> main pilot cycle such activities concentrated towards the end, i.e. in summer 2015, so as to present the fullest possible picture of the C<sup>2</sup>Learn proposition to the world outside the project consortium.

In this context, on 20-27 July 2014, intensive piloting was conducted with the collaboration of local stakeholders, combined with dissemination and exploitation activities, in the districts of Heraklion and Rethymnon in Crete, Greece. The pilot activities were realized in museum- and summer-camp-based informal learning settings, using paper-based prototypes of the story-telling games, following various configurations for premise definition and the various mechanics foreseen by the game design. In addition, the concept of a shared social networking space for sharing creativity and gaming experiences according to the C<sup>2</sup>Learn pedagogy (i.e. C<sup>2</sup>Space) was also explored in terms of practical details through a paper-based simulation (poster on the wall for sticking pieces of paper). The data-gathering processes foreseen by the co-creativity assessment methodology were also applied to the extent possible, and tested as to their applicability in less formal learning settings. More precisely:

- In the Natural History Museum of Crete, 16 children attending a weekly summer educational programme in the museum participated in five sessions of C<sup>2</sup>Learn activity, over five consecutive days, creating stories related to themes and concepts from the museum programme.
- In the "Paidiki Exochi" Camp of the Hersonissos Municipality at Kokkini Chani, Hersonissos, 22 children and teenagers attending the summer camp participated in one 3-hour session of

C<sup>2</sup>Learn activity, creating stories with themes of their own choice relating to social and personal problems they often encounter in their lives.

- In the “Exerevmites” Summer Camp in Panormos in the wider area of Rethymnon, 18 children and teenagers attending the summer camp participated in three 1-hour sessions of C<sup>2</sup>Learn activity on three different days within a week, creating stories with themes of their own choice relating to their own experiences in the camp and more generally in life.
- In the Department of Physics in the University of Crete, 4 students between 19 and 21 years of age, in a 3-hour session tried the C<sup>2</sup>Learn storytelling approach and explored the possibilities offered by the playful activity for fostering creative thinking in the context of university study, as well as the fun factor for general recreational use of the games outside the university.

In addition, EA collaborated with the Union of Greek Physicists to integrate C<sup>2</sup>Learn pilot activities in the programme of the Union's Summer School for School Students entitled "The Science Classroom in the School of Tomorrow" (28 July – 1 August 2014). In this context, 25 secondary school students from various school backgrounds in Greece participated in four 2-hour sessions of C<sup>2</sup>Learn activity over four consecutive days. Paper prototypes of the 4Scribes game were used in various configurations for premise definition and the various mechanics foreseen by the game design. In addition, the concept of a shared social networking space for sharing creativity and gaming experiences according to the C<sup>2</sup>Learn pedagogy (i.e. C<sup>2</sup>Space) was also explored in terms of practical details through a paper-based simulation (poster on the wall for sticking pieces of paper). The themes of the activities were this time linked to natural sciences. The aim was to **help students realise** dimensions of creative thinking in the process of formulating and solving problems, and more generally as a part of the thinking processes in which a scientist is involved when working in a scientific research team. Storytelling premises were diverse, from hypothesizing different developments in the history of science, through designing a mobile application, to linking science to history and culture in connection with a visit to an archeological site.

### 2.3 THE CASE STUDY IN UK

UK hosts one of the four C<sup>2</sup>Learn case studies. The code name for this is: **UK-CS**

OU has been building communities of students and teachers around C<sup>2</sup>Learn since the first stages of the project. Decisions about the details of each pilot activity are generally made closer to the start of the pilot so as to cover the relevant needs of the project as these emerge and take into account the possibilities offered in the collaborating school communities. The curricular areas to be used as possible starting or reference points for cross-curricular work are also defined closer to the start of the pilots, after the schools and particularly the teachers within them are recruited. The selection of scenarios for the UK use cases is based on the ongoing close collaboration with the teachers involved as well as depending on which parts of the games and environment are ready to pilot and which scenarios might house those best.

Overall, pilot activities in the 1<sup>st</sup> main pilot cycle in the UK were shaped by the readiness of the project outcomes for use with teachers and students, as well as by changing circumstances in some of the schools involved. The following pilots were eventually realised:

- School SW1, Brownlow Primary (South West England)<sup>1</sup>, 10-11 age group: 4Scribes basic paper prototype in June, 2014. Scenarios/Themes: Genetic modification lab and war, Bullying in school. While a full pilot was initially intended, the activity became an informal pilot of 1 session because of limited availability of ready to use technology. An 1-hour teacher interview was recorded and analysed.
- School SW3 (FE), SW FE college, 16-18 age group: teacher Interview providing feedback on available tools in April 2014, and 4Scribes basic paper prototype was tested in July 2014. Scenarios/Themes: Global warming with bullying in school, Iraqi situation. The teacher eventually pulled back in April 2014 because of time constraints exacerbated by public holidays. In the July pilot, a Socratic Dialogue (SD) conversation was held with the teacher and 6 students who took part. The interview was recorded and transcribed. Filming of gameplay did not take place.
- School SE2, Sir Walter Raleigh Secondary (South East England), 12-17 age groups: 4Scribes basic paper prototype in May 2014. Scenarios/Themes: Love conquers all in an amusement park, War at school. While initially a full pilot was intended, the activity eventually became an informal pilot due to a combination of school issues and availability of ready to use technology. The activity involved 2 4scribes sessions, which were filmed. Axes and creativity wheels were produced. An SD type conversation was held by teacher and the transcript has been provided. An 1-hour teacher interview was recorded and analysed.
- School OoE, University of Exeter, 18+ age group: 4Scribes basic paper prototype was tested in a 2-hour workshop on 21<sup>st</sup> January 2014. Scenarios/Themes: individual games with different premises.

The outcomes and findings of these pilots are reported and analysed in deliverable D5.4.1 'Co-creativity Evaluation Analysis'. The following pilots had also been planned, but were eventually cancelled:

When	School	Initial plan	Conditions
March 2014	SW2 (secondary)	Full 8 session pilot with secondary school participants	Teacher postponed then pulled out in May due to various project-related reasons (requirement to use paper prototypes added a large workload to the teacher, both in terms of actual play, and the creation of game resources), as well as due to school and personal issues.
March 2014	SE1 (primary)	Full pilot intended	Became informal pilot, then teacher pulled out, in May, due to various project-related issues (limited range ready to use technology), as well as time issues combined with other academic priorities.

<sup>1</sup> School names are pseudonyms, detailed information in deliverable D 5.1.1

### 3 Next steps in C<sup>2</sup>Learn pilots

Following a period of intensive work across the project, researchers are returning to field trials in the **2<sup>nd</sup> main pilot cycle**, in the six-month period of M25-M30 (November 2014 – April 2015). To provide a wider time window that will allow the research teams to make use of the whole school year, it has been foreseen that these pilots can start even earlier, in September/October 2014, closer to the start of the school year, if technological products appropriate for use in classrooms are in place. As the outcomes of the project are rapidly maturing, and since this timing provides a convenient time window in the heart of a school year, pilots at this stage are aiming to provide both rich feedback for the validation of the available C<sup>2</sup>Learn technology and pedagogical interventions, as well as rich insights relating to co-creativity evaluation.

In the meanwhile, with rapid developments underway in autumn 2014 linked to technology availability and readiness for use in classrooms, at the time of the latest update of the current document it is foreseen that the main part of the 2<sup>nd</sup> main pilot cycle will fall mainly in M27-M30 (January 2015 – April 2015), while an extension of the pilot into May, June and July 2015 will also be considered, if the pragmatic conditions allow this.

Detailed reporting of the pilot activities in the 2<sup>nd</sup> main pilot cycle will be provided in deliverable D5.3.3, at the end of the piloting cycle.

## Annex I: Details of the pilot activity in Austria

### Creativity2Learn Project Week at Class 3B, COB Jochbergengasse 1, Vienna, May 2014

#### Setting & Preparation Work

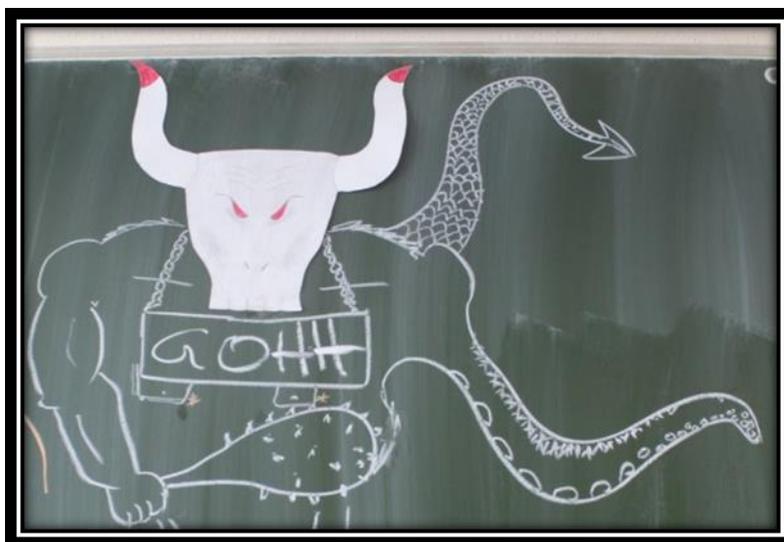
This project week is done in a Viennese school, the pupils in class 3B are around 13-14 years old. The class consists of 24 teenagers, 18 boys and 6 girls. Each day from Monday to Friday consists of 5 lessons, 50 minutes each, so the school day starts at 8 o'clock in the morning and with all the breaks during the lessons ends at 5 minutes to 1 o'clock. There are two teachers from COB Jochbergengasse in class all the time during the week, one of them being me and on Monday and Friday two Austrian C2Learn colleagues (Alex & Markus) are going to come to school to help with the videotaping and data collection. The classroom itself has no modern equipment, an overhead projector is the fanciest thing we can offer, but there is a new computer lab at school which is going to be used a lot during this project week.

