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# BRIDGES OF JOY – A CASE STUDY OF THE COLLABORATIVE DESIGN LEARNING PROCESS THE UNIVERSITY TEACHER STUDENTS



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## Abstract

This is a qualitative case study of the design learning process in one arts educational project of 14 student teachers. The purpose of the study is to explore and describe the design process of the student teachers during their collaborative study project with pre-school and school pupils for children's hospital children. They created animated films for the hospitalized children. The theme of this project was Bridges of Joy and its purpose was to bring joy to and connect children from different learning environments. In this arts educational project, new learning technological applications and techniques, like iPads and social media were used and combined with an integrated collection of children's stories, visual arts and sound colours made of instruments and human voice. Data was gathered through participatory observations and writings from a closed Facebook project group. The qualitative research methods used include analyses, descriptions of observations, and discussions with the students. Content analysis of students' reflective and evaluative writings about the creative learning process was also performed. The results show that the collaborative design learning method fits very well into integrated arts educational studies, as does the use of modern technological applications.

*Keywords:* Design learning, arts education, collaborative learning, modern learning environments, technological applications, iPads

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## 1. Introduction

In this interactive design-learning project, new solutions for future learning environments were also researched and developed. In the design learning process, students define problems and create solutions to common challenges. According to Seitamaa-Hakkarainen (2011), design learning is goal-oriented, collaborative work to solve a real or imaginary problem. The creative, collaborative design-learning process provides tools that help students think and act in new, uncertain or problematic situations and find creative solutions for their intention.

Dorst (2008) has focused on design research and presents the elements of such a descriptive framework for creating design. Firstly, a description of the object of the design problem is needed. Secondly, actors and co-operators are needed. Thirdly, the context in which the activity takes place has to be planned and then the structure and dynamics of the complex of activities that is being studied must be organized and set in place and action.

Design is always future-orientated and design thinking is an excellent tool for improving the living environment. Problem-solving and work-planning skills are beneficial in any field. So far, however, design learning has mainly been used in the teaching of arts and crafts at schools. Teachers must be able to cross subject boundaries and accept that pupils learn different things or in a different manner than before, Seitamaa-Hakkarainen (2011) points out.

The first task of the design learning process is to prepare. This means that there should be a common intention, knowledge and planning for the group's projects. There should also be an understanding of the expectations and tasks to be performed. There should be steps taken to build the leadership and team to maintain optimism and succeed. The second step is to perceive. This means there must be research done to gain an understanding of what it is essential to know about the project. This step is rigorous and knowledge-based; there must be observation and understanding of the future users. The aim is to find a common inspiration and assess what already exists. The third step of the design learning process is to build prototypes for future learning environments. In action research, the team presents many ideas, builds, visualizes, demonstrates and tests them repeatedly. It is essential that the team remember and imagine the users of future learning environments and their communication. The aim is to produce, invent, launch, distribute, communicate, realize and share new ideas of design learning in a future learning environment. During the design learning process, the research team reflects on the shared knowledge of the quality of each phase of the development.

Demirbas and Demirkan (2003) have studied learning in the design process of architectural design. Their aim was to focus on the architectural design process through learning styles that are ‘accommodating’, ‘diverging’, ‘assimilating’ and ‘converging’ as stated in Kolb’s (1984) theory. According to their results, there were statistically significant differences between the performance scores of students who had diverse learning styles at various stages of the design process. It was also interesting that the number of students who had a different learning style had increased at the end of the design process, in which the progress of assimilating learners was the highest and that of accommodating learners, the lowest. This proves that the co-operative design learning process gives space to all types of learners and especially encourages them to assimilate new creative ideas during the design learning process. Prince (2004) did the review research of activating learning methods especially in technological teaching areas at the university level. He defines the common forms of active learning that are most relevant to this teaching method. Broad but uneven support has been found for the core elements of active-, collaborative-, cooperative-, and problem-based learning; therefore, these new methods should be more supported in university teaching. This study gives evidence that co-operative methods really work with university students. The previous case studies of Ruokonen, Kattainen, and Ruismäki (2012) and Ruokonen & Ruismäki (2012) show the same results about the effectiveness of co-operative learning in the arts, especially through the effect of socio-cultural animation experienced during the process.

