Duography in the Classroom: Creative Engagement with Two-sided Mobile Phone Photography

Florian Güldenpfennig, Vienna University of Technology, Vienna, Austria
Wolfgang Reitberger, Vienna University of Technology, Vienna, Austria
Eva Ganglbauer, Vienna University of Technology, Vienna, Austria
Geraldine Fitzpatrick, Vienna University of Technology, Vienna, Austria

ABSTRACT

The potential of mobile devices to support learning has been explored for some time; however, little attention has been paid to arts education and the active creation of content on mobile devices as a facilitator of learning experiences. Further, new features of mobile phones such as dual cameras open new possibilities for supporting learning in creative contexts. In this paper, the authors investigate ‘duography’, a novel kind of ‘two-sided’ photography, for mobile phones in an art class. The study involves 17 adolescents, and their art teacher, over the course of 12 weeks. The objective is to convey creative competencies by means of the affordances of new mobile phones. The authors analyse a rich set of student created ‘two-sided photos’ to unpack the potential of this novel learning tool for technology-mediated art education. The authors illustrate how duography can mediate creative engagement by providing a frame for reflective discussions and negotiations on different perspectives and multiple meanings of artefacts. The authors conclude with a set of strategies for designing mobile teaching tools for arts education.

Keywords: Art Education, Collaboration, Creativity, Duography, Learning, Mobile Learning, Mobile Phones, Photography, Two-Sided Photography

MOBILE PHONE PHOTOGRAPHY IN ART EDUCATION

The potential of mobile devices to support mobile learning (m-learning) has been explored for some time. One of the key facilitators for m-learning, the mobile phone, undergoes continuous developments, such as the recent inclusion of front and back cameras, which offer ever new potential for the design of different learning experiences. While there are a growing number of research projects on m-learning with phones being published in HCI and related areas, the majority of m-learning applications offers a more or less ‘passive consumption’ of learning content. (By ‘passive’ we mean content that is primarily augmented or ‘provided for’ and not
‘created by’ the learner.) While these ‘passive’ knowledge transfer applications are numerous, examples for research on m-learning experiences based on the ‘active creation’ of content remain exceptions. This paper contributes to the understanding of m-learning technologies that incorporate the active creation of content as one of the principal learning mechanisms. More precisely, we are concerned with creative engagements supported by mobile phones and as encountered in the educational setting of an art class. Employing mobile technologies for creating artworks and thus being educated about art and trained in creative competencies is a promising approach (as outlined in this paper) that has gained very little attention within HCI.

In this paper we probe the affordances of newly available mobile phones for arts education and describe the longer-term integration ($t=12$ weeks) of this technology in an art class featuring 17 adolescents (16-18 years old) and their art teacher. The research targets two primary objectives: exploring learning opportunities provided by new technologies and, more importantly, contributing specific knowledge to the domain of technology enhanced art education. To this end, we report in detail on a deployment-study of a novel kind of photography (we name it ‘duography’, see next section for details), which was enabled by recent photography advancements in modern mobile phone technology. As this project was initiated by a professional Danish art teacher of a secondary school class, a special feature of this study is that the employed m-learning technology, duography, had to fulfil the teacher’s learning objectives and hence adds ‘external validity’ to the endeavour. In summary, the paper makes the following contributions:

1. We demonstrate that active creation or fabrication, as facilitated by duography, can serve as a powerful learning tool. Through the deployment of duography in a school class we produce a rich case study of an educational mobile phone tool that is carefully fit into the everyday requirements of an art class. By providing detailed descriptions of the use of this tool we demonstrate that learning with mobile phones does not have to be restricted to some sort of ‘dialogic interplay’ between learners and devices. Instead, enhanced learning experiences can unfold around these mobile devices and be catalysed by collaborative engagements such as reflective group discussions. By unpacking these discussions we emphasize that in formal (mobile) learning settings, in particular, when training creativity and openness to different views and perspectives, a broad context (e.g., the qualities and responsibilities of the teacher in facilitating learning or the collaboration with peers) needs to be considered.

2. Further, we demonstrate that duography is suitable for creating interesting artworks and inspiring students to engage with the lessons. To this end we discuss a rich set of student created artwork, which is the backbone and driving force of our m-learning application. (As a partial result our case study also demonstrates that mobile phones can in general be employed by students for creating original content during art class.)

3. We identify three strategies for designing mobile learning applications in the context of art education and the training of creative competencies. These are: supporting spontaneous and easy creation of artefacts, allowing speculative outcomes with multiple interpretations and supporting collaborative creative engagement such as reflective discussions facilitated by a teacher.

While we regard ourselves as HCI researchers, we also relate the proposed technology to art education literature and suggest that the findings in this paper might also be of interest for more core educational research.

The article is structured as follows: First, we introduce the software we implemented for the study, since duography is still a novel technology and not known to everyone. Second, we relate the study on hand to existing work.