The main goals of this week are to bring the C2Learn creative cards game into school, trying out its potential of motivating teenagers and fostering their creativity and getting the pupils to think creative in a wise and humanizing way about the problems a growing up person can run into and how to encounter them. They should think about problems that actually exist around them and try to find out what can be done to help themselves or others.

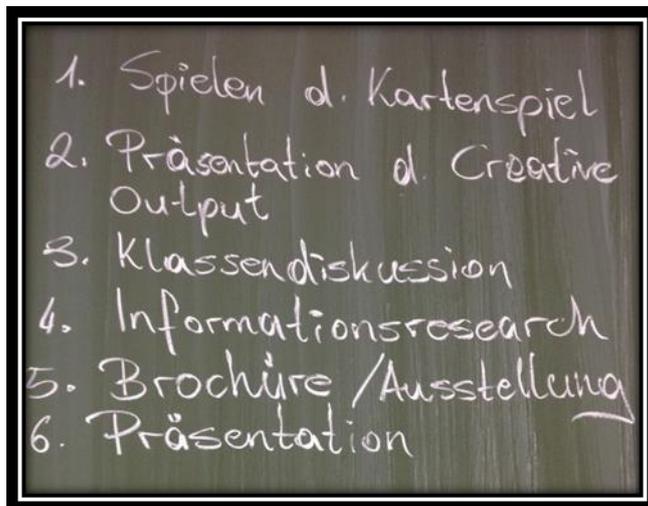
All of those things are integrated in the analog "Teleporter" scenario. The evil emperor *GOHH* in this case is a symbol for all the bad things the world has to offer for growing up people, the different planets are the several steps/activities the pupils have to go through during the week, their "avatars" are made out of paper and can be completed during the process of the week. The pupils work in groups and the goal of the week is to complete the avatars, which represents the growing knowledge about and awareness of problems in our society. *GOHH* in the end is defeated, when the teenagers were able to come up with possibilities of help against at least some of the bad things that are surrounding us. *GOHH* and the avatars have to be prepared in advance by the teacher.

#### Day 1

The teachers and the colleagues from C2Learn introduced themselves and welcomed the class to the project week. Then the pupils got introduced to *GOHH* and the overarching idea behind this week. *GOHH* being a symbol for all the problems that a young person can encounter and our quest of making our surrounding a better place by defeating him via finding out how we can help.



The pupils got a basic overview of the project week and all the activities they will go through. The 5 days, which they will go through in groups of 5- 6 pupils, consist of 6 parts that hopefully will lead to an increase in their wise and humanizing creativity skills.



**1<sup>st</sup> step:** Playing the C2Learn creative cards game

**2<sup>nd</sup> step:** Choosing one story they produced during the first step, writing it down and then transform it into some sort of creative output. 3 possibilities for an output are given by us:

1. transforming the story into a comic strip, either drawn by hand or on the computer via the free to use browser based [www.stripgenerator.com](http://www.stripgenerator.com)
2. transforming the story into a role play
3. transforming the story into a rap song

Of course the pupils are also able to come up with their own ideas about a creative output. The second step is concluded by a presentation of the creative outputs to the others in class, which is planned for the later stages of day 2.

**3<sup>rd</sup> step:** Class-discussion about the problems that can await a teenager. The problems get collected on the blackboard, their effects on people get discussed and then each group has to choose two of those topics and find out what can be done against it.

**4<sup>th</sup> step:** The groups start their information research. What exactly are the problems, how can you describe them? In what forms can they occur? Why do they exist? Are there statistics about these problems? How many people, especially teenagers, are affected in Austria? How is it on an international level? How could help be provided? Are there any organizations that help people with these problems? What do they do? How can you contact them? Etc.

**5<sup>th</sup> step:** The groups have to collect their information about those two problems and put it into a word file. Those word files and all the collected data about how to defeat *GOHH* are put together as a brochure and every pupil within the class receives a copy of it. Also to give something to the community the plan is to give at least one copy of this brochure to all the other classes at school. Also the most important facts about the topics the teenagers did research on are going to be put on posters, so there can be a small exhibition in the break hall.

**6<sup>th</sup> step:** Each group presents their outcomes of their research to the others in class. This 6<sup>th</sup> and final step will lead to the defeat of *GOHH*, his picture gets taken off the blackboard and the pupils hopefully will be proud of their week's products and will be more sensitive of people's problems and capable of offering solutions.

After this basic introduction of the six steps within the project week, the pupils could split themselves up into 4 groups of 5 to 6 pupils. This didn't cause many problems, they were able to find together in groups without any big arguments and drama. After all they are used to working in groups and know

each other since 3 years, at least the most of them, so this splitting up into groups didn't take much time.

Then the teachers and our C2Learn colleagues presented the card game to the class and played one round in front of them.



After this initial presentation, the pupils went together in their groups, arranging two tables so they were able to sit around them. They were asked to give themselves a group name, so we had *Badgirls*, *Lavandia* (a mythical place out of a computer game), *Mydtry* (The first letters of the names of each group member) and *Gegner* (which means opponents in English). Each group received a deck of C2Learn creative cards and they were presented 5 possibilities of initial problems for this story telling card game. Each group was able to choose freely from one of those 5 starting points for their story telling. We had shown the card game based on starting point number 1.



1. A pupil comes to school with a black eye
2. A ship sank, there are 11 people swimming in the sea, there is a rescue boat but it can only take aboard 10 people
3. The father/mother of a teenager gets seriously ill
4. After a field trip the class returns to their accommodation and they realize that one pupil is missing
5. Find your own setting (a group desperately wanted to talk about a zombie apocalypse for example)

Now the groups started to choose their topics and started to play their first round of the C2Learn creative cards game. Interestingly each group chose a different topic and not a single group chose the initial problem with the pupil with the black eye, maybe because the teachers and C2Learn colleagues had played that one. So maybe they wanted to try something different and not be influenced by what they just had heard before. Because of the quite large number of pupils within each group every member only received 1 card of each type of cards in the deck, so to not let the stories turn out to be too long and complicated.

The *Badgirls* went for problem number 4 and created a story about a field trip during which one of their classmates went missing. They chose one of the most outgoing and loudest boys of the class to be the missing one and came up with a creative but also in some parts quite realistic storyline. In the end they came to a happy end and the class teacher found the boy again.



Group *Lavandia* chose their own setting and started to create a storyline about a Zombie Apocalypse and they really loved doing it. During the first round of gameplay they came to no ending for their storyline, so right after round one they went into “Zombie apocalypse part 2”. The dynamics that evolved within this group from that starting point on are very interesting and surprising for me and will get further mentioned within the next steps of this project week’s description.



Group *Mydtry* went for storyline number 2 and they had some initial problems within the group. There was one pupil that really had a hard time to connect his cards in any way to the storyline so the others started to get aggressive towards him and also lost their motivation themselves a little bit, because he always held up the process of the storytelling. But with a little bit of help he then also was able to find himself into the game and in the end they produced a story in which by using magic a big ship with a huge buffet appeared and saved all shipwrecked persons.