According to Bereiter (2002), learning is an innovative process of inquiry in which new concepts are communally created and the participants' knowledge is either substantially enriched or significantly transformed. Further, Bereiter and Scardamalia (2003) as well as Seitamaa-Hakkarainen (2012) focus on the design mode in student learning. In design learning, students are concerned with the usefulness, adequacy, improvability, and developmental potential of their ideas. According to Lindblom-Ylänne and Lonka (1998), it is possible to increase meaningful learning by reorganizing the learning environment. A central aspect of knowledge building in this arts educational project was to build communicative bridges by using animated films and to engage student teachers as well as children participating in this project in creative work with knowledge aimed at collectively improving their artistic ideas.

## **2. Problem Statement and purpose of the study**

This is a qualitative case study of the design learning process in one arts educational project of 14 student teachers. The purpose of the study is to explore and describe the

students' design process during their collaborative study project in which they created animated films with pre-school and school pupils for children in a children's hospital. The hospitalized children also made films for others outside the hospital. The theme of this project was Bridges of Joy and its purpose was to bring joy and connect children from different learning environments. In this arts educational project, new technological applications and techniques, like iPads and social media, were used and combined with an integrated collection of children's stories, visual arts and sound colours.

### **3. Research Questions**

The research problems were to discover through the student teachers' experiences:

- a) how did the design learning process develop in this project,
- b) how were new technological tools used in arts education and communication, and
- c) how did co-operation and communication between the participating groups develop during the process?

### **4. Research Methods**

This is a qualitative case study concerning one co-operative learning project of integrated arts education. Data was gathered through participative observation and the writings of a closed Facebook project group. The qualitative research methods used include analyses, descriptions of observations and discussions with the students, and the content analyses of students' reflective and evaluative writings about the creative learning process.

### **5. Findings**

The results show that the collaborative design learning method and the use of modern technological applications fit very well into integrated arts educational studies. Exploring the design learning process shows the collaborative, creative participation on all levels.

*Quite soon, we realized the potential of iPad applications in children's arts education and in building connections between children at schools and hospitals. We received wonderful support from our faculty's new learning environment and its technological coordinator. (Student teacher 2)*

The options of social media, a closed Facebook group, were used effectively in communication, planning and reflection in all phases of the design learning process. The qualitative content analyses of different phases of the design process shows that in the first phase of the design learning process the common intention was prepared. In this case, the

intention for the artistic project came from the environment. The students were visiting the children's hospital and they had the idea of bringing arts into the hospital.

*Our facebook-group worked well during the whole process. The best part of it was to share information and receive feedback very quickly between the group meetings at the University. The importance of this type of communication was essential especially at the end of this process when we were working with children at pre- schools, schools and the hospital, sharing timetables and information about meeting or preparing our presentation at Science Corner. (Student teacher 4)*

The second phase of this idea was to connect pupils at schools and kindergartens to those who were in the children's hospital. The group shared this common intention and began to do research about the ways they could connect the children between different environments and how to bring arts into the hospital. In this phase, they also decided the theme of this project to be 'Bridges of Joy'. They started to work on the theme knowing and planning what a group is doing and understanding the expectations and the tasks to be accomplished. They also selected the roles and leaders of their project. All students were working with high expectations and optimism thinking that they would send artistic artefacts between the schools, kindergartens and hospitals. The second step of the design learning process was to perceive. This meant research to gain an understanding of what it was essential to know. This step required rigorous, knowledge-based research in order to observe and understand the project's potential possibilities in different environments. In this phase, students found that there are certain limitations on bringing live artefacts to the hospital environment due to such restrictions as fire safety rules.

