Fostering **creativity** in **learning** through digital **games**

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

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C²LEARN LEARNING DESIGN FOR CER

C²LEARN PROJECT DELIVERABLE NO. D2.2.1

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Dissemination level: *Public*

DOCUMENT IDENTITY

Project category	Details
Deliverable code	D2.2.1
Full title	'C^{2}Learn Learning Design for CER'
Work package	WP2 'C^{2}Learn Methodology'
Task	T2.2 'Learning Design for CER'
Consortium partners leading	OU
Consortium partners contributing	Mainly UEDIN (feedback and support from EA, SGI, BMUKK, UoM, NCSR-D)

DOCUMENT HISTORY

Version	Date	Handling partner	Description
1.0	Across April and May 2013	OU	Initial discussions between consortium partners about scope of LD.
1.1	23/05/2013	OU	Theory graphic agreed between OU and UEDIN.
1.2	14/06/2013	OU	Minor changes made to theory graphic following consultation with the consortium. Separate sections drafted.

Version	Date	Handling partner	Description
2.0	26/06/2013	OU	Completed draft circulated to whole consortium.
2.1	16/07/2013	OU	Revised draft on basis of feedback from the consortium.
3.0	18/07/2013	OU	Final draft of D2.2.1, further feedback received from consortium partners. Report delivered to co-ordinator on 29/07/2013.

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Abbreviations used

A) Abbreviated names of the project consortium partners

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

B) Other abbreviations in alphabetical order

Abbreviation	Explanation
ARG	Alternative Reality Game
C^{2}Learn	Acronym of the project (full title: Creative Emotional Reasoning Computational Tools Fostering Co-Creativity in Learning Processes)
CER	Creative Emotional Reasoning
DLT	Diagrammatic Lateral Thinking
DoW	Description of Work (Annex I of the Grant agreement no. 318480)
EC	European Commission

Abbreviation	Explanation
ELT	Emotive Lateral Thinking
FP7	The Seventh Framework Programme for Research and Technological Development (2007-2013)
ICT	Information and Communications Technologies
LDS	Living Dialogic Space
LT	Lateral Thinking
LTC²	C²Learn's Lateral Thinking
M#	#th month of the project (M1=November 2012)
PT	Possibility Thinking
SLT	Semantic Lateral Thinking
TEL	Technology-Enhanced Learning
WHC	Wise Humanising Creativity

Executive summary

C²Learn at a glance

C²Learn (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 1st 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 C²Learn 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

Deliverable 2.2.1 is the first instalment of a document explicating the key concepts and principles relating to *C²Learn's Learning Design*. Developed by the OU team working closely with UEDIN on various sections and consulting with the rest of the consortium, it sets out the over-arching theoretical frame of the project which encompasses Creative Emotional Reasoning (Deliverable 2.1.1) and its practical application in relation to learning approach. Deliverable 2.2.1 is structured in three parts, the first considering the overall goals of the *C²Learn* game and its environment, in other words addressing what it will enable students and teachers to do. The second part addresses how the *C²Learn* goals translate to activities in the environment. The third part documents how the consortium is progressing in designing the *C²Learn* game and environment with the learning goals in mind.

0   Introduction

Deliverable 2.2.1 seeks to set out the overall Learning Design for C²Learn. This introductory note aims to remind readers that C²Learn aims to design a learning system that provides innovative opportunities for co-creativity. To do this it combines a range of educational contexts and orchestrations, with specialist tools enacted through micro-activities in an open world virtual space and/or alternative reality game platform (ARG). In these spaces learners can engage playfully with co-creative, non-linear thinking triggered through game-like challenges.   This introduction sets out the elements of the deliverable which combines goals and associated tools, gameplay and then the strategic evolution of these by the consortium and progress in relation to this. Throughout this document, blue text is used to denote material and approaches in development due to the timing of inputs from other deliverables, piloting and workshop activities, and which it is envisaged will be further developed in Deliverable 2.2.2 (the second iteration of the Learning Design due in M18).

0.1   AN INTEGRATED SYSTEM

C²Learn is conceptualised as an integrated system of educational scenarios, appropriate for a range of contexts and learners, and addressing specific learning objectives. As Deliverable 5.1.1[1] indicates, these educational scenarios encompass a context (eg the classroom) and its orchestration, in which micro-activities, some of which draw on specific C²Learn tools for fostering co-creativity. The classroom micro-activities co-exist alongside and in relationship with, an open world digital space or ARG platform which contains its own micro-activities and further C²Learn tools, as illustrated in Figure 1 reproduced from D5.1.1.
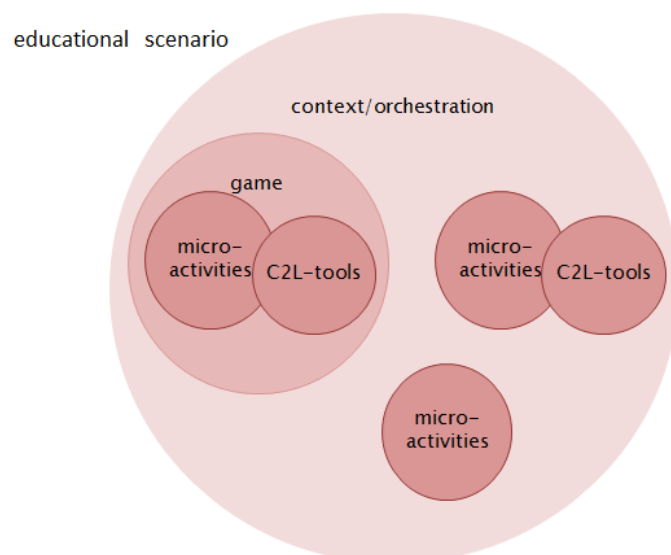

Figure 1: Representation of the educational scenario in which C²Learn game and tools are embedded

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[1] D5.1.1 'C2Learn Scenarios, Use Cases and User Requirements', deliverable due date April 2013.

At this point of the project (M9), the scenarios are in an early stage of planned, iterative, co-development with core user communities in Austria, England and Greece.

The computational tools for CER (non-linear thinking techniques that foster co-creativity[2] by harnessing C²Learn's lateral thinking, LTC[2]) are in development by NCSR-D, and the educational contexts for the scenarios being explored. As indicated in D2.1.1, LTC[2] is divided into three distinct, yet interrelated, kinds: [1] **Semantic Lateral Thinking** (**SLT**) [2] **Diagrammatic Lateral Thinking** (**DLT**) and [3] **Emotive Lateral Thinking** (**ELT**)[3]. The possibilities for the open world virtual space are under close discussion between all partners with UoM and SGI taking a lead. As a result of ongoing discussions, the idea of the C²Learn game being embedded within an ARG platform appears to be well suited to providing rich, interactive and even addictive gameplay experiences. The learning design of the project reflects this integrated system, and encompasses the philosophical and educational goals of the project, which are articulated through collaboration between OU and UEDIN with input from EA and BMUKK.

0.2   BRIEF OVERVIEW OF CONTENTS

Deliverable 2.2.1 is divided into three parts.

The first part of D2.2.1 considers the overall goals of the **C²Learn** game and its environment, in other words addressing what it will enable students and teachers to do. It presents the integrated perspectives of OU (WHC) and EDIN (CER) explicating how the theoretical map translates into the concrete actions of the educational scenarios, and clarifies learning goals, indicators and examples of these.

The second part addresses how the **C²Learn** goals translate to activities in the environment.   This section provides greater pedagogical insight into what types of activities need to occur in C²Learn, as an *active process of change* guided by compassion and reference to shared values derived from players' collaborative thinking, shared action and gameplay within a Living Dialogic Space to foster Wise Humanising Creativity through CER's set of core creative learning tools that will support the manifestation of WHC. This information is paramount in order to inform the future C²Learn learning experiences and the affordance it will need to foster co-creativity.

The third part documents how the consortium is progressing in designing the **C²Learn** game and environment with the learning goals in mind through two parallel sets of activity: the **C²Learn Co-Development Teams** comprising teachers, pupils, professionals and policy makers working to generate and critically evaluate the educational scenarios, computational tools, pedagogical approach and assessment strategy; and the **C²Learn Consortium Partners** working to develop and refine the game design and experience, and the theoretical foundations of the project, the computational tools, pedagogical approach and assessment strategy.

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[2] Both terms explained and defined in D2.1.1 'Creative Emotional Reasoning', deliverable due date April 2013.

[3] Again, all three terms explained and defined in D2.1.1.

1   Overall goals of C²Learn

What the C²Learn game and experience will enable students and teachers to do

1.1   C²LEARN CO-CREATIVITY CONCEPTUAL FRAMEWORK

The goal of C²Learn is to foster co-creativity through Creative Emotional Reasoning (CER, theorised by UEDIN) and generating Wise, Humanising Creativity (WHC, theorised by OU). The intention is that the tools and strategies of CER are harnessed to generate WHC activity between participants in the C²Learn game and environment. CER has been explained in deliverable D2.1.1 (due date April 2013); in this deliverable we add to this a brief explanation of WHC. OU and UEDIN teams have over the first nine months of the project conceptualised how WHC[4] and CER[5] might best be theoretically inter-related in order to represent conceptually what the C²Learn experience will enable students and teachers to do in terms of fostering their co-creativity. The clearest way to show this was felt to be through a diagrammatic representation illustrated in Figure 2 below. The explanatory text[6] leads the viewer through the key enabling features of the co-creativity conceptual framework from the edge of the figure to the centre. It culminates in a clear explanation of the 'what' of co-creativity defined in terms of the interrelationship between WHC and CER which emerges at the centre of the figure.

In the text which follows Figure 2, a brief summary of the key components of WHC is given. These are further explained using concrete educational examples, in the second part of the document. The presentation of the WHC components and their relationship with CER are to be further expanded in the second draft of the Learning Design, which is due in M18.