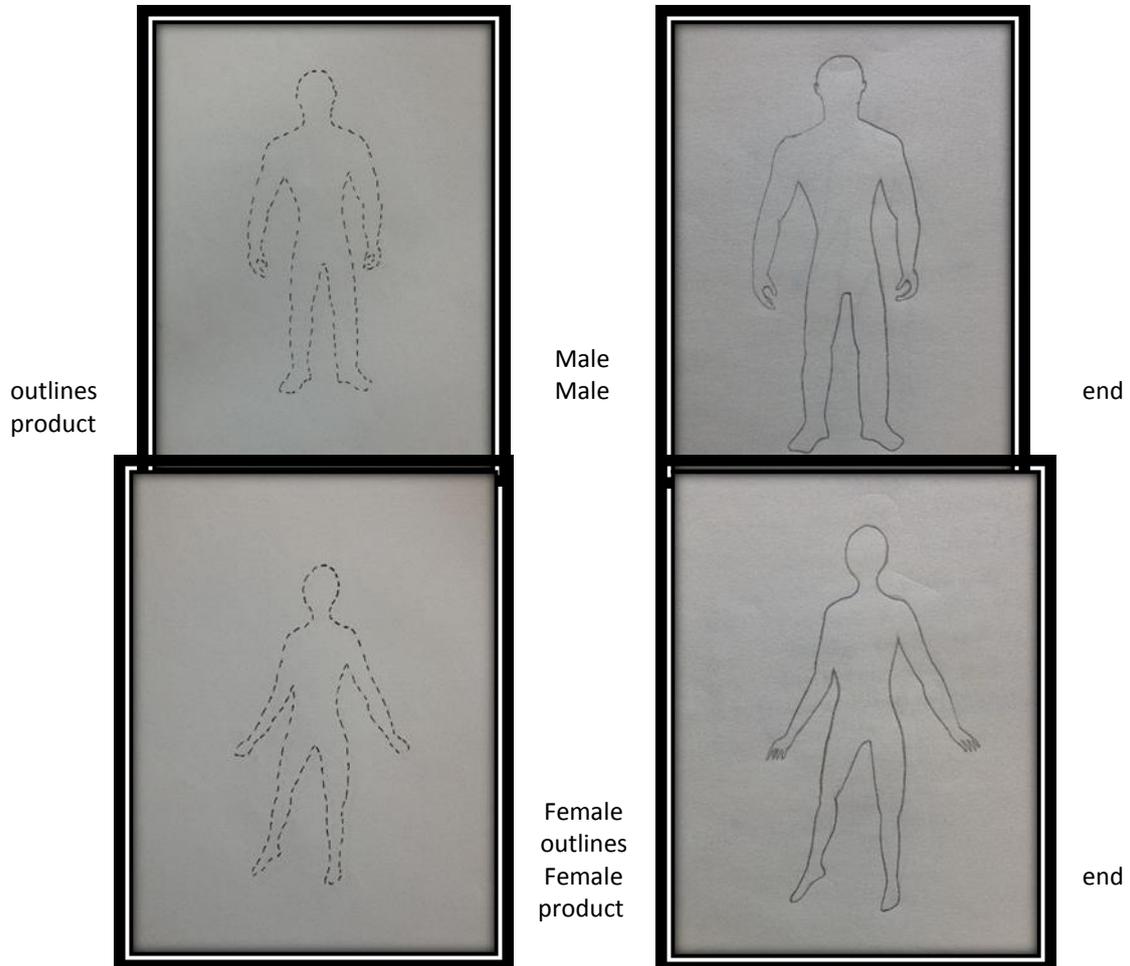
The *Gegner* also chose their own topics but overall really had a hard time to connect their given cards to each other and transform them into a connected storyline. This pretty soon led to a demotivation within the whole group towards playing the card game. One could see that they stuck to the original meanings of the words and were extremely challenged when it came to connecting the different unconnected inputs creatively together into a storyline. So during the first 2 rounds of trying out the card game they just produced loads of unconnected sentences but also didn't try too hard to do otherwise. Only with a little bit of guidance and the realization that they would have to do further work on one created storyline, they came up with a storyline about Rihanna disappearing during a concert and the quest of finding her. This story had a happy end as well. Rihanna appeared again and sang for her fans.



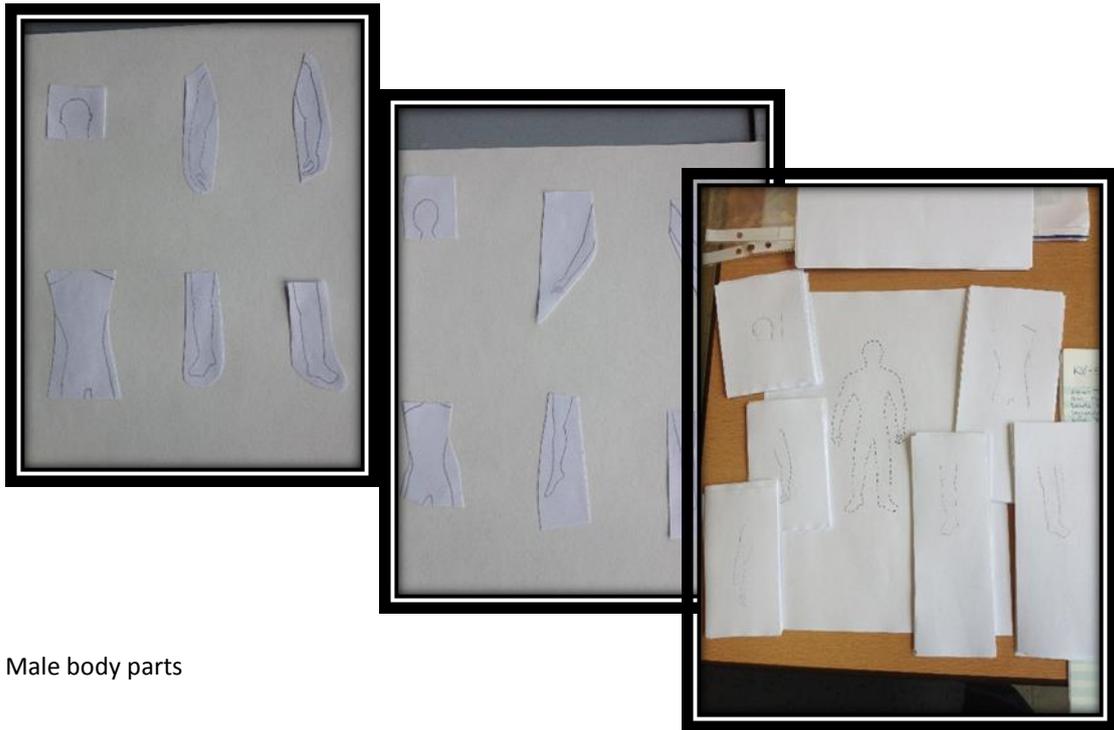
During this step of the project week the C2Learn colleagues and teachers slipped into a primarily observing role. Only from time to time the different groups were asked to tell the story that they had come up with so far. Sometimes we gave ideas when the whole group was unable to connect one card to the storyline and moderated when arguments broke out between pupils.



After they had finished their first round of gameplay, the pupils received their avatar outlines and the first part of their avatar, the head, for successfully completing the first step of our project week. The teenagers were able to give their avatar a name and of course they can design each part of their avatar individually. There is a male and a female version of the avatar. The pupils also received a folder to keep their avatar safe and collect all things that would be produced in the course of the week, like for example the storylines, the comic strips, the researched information etc.



And the whole character is split up into 6 parts, representing the six steps/parts during the project week. So always after completing one step they receive their next avatar part and can design it. This shows their progress during the week and also is meant to motivate the pupils to complete all planned steps in the course of this week.



Male body parts

Female body parts

Male avatar parts and their  
matching outline

Here are some examples for what the pupils came up with for designing their first parts of the avatar during day one and two.



Back to the progress of day one. So after having received their avatar outlines, the head templates and having some minutes to give their avatars a name and designing the first part of it, the pupils played a second round of the creative card game. They once again got told that afterwards they should choose one storyline, write it down and transform it into some kind of creative output during the second step of this project week. To not forget their first storyline until having finished round two, the pupils were allowed to photograph the cards and connected post-its from round one. If they chose a new initial problem for round two or tried to play the game again with the same starting point like in round one was up to the teenagers. While the groups *Mydtry*, *Lavandia* and *Gegner* stayed in the classroom for the second round, the group *Badgirls* was taken to another room where their gameplay was recorded and some of them afterwards took part in Socratic interviews.

During the last 1 ½ hours of day 1 the pupils then chose one of their stories, wrote it down and decided on what their creative output to this story should be. This marks the beginning of step two during the project week.

Three out of four groups chose to create a comic strip via [www.stripgenerator.com](http://www.stripgenerator.com) only the *Mydtry* group wanted to transform their story into a rap lyric. This was quite a surprise for me, because in my opinion this is the hardest of all three ideas we gave them for their outputs (comic strip, role play and rap) and I clearly communicated that this was the most challenging task. I am not sure why they still insisted of doing so, maybe they sought the challenge, maybe they wanted to do something different from the rest, maybe some group members are really into rap music and liked the idea of creating



their own song. Also I need to mention group *Lavandia*, the zombie apocalypse group. They were the only ones to come up with their own idea for an output. They really were into the idea of transforming their 2 zombie stories into a movie and after realizing that we have no technical equipment in our school for helping them out in any way, they decided to do a comic strip at school and do the movie during the week in their free time and on their own. I wasn't too sure if they really meant what they were saying, because after all a movie needs a script, assigned roles, dialogues, some sort of costumes when they really want to do a zombie movie, cutting, etc. I mentioned all those things and asked if they know how to do things like that. It turned out that there is a boy in this group that knows how to cut movies, because he already created several movies about his cat, under

laid them with music and uploaded them to youtube. I told them that I would be very proud and impressed if they managed to produce a short movie during this week and didn't take up that topic again on day one.