At the same time, the students had an opportunity to use new learning technological solutions like iPads and they discovered which kind of programmes could be used in artistic work with children. They found many of them, but selected the animated iStop Motion film programme and the Garage Band music programme. They found a new solution for connecting children between schools and hospitals through the artistic, participatory work and common inspiration spread in the group. They divided into smaller planning groups to assess what was already available for creating stories, sound colours or visual worlds with children to create short animated films with them. The common aim was to participate with children in pre-schools, schools and hospitals to create their own stories, sound colours and visual worlds with their own made animations. According to one student teacher,

*Sharing ideas and everyone's potential was a wonderful experience for me. Some students were gifted in music, some in visual arts or crafts. My area was technological*

*knowledge. We could share our best solutions and ideas with each other and work together in a most effective way. (Student teacher 3)*

The third step of their design learning process was to build a prototype for a future learning environment, which in this case was the learning environment where students were helping children to produce their own films and send them to the children's hospital. In the hospital, those children were also to create their stories and send them to schools and pre-schools. In this case it meant that children were asked to participate actively by presenting their ideas and stories, building them, visualizing them, giving them sound colours showing them, playing with them and testing them and then finally filming them by using iPads and its programmes. In addition, microphones and modern audio technology were used for auditing acoustic sound colours created by children. It was essential to imagine the users and their communication in their different learning environments. During the process, someone had the idea of having individual iPads for the children in the hospital and so after contacting a Finnish sponsor the iPads were given to the children's hospitals. Thus, the students of this project could mentor the kindergarten teachers and teachers at the hospital school to use the iPads and new computer programmes during this project and in the future. The main aim was to create a new arts pedagogical invention that connects children and brings joy to the participants. One student teacher described her impressions of the process,

*The best part of this process was working with the children in pre-school, school and the children's hospital. It was amazing to see how children used their imagination in building stories, animation figures, scenes or sound worlds together. Their attitude to working with iPads was very natural and they were eager to try any technological application we used. (Student teacher 11)*

Similarly, a teacher at the children's hospital shared her impressions,

*We were happy to get DVDs to the children's hospital, but it was wonderful to get all the animations and stories to the Vimeo environment for sharing the joyful moments and stories among all the participants. We have received good feedback from the families of those children who participated in this project in the hospital environment.*

(Kindergarten teacher at a children's hospital)

The students presented the Bridges of Joy project at the University of Helsinki Science Corner and school children, pre-school children and their families were invited as well as the hospital's personnel. All children's stories and animations made in this project can be seen on the Vimeo pages Ilon sillat (2012) from the Faculty of Behavioural Sciences, University of Helsinki. By using collaborative creative working methods of design learning, students were able to produce, launch, distribute, communicate, realize and share new ideas

of their common arts pedagogical design and use new technological solutions to connect children of different learning environments. During the design learning process (see Fig.1), the entire research team reflected on the shared knowledge of the quality of each phase of the project development.

## 6. Conclusions

The design learning process includes the entire co-operative life cycle of an object or new artistic or pedagogical innovative model: planning, implementation, results and reflective evaluation during the process and at the end. Virtuosity is multilayered, and learning never stops in the creative process; a new solution or model becomes a new intention. Everything that was learned was applied in practice with children in kindergartens, schools and hospitals and in this project, it again meant creating something new together. The results show that the collaborative design learning method as well as the use of modern technological applications fit very well into integrated arts educational studies. This active co-operative design learning process benefits students' engagement in learning. Students will learn more deeply in the participative learning process about arts education and children's development and they remember the arts pedagogical solutions created and the network that they built together. These experiences will help them later when they become teachers to develop their arts pedagogy in more co-operative ways and to use modern technology in teaching. Furthermore, such positive experiences of co-operative design learning challenge the whole teacher education programme to structure more courses to promote collaborative and cooperative environments.

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