

This is a preprint of the paper to be presented at the Mobile Learning and Creativity Workshop (MLCW), the 7th European Conference on Technology Enhanced Learning (EC-TEL), Saarbrücken, Germany, September 19, 2012.

Creative Collaboration on a Media Handbook for Educators: Design of a Joint European Course

Mikhail Fominykh¹, Terje Valjataga², Venla Vallivaara³ and Monica Divitini⁴

¹ Program for learning with ICT, Norwegian University of Science and Technology, Norway

² Centre for Educational Technology, Tallinn University, Estonia

³ Learning and Educational Technology Research Unit, University of Oulu, Finland

⁴ Department of Computer and Information Science, Norwegian University of Science and Technology, Norway

mikhail.fominykh@svt.ntnu.no, terje.valjataga@tlu.ee,
venla.vallivaara@oulu.fi, divitini@idi.ntnu.no

1 Introduction

Traditional learning practices need to be adapted to the modern society in order to cope with its rapid changes. Innovative solutions to problem solving are required in every domain, in which creativity as an important competence plays a central role. There is evidence that creativity is an effective method, key component, and valuable outcome of learning [1,2]. However, creativity is not a spontaneous process, but rather needs a conscious design of learning experiences in traditional educational settings to be practiced and enhanced.

CoCreat (<http://www.cocreat.eu/>) project, supported by the European Commission under the Life Long Learning programme (<http://eacea.ec.europa.eu/>) aims to find out how to enhance creative collaboration in educational settings with the focus on increasing participants competence in acting and learning in complex and dynamic environments where collaboration and creative solutions of problems are required. Within the framework of the CoCreat project, a Joint European Course was developed with the purpose to enhance creative thinking and foster students to consider critically the ways of thinking and acting. The course (currently running) has brought about 70 students from three universities: Tallinn University, (TU, Estonia), University of Oulu (OU, Finland), and Norwegian University of Science and Technology (NTNU, Norway) – in a virtual space. Study-process have been structured with the ideas of collaborative and problem-based learning, social constructivism, and technology-enhanced learning and supported with various technologies (e.g. wiki, web conferencing, use of mobile devices, and media presentations).

CoCreat (<http://www.cocreat.eu/>) is a project, supported by the European Commission under the Life Long Learning programme (<http://eacea.ec.europa.eu/>). The project identified a number of problems in the society (e.g. technological environments, learning landscapes (ecosystems) and interaction between different generations) and the need for a range of new learning practices in complex and dynamic learning environments in order to tackle these problems. The aim of this project is to find out how

to enhance creative collaboration by applying the theory of collaborative learning. The outcome of the project will be increased competence in acting and learning in complex and dynamic environments where collaboration and creative solutions of problems are required.

2 Course design

The Joint European Course aims at familiarizing students with the key concepts, competing theories, and approaches of Technology-Enhanced Learning (TEL). The joint course involves students taking local courses New Interactive Environments at TU, Learning Theory and Pedagogical Use of Technology at OU, and Cooperation Technology at NTNU. The central part of the course is designed as joint activity between students from three participating universities. In addition to the joint collaborative task, students from all three countries have had some local activities, developing a specific expertise in order to bring it into the collaborative task.

The students in each university work in groups of 2–4. During the course, bigger international groups have been formed from local groups, one from each country. All the course activities are conducted distantly posing an additional challenge for the students. Working with international peers, the students share competences and develop practical skills of creative international collaboration.

The joint activity consists of several tasks aiming at creating a multimedia book. It will consist of several media chapters. Each of them is entitled by a TEL-related challenge designed by CoCreat partners and consists of a deliberate solution to it developed by the students. Each international group of students works on one chapter.

2.1 Pedagogical model

The learning goals of the Joint Course are different from all three local courses. However, they are essential in many practical cases for both educators and technicians. After completing the Joint Course, the students will be able to:

- Implement theoretical knowledge to practical problem solving together with international partners of different expertise
- Write academic text collaboratively (create an independent and legible section to electronic publication, based on data collected)
- Design an appropriate educational environment supported by technology

The Joint Course started with videoconferencing meetings. The international groups are encouraged to continue with their regular meetings. A tutor is assigned for each international group to support the collaboration phase, facilitate communication (especially with international peers), and answer any organizational questions. The Joint Course environments contain all general course information and learning materials. Lectures and study materials have been provided locally (different information and viewpoints in different universities), but all the local materials that can be found in digital form are collected to the Joint Course environment.

In the final stage of the Joint Course, the students will work on peer-reviews, providing feedback on other group's chapters based on a suggested framework. During the ending meeting, the students will present their projects to the peers and the public.