So during the last lessons the pupils wrote down the chosen stories and then either went into our computer lab to start working on their comic strips or stayed in class working on the rap song.



One teacher stayed in class with the rap group, the other one went to the computer lab to show and explain the computer programme to the pupils. This programme is quite intuitive and easy to use, so the teenagers understood how to use it quite quickly and didn't need much time to get into it. While the rap group worked collectively during the whole process of step two, the comic strip groups were told to split up the storylines into several parts and assigning the production of each part to one of their group members. The reasons behind that are to save time during the production phase, but also to actively involve every single group member. This needed some organization within the groups, because the teenagers needed to decide on which comic characters they were going to use to tell their story. Because it would make no sense if in the first part of the story person X looks like this



and some pictures later person X all of a sudden looks like this



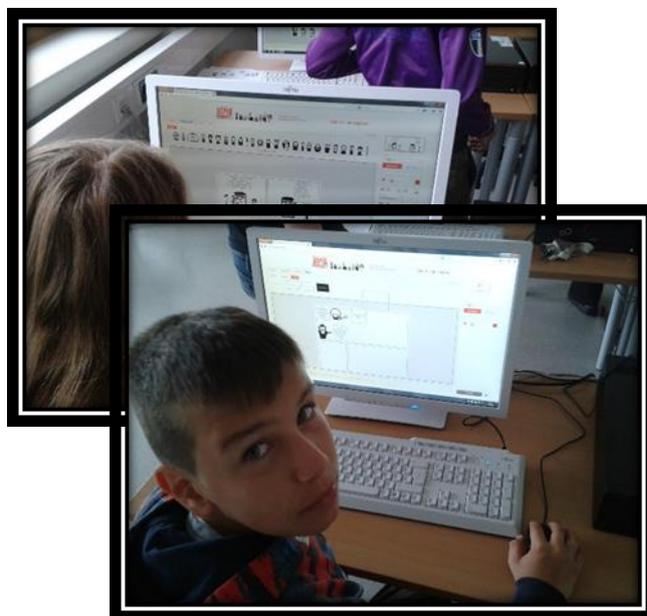
## Day 2

Day two started with two unexpected things for me.

One of them was group *Lavandia*. They showed up to school with a script to their planned movie, a drawn DVD cover and DVD backside and also told me that they already met yesterday in the afternoon to find some good spots for their filming. So far they really followed their initial plan of turning their zombie stories into a movie. I am quite excited to find out what they are able to come up with during this week. Hopefully they don't give up in the process but are able to come up with something that they are happy with and that motivates them.

The second surprise arose from group *Mydtry*. There is one pupil in that group that normally isn't motivated the slightest when it comes to anything during school time, he has hundreds of missed hours of school in the course of this school year already and sadly he will have to leave school after this year without even being able to finish all years of the lower secondary school. But he had taken home the first few sentences of the rap lyric this group had produced the day before and had written many lines of rap lyrics on his own. Not only did he use his free time to do so, but the product actually was really good. It really fitted to the storyline and rhymed quite nicely. "I am very proud of myself right now," he told me. And so was I, a very happy moment for me.

Now the groups picked up their work where they had stopped the day before. So three groups went to the computer lab to complete their comic strips and one group stayed in class to finish their rap song. By now the computer lab groups had no problems at all to work with stripgenerator and so the comic strips grew in their length quite rapidly.



After the first two lessons, the pupils were ready to print out the different parts of their comic strips and then started to cut them out and put them together in the right order.



In the meantime, the rap group had finished the lyrics and went to the music room with the second teacher to practice rapping those lyrics over a beat. We had prepared a simple rap beat and my colleague showed them how to synchronize their written lyrics with the tempo of the music. They rehearsed their rap song several times, to then later on present it in front of the class during the last phase of step 2, the presentation of the creative outputs.



During the 3<sup>rd</sup> lesson all the groups went back to the class room and presented their stories and creative outputs that had come out of the storylines to the rest of the class. The comic strip groups read out their stories and showed the matching pictures of their comic strips to the class. The group *Mydtry* was the outstanding group during the presentation phase, because they did very well when they rapped in front of the class, the beat was played via speakers, it was something completely different compared to the other groups and the other pupils were giving them a huge round of applause after they had finished.



After the presentations the pupils received the second part of their

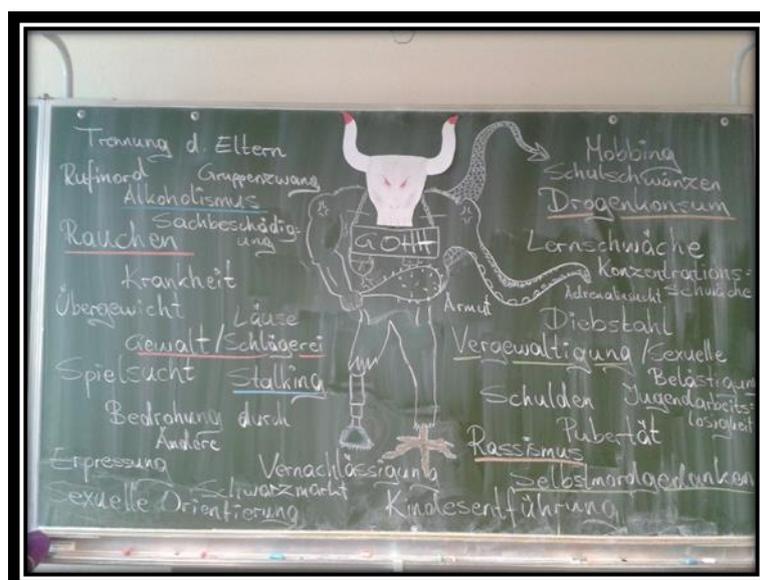
avatars, the body part and again got some minutes to design them and glue them onto the outlines.

Then we went into the 3<sup>rd</sup> step of our project week, the class discussion about the problems that can await a teenager. Because of the fact that our school is located in a quite harsh neighborhood of Vienna, sadly a lot of our pupils come out of families and surroundings where a lot of problems are part of growing up and everyday life. We asked them to simply name problems a teenager can run into and they came up with a lot of things which we collected on the blackboard, next to *GOHH* who is the symbol for all the bad things that exist in our world.



These are the problems the class named: divorce of parents, mobbing, defamation, peer pressure, cutting classes, alcoholism, drug abuse, smoking, damage to property, learning difficulties, illness, lack of concentration, poverty, overweight, stealing, rape, sexual harassment, violence, debts, stalking, addiction to games, unemployment, puberty itself, racism, suicide, extortion, neglect by parents, problems with the sexual orientation and child abduction.

Now each group had to choose two of those problems to work on during the next days. Step 4, 5 and 6 all focus on those problems, so this choice was something quite important and the groups had some minutes to think about it. Finally these were the problems the groups chose to work on and do further research:



The *Badgirls* chose the topics suicide and rape. Group *Gegner* went for violence and smoking. The pupils in group *Lavandia* wanted to do research on the problems drug abuse and racism. *Mydtry* decided to work on alcoholism and stalking.

Before going to the computer lab during the last lesson of the day and starting their research, we explained the class what information we wanted them to find out.

1. Description of the problem (what is the problem, in which forms can it occur)
2. Statistics concerning this problem in Austria, if possible about teenagers
3. Are there international statistics to compare them to
4. What possibilities to help are there? How can you help yourself or people that are concerned by that problem? Are there institutions that deal with that problem? What are their names, where are they, what are their phone numbers or e-mail addresses? What sort of help do they offer? Are there any helplines?
5. Can you find an experience report from people that dealt with that problem?



They also received their 3<sup>rd</sup> part of the avatar for actively taking part in the class discussion, the left arm and had some minutes to design it and put it to the other parts in their folder.

Then we went to the computer lab and the groups started to browse through the internet to get a first small overview about their chosen topics. This happened during the last lesson of the day, so there wasn't much time left to produce any output. But it was enough time to start reading the first articles and get into the chosen topics.



### **Day 3**

Day three was the day of information research. The teenagers split their groups into 2 subgroups and each subgroup worked on the research of one problem. So overall the pupils were working on 8 different problems that could arise in a teenager's life. These problems were suicide and rape, violence and smoking, drug abuse and racism, alcoholism and stalking.

They tried to find answers to the 5 posed questions about each problem they had chosen and split the questions up between the members of the group. So 2-3 people were working on one problem and each one individually was responsible for a different part of the problem and its possible solution. Their found results were to be put in a word file and after each individual of the group was finished with their subchapters of the problem, they should put their word files together into one end result, format it and print it out.