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[4] Chappell K., Craft A., Rolfe L. & Jobbins, V. "Humanising Creativity: valuing our journeys of becoming", *International Journal of Education and the Arts*, *13(8) 1*-35, 2012, retrieved 11.01.13 from http://www.ijea.org/v13n8/

Chappell K., "Towards Humanising Creativity", *UNESCO Observator*y, E-Journal Special Issue on *Creativity, policy and practice discourses: productive tensions in the new millenium* Volume 1, Issue 3, 2008, http://www.abp.unimelb.edu.au/unesco/ejournal/vol-one-issue-three.html (20 February 2012).

Craft A., "Trusteeship, wisdom and the creative future of education?", *UNESCO Observatory*, E-Journal, Volume 1, Issue 3, Special Issue: *Creativity, policy and practice discourses: productive tensions in the new millennium*, 2008.

[5] For a definition and analysis of CER, as well as an exposition of its theoretical foundations, see Deliverable 2.1.1: *Creative Emotional Reasoning*.

[6] Figure 2 and text were developed in collaboration between Open University (OU) and partners University of Edinburgh (UEDIN).

C2Learn Co-creativity Conceptual Framework

Pedagogical context within and beyond C2Learn Game:
valuing learner agency, standing back, time and space, "meddling".

quiet revolutions

Wise Humanising Creativity

engaged action, dialogue,
control, ethics/ impact

Creative Emotional Reasoning

Intervention, re-framing

C²Learn's Lateral Thinking

principles: kinds:

a)analogy   a)semantic
b)internalisation   b)diagrammatic
c)externalisation   c)emotive
d)negotiation

Living Dialogic Space

means:

a)individual b)collaborative c)communal

journeys of becoming

C2Learn gameplay harnesses:

intuition   reasoning   empathy

C2Learn gameplay involves:

pluralities   possibilities   participation   playfulness

C2Learn gameplay offers opportunities for:

Possibility Thinking
('what if ' and 'as if' thinking')

Pedagogic strategies are built into the game
and alongside it (in classroom) to enable WHC through LTC².

Figure 2: C²Learn co-creativity conceptual framework

This figure illustrates 'how' co-creativity is fostered within C²Learn and 'what' that co-creativity is. Co-creativity within C²Learn is **novelty which has emerged through shared ideas and actions and which involves participants taking into account the impact of that novelty**. Co-creativity will be fostered in C²Learn by:

- **Possibility Thinking (PT)[7].** PT is 'what if' and 'as if' thinking and will be inherent in multiple elements of the C²Learn framework hence its representation around or underneath the other elements.
- **The 4P's[8].** The presence within and outside the gameworld of *pluralities* (opportunities for learners to experiment with multiple pluralities of places, activities, personal identities, and people), *possibilities* (opportunities for possibility thinking, transitioning from what is to what might be, co-constructing with others through the C²Learn experience, designing, editing, extending and exploring content), *participation* (opportunities for learners to take action, make themselves visible on their own terms, and act as agents of change) and *playfulness* (opportunities for players to learn, create and self-create as active and connected players in their emotionally rich, virtual and actual play-worlds).
- The game and environment's capacity to harness **intuition, reasoning** and **empathy** within and outside the gameworld.
- **Living Dialogic Spaces[9]** (LDS) being embedded in the game and also present in the environment outside the game to offer players high participation and shared control, individually, in collaboration and/or as part of a communal endeavour. Within and outside the C²Learn gameworld, interactions will therefore offer a new 'space' for debate and difference, openness to action, working 'bottom up', and different modes of idea exchange. This will happen through creative learning conversations. The purpose of these is to flatten hierarchies, reposition players in different roles and allow spaces that promote a sense of equality through 'listening' to other players and even allow players to change their mind by identifying with the space of dialogue. The creative potentials offered by such a dynamic dialogic environment will be fully exploited by brainstorming activities, which propel and structure CER's non-linear thinking techniques.

Alongside and within these enabling features of the C²Learn game and environment, teacher, facilitator (potentially including students in this role) and the game's Creativity Assistant will pedagogically value learner agency, stand back, offer time and space and where appropriate 'meddle in the middle'[10]. These pedagogies are implicit across the enablers and are therefore indicated at the top of the figure as the context within which the C²Learn activity takes place.

All of the above will enable **C²Learn co-creativity**, shown as emerging from the centre of the figure. This has two related components:

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[7] Craft, A., "Possibility Thinking and Fostering Creativity with Wisdom: opportunities and constraints in an English context", in Bhegetto R. & Kaufman J. (Eds), *Nurturing Creativity in the Classroom*, Cambridge: Cambridge University Press, 2010

[8] Craft, A. (2011). *Creativity and Education Futures: Learning in a Digital Age*. Trentham Books.

[9] Chappell, K., & Craft, A. (2011). Creative Learning Conversations. *Educational Research*, 53(3), 363-385.

[10] Craft, A., Chappell, K., Rolfe, L., & Jobbins, V. (2012) Reflective creative partnerships as 'meddling in the middle': developing practice. *Reflective Practice: International and Multidisciplinary Perspectives.* DOI:10.1080/14623943.2012.670624

- **Wise Humanising Creativity** (WHC)
- **Creative Emotional Reasoning** (CER)

WHC will occur in C²Learn as an active process of change guided by compassion and reference to shared values derived from players' collaborative thinking, shared action and gameplay. WHC will manifest in four intertwined ways shown in the highlighted box within the WHC section of the graphic. Players will:

- Generate, explore and enact new ideas with a valuable impact on the community, discarding other ideas that lack such potential (**ethics and impact**);
- Pose questions, debate between new ideas, find ways to negotiate conflict or to go in a different direction to others if conflict is not resolved (**dialogue**);
- Take charge of different parts of the creative process, understanding the rules of the system[11] and how decisions have consequences, making decisions around new ideas and taking action(s)[12] through various scenarios and/or quests (**control**); &
- Be immersed in the game and its environment, and possibly addicted to gameplay and/or the interactive drama played out in the gameworld and in real-world spaces. Such immersion will sometimes lead to taking risks and generating surprising individual or collaborative ideas (**engaged action**).

Such activity is co-creative because it is about **new ideas** which are captured or selected because they are **valuable to the community**, and are generated with shared control in an immersed dialogic environment, fostering **ethical awareness** arising from the experience.

Over time, noticeable changes in players' dispositions, even small incremental personal changes, will result from their WHC. This is because there is a core reciprocal relationship within WHC between creativity and identity in which as creators make, they are also being made. And so players undertake **journeys of becoming**[13]. This is represented on the figure as an embedded ongoing process from the 'how' of the enablers of co-creativity to the 'what' of the co-creativity.

It should be noted that, whilst WHC and its journeys of becoming, as a highly applied concept, may appear to share principles in common with pedagogic approaches such as problem-based learning (PBL), challenge-based learning or discovery learning, which foreground learner-initiated activity as well as collaboration, it is distinct as a concept. Originally developed in McMaster University Medical School in Canada, Problem-Based Learning (PBL) encompasses a "collaborative, constructivist, contextualised learning and teaching approach" (Ribeiro, 2011: 2) founded on the belief learning involves forging *new* knowledge. The goal of PBL is for students to gain increased understanding of: ''flexible knowledge, effective problem-solving skills, self-directed learning (SDL) skills, effective

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[11] Walsh, C.S. (2010). Systems-based literacy practices: Digital games research, gameplay and design. *Australian Journal of Language and Literacy Education*. 33(1) 24-40.
http://search.informit.com.au/documentSummary;dn=731555751906684;res=IELHSS ISSN: 1038-1562

[12] Apperley, T., and Walsh, C.S. (2012). What digital games and literacy have in common: A heuristic for understanding pupils' gaming literacy. *Literacy*, Vol 46, pp. 115–122. DOI:10.1111/j.1741-4369.2012.00668.x
ISSN: 1741-4369

[13] Chappell K., Craft A., Rolfe L. & Jobbins, V. "Humanising Creativity: valuing our journeys of becoming", *International Journal of Education and the Arts*, *13(8) 1*-35, 2012, retrieved 11.01.13 from
http://www.ijea.org/v13n8/

collaboration skills, and intrinsic motivation" (Hmelo-Silver, 2004: 235). PBL requires students to take responsibility for their own learning; this in turn encourages students to gain the skills necessary for them to become *lifelong* learners (*ibid*.).

Whilst not actually directly focused on creativity, PBL is oriented toward creative activity as Margetson (in Boud and Feletti, 1991: 45) details, in that it:

- encourages open-minded, reflective, critical and active learning;
- pays due respect to both student and teacher as persons with knowledge, understanding, feelings, and interests in a shared educational process;
- acknowledges that knowledge is complex and changes as a result of responses by communities of persons to problems they perceive in their worlds.

WHC by contrast is directly focused on creativity, i.e. the generating of original and valuable outcomes through individual, collaborative and communal activity, with close attention to the ethical and social benefits of such creativity. And although some writing in the PBL field (eg Engel, in Boud & Feletti, 1991) do emphasise the way that it reframes learning, it nevertheless is often discussed as a pedagogic approach. WHC is focused on learning rather than on pedagogy. A further distinction between PBL and WHC is that when PBL addresses creativity it does so in the goal-focused way that is inherent in approaches defined by specific 'problems'. WHC takes a less problem-focused approach. As such it has more space inherent within it for emergent creative ideas and possibilities.

CER can be best understood as a core manifestation of the more comprehensive creativity framework of WHC. It is an umbrella term and refers to:

- a principled, unifying theory of non-linear thinking techniques that foster co-creativity
- and the theory's implementation within C²Learn's computational tools. (**C²Learn's Lateral Thinking** [**LTC²**] refers only to the theoretical part).

Premised on a notion of creativity as an **intervention resulting in reframing**, CER's set of core creative learning tools support the manifestation of WHC. They do this by providing methods for the disruption of established routines and patterns. Hence CER's positioning in the box emerging from the centre of the WHC box.