2.2 Technological model

The course design emphasizes on various digital and mobile technologies to create an appropriate "virtual space" for international students working on a shared artifact from distance. We hold a view that combining various digital, networked tools and services offers quite powerful ways of managing, repurposing and remixing digital artifacts in order to support various conversational (regulative, coordinative, etc.) and productive actions in the context of creative collaboration. The technology is used to:

- Bring students with different backgrounds and expertise in one digital environment for discussions (Adobe Connect for synchronous discussions)
- Encourage students to collect data in the field (using mobile devices such as smart phones and tablets)
- Provide a common space for collaborative creation of digital artifacts (Wiki for collaborative writing, asynchronous discussions, and peer-reviewing)
- Facilitate students to present their projects to the peers and the public (Prezi for creating presentations of their chapters)

The aforementioned list of devices, tools, and services can be seen as a starting set of technology. As for creative collaboration in physical settings, individuals should be able to transform their environments themselves, move things around, and create what they need for the work they are doing at each moment. The same applies to creative collaboration mediated by networked and digital media applications. This virtual space organized and developed by the group members can be seen as an instrument for creative collaboration, but also as an outcome. We hold the perspective that digital instruments for creative collaboration should be freely chosen and adapted by students according to the specific purposes (and concrete learning projects they attempt to carry out), in such a way creating an ecology of a working environment that is supportive and rewarding of creative ideas. Mediating technology should not be treated as a given, thus, students are encouraged to explore and make use of various technologies, especially mobile devices for supporting their creative collaboration.

3 Methodological considerations

By means of this course and the associated study, we are planning to explore the phenomenon of creativity as a collaborative process [3] in order to understand what it is and how it can be supported by modern technologies. In particular, we will explore the use of mobile technologies, different perspectives of mobile learning (e.g. [4]), and their role in creative collaboration. Within the CoCreat project creative collaboration is understood as "a multidisciplinary process, where various problems are explored from novel perspectives and the result of collaboration is not defined before-

hand” [5]. What is understood as novel and being creative will depend on our specific context and will be defined by the participants based on their intersubjective experience. The creative performance of students will be self-assessed, where participants themselves are asked to complete scales with items referring to their creativity. We are going to focus on creativity on two levels: the process, which involves setting up an appropriate environment, exchanging of information and knowledge, coordinating activities and interpreting others ideas so that new ideas can be created [6] and the artifact as a solution to the given problem. The relationship between the process and the artifact is a bi-directional one: the process affects the created artifact, which in turn affects the unfolding of the process [7].

Our aim is to observe and analyze the collaborative process to find how creativity is perceived and triggered within this specific context. Furthermore, we plan to compare how collaborative creativity in educational settings is supported and constrained by the technologies involved. In particular, we will analyze groups’ landscapes of digital, networked tools and services they use in different stages of creative process. The models of Susanne Bødker, Wallas, Shneiderman, Osborn, Amabile and Boden will be analyzed and synthesized for understanding how the creative process is occurring and how technology can be mapped to the various process model stages. We are interested in questions such as how are students perceiving and understanding creativity in an international distance group setting, how are students interacting and designing the virtual space for supporting their creative collaboration, what factors or elements are influencing and forming the design of the space for creative collaboration, how to support and facilitate creative collaboration in international distance groups? The criteria will be based on the individual reflection of the participants, the analysis of the collaborative process, and the evaluation of the project work outcomes, including the book chapters and student collaboration environments.

References

1. Lewis T. (2006) Creativity—a framework for the design/problem solving discourse in technology education. *Journal of Technology Education* 17 (1):36–53
2. Kangas M. (2010) Creative and playful learning: Learning through game co-creation and games in a playful learning environment. *Thinking Skills and Creativity* 5 (1):1–15. doi:10.1016/j.tsc.2009.11.001
3. Mamykina L., Candy L., Edmonds E. (2002) Collaborative creativity. *Communications of the ACM*, vol 45. New York, NY, USA, ACM. doi:10.1145/570907.570940
4. O’Malley C., Vavoula G., Glew J., Taylor J., Sharples M., Lefrere P. (2003) Guidelines for learning/teaching/tutoring in a mobile environment. Mobilelearn project.
5. Sternberg R.J. (2006) The Nature of Creativity. *Creativity Research Journal* 18 (1):87–98. doi:10.1207/s15326934crj1801_10
6. Hilliges O., Terrenghi L., Boring S., Kim D., Richter H., Butz A. (2007) Designing for collaborative creative problem solving. Paper presented at the 6th ACM SIGCHI Conference on Creativity & Cognition Washington, DC, USA, June 13
7. Bødker S., Klokmoose C.N. (2011) The Human-Artifact Model – An Activity Theoretical Approach to Artifact Ecologies. *Human-Computer Interaction* 26 (4):315–371. doi:10.1080/07370024.2011.626709