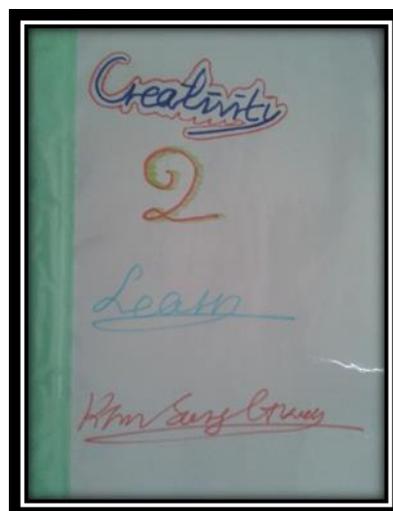


They used the internet for their work and soon stumbled over huge difficulties. Because apparently it is very difficult for them to subtract relevant information about their topics from the sheer endless flood of information the internet is offering you. It seemed to me that many of them were not able or willing to sit there and really read through the information on the screen and further on would be able to decide if this is relevant information that is connected to their fields of research or not. So during the first 2 lessons the outcomes of their research were, to say it nicely, quite marginal. Many pupils seemed to just copy & paste random articles that seemed to be connected to their chosen topics at first glimpse without even reading beyond the headline of those articles. Often when asked to read out aloud the first 2 lines of their so far produced information research and after the follow up questions “do you understand what is written there?” and “is this in any way relevant for your chosen field of research?” the teenagers would have to admit that this information was useless for our purposes. Another fact is that nearly all of them in the beginning only stuck to [www.wikipedia.com](http://www.wikipedia.com). Apparently wikipedia is their number one source for information research and the only website they are comfortable with using it.

It took many tries and talks from teachers’ side, to make them use also other links to websites about their topics and to really read through the articles. One premise we made clear was that if they did not understand the meaning of a sentence they were going to include into their reports, no one else in the for our project targeted group of people, which is the other pupils at school and their friends from outside the school, would understand it. Therefore the information, even when actually relevant, was not useable because our goal was to produce a brochure and an exhibition and share it with others and what sense would it make to produce a brochure that nearly nobody would understand.

They were quite insecure about their research progress and often wanted the teachers to read through their outputs so far. Sadly we were only 2 teachers, so I heard my name called out nearly every 5 seconds by a pupil who needed some help or just reassurement. The found out information over all started to be more relevant for the chosen topics, but still there were a few pupils that had a hard time to really produce any sort of useable output. Those pupils reached a point of resignation at some point and stopped to work on their own and rather sat together with another member of their group to look over their shoulders and try to help them in their research process.

With a lot of effort from teachers’ side, all groups were able to find answers to the previously posed questions about their chosen topics and in the end of the day printed out their collected outputs. We copied those outputs for each member of the group, so at least everyone within the group had all the



results the whole group had worked on during the day and was able to put it into their folders. As the last actions of day three, the teenagers were asked to create a cover to their folder with the name of the project and their name on it. Also they received the 4<sup>th</sup> piece of their avatars, the right arm, for successfully completing step 4 of this project week.



While the pupils worked on their covers, read through the collected information of their groups and designed the avatars, my colleague went back to the computer lab and prepared a brochure template for the next day. Apparently there are templates embedded in Microsoft Words for the production of brochures and he designed the cover and backside of it, while each one of the 4 groups then had to fill one of the still left blank sides of this brochure on the next day with the most relevant information about the two problems they had worked on.

#### Day 4

In the beginning of this day we asked the groups to sum up their found out information from the previous day. Each group had come up with an overall output of around 6 pages on which they had researched the five in advance given points

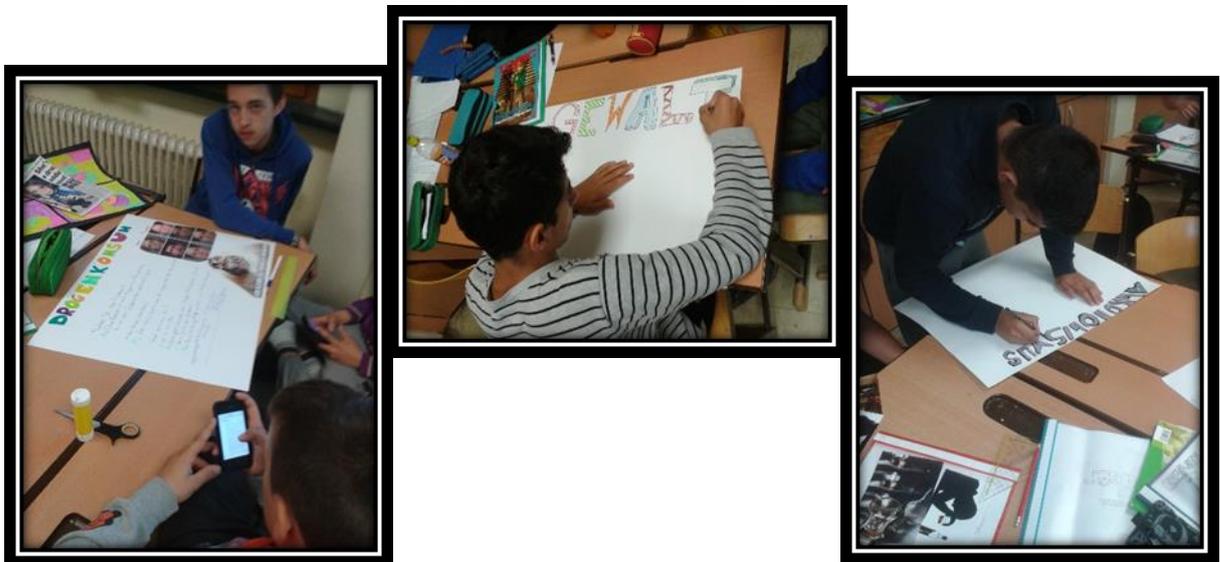
1. Description of the problem (what is the problem, in which forms can it occur)
2. Statistics concerning this problem in Austria, if possible about teenagers
3. Are there international statistics to compare them to
4. What possibilities to help are there? How can you help yourself or people that are concerned by that problem? Are there institutions that deal with that problem? What are their names, where are they, what are their phone numbers or e-mail addresses? What sort of help do they offer? Are there any helplines?
5. Can you find an experience report from people that dealt with that problem?

Since now they would only have the space of 1 third of a page to answer those points about both of their group's chosen problems, some serious shortening of their information output was necessary. They had to shorten their answers to a maximum of 3-4 sentences per answer. What is the problem? Who is affected, how do you become affected? What can you do when you are the one affected or if you know someone that is affected? Answers to those questions for each one of the two chosen problems should fit into the small part of the brochure each group was given. The groups split up the work of summarizing between their members and so each teenager worked either alone or in a group of two on the summarization of the information about one of those



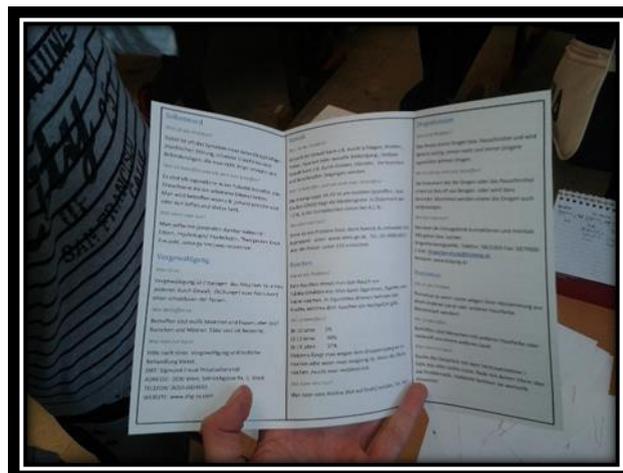
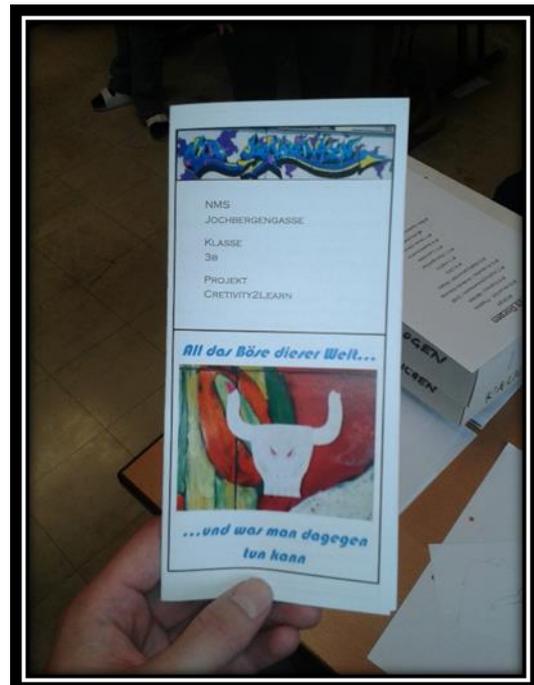
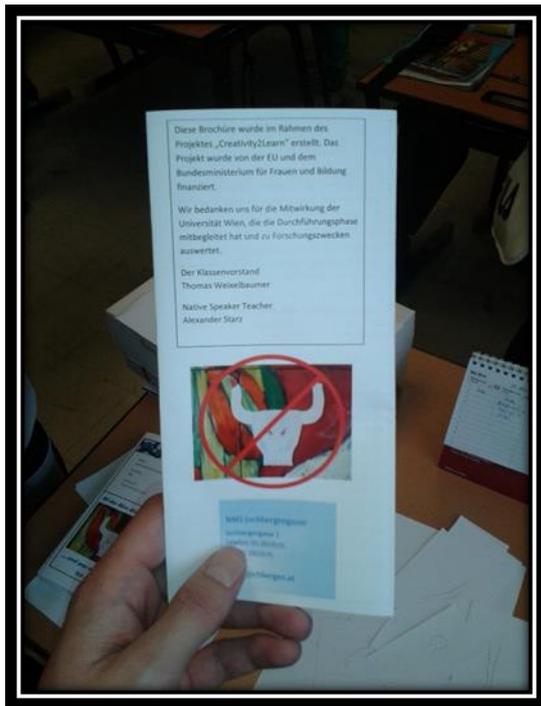
questions. This task was quite easy for the pupils and so the first group soon was ready to go to the computer lab with my colleague. There the groups typed in their summed up outputs in the previously created brochure template and my colleague helped them with it and coordinated their work.

