Makerspaces in University Colleges - a workshop about maker technologies and design thinking in higher education

Steen Lembcke	**Michal Pilgaard**	**Mikkel Hjorth**	**Jerry Bak de Ridder** VIA UC	**Johannes Fibiger**
VIA UC	VIA UC	VIA UC		VIA UC
Teacher Education	Social Education	Teacher Education	Construction	Teacher Education
8600 Silkeborg	8700 Horsens	8000 Aarhus	8000 Aarhus	8600 Silkeborg
Denmark	Denmark	Denmark	Denmark	Denmark
sle@via.dk	mipi@via.dk	misi@via.dk	jbdr@via.dk	jfib@via.dk

ABSTRACT

VIA University College in Denmark is currently placing greater priority on Makerspaces, with special focus on material design in all its education programs (e.g. teacher trainings, social service workers, social education etc.) The special feature of the Makerspaces initiative is the *dual perspective on learning*. Educating teacher students entails having the dual perspective of learning to master technologies and design processes, while also mastering the ability to create learning designs for childrens' innovative design processes in maker settings. In this workshop, we (1) lay out our teaching approach, (2) provide examples of course activities, (3) provide a hands-on example of our teaching methods, and (4) invite participants to discuss a *dual perspective on learning* in maker settings in teacher education. This workshop will provide a case example of how the teachers at VIA University College incorporate digital fabrication and design processes in the courses for student teachers and students in Social Education.
Duration of the workshop: 1:45 hours

Author Keywords

Makerspace; Teacher Education; FabLab; maker settings; wicked problems in education.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g.,HCI): Miscellaneous

INTRODUCTION

Within the field of Making in Education, there has been a turn towards children's design processes [8]. While researchers have been able to scaffold students' design with good results [12], it has proven necessary but also difficult to prepare in-service teachers for such practice [1,5]. The challenge for the teacher is to establish a pedagogical design that simultaneously stimulates childrens' own innovative and experimental activities while also respecting the school's more formal requirements for acquisition of knowledge, skills and competency targets. In the workshop, we discuss, how we build on this work on in-service teacher training by developing and implementing pre-service courses for student teachers and students in Social Education. The hands-on example is developed as part of a new module in Teacher Education, in which students intervene in school practice doing experiments with maker technologies and design processes.

THE HANDS-ON EXAMPLE

The specific design making case to be presented in the workshop will focus on a current real-world problem at the Aarhus harbour front: Dangerous traffic complications around the new public library (Dokk1) has proven to be a so-called 'wicked problem' with no simple and definitive solution [2]. As an exemplary case, participants will be guided and scaffolded towards possible solutions through a design process led by students and teachers from VIA University College.

DISCUSSION

Based on this example, we invite participants to discuss education based on making, design thinking, and wicked problems in University Colleges in general, as well as the specific challenges presented by teacher educations' need for a dual perspective.

	Workshop Structure
1	Introduction and background
2	Makerspaces in higher education
3	How teachers work with students' immersion into practice
4	A case example
5	Discussion

The organizers of this workshop are all lecturers at VIA University College and educational researchers in the program: VIA Learning and ICT- digital fabrication and design thinking.

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