By embedding CER's creativity enablers (i.e. the different LTC² techniques implemented in C²Learn's computational tools) within WHC we seek an organic fusion that will provide

- WHC with additional structured techniques taking advantage of and further enabling WHC's creativity opportunities; and
- CER with much needed ethical and cultural dimensions and the most appropriate conditions for fulfilling its potential.

As CER heavily relies on brainstorming activities structuring the core parts of LTC² techniques, there is a particular relation with LDS. LDS' flattened hierarchies and open space of dialogue are an ideal environment within which to embed and evolve these brainstorming techniques, providing the opportunity to experiment with dynamic group management methods.

Ultimately, WHC, with CER's set of core creative learning tools support the manifestation of WHC making this the 'what' of C^{2}Learn's co-creativity. This fuels the potential for **quiet revolutions[14]**. Hence the quiet revolutions arrow emerging from the top right hand corner of the figure. Such revolutions aim to be critical, yet ethically grounded and align personal with wider values. A quiet revolution has the potential to be a form of collaborative and collective endeavour that assumes commitment to excellence and engaged involvement by adults and children alike.

1.2   LEARNING GOALS, INDICATORS OF THESE AND EXAMPLES

Having articulated above the enablers of C^{2}Learn co-creativity and what that co-creativity entails, it follows that the learning goals from these definitions need to be articulated. And in turn the indicators of what success would look like for these goals also need to be made clear. This is crucial to translating the theoretical conceptual framework into practical examples that can be understood by readers who are not versed in the complexities of the theoretical framework. It aims to allow the theoretical ideas to be more accessible so that they can be worked with in a technological way to take theory to practice to gaming reality. The table below therefore details the defining features of co-creativity from across WHC and CER and details the learning goals and indicators associated with them. The final column shows examples of how they would manifest in one of the C^{2}Learn scenarios that has also been developed in relation to the learning design in section 2 of this deliverable.

It should also be noted that whilst the WHC model foregrounds immersion and being in control as two of a number of equally important elements, it may be that in the gameplay which forms part of C^{2}Learn, PT and game immersion are in practice difficult to achieve in tandem since it may be that at times the engaged space (wanting to move the experience forward) is counter-productive to what is really needed, which may be reflection and review. Time will reveal whether this is so, and what interventions might be necessary from the C^{2}Learn team to address this.

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[14] Chappell, K., Craft, A., with Rolfe, L., & Jobbins, V. (2011). Not just surviving but thriving. In *Close Encounters: Dance Partners for Creativity* pp143-159 . Stoke on Trent: Trentham Books.

Table 1: C²Learn goals, indicators and example

Goals	Indicators	Example: C²LEARN SCENARIO
What will players be skilful in doing?	*We will see players individually, collaboratively, communally doing these both inside and outside the game environment:*	*REMOVING RACISM – based on scenario devised by English 13-15 year olds. The player(s) rules over a highly racist city and has to try to stop racism and discrimination; levels related to actual historical events up to the present.*
Attending to Ethics & impact of ideas	Generating, exploring and enacting new ideas with valuable community impact (discarding other ideas that do not).	The experience focuses on equality within a city and events related to racism are what players have to tackle to level up and proceed throughout the game and environment.
Engaging in Dialogue	Posing questions, debating between ideas, finding ways to negotiate conflict or to go in a different direction to others if conflict not resolved.	Players need to challenge/influence the behaviours of others using LT tools supported by tutorials from creativity assistants. Negotiation with others through LDS. The game includes constant news feed to tell gameplayers how they are progressing.
Being in Control	Taking charge of parts of the creative process. Understanding rules of the system, decisions have consequences, making decisions, taking action.	Players would have control of the city and would make decisions such as adopting personal and collective strategies, making changes to rules/law; these would have consequences that are played out or materialized as the experience progresses.
Engaged action – being immersed in the experience	Being addicted, not able to stop, trying repeatedly. Such immersion sometimes leads to taking risks and surprising individual or collaborative ideas.	Players would, it is assumed by the creators of this scenario, be quite engaged in ruling the city; the constant threat of racism and eruption of events/acts would keep them focused on seeking to eradicate it.

Goals	Indicators	Example: C²LEARN SCENARIO
Undertaking a journey of becoming	Over time, noticeable changes in participants' dispositions and/or personalities. This may involve smaller incremental personal changes.	Players would gain confidence in being able to tackle racist attitudes and behaviours individually, collaboratively and communally; and also develop their perspectives on racism. This might be detected within and outside gameworld.
Intervention resulting in reframing	Specific changes in thinking patterns, and in particular reasoning processes	We will examine solutions/ideas to the racism challenges presented by the scenario. As UEDIN techniques will be embedded in challenges themselves, solutions/ideas should reflect use of these. Choice of techniques will of course dictate the specifics. The emphasis lies in the thinking patterns/reasoning processes (i.e. how and to what extent UEDIN's techniques are present/manifested), rather than solutions/ideas per se.
	Changes in expression, primarily in linguistic terms, but also encompassing other modes as well	Signs in the form of expressions used by the players, when articulating their thought/decision processes in managing crises and ruling the city (eg. particular phrases associated with the techniques, such as use of counterfactuals "what if/as if" etc.). If the experience encompasses non-verbal modes of expression, this process will require coaxing the player into verbalizing these expressions for evaluation.
Generating Quiet revolutions	Over time more noticeable changes in the creative community stemming from creative ideas generated; might comprise smaller incremental changes	Players might initiate change outside the game in their class, or school community, with respect to racism, or similar concepts (e.g. bullying, discrimination, etc).

2   How the C²Learn goals translate to activities in the environment

In Section 1, we presented ideas on how WHC[15] and CER[16] are theoretically inter-related in order to represent conceptually what the C²Learn experience will enable students and teachers to do in terms of fostering their co-creativity. The diagram and accompanying explanatory text helps the viewer understand how 'journeys of becoming' can lead to 'quiet revolutions' through the 4Ps: *pluralities*; *possibilities*; *participation* and *playfulness*.

This section of the document provides greater pedagogical insight into what types of activities need to occur in C²Learn, as an *active process of change* guided by compassion and reference to shared values. This is derived from players' collaborative thinking, shared action and gameplay (within a LDS) to foster WHC through CER's set of core creative learning tools which support the manifestation of WHC.

It should be noted that at the time of completion of this document, as specified in the Description of Work (DoW) for C²Learn, feedback on these activities and their potential framing was being generated in parallel to the completion of this document. First-stage analysis of UK piloting activities, together with learning from C²Learn workshops carried out at the July 2013 Crete Summer School (http://www.c2learn.eu) has offered further insight here. However the full evaluation of the C²Learn CER tools, the emergent scenarios, the reactions of students and teachers and consideration of the paths to prioritise for the game design, alongside the enactment of the theory guiding the project, are all developing simultaneously.

In the light of this, the writing team for this deliverable has taken the decision to offer activity summaries in this learning design document, as examples of *possible* C²Learn activities in this first iteration of the project's Learning Design.   As will be seen, these particular activities are framed as a set of workshop activities, reflecting some of the work that the OU team has undertaken with its collaborator communities of students and teachers in England. User feedback from these teachers and students suggests that the activities offer potential for transformation and indeed self-transformation, but there is a question over whether they would lead to full blown co-creativity as defined in the C²Learn conceptual framework as they are framed with reference to the parameters of particular scenarios emerging from the project's first piloting phase.

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[15] Chappell K., Craft A., Rolfe L. & Jobbins, V. "Humanising Creativity: valuing our journeys of becoming", *International Journal of Education and the Arts*, *13(8) 1-*35, 2012, retrieved 11.01.13 from http://www.ijea.org/v13n8/

Chappell K., "Towards Humanising Creativity", *UNESCO Observato*ry, E-Journal Special Issue on *Creativity, policy and practice discourses: productive tensions in the new millenium* Volume 1, Issue 3, 2008, http://www.abp.unimelb.edu.au/unesco/ejournal/vol-one-issue-three.html (20 February 2012).

Craft A., "Trusteeship, wisdom and the creative future of education?", *UNESCO Observatory*, E-Journal, Volume 1, Issue 3, Special Issue: *Creativity, policy and practice discourses: productive tensions in the new millennium*, 2008.

[16] For a definition and analysis of CER, as well as an exposition of tis theoretical foundations, see deliverable D2.1.1 '*Creative Emotional Reasoning*'.

In order to fully foster co-creativity, and prevent C²Learn becoming 'locked down' in tight scenario-based activities, they will need to be embedded within a wider 'learning design unit' which allows for the space and flexibility necessary for LDS, co-creativity and ultimately journeys of becoming, within the classroom and beyond it. In the next iteration of the learning design due in M18, it is envisaged that a small number of examples of learning units will be offered.

In the meantime, to illustrate what this active process of change guided by compassion might entail, we refer to this presentation: http://prezi.com/dj2lsxlynv2y/creative-learners-creative-teachers/, which formed part of the July 2013 Crete Summer School from a workshop being run in parallel to the generation of this deliverable. The purpose of using this presentation is also to offer insight into how a larger 'unit' might work by drawing on non-C²Learn practice and drawing out examples of C²Learn theory from these.

The presentation illustrates how journeys of becoming generate quiet revolutions triggered through Possibility Thinking as the engine that helps translate 'what is this?' to 'what can I or we do with this?' through 'what if' and 'as if' thinking. It acknowledges that the nurturing of possibility thinking in students "requires a clear and direct focus on the students themselves. Teaching for creativity, then, involves teachers 'standing back' to allow students to 'step forward': it is their creativity which is centre-stage" (Craft, 2010).

The presentation offers an example of a creative partnership from Australia, in which such 'what if?' thinking was nurtured through a collaboration between the Australian Centre for the Moving Image (ACMI) and Dia Art foundation. The project offered students space and time to experience digital art installations and the opportunity to collaborate with the artist in residence. There was space for a virtual exhibition of their work and the creative partnership enabled everyone – students, teacher, artist, and the collaborating organisations, to ask 'what if?'