The other groups in the meantime worked on creating posters about our chosen problems to create a small exhibition in the break hall. Each poster should be filled with one problem and answer the same questions as the brochure. The teenagers were allowed to design the posters in any way they wanted to, they could draw, write, print out pictures, texts etc.



Group after group went to the computer lab to fill the brochure with information and in the meantime the contents of the posters grew on. In the end of lesson 4 on this day we had reached the end of step 5, the production of the brochure and the exhibition and were able to go over to the final step 6, the presentations in front of the class about the found out information.

But before starting the presentation phase, the pupils received their 5<sup>th</sup> avatar part, the leg and also were shown a first printout of our brochure. I could really tell that the pupils were extremely proud when they saw the brochure for the first time. They saw this group product of their work and saw that all the effort within the last days had paid off. While I stayed with the class during they designed their new avatar part, my colleague went back to the computer lab to print out enough brochures for every pupil in class. So in the end of this day everybody would be able to take home one brochure.





After they were done with their avatar design and after having a break, the pupils got ~20 minutes to prepare their short presentations. Each group had to present both their chosen topics, so each presentation was held by 2-3 pupils, because they split up the preparation work within the members of the groups. This was just a consistent ongoing of the last days' work because also the research, sum up, brochure and poster design were split up into those different subgroups. They were allowed to use notes as well as their created posters for their presentations.

I have to say that sadly I was quite underwhelmed by most presentations. The most pupils just stood there and read from their notes or the poster word by word, without speaking extempore, without keeping a lot of eye contact with the class. I was expecting them to show more enthusiasm, more fluent speaking when it came to presenting those topics that they had worked on for the last days.



But there was also one group of two pupils that really surprised me positively. They had prepared a role play! One of them mimed a university professor and the other one a student. The student comes to the professor's office to ask him some questions for his upcoming presentation about the problem of stalking. The play contained all the information they had found out and they didn't even look once onto their poster, also they didn't use any notes. Also they had included some jokes into their script which made the whole class, including me, laugh. They earned a huge round of applause afterwards in return. After this last presentations we put up all posters in the break hall and took a group photo in front of them. Sadly some pupils were missing today. This was the end of day 4.





### Day 5

This last day of the project week was used for once more playing the creative card game and finding out, if their produced stories would in any way be influenced by the previous days of this project week. But before using this creativity tool, the pupils received their final avatar parts, the last leg and we declared *GOHH's* defeat. The whole class cheered.



After their avatar design was finished, they once again were asked to play one round of the C2Learn creative card game. The first reaction to that from pupils' side was rather demotivated. A lot of them were not really looking forward to once again playing the card game, it had lost the thrill of the new. Maybe it was also because they knew that there would be no further outcome to their now created storylines when compared to the start of the week when we also produced comic strips etc. But soon after they had started playing pretty much all the pupils were engaged in action and involved into the story telling process actively.

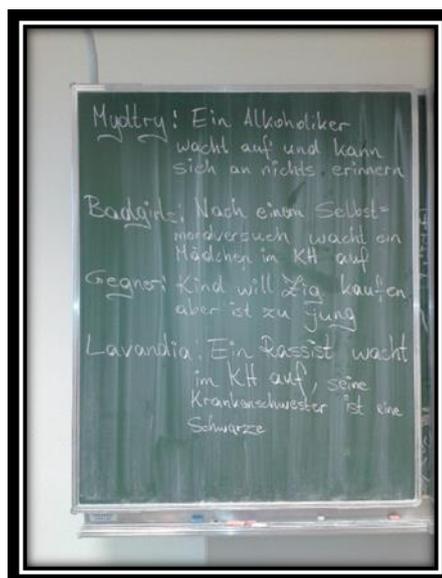
We asked them to now come up with their own initial problems for their storyline based on the topics they had worked on. This is what they came up with:

*Mydtry*: An alcoholic wakes up and can't remember anything from last night

*Badgirls*: After a suicide attempt, a girl wakes up in the hospital

*Gegner*: A child wants to buy cigarettes but is way too young

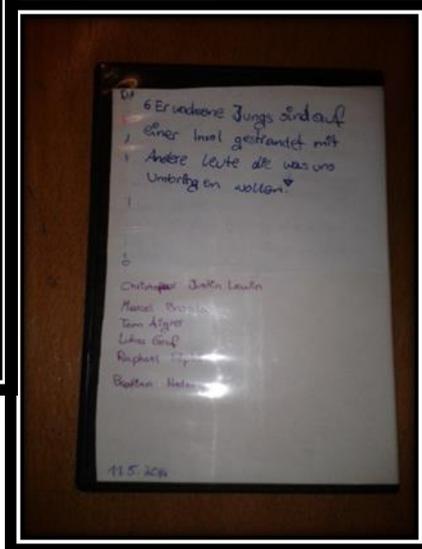
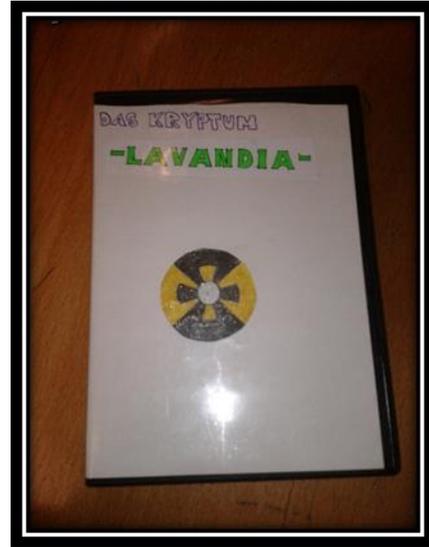
*Lavandia*: A racist wakes up in hospital and his nurse is colored



Their storylines then soon deviated from the initial problems and just turned into fantastic tales without any connection to the topics we had worked on during the last days. I couldn't see any influence on the produced stories by the previous days of this project week. But at least they were quite enjoying themselves and came up with creative stories. But compared to the first round of gameplay ever, the level of motivation today was quite low. I felt like there was a decrease of enjoyment from round to round this game was played in its analog version.

Next, we went to the computer lab and watched the movie that group *Lavandia* had come up with. We used a video projector to watch it, because our DVD players at school wouldn't play their self-burned CD. Their initial idea of a zombie apocalypse movie had turned into a movie about 6 boys, running around in a forest with weapons, being chased by an unseen enemy. The sound quality was quite harsh and so nearly nothing they said was understandable and the camera perspective was extremely shaky, still the whole class sat there in silence and watched through the whole movie. They were really into it, even when there was no real storyline and the sound was pretty much inaudible. The members of group *Lavandia* were extremely proud and I think their motivation and their high spirits while seeing the movie dragged the others along.

This was the end of our planned steps during the project week. Now there was only one thing left to do... PARTY!!!!!!!!!!!!!!



## Annex II: Trials of 4Scribes in EA

**Dates and Duration:** November and December 2013, 2 sessions of 1.5 hour each.

**Participants:** 6 teachers in 2 groups: 3 primary 3 secondary

**Coordinator:** EA

The trials used a bundle of playtesting materials and protocols provided by the game design team. Participants played an early paper version of the basic 4Scribes games which involved rolling a dice to get a premise for their story and trying to steer the story toward their individual secret endings. An EA researcher served as the game-master. Data collected included, researcher observations, photographs, and player feedback on a short questionnaire and in a debriefing discussion right after the play session.

### 3.1 1<sup>ST</sup> PLAYTEST

#### 3.1.1 PARTICIPANTS

3 elementary school teachers, all female

Age 33: played a few board games, played a few digital games

Age 41: played a few board games, have not played digital games

Age 50: played a few board games, played a few digital games

#### 3.1.2 STORYTELLING PREMISE

The premise that they got through the dice was: bullying at home.

#### 3.1.3 RESEARCHER OBSERVATIONS

- The character cards were too determined: they were literally interpreted as a court of kings, which constrained the options unnecessarily and obscured the bullying at home theme. The home became a palace etc. Probably a more underdetermined set of characters is needed. A greater variety of characters was also suggested.
- During the storytelling, myth cards were used similarly to number cards and there was some overlap in concepts.
- The colors were attended to on and off. There seem to be too many things to consider at once and the meanings of the colors seemed to be the least self-evident or immediately generated. The word "strategy" in relation to the yellow color skewed its meaning: it was repeatedly used as a strategy card rather than a material world card.
- The last player has an advantage as they can introduce a reversal in the story to try to direct it towards their own ending. Maybe having a constraint in the amount of text that can be attached to a card -- e.g. a single sentence, maybe dealing more cards -- could fix this.
- Despite this however, when it came to selecting an ending, players felt that none of their ending served well, none could fit the story. The commented that this was because their endings were too specific and if they were playing the game again they would have written something general and vague such as "And so justice was served!". This may be taken into account: i.e. instead of the story ending, write the story moral?

#### 3.1.4 PARTICIPANT FEEDBACK

##### 3.1.4.1 ON THE FORM

- LIKED: myth cards, developing the plot of the story

- CONFUSING: not confusing, no problems in following the rules - did not understand the colors that much.
- LEAST LIKED: too many different sets of constraints to take into account:: hard to keep track and also limiting on creativity. Too directed, too linear. The ending wrote in the beginning turned out not to work.
- SUGGESTIONS, IMPROVEMENTS: More characters on the cards. Each player making their own scenario and then have others find the ending. More card choices but less combinations of elements => more freedom.
- Writing the end at the beginning was too constraining: we would be more free to evolve the story without trying to navigate towards the end.
- CREATIVE INPUT: yes all three. Developing the plot. Trying to differentiate the storytelling.

#### 3.1.4.2 DURING DEBRIEFING

- They found the game interesting. They thought that the kids would like it and play it.
- In terms of usefulness in the learning process they thought it could be used in the context of language learning and writing, they could see it as a playful creative writing exercise.
- They didn't think that the game would work well in exploring a theme or a topic (like bullying in this case), at least in its present iteration, because they had to focus too much on satisfying the constraints of the rules and trying to navigate towards their end, so they did not explore the topic all that much, they focused more on managing to finish the story.
- They didn't really get the three colors, and in many cases they didn't pay attention to the color of their card. They liked the words that corresponded to the myth and number cards however, as they gave them ideas for advancing the story.

## 3.2 2<sup>ND</sup> PLAYTEST

### 3.2.1 PARTICIPANTS

3 middle and high school teachers, all male

\*Age 41: specialty science, played a few board games, played a few digital games

\*Age 41: specialty gym, played a few board games, played a few digital games

\*Age 50: specialty mathematics, plays board games regularly, played a few digital games

### 3.2.2 PREMISE

The premise that they got through the dice was: equality/inequality in space

### 3.2.3 RESEARCHER OBSERVATIONS

- The researcher suggested at the outset that that they could interpret the character cards more freely, which they did to good use.
- This group of teachers used more explicitly all the meanings assigned to the cards, including the colors.
- They were also very set on steering the story toward their ending -- which became evident when the endings were read -- and this made for a lot of excitement during the game, especially through reversals.
- In terms of exploring its premise, the game is too susceptible to being sidetracked from promising directions: example - at some point the setup of the story was "a beautiful party-loving female astronaut has a baby with an attractive stranger. A new space mission is being planned." This seemed like the perfect setup for the premise "equality/inequality in space", but the next person moved the story in a totally different direction and the opportunity was lost.
- The story was also driven more by to the specifics of the plot (e.g, the baby) rather than by the overall premise -- which was also true during the first playtest. The theme (equality/inequality) was only mentioned once explicitly during the story telling, but the setting (space, which became a space station) was more salient.

- At the end, it was quite obvious what was the appropriate ending, but it took players sometime to agree to that, out of politeness. It was the ending of the last player and it was the last turn he played that made his ending fit. Thus it surfaced again that the last player has an unfair advantage.

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### 3.2.4 PARTICIPANT FEEDBACK

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#### 3.2.4.1 ON THE FORM

- LIKED: the laughter that it offers, it was fun, it was entertaining
- CONFUSING: which card to use first. at the beginning the rules were confusing but just for a while. at the beginning, about how they were supposed to connect the stories.
- LEAST LIKED: the story was not long enough. The last person who plays has a clear advantage. The very first card that I got was death!
- SUGGESTIONS, IMPROVEMENTS: since there are number and figure cards, find a way to add gathering points by choosing which card to play. Introduce some element of chance. There should be a way when one player adds a piece to the story for other players to judge if they are going to accept it or not, a minimum requirement of coherence with what came before and adherence to the rules. Role the dice between turns, to alternate the order of players, so that one player does not have the advantage.
- CREATIVE INPUT: all three said yes. It helped my develop my imagination. It was very creative because I had a sense of control on the evolution of the story. The process of choosing what card to play next was also creative. Continuing the story according to what my co-players gave me and changing it as needed, it felt like being part of the story.

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#### 3.2.4.2 DURING DEBRIEFING

- Participants liked and enjoyed the game. They felt that the students would like it.
- They liked the fact that they wrote the ending first and were trying to steer the story towards it, because that introduced the game element, trying to win. They also said that they were able to use all the constraints in the cards, including the colors, but it took them a couple of turns to figure it out.
- They felt that contributions to the story did not always take into consideration what came before, so there should be a way to reject contributions that didn't fit and penalizing the contributor. They also felt that an element of chance would make the game more interesting and less predictable.
- In terms of using the game in the learning process, they wondered how subject matter could be integrated in it. With respect to exploring a theme, based on the premise, they said that it could work, but it would require some more structuring, for example making the teacher one of the players so s/he could steer the story to the promising directions or by introducing a process of deciding whether to accept an addition to the story based on a pre-defined set of minimum rules.
- They also wondered if this game is playable with a bigger number of players, how many? They felt that it would be hard to play with too many players, which might be a problem in the class.

## Annex III: Summative recommendations on storytelling games from EA

**Date:** May 2014

**Contributor:** EA

At the game design team request, the EA research team codified in this short informal report points about the C2Learn storytelling games. These were points that came up in early playtesting with teachers but also in the trial that we had with students in the February workshop in Athens, as well as in informal experimentation with storytelling within an astronomy class in EA.

### 3.3 THE CHALLENGE

In C2Learn pedagogy, storytelling games are used to enable players to explore creatively challenges that involve ethical dilemmas. However, in all game playing instances that we observed, gradually players ‘forgot’ the original dilemma and were carried away by the potential to develop the story in interesting, outrageous, extravagant directions. Interesting, outrageous and extravagant is of course creative and therefore desirable, but may undermine the function of storytelling in the C2Learn activity, get in the way of really considering ethical impact, and lead teachers to see it as a distraction or a frivolous waste of time.

### 3.4 SOME PARAMETERS

In mulling over this challenge it seems that there are three criteria on which we could assess/rate the players contributions in a creative story in C2Learn:

- fulfilling the goals of the game by identifying and addressing the ethical dilemmas of the challenge
- making a ‘good story’, i.e. avoiding premature closure and keeping the story going, attending to story elements introduced by others and building on them, introducing interesting twists and surprise elements and eventually bringing the story to an end without leaving any loose ends.
- introducing creative solutions and perspectives as defined by novelty, surprise, impressiveness etc.

In the storytelling instantiations that we have tried out and in the new designs proposed, the first of the three above could become more salient.

There are two varieties of using stories to explore creatively a challenge that poses ethical dilemmas.

- A. make a story about the challenge, i.e. about how it might play out through a number of moves and choices
- B. use the story as an analogy, i.e. make a story about different situation that is analogous to the one at hand.

### 3.5 RECOMMENDATIONS

The following are some ideas that we have discussed in EA – and at various occasions shared in the consortium, albeit not all in one place. We articulate them here as specific recommendations related to game design:

(1) storytelling could be framed more clearly if the problem-situation were represented concretely within the game

This could be as simple as providing some screen space to keeping the challenge visible at all times. A modification that we think could contribute greatly to this would be to have players introduce story 'cards' in the space as in a board game, rather than linearly, as in a card game. For example in 4Scribes we could still have the same 'cards' (people, actions, magic), but allow players to place them on a board where different areas are defined (e.g. a shopping mall, a slam, and the parliament in a scenario about an urban development) so that through player moves people and actions are tied to the situation that defines the dilemma

(2) players could participate in storytelling by adopting particular roles or perspectives that are part of the situation

This is related to the above: an example, that we used in an astronomy course in EA is this: theologians, philosophers, scientists and politicians, debate what should be done on a planet where sentient life is discovered. The idea is that each player contributes to the story from the particular assigned perspective.