In another example, Maureen, a History teacher, also in Australia, designed assignments that required Y7 students to research and review games of their choice. In these reviews, the students adapted well to the affordances of multimodal design and authored sophisticated texts with images, digitals and traversal (hyperlinks) to websites within and outside the wiki, digital texts that many of their teachers still lack the literacy proficiencies to design. The students' research incorporated the historical background of the game/genre; how the game/genre came to be named; hardware needed to play the game; likely audience for whom the game was produced; the games' subject, plot or scenario; elements of the game's design including graphics, textures, and sound effects; features of the game that did not work well; biases evident in the game and how language is used in a game to effectively reach its audience. In the projects' final assignment, Maureen asked each student to design their own digital game using Microsoft PowerPoint. The digital games students designed were creative and clever. Most games have multiple levels where success becomes possible through increased levels of difficulty. Their designs are interactive, with well-developed storylines and high quality student designed and imported graphics. So what Maureen's English example also reveals is not just 'what if' thinking but also 'as if', in that the students took on the role of designers, and by engaging in this e-democratic initiative they become part of something which disrupted asymmetrical power relations typical of textbook publishing and educational web content.

Both the creative partnership and the English examples reveal how young people were offered the freedom to imagine new social positions and identities for themselves, and thus the power to create

new ideas and possibilities. In both examples, we see the interrelationship between identity and creativity cyclically completed as they feed each other through the embodied process of becoming (Chappell et. al, 2012) through their possibility thinking (Craft, 2010).   Being offered such opportunities to co-create, the students become different than they were before, they have the creative knowledge to reject discourses--with the 'know how' of transforming them--through their digital literacy practices (Walsh, 2009). Such changes in students we refer to in C²Learn as journeys of becoming (Chappell et al, 2012).

The journey of becoming is set in a wider context of particular sorts of values that reflect creativity that is wise and disrupts asymmetrical power relations (such as textbook publishing and educational web content). In examples, the students possess a wise, humanising creativity that is 'grounded in a reciprocal relationship between the collaborative generation of new ideas and identities, fuelled by dialogues between the participants and the world outside… an antidote to marketised and individualised creativity, to the performativity agenda and to notions of childhood at risk' (Chappell, Rolfe, Craft and Jobbins, 9). They are both possibility thinkers and designers who are guided by ethical action and mindful of its consequences.   And students and teachers engage in co-designing alternative realities. As Chappell, Rolfe, Craft and Jobbins (2011) argue, pedagogical practice of the teacher who values such journeys of becoming 'rigorous, risky and empowering…. [offering] far greater shared hope for the future than the competitive sink or swim mentality which currently pervades our education system' (ibid: 9).

Maureen referred to her history project as having involved teacher and student as co-designers: "This learning project is not about playing computer games in school. It is about interacting with them as a resource that can teach students about their world through virtual worlds. It involves a dynamic classroom environment in which students work individually and collaboratively to engage, explore, explain, extend, evaluate and celebrate their work."

A similar example can be found in the presentation about a teacher who set about making digital games central in their English curriculum, by centring activity around a wiki. Students challenged ways their ethnic identities were positioned through the multimodal redesign of school history textbooks & publishing these online. These students (as designers) harness possibility thinking to engage in and co-construct possible futures--through journeys of becoming--to challenge some current assumptions about life on planet Earth (Craft, 2012). In these quiet revolutions, children and young people are encouraged and valued in working together to have ideas and see these through. This are high trust environments offering an empowering, creative experience of learning characterised by a sense of relevance, ownership of the learning, control over ideas and opportunities to innovate

Possibility Thinking, then, in the context of wise humanising creativity involves the transition from what is to what might be, through 'what if?' and 'as if' thinking. This is possible through the creation of high trust, social environments permeated by digital media (Craft, 2012) in which both students and teachers are co-designers. It is expressed through seven features of individual, collaborative and communal engagement (Craft et al. 2012): question-posing, play, immersion, innovation, risk-taking, being Imaginative and self-determination.

The examples above, triggered by the presentation used at the C²Learn Summer School, are included here by the project team so as to offer some insight into how, in the next iteration of the Learning

Design, the study units might both illustrate the co-creativity theoretical frame being used by the project but also how they might support users (eg teachers or students) of the C²Learn environment, to generate co-creativity. As the team works to develop the second iteration of the Learning Design, D2.2.2, due in M18, it will be possible to draw on emergent content within C²Learn itself, rather than practices such as the two offered above, that were enacted as part of previous projects.

As indicated clearly above, this Deliverable offers example activities reflecting the current stage of the project and so the examples are focused on training and development activities. In developing the example training and development activities below, the OU and UEDIN teams have worked together closely to begin to integrate UEDIN's CER core creative learning tools into the activities in order to try to fully promote co-creativity. This can be seen below in activity 2. Early stage analysis of the piloting data shows that the use of the random stimulus helped to develop students' thinking. However it also showed that further strategic work is necessary between the UEDIN and OU teams to consider the most productive places to use different CER tools in order to most effectively contribute to fostering co-creativity. The developments of this strategic work will be reported in the next version of this deliverable.

2.1   C²LEARN ACTIVITIES

Below are two sample sets of activities that foster WHC.

Activity 1 is drawn from early UK C²Learn workshops. So while it is not envisioned that the content of this activity would form part of the C²Learn game or experience, the activity's *pedagogies* come from an actual example where WHC was nurtured. Hence it is written in the past tense. It is an example of a stand-alone activity that fosters co-creativity within a much more widely framed learning design.

Activities 2 and 3 are envisioned tasks that could be a part of the future C²Learn game, experience or as possibly part of an ARG (Alternative Reality Game) platform. These examples were generated from one of the scenarios generated in the UK workshops: 'Removing Racism'. This was being piloted in the UK in parallel to the writing of this deliverable and draws on what the OU team expertise of **pedagogies** to nurture WHC and applies them to the activity. This provides an exemplar of the kinds of affordances the future C²Learn game or experience might offer to players to assist them in the journey of becoming and to foster quiet revolutions. This is because the activities can be embedded in the game and also in the environment *outside* the game. The pedagogical activities offer players high participation and shared control, individually, in collaboration and/or as part of a communal endeavour.

The activities are examples that can be leveraged for use within and outside the C²Learn gameworld. The activities presented illustrate types of interactions that potentially offer new 'spaces' for debate and difference, openness to action, working 'bottom up', and different modes of idea exchange by relying on CER's brainstorming activities that structure the core parts of LTC² techniques. CER works well within LDS' flattened hierarchies and open space of dialogue because CER can be intentionally embedded allowing players (teachers and students) access to CER's brainstorming techniques or affordances, thereby providing the opportunity to experiment with dynamic group management methods.

2.1.1 ACTIVITY 1: 'WHAT DO PEOPLE SAY ABOUT GAMING AND EDUCATION?'

1. Situation

The OU team conducted workshops in four schools spread across South West and South East England for the C²Learn project. Two are primary schools and two are secondary. The age span of students involved in the workshops is 10-17 years. Altogether around 45 young people were involved, with 5 teachers and 2 workshop facilitators. In each setting there was at least one laptop or computer per student. The title of the first workshop was "*Exploring Gameplay*". The activity "**What do people say about gaming and education?**" was the second activity after the workshop's warm up. The lesson plan for the workshop indicates the activity should take approximately 15 minutes.

2. Task (relationship to wise, humanising creativity)

The workshops were intended to encourage collaboration between students and teachers. In each of the four sites the OU team conducted three workshops over the course of 2 months. Each workshop was designed with activities that focus on student voice, listening to user requirements in relation to serious games—by playing and evaluating them and then drawing on the notion of wise, humanising creativity—to generate potential scenarios for the design of a new serious digital game. Each workshop modelled wise, humanising creativity in its design and how it invited students to engage (it encouraged reflection on ethics and impact, it nurtured dialogue, it offered control and encouraged immersion or deep concentration). Students and teachers were encouraged to work alongside and listen to each other.

3. Actions (How did you try to address the issue?)

Activity	• **Sorting exercise**
Activity goal(s) or intended outcome ("X")	• *Encourage dialogue, collaboration and discussion between students & teachers* • *Encourage students to take control of making decisions* • *Encourage anticipation and immersion in the group activity* • *Encourage students to think about the ethics and impact of play* • *Understand what students & teachers believe about digital games* • *Understand what students & teachers believe digital games enable*