(3) opportunities for reflection could be built into the game

Given a game based on rounds, the players could have opportunities to stop every so many rounds and reflect on how their story is moving toward addressing their challenge, or what are the ethical implications of their story. Now people may do that spontaneously while talking, but it could be built into the game. A downside to take into consideration is that this could be the detriment of game enjoyment, so we should try to avoid that, for example by offering players moves that they can use to retrace their steps, or to veto particular moves, but make it salient that they do this for example on 'ethical impact' grounds, rather than on 'good story' grounds. This could be combined with the scoring of the story. Another thing to do, would be to provide a discussion board for argumentation that runs in parallel to the game.

## Annex IV: Iconoscope trial

**Dates and Duration:** September 2014, conducted over 10 days via Skype and e-mail.

**Participants:** 2 Researches from EA, 1 Researcher from OU, 1 Researcher from UEDIN

**Coordinator:** EA

### 3.6 RATIONAL

In this trial researchers from the theoretical and pedagogical teams of C2Learn simulated the experience of the ICONOSCOPE game as described in the Game Design Deliverables. The purpose of this trial was to assess:

- the playability of the game, i.e. the meaningfulness and enjoyment of the play experience
- the congruence of the game with the theoretical framework of Co-creativity that guides C2Learn
- the practicality of playing the game within specific classroom-like time constraints and with particular educational uses in mind
- and, finally, how various design details affect all of the above.

### 3.7 PROCEDURE

Iconoscope was simulated using MSWord and MSEXcel. A researcher from EA acted as a coordinator and as a game-master, performing manually all the functions that will be automated in the game such as selecting triplets of concepts, conducting the game, scoring etc.

The trial was conducted over e-mail and skype and had three phases:

#### PHASE 1: over email

STEP1: each participant send a list of concepts and any suggestions about basic shapes to use in addition to the standard set in the Game Design document

STEP2: The game-master created and shared the shortlist of concepts, which contained 6 groups of 3 concepts each

#### PHASE 1: over email

STEP 3: each participant/player made 1 icon for each group of concepts. (6 icons total).

STEP 4: players shared all drawings keeping secret the concepts represented

STEP 5: players send the game-master their guesses about which concept is represented by each of the drawings of others

#### PHASE 3: over e-mail and Skype

STEP 6: players revealed the secret concepts behind each drawing

STEP 7: the game-master calculated the scores and declared the winners

#### PHASE 4: over e-mail and Skype

STEP 8: participant discussed the experience

STEP 9: the coordinator recorded feedback points for the design teams and sends them to other participants for review.

STEP 10: the findings report (below) together with all material produced during the pilot (concepts, icons, etc) were communicated to the game designers and shared within the consortium.

## 3.8 REPORT OF FINDINGS

### 3.8.1 OVERVIEW

Overall, the experience was good for all participants, and we can see the potential of the game.

We touched on the following issues:

- A. CHOOSING CONCEPTS
- B. CREATING ICONS FROM BASIC SHAPES
- C. PROCESS/EXPERIENCE
- D. CLASSROOM USE
- E. SCORING

### 3.8.2 CHOOSING CONCEPTS

The issues to consider are: number of concepts, semantic proximity of concepts, abstractness of concepts.

\*NUMBER:: we worked with groups of three concepts, it worked quite well; we wondered if 4-5 concepts might eliminate sheer guesswork as a successful strategy though.

\*SEMANTIC PROXIMITY:: we used groups of semantically close concepts: this made it both interesting and relatively easy to infuse some ambiguity in our icon design, but hard to guess; we wonder what it would be like with concepts of greater semantic distance, probably harder to design and easier to guess. [using the SEMANTIC TOOLS to generate concepts for ICONOSCOPE and playing with the semantic distance might be a promising direction]

\*ABSTRACTNESS: we used relatively abstract concepts; but what about concrete nouns (e.g. flower) in the mix?

### 3.8.3 CREATING ICONS FROM BASIC SHAPES

The issues to consider are: simplicity and number of shapes, manipulations, time to create.

\*SIMPLICITY and NUMBER: we all feel that working with a number of simple shapes is good and allowed for many possible ICON designs – a small palette (we had 15 shapes) was also good. We can see the point made by game designers about composing vs. drawing as a strength of ICONOSCOPE. We also agreed that we would like to see the full potential of this, it would be interesting to see how far for example a visual artist can take representing concepts with simple shapes.

\*MANIPULATION: we purposefully limited ourselves to simple manipulations, and set a rule of no shape distortions. So SCALING and ROTATING were the main manipulations we used, and they gave us a good range of options. COLOR was used by the majority of players. TRANSPARENCY was also very useful. A discovery in the way that MSWord handles copy-paste is that a useful manipulation is 'ordered multiples' i.e. an easy way to have SAME SHAPE REPETITION making a pattern.

\*TIME: it took approx. 5min per ICON for most players in the MSWord environment. It took one player, double that time, i.e. approx. 10min per ICON, producing more elaborate designs. These are manageable times within classroom constraints, it should be noted, however, that they depended on an interface that is easy to understand and use. Our differing time experiences also suggested that the game should probably include a feature for limiting the time of ICON design, as different players will be prone to different levels of elaboration and detail. We debated the pros and cons of allowing

less or more time for icon design, but some time limit will probably need to be set for classroom use and game fairness.

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#### 3.8.4 PROCESS/EXPERIENCE

We discussed our experience in this particular trial, i.e. how we approached the task and what we got out of it as players. This is useful material for potential classroom use. Here are some insights.

\* DIVERSE APPROACHES: we each seemed to have a different approach and we also modified our approach in the process, including:

-starting strategically with two concepts, one to represent and one to introduce ambiguity, and looking for visual links between the two; -starting from the implications of a concept and looking at the potential of the shapes, e.g. conflict happens between people: how can I make people quickly using shapes;

- deciding in advance on the main concept and the image and try to make the shapes into that image vs...

-starting to play with the visual and deciding afterwards which concept it represents better.

\*THE VISUAL AND THE CONCEPTUAL: Icon design made us consider relations between the concepts that we might not have noticed before; also connections between the icons and the concepts and the expressive potential of the visual elements; unexpected similarities among the ICONS of different players were also illuminating, creating in a sense a dialog between visuals, rather than between people.

\*BUILDING EXPERIENCE: we did 6 sets of concepts instead of one, and that made the game a more complex learning experience: the experience of one ICON design informs the other, the more you do it the more you discover, reuse and evolve the capacity of the shape

\*DIXIT REVERSAL: designing the visual feels like the strong point of the play experience in Iconoscope.

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#### 3.8.5 CLASSROOM USE

The issues to consider are potential for fostering creativity, integration in classroom activity, age appropriateness and appeal.

POTENTIAL: we are in agreement that the experience described shows potential for the game to foster creativity. It has potential for Possibility Thinking ('what if') and resonates with WHC dimensions such as immersion (getting better by playing more). Juxtaposing concepts highlights ethical dimensions and can provide fodder for Socratic Dialogs.

CLASSROOM INTEGRATION: we discussed sensible number of rounds to a game and the purpose it would serve in a classroom activity. Playing once can serve as a fast trigger game, to spark interest and dialog. We do see however the benefits of playing many rounds of concepts, as described above.

AGE APPROPRIATENESS AND APPEAL: while we as adults enjoyed the game, we are wondering if the abstractedness of both concepts and shapes might be a barrier for the 10-12y part of our intended audience. We also wonder about the appeal the very basic visuals will have, based on set expectations. These are questions to take up in the upcoming pilot.

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#### 3.8.6 SCORING

Definitely, players guessing the concepts should be rewarded 1 point for a right answer to keep them honest.

On the other hand for players providing the ICONS, we may need to consider or playtest various options, asking people what feels fair.

We did two versions of the scoring (see attached), and though they came out differently it is not clear what the difference means. "Points for right" means that a person gets rewarded with two points for

every right guess of their drawing (assuming that not everyone got it right, in which case his/her score is 0).

“Points for wrong” means that a person gets rewarded with two points for every wrong guess of their drawing (assuming that not everyone got it wrong, in which case his/her score is 0).

We feel that the best kind of score would be something that rewards “points for ambiguity”.

We can describe an example clearly using an odd number of players, but we had difficulty generalizing this.

So, if there are 7 players, the person who provides the ICON could be scored like this:

6 right or 6 wrong = 0 points

1 right - 5 wrong or 1 wrong-5 right = 1 point

2 right - 4 wrong or 4 wrong-2 right =2 points

3 right- 3 wrong = 4 points (maximum ambiguity) A lighter version of this scoring approach is if extra bonus points are awarded only for the even split or for the maximum split.