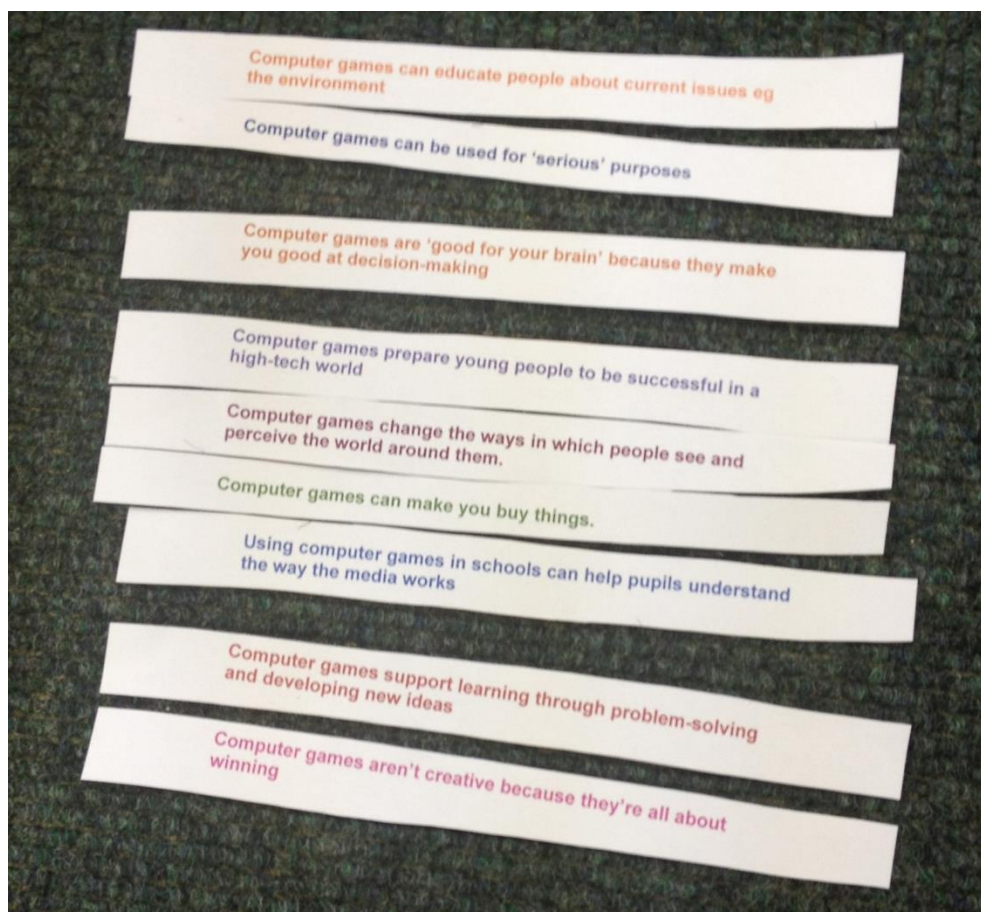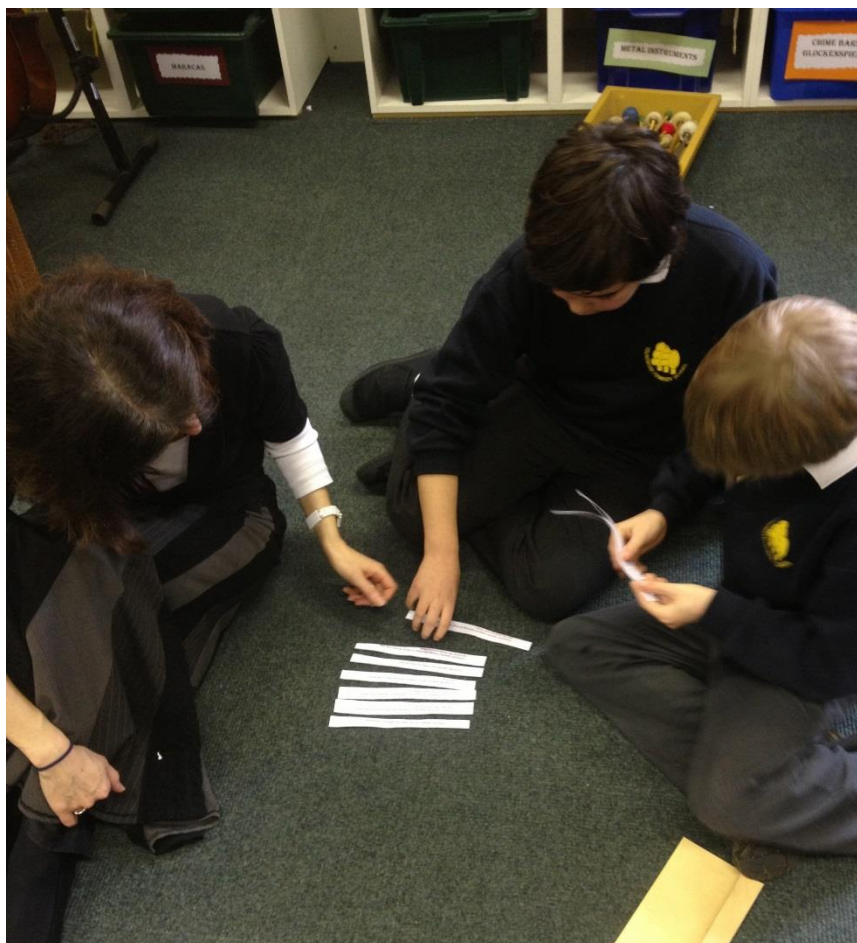|	
Activity title & description	Title: **What do people say about gaming and education?** This was a quick activity that provided the students and teachers in the workshop with something tangible to read and then rank through an interactive and participatory dialogue/discussion. They were required to collectively decide— through debate and/or critical discussion—what statements they agreed with the most by providing a rationale(s), then place those they agreed with most at the top and those they agreed with less at the bottom, making a list. Then each group shared their top 3 statements as well as where they put one critical statement ("Computer games aren't creative because they are all about winning") in the ranking exercise. In the whole-group discussion that followed, each group of three explained their rationale for their choices to the entire class. The task was designed so as to not only encourage dialogue, but also the other aspects of WHC. Students had to take control of making decisions too. Giving the students the statements to rank in a sealed envelope which all groups opened simultaneously aimed to create a sense of anticipation, together with being told that they needed to be quick aimed to then create a speedy immersion in the activity. Some of the statements were focused on the ethics and impacts of gameplay in order to make the students think about these elements of their interactions. Although this activity did not lead to 'new' ideas per se, students began to challenge their thinking about game-play in the group discussion following the ranking exercise. The activity therefore lays the foundation, alongside other WHC-based tasks for generating new ideas as part of the wider teaching and learning frame.
Activity materials	• 9 slips of paper placed in an envelope. Written on each slip was a statement in a different colour (Figure 3), derived from a reading that had been circulated beforehand to all teachers (see footnote). There is one statement in pink that is especially important to this task, and it read: "Computer games aren't creative because they are all about winning.". • Digital camera

Figure 3: Sorting activity

The "how" (steps A, B, C, that lead to Y or the activity outcomes)	A. The workshop facilitator held up 6 envelopes and explained that students and teachers needed to work in groups of 3. She asked them to try to work with someone who they don't usually work with. She explained they would need to work together to decide the extent to which they agree with the 9 statements on the slips of paper. • The workshop facilitator instructed the students to get into groups of three and find a place to sit on the floor where they could lay out the slips of paper in the envelope. She also asked for 1 student to come to her to collect the envelope with the 9 strips of paper as soon as they were in their groups and found a place to sit. • As the students were getting in to groups and finding a place to sit on the floor the teacher described the task: "Please take the slips out of the envelope and make sure everyone silently reads each statement about gaming". • She then told them they would need to quickly discuss each statement and rank them in order of how much they agree with them (Figure 3). She told

them to put those statements that they most agree with at the top, and those that they agree with least, at the bottom to make a list.

- She then informed them that each group will be required to share their top 3 most agreed with, with the other groups AS WELL AS where they had ranked the pink statement about gaming and creativity. (3 minutes)

B.   Students quickly formed groups of three and found a place to sit on the floor; some groups comprised a mix of teacher with students, working as equals. 1 student from each group came to the facilitator and collected the envelope. (1 minute)

C.   When the student with the envelope returned to his/her group, he/she took the slips of paper out of the envelope and laid them on the floor so each student could read each slip of paper. When all of the strips were lying on the floor print side up, students read the statements. (1 minute)

D.   Students chose 1 slip of paper at a time and, through discussion/dialogue, decided whether it would go at the top or bottom, of the list essentially making 2 groups (5 minutes)

	E. Students further discussed and negotiated the ranking of all 9 slips of paper completing their lists. (2 minutes) F. The workshop facilitator than asked each group to share their top 3 agree with most statements. She started with the first group and 1 student read the group's top 3 statements. The workshop facilitator asked them their rationale to which they, not just the student who read off the top 3, gave supporting statements/ideas. She then went to the next group and so on. In some instances the groups had ranked the statements in a very similar way. When through the class discussion, rationales for choices were shared; some groups re-ordered their statements. After each group reported on their top 3 most agreed with statements, the teacher wrapped up the activity noting the similarities and differences in the responses from the groups. The workshop facilitator then took photos of each group's ranked statements. (10 minutes)
Activity outcomes ("Y") (positive)	The activity was successful because it achieved the intended outcomes in other words: • Encouraged dialogue and collaboration (vibrant discussion) between students & teachers; • Encourage students to take make decisions alongside each other and their teachers at times • Encourage anticipation and immersion in the group activity which could have carried on longer if there had been more time • Encourage students to think about the ethics and impact of game-play • Helped us understand what students & teachers believe about digital games; & • Helped us understand what students & teachers believe digital games enable. In addition, • The activity was hands on and interactive; • The activity was well suited for the groups of 3 and then the whole group discussion.

Reflections	Responding to what computer games enable in a sorting exercise derived from a reading that had been circulated beforehand[17], pupils and teachers across the two primaries and the SE secondary school identified the top four as: • Computer games can be used for serious purposes • Computer games can educate people about current issues eg. the environment • Computer games can make you buy things • Computer games are 'good for your brain'; they make you good at decision-making. In discussion, ALL students and teachers believed that computer games were creative. They all disagreed with the statement that computer games focused on 'winning', suggesting that the ones they enjoy most are those which enable creativity. They engaged in wise, humanising creativity in undertaking the activity. Aside from ethics and impact, engaging in dialogue, being in control and being immersed, the activity encouraged the start of a journey of becoming – each building a personal and collective perspective on digital games. The opportunity to debate and discuss and to disagree in small groups and the class as a whole, encouraged the formation of 'quiet revolutions' – possible creative change within the community. The activity took more than 20 minutes, but when planning the lesson, it was allocated only 15 minutes. Due to the nature of the discussion after the students had actually sorted the slips of paper and come up with their rationales, more time could have provided a richer discussion. In later activities for the workshop, the students were asked to remember where they ranked the one sheet of paper that read "("Computer games aren't creative because they are all about winning.")

The sorting activity is important to the C²Learn game and experience because it illustrates how teachers and students can

- *Encourage dialogue, collaboration and discussion;*

- *Encourage students to take control of making decisions*

- *Encourage anticipation and immersion in the group activity*

- *Encourage students to think about the ethics and impact of gameplay*

- *Understand what students & teachers believe about digital games*

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[17] Williamson, B. (2008). *Games and Learning: Policy Recommendations Report.* Bristol: Futurelab

- *Understand what students & teachers believe digital games enable*

These similar steps can be explored through play in the C²Learn experience or ARG platform rather easily. They can also be tailored to any teachers' scenarios they devise across all subjects, because it is part of process the foster co-creativity and journey of becoming which realise the potential for quiet revolutions.

2.1.2   ACTIVITIES 2 & 3: 'REMOVING RACISM SCENARIO'

1. **Situation**

These activities might take place in late primary or secondary settings. In each setting there would be at least one laptop or computer per student. These planned activities (2 & 3) could make up the bulk of 1 workshop. (There would be an additional 'wrap-up' activity.) The activities are aligned with the 'Wise Humanising Creativity Goals, Indicators and Examples' (cf section 1.2 of this deliverable). Below we outline two activities from a lesson plan or workshop on the problem of racism in a multi-ethnic society. Importantly, these activities would normally happen within a classroom—not within a digital game—to provide examples to the project that can then be 'repackaged' as activities within the proposed C²Learn experience, most aptly an ARG, using CER's set of core creative learning tools (D.2.1.1).

2. **Task (relationship to wise, humanising creativity)**

These activities are intended to encourage, dialogue, debate and collaboration between students and teachers, as they generate novel and impactful ways of removing racism from their imaginary community. In each of the four sites the OU team will conduct two workshops over the course of 2 weeks. Each workshop is designed with activities, like the ones described here that focus on:

- **Attending to Ethics and impact of ideas** (*Generating, exploring and enacting new ideas with a valuable impact on the community (discarding other ideas that* do not))

- **Engaging in Dialogue** (*Posing questions, debating between ideas, finding ways to negotiate conflict or to go in a different direction to others if conflict not resolved*)

- **Being in Control** (*Taking charge of different parts of the creative process. Understanding the rules of the system and how decisions have consequences, making decisions and taking action.*)

- **Engaged action** – **being immersed in the experience** (*Being addicted to play, not able to stop. Such immersion sometimes leads to taking risks and putting forth surprising individual or collaborative ideas. Players might try parts repeatedly.*)

A goal of providing these hypothetical activities is to understand player requirements and possible actions/activities that can happen through play in relation to the design of the C²Learn experience. Key to this endeavour is providing students with activities that cumulatively foster 'journeys of becoming' (changes in participants' dispositions and/or personalities over time) to generate 'quiet revolutions' (noticeable changes in the creative community stemming from creative ideas generated

over time).

A likely challenge a player will face within the **C²Learn** environment will be a game that poses a specific problem to be solved, rather than a game presenting one with more defined tasks/quests to complete or explore. UEDIN draw a vague, yet important distinction between ***problems*** and ***tasks*** that is relevant to the 'Removing Racism Scenario'. Under ***problem*** we can include the most common sense understanding of the term, i.e. a challenge that requires concrete reasoning, and has a terminus that may be classified as a solution (e.g. "understanding racism in order to take step to remove it from a school and/or community"); whereas a ***task*** may be understood as a more loosely defined recreational challenge, with a terminus that cannot be classified unambiguously as a solution (e.g. "how should we react to a racist attack if we see one?" or even more loosely defined "what supportive structure need to be in place in their own context or community to enable them to take action against a racist attack?"). Obviously a problem can be broken down into tasks, and vice versa, and from a purely conceptual standpoint, each term can be understood as subsumed under the other. In a gaming environment, though, the distinction becomes more concrete.

ACTIVITY 2

> 3. **Actions** (How did you try to address the issues?)

Activity 2 Part 1	**Presentation and Brainstorm** - Introduction **of the problem at hand** (UEDIN, D2.1.1) - Introduction of the ***random word generator*** developed by NCSR-D to allow *random words as stimuli* (UEDIN, D2.1.1)
Activity goal(s) or intended outcome ("X")	*Encourage dialogue, collaboration and discussion between students & teachers* *Posing questions about racism* *Encourage anticipation and immersion in the next activity (viewing BBC film)* *Understand and develop what students & teachers believe about racism*
Activity title & description	Title: **Understanding racism and racist behaviours** **Brainstorm questions:** - What do we understand by the term 'racism'? - What kinds of 'everyday' incidents and behaviour can we identify as being racist? This is a quick activity that provides the students and teachers in the workshop with

| | something tangible to do, think about and list (write) in regards to what they understand about the term racism and those actions or incidents that can be identified as racist. Students and teachers are required to share what they know or believe by attending to ethics and impact or generating and exploring ideas/beliefs. **This activity should take 15 minutes.**
| | The activity is a warm up or icebreaker that paves the way for the 2nd and 3rd activities.
| | This activity is then followed by the students using the random word generator tool to generate a set of random words related to the topic in hand. Dependent on the student ability level, they can either choose their own words to enter into the generator or be given words by the facilitator (eg black, white, home, bridge, neighbourhood).
| | Students are then asked to work in small groups to share their randomly generated words. They then select one of these words (either randomly or intuitively) and use that word to open up their discussion and thinking about what racism is, and particularly what might count as examples of racism in their experience. The small groups are then asked to note down the developments in their thinking that have resulted from using the new word. **This would take another 15 minutes**.
| | Early analysis of UK pilot data on facilitating this scenario at this point with the CER tool and random word generator embedded within it demonstrated that the tool was useful to open up thinking. For example Year 5 (10 year olds) living in the SW of England had little direct experience of racism and struggled to think of more than one example of what it might look like in reality. The generated word they chose to work with was 'Area'. Their discussion, documented on post-it notes stated "Area: Black dying because white people. So they came over to our area and killed a white person". This was a reference to the young British soldier recently killed in London in a terrorist machete attack.
| | Further collaborative work is needed between OU and UEDIN to further understand how the random stimulus tool might best be used to make the shift highlighted above from self-transformation to co-creativity. And indeed to think strategically about the full set of CER tools so that they can be used most effectively to facilitate co-creativity within the activities and the wider unit.
| **Activity materials** | Whiteboard/Blackboard & markers/chalk Digital camera (for documentation) Whiteboard/blackboard to write questions

The "how" (steps A, B, C, that lead to Y or the activity outcomes)	A. The workshop facilitator draws a line down the middle of the blackboard and writes down the 2 brainstorm questions on each side of the line. • The workshop facilitator instructs the students to read the questions and asks if they understand the questions and/or need more explanation. • As soon as the students are ready she asks them to 'think-pair-share' the both questions with a partner and tells them they have 2 minutes. • She then tells each pair they would need to quickly come up with a definition for racism they can share with the group as well as 4-5 incidents that could be classified as raciest.. • She then informs each pair that one member would need to come to the front of the room and write down the definition and incidents and share them the class. B. Students quickly form pairs with the student closest to them; some pairs comprise a mix of teacher with student, working as equals. 1 student from each group comes to the front and writes the definition on the board. (10 minutes) C. The facilitator then thanks students for their work and briefly comments on the definitions on the board, noting similarities and differences. She highlights the incidents and asks, "What is another word for all of these incidents?" (particularly if the word 'attack' is not written down) and highlights that these behaviours are actually attacks. If the word 'attack' is written down, she emphasises this and uses this as a segue to the next activity. D. She then asks the students to each move to a computer to use the Random Word Generator. Dependent on age she either gives the students search terms or asks students to use their own and to write down a number of words generated by the tool. E. She then asks the students to work in small groups to share their randomly generated words. They are then asked to select one of these words (either randomly or intuitively) and use that word to open up their discussion and thinking about what racism is, and particularly what might count as examples of racism in their experience. F. The small groups are then asked to note down the developments in their thinking that have resulted from using the new word and to share them with the other groups. She then informs the students that they are going to watch a short clip from the BBC about real racist attacks in Northern Ireland, noting the class will critically view the film to see if what they have generated as pairs and a class does/does not resonate with the content of the video. (2 minutes)

Activity outcomes ("Y") (positive)	The activity can be judged as successful if it achieves the intended outcomes: • *Encourages dialogue and collaboration (vibrant discussion) between pairs of 2 students a pair including a student and a teacher;* • *Encourages students and the teacher(s) to briefly generate and explore ideas on racism and racist behaviours;* • *Encourages anticipation and immersion in the upcoming group activity;* • *Encourages students to think about the ethics and impact of racism from their own perspectives; &* • *Helps us (facilitators) understand and develop what students & teachers believe about racism and racist behaviours.* *Additional positive outcomes would include:* • *The activity was participatory and interactive; &* • *The activity was well suited for a quick think-pair-share and then the whole group presentation about their ideas and/or beliefs about racism.*
Reflections	Not applicable as this is a planned activity

This activity provides an example of how the integrated theories from the OU and UEDIN can work together through classroom based activities where teachers and students draw on one or more of UEDIN's tools from the toolbox to encourage dialogue, collaboration and discussion between students & teachers by posing questions about racism within a living dialogic space, so as to encourage anticipation and immersion in the next activity (viewing BBC film) with the goal of better understanding what students & teachers believe about racism. Activity 2 Part 2 then builds on this.

Activity 2 Part 2	• **Critical viewing of the BBC's 'Racists Attacks' (5:40)**
Activity goal(s) or intended outcome ("X")	• *Encourage critical viewing in relation to the ideas generated by the students and teachers in activity 1;* • *Encourage dialogue, collaboration and discussion between students & teachers post viewing;* • *Posing questions about the events in the film;* • *Encourage anticipation and immersion in the next group activity;*

	• *Compare what happens in the film to the definitions and behaviours listed in Activity 1*
Activity title & description	Title: **Racists Attacks** This activity is simple and further sets the scene for the next group activity. The students and teacher(s) have already generated a number of definitions for racism and some examples of racist behaviours. **This activity should take 15 minutes.** The activity was conceptualised to bring the reality of racism in Northern Ireland to life in English classrooms by showing authentic reports from the media about events that actually transpired. This idea is to generate a discussion, among primarily white students, that provides examples of racism and racist attacks, to encourage them to share similar stories or experiences they may have experienced, heard of, or witnessed.
Activity materials	• BBC film 'Racist Attacks' available from http://www.bbc.co.uk/northernireland/schools/11_16/citizenship/racism/video.shtml • Large white paper with 5 questions written down (beforehand) to encourage dialogue and discussion among students and teacher (s) (related to film) • Video camera for documentation

The "how" (steps A, B, C, that lead to Y or the activity outcomes)	G. The workshop facilitator explains to the students and teacher(s) that they are about to watch a movie that explores 3 separate racist attacks in Northern Ireland where individuals/families experienced a racist attack.
	
	• The workshop facilitator instructs the students to view the short movie on racist attacks. She also informs them that there are 3 parts to the movie: an attack on a Chinese man in Belfast at Christmas; an attack on a Portuguese family in Portadown; and an attack on a man from Bangladesh Belfast.
	
	• The students and teacher(s) watch the short BBC trio of clips. (6 minutes)
	
	• The facilitator got the whitepaper ready with the following questions to post on the whiteboard/blackboard after the trio of BBC news clips:
	
	  ▪ What kinds of attacks happened?
	
	  ▪ Why do you think they faced this treatment?
	
	  ▪ How were the locals who were interviewed reacting to these attacks?
	
	  ▪ Who did this to them and why?

	▪ What impact did these experiences have on the families involved? • She then instructs the students to get into groups of 4 and discuss the five questions. She lets them know this is a quick activity of no more than 5 minutes. (5 minutes) • She circulates among the groups and checks to make sure they are on task.
Activity outcomes ("Y") (positive)	The activity will be successful if it achieves the intended outcomes: • *Encouraged dialogue and collaboration (vibrant discussion) between students & teachers;* • *Encourage anticipation and immersion in the next group activity* *Additional positive outcomes would include:* • *The activity was interactive;* • *The activity was well suited for the groups of*
Reflections	Not applicable as this is a planned activity

ACTIVITY 3

Activity 3 Part 1	• **Possibility thinking** (OU) • **Brainstorming** (discussion/debate/critique) (UEDIN) • (Introduction of the ***random word generator*** *developed by NCSR-D to allow random words as stimuli* (UEDIN, D2.1.1) This was the original place that the OU and UEDIN teams had felt that the random word stimulus might be useful to open up student thinking. See notes below in blue on findings from pilot and resulting shift in positioning of this tool within the pedagogic process.
Activity goal(s) or intended outcome ("X")	• *Encourage critical dialogue and reflection on the questions answered by students and teacher(s) in Activity 2* • *Encourage dialogue, collaboration, discussion between students & teachers post viewing in relation to a hypothetical activity involving risk;* • *Immersion in the activity;*

	• *Taking charge and considering how certain actions have consequences;*
	• *Putting forth surprising individual or collaborative ideas; &*
	• *Facilitating changes in participants' dispositions in regards to, or understandings of racism and what to do if they witness a racist attack in their school (and community if there is time)*
Activity title & description	Title: **"What if"** This activity poses two important questions to students and teacher(s): 1. What if you were a passer-by in the video, how **would** you have reacted and why? 2. How do you think we **should** react to such attacks? It is at this point that the random word generator was initially used in order to try to develop students' responses regarding what would and what should they do if they were present at an attack. However early stage UK piloting showed that students found it very difficult to use the tool at this point in the process to help them think further. In discussion with the student group and their teacher who provided this feedback the decision was taken in the next pilot workshop in a different UK school to try the random word generator earlier in the process (see above) where it was deemed much more useful by the next group of students. It must also be noted however that as the OU facilitator was using this tool for the first time further advice might be able to be offered by UEDIN colleagues as to how the use of this tool could be made to work at this position in the process. This also raises the point that the strategic use and purpose of these tools is not implicit within them and information will need to be provided to potential C²Learn users/facilitators on how to most effectively integrate the tools within pedagogy. It has become apparent that this will need to be more fully detailed in the next iteration of the Learning Design. 3. What are the potential risks involved in taking such actions? Are they worth it? 4. What should the policy be at this school if you see a racist attack? The activity is designed so as to not only encourage dialogue, but also the other aspects of WHC. Students and teachers need to take control of making decisions and consider the *risks* of certain actions. Giving the students and teachers these questions focuses on the ethics and impacts of thinking about actions to take in regards to addressing/confronting racism that they are witness to. The questions are ordered so that they can make suggestions about how they **would** have reacted and how they think we **should** react to the racist attacks they viewed in the BBC trio of clips. **Approximately 20 minutes.** Although this activity may not lead to 'new' ideas per se, students and teacher(s) are

	also being asked to put forth a framework for what to do if they see a racist attack in their school. This is likely different from Antiracist Policies in schools which tend to be a set of rules and consequences or policy that state: • Pupils are encouraged to report all incidents involving racism, racial discrimination and racial harassment • All staff deal with incidents involving racism (including prejudice and stereotyping), racial harassment, and racist name-calling whenever they occur[18] The activity therefore lays the foundation, alongside other WHC-based tasks for generating new ideas as part of the wider teaching and learning frame.
Activity materials	• Large white paper with the 4 questions written down ahead of time • Large white paper for students to collaboratively answer the questions • Markers • Digital camera for documentation
The "how" (steps A, B, C, that lead to Y or the activity outcomes)	A. The workshop facilitator explains to the students and teachers needed to work in groups of 3. She asks them to try to work with someone who they don't usually work with. She explained they would need to work together to answer the 4 questions and then present their findings to the class • The workshop facilitator instructed the students to get into groups of three and find a place to sit where they could all see the large white paper. She also asked for 1 student to come to her to collect the paper and some markers as soon as they were in their groups. • As the students were getting in to groups and finding a place to sit on the floor the teacher described the task: " please read each question and discuss it. Then collectively compose a response on the large paper." • She then informed them that each group will be required to share their responses, specifically the last question. B. Students quickly formed groups of three and found a place to sit; some groups comprised a mix of teacher with students, working as equals. 1 student from each group collected materials from facilitator. C. When the student with the materials returned to his/her group, the students

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[18] From: http://www.medway.gov.uk/pdf/4402_jsschoolsdfoc-2.pdf

	began to answer each question, first by discussing it and then by collaborating to compose a written response on the large paper.
	D. The workshop facilitator than asked each group to share their responses with the wider class.
Activity outcomes ("Y") (positive)	The will be successful because if it achieves the intended outcomes:
	• *Encourages dialogue and collaboration (vibrant discussion) between students & teachers;*
	• *Encourages students to take make decisions alongside each other and their teachers at times;*
	• *Encourages immersion in the group activity which could have carried on longer if there had been more time;*
	• *Encourages students and teachers to think about the ethics and impact of taking risks (with regard to what they would and should have done if they were a passer-by in the videos their viewed; &*
	• *Facilitates students and teachers in putting forth surprising individual or collaborative ideas in regards to their own context (school).*
	Additional positive outcomes would include:
	• *The activity was hands on and interactive;*
	• *The activity was well suited for the groups of 3 and then the whole group discussion;*
Reflections	Not applicable as this is a planned activity

It is intended that the above examples illustrate C²Learn's learning design and the kinds of pedagogies that can be mobilised in the future design of the C²Learn game and experience. They work to explicate the elements of a LDS in a classroom to provide the game designers insight into how these kinds of activities might be realised in an open world sandbox or ARG platform. With activities 2 and 3, the relationship to WHC is made explicitly by illustrating how through the activities, teachers and students can attend **to ethics and impact** of ideas, **engaging in Dialogue** *by debating between ideas,* **be in Control** *by taking charge of different parts of the creative process and* **engage in action** or being immersed in the C²Learn game or experience.

2.2   HOW C²LEARN COULD BE USED IN THE CLASSROOM

Within the classroom, the above activities could easily be realised in C²Learn real time or in a virtual environment, whether an ARG environment or VLE. Teachers can use the template to begin thinking differently about instructional goals and to align them with WHC. A possible formula, already laid out

in the chart in Section 1, is teachers could develop activities—based on their own scenarios—that foster WHC. **WHC** will occur as an active process of change guided by compassion and reference to shared values derived from players' collaborative thinking, shared action and gameplay.

Goals	Indicators	Teacher's Scenario
What will players be skilful in doing?	*We will see players individually, collaboratively, communally doing these both inside and outside the game environment:*	*Problem and Tasks*
Attending to Ethics & impact of ideas	• Generating, exploring and enacting new ideas with valuable community impact (discarding other ideas that do not).	
Engaging in Dialogue	• Posing questions, debating between ideas, finding ways to negotiate conflict or to go in a different direction to others if conflict not resolved.	
Being in Control	• Taking charge of different parts of the creative process. Understanding rules of the system, decisions have consequences, making decisions, taking action.	
Engaged action – being immersed in the experience	• Being addicted to play, not able to stop. Such immersion sometimes leads to taking risks and outing forth surprising individual or collaborative ideas. Players might try parts repeatedly.	
Undertaking a journey of becoming	• Over time, noticeable changes in participants' dispositions and/or personalities. This may involve smaller incremental personal changes.	
Intervention resulting in reframing	• Specific changes in thinking patterns, and in particular reasoning processes	
	• Changes in expression, primarily in linguistic terms, but also encompassing other modes as well	
Generating Quiet revolutions	• Over time more noticeable changes in the creative community stemming from creative ideas generated; might comprise smaller incremental changes	

Pedagogic activities planned this way are co-creative because they are about **new ideas** that are captured or selected because they are valuable to the community and are generated with shared control in an immersed dialogic environment, fostering **ethical awareness** arising from the C²Learn experience.

The diversity of CER tools could be conceptualised as a 'tool box[19]" within the C²Learn game or experience.   UEDIN describes the most fundamental characteristic of LTC² as constituting an *educational tool/method*. Using their tools they seek to foster co-creativity, i.e. that teach student-players to engage in non-linear, imaginative thinking. They evaluate the creative output in order to assess whether their goal has been achieved. Their goal (at least within the CER/LTC² perspective) is to transmit these techniques, so that they may become valuable thought-tools.[20]

A possibility for the C²Learn game or experience is to have all of the LTC² techniques in a 'CER Tool Box' that teacher and students could draw to continuously support the manifestation of WHC. In this sense, different tools under Semantic Lateral Thinking (*random stimulus, re-conceptualisation, escapism and role play*), Diagrammatic Lateral Thinking (*multimodality and diagrammatic reasoning*) and Emotive Lateral thinking (*emotive lateral judgement*) can be used initially, and then more regularly, as teachers and students gain proficiency in using them to solve the problems and tasks in the scenarios they bring to the C²Learn game or experience. It should be noted that the intention of the OU team is to develop further examples of how the tool box might look in the virtual and physical world, in other words how it can be presented to students and teachers. It is hoped that such material can be worked up with the co-development teams in England, Greece and Austria prior to the D2.2.2 in M18.

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[19] Albright, Walsh & Purohit (2007) designed a toolbox of discourse-analytic strategies derived from Kress and van Leeuwen's (1996) *Grammar of Visual Design* to instruct teachers and students on how to analyse visuals in their history textbooks to uncover racist and exclusionary discourses.

[20] De Bono E., *Teach Your Child How to Think*, Penguin books, 1994. Also very interesting in this respect is Chi M. T. H., Bassok M., Lewis M. W., Reimann P., & Glaser R., "Self-explanations: how students study and use examples in learning to solve problems", *Cognitive Science* 15, 1989, where it is argued that strong students tend to ask themselves questions as soon as they find something they do not understand, as opposed to weak students; and that one can teach weaker students to be strong by teaching them to ask the appropriate questions. LTC2 is very much based on the idea of teaching a player to ask the appropriate questions, that may create lateral paths.

3   How the consortium is moving toward designing the C²Learn environment with the learning goals in mind

The consortium is developing the C²Learn environment through two parallel sets of activity:

- **C²Learn Co-Development Teams** comprising teachers, pupils, professionals and policy makers are working to generate and critically evaluate the educational scenarios, computational tools, pedagogical approach and assessment strategy.
- **C²Learn Consortium Partners** are working to develop and refine the game design, the theoretical foundations of the project, the computational tools, pedagogical approach and assessment strategy. To do this the consortium partners are collaborating with one another, translating the theory behind the experience into practice. They are drawing on co-creativity and gameplay theory, including research and development on the assessment of creativity and game design, educational literature on pedagogy and learning along with the use of serious games, and of course feedback from the Co-Development Teams.

A brief discussion of the approach and progress of each now follows.

3.1   C²LEARN CO-DEVELOPMENT TEAMS

As indicated in Deliverable 5.1.1 (C²Learn Scenarios, Use Cases and User Requirements), co-development teams of teachers and students are working with OU, EA and BMUKK in England, Greece, Austria to develop rudimentary educational scenarios (or 'scenario seeds') which will be inherent to the learning design of the project. The co-development teams were, during the first nine months of the project, inducted into the pedagogical approach of C²Learn which, as discussed in D5.1.1:

- Switches the emphasis from transmission of knowledge to orchestration of experience foregrounding pupil, rather than teacher, activity;
- Places high value on pupils' own meaning-making, so that pupils' own curiosities and fascinations are engaged with;
- Offers sustained and flexible learning opportunities in relation to open and complex issues;
- Involve collaboration between user communities and researchers
- Use the notion of the 'scenario' to bridge frivolous vs serious play.

By the end of the first six months, a large number of scenario seeds had been generated. Some of these were evaluated by the co-development teams to provide particularly promising potential for the development of co-creativity. Through co-constructive approaches to the collaborations between researchers and these user communities in the co-development teams, the pedagogy and thus learning design inherent in the project is being further developed. This section of the deliverable lays out the work done so far by these teams.

Together with teacher participants at the C²Learn Summer School in Crete in July 2013, the learning teams are working with the C²Learn consortium to evaluate the calibration of the learning goals,

indicators and examples in relation to the overall goals of the project, i.e. to foster co-creativity (Wise Humanizing Creativity integrated with Creative Emotional Reasoning).

At this point, nine months into the project, the co-development teams have been expanded / altered as follows.

Austria: Co-ordinated by the Ministry of Education in Austria (BMUKK), a core group of teachers and educational experts have been involved in three workshops in Austria. This involved three groups of teachers, from lower secondary, higher secondary schools and higher education. A group of three teachers, all of whom have been involved in this first phase of workshops, attended the Crete Summer School in late June/early July 2013. Further activity is planned for the early autumn of 2013.

England: 4 groups of students and teachers spanning age group 10-18: two in the South West of England and two in the South East. Most of these four groups remain the same except one of the South West groups which spanned the 11-16 age range has been replaced by another allowing a wider age span, from 11-18. The OU team has begun conversations with a 16-19 College and a University which between them could provide opportunities to work with students aged 16-24 and with staff in both institutions. Over the course of July 2013, two workshops will be held with each of the four groups spanning the 10-18 age range.

Greece: Three core groups of teachers, two groups in Athens, and one international group in Crete during the C²Learn Summer School. The Athens group involved one in the primary and one in the secondary (middle and high) sections of the Ellinogermaniki Agogi (EA) school in Athens. Plans are under way to engage the 12 teachers who have so far contributed to the C²Learn scenario development, in further work in early September 2013, and to expand the group to include a network of collaborating schools known to and involved with the EA R&D department. In addition, a wider community of interest is being built which includes educators and a range of professional and academic experts. The third group of teachers in Greece were involved in workshop activity in Crete during the C²Learn Summer School. A group of 26 teachers from across Europe (including Austria, Croatia, Cyprus, Estonia, Finland, Lithuania, Poland, Portugal, Romania, Slovenia, Sweden, Turkey) gathered in Crete for the C²Learn Summer School in early July 2013, just a few weeks before this deliverable was completed. Their specialisms span English, German, the Arts, History, Physics, Chemistry, Educational Technology/Information and Communications Technology, Mathematics, Communication Studies and Pedagogy. There was one generalist primary teacher. Aspects of the project were tried out with this group: evaluations of scenarios, application of the core theory of the project into other digital games, tools developed for CER within C²Learn, ways of peer-reviewing co-creativity.

Whilst during the first part of the project the three co-development teams (in Austria, England and Greece) were in general set up to reflect the institutional strengths and expertise of the link partner, this pattern will be altered for the second iteration. From late spring 2013 onward, the construction of the scenarios, learning design, co-creativity assessment and their integration with the tools and game design itself, are being undertaken in a more consistent fashion for the next iterative cycle, building a more unified approach.

Thus each of the co-development teams set up from summer 2013, will experience facilitated workshops, affording the opportunity to test out aspects of the learning design, in particular exploring aspects of fostering WHC and CER (including trying out CER tools from NCSR-D as these become ready

for piloting), some aspects of ways in which the C²Learn gameplay could be developed in the classroom, and the relationships between learning goals, indicators and examples, so that the co-creativity assessment can be built on firm foundations. The groups will also pilot some aspects of the co-creativity assessment and this will be integrated into the plans articulated in D5.2.1 'C²Learn User Evaluation Plan' due to be delivered in M12.

Such piloting will occur after the completion of writing of this version of the deliverable D2.2.1 and so analysis and reporting on outcomes from the workshop activity will be included in the next version of the deliverable but not in this one.

3.2   NEXT STEPS FOR C²LEARN LEARNING DESIGN

The iterative development through the co-development teams and the consortium will continue on a cyclical basis as follows:

- First pilot cycle due to complete with a pilot report end October 2013
- Second pilot cycle due to complete with a pilot report end July 2014
- Third pilot cycle due to complete with a pilot report end April 2014
- Final pilot cycle due to complete with a report end October 2015.

Through these pilot cycles, the co-development teams will continue to co-develop and pilot material and conceptualise the wider scenario for the open digital space/s during the autumn of 2013, whilst alongside them consortium members continue to develop iterative versions of the semantic, diagrammatic and emotive tools, game design and versions of the prototypes, iterative versions of the co-creativity assessment. Drawing on the early iterations, the learning design will be refined to be finalized by end of April 2014.

This version of the learning design in D2.2.1 has been developed by the OU team working closely with EA, BMUKK, SGI and UEDIN. UoM and NCSR-D have also offered some comments. The OU/UEDIN collaboration is working consistently to ensure that the theoretical framing of the project is robust, clear and integrated bringing together the CER elements within the WHC goal – and that this is clearly communicable. With EA/BMUKK/OU the collaboration is working to ensure that teachers and others who will use the learning design are able to do so productively. With SGI, OU has been exploring how to ensure that the learning design is meaningful to teachers and other users. In addition the consortium as a whole has been exploring how to ensure the C²Learn experience provides a sandbox environment, is achievable with the resource, is at the cutting edge of serious game technology and is open and flexible enough to be used in multiple classroom and curriculum settings. ARGs are currently under discussion as a possible approach.

It is intended that over the coming months all partners will collaborate to evaluate and refine the learning design in relation to the game design which is emerging in parallel. Close collaboration ensures that:

- on the theoretical side, OU and UEDIN are confident that the learning design reflects shared goals,
- on the gaming design side, the designers and programmers at UoM and NCSR-D and also SGI can integrate their planning, programming and game building with the goals of the consortium,

- on the user interface, EA and BMUKK as well as OU are confident that teachers and students are engaged in the evolution of the initiative – both idea generation and the evaluation of the emergent game and its environments.

The result of the learning design is given in Parts 1 and 2 of this deliverable. The articulation of the learning design and how it reflects the theoretical foundations of the project will continue to be developed between this iteration of the learning design and the second (D2.2.2) to be completed formally in M18 although of course draft iterations will be used across the consortium to inform technical and educational developments. A challenge for the consortium to overcome is to ensure that close collaboration and articulation do occur, given the parallel structure of the project and to this end, BMUKK, EA and OU plan to build in monthly meetings (mainly by Skype). Occasional whole-consortium Skype meetings are occurring and it has been proposed that these are made regular fixtures.

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