Experimental use of Digital Technologies in the Field of Ceramics

Flemming Tvede Hansen, PhD
The Royal Danish Academy of Fine Arts –School of Design
CV:

Occupation
2015-  Associate Professor, The Royal Danish Academy of Fine Arts, School of Design.
2011-14 Research Assistant Professor, The Royal Danish Academy of Fine Arts, School of Design.
2010-11 Teacher, The Royal Danish Academy, School of Design.
2006-10 Ph.D Scholar, The Danish Design School.
2005-06 Teacher, The Danish Design School.
1995-05 self-employed craftsman, designer and artist

Education
2006-10  Ph.D Scholar, The Royal Danish Academy of Fine Arts, School of Design.
1999-00 MMI-multimedia design, The Royal Danish Academy of Fine Arts, School of Architecture.
1997    Shigaraki Ceramic Cultural Park, Japan. Dept. of Ceramics.
1994    Glasgow School of Art, Scotland. Dept. of Ceramics.
1990-95 The Danish Design School. Dept. of Ceramics.
Dynamic Interactive Design Tool

A cooperation with Marcin Ignac  http://www.vorg.pl/
SuperFormLab
Voice Sculpture Experiments
MAY 2012
The overall project investigates the position, role and significance of the experiment with a strong focus on computation, material and form within practice-based research.

**Flemming Tvede Hansen**, Ceramicist and Associate Professor, The Royal Danish Academy of Fine Arts – The School of Design.

**Martin Tamke**, Architect and Associate Professor at CITA,

**Henrik Leander Evers**, Research Assistant at CITA;

The Royal Danish Academy of Fine Arts – The School of Architecture.
We investigate:

• a **responding** material that guides the ceramic artists to provide **embodiment** and **feed-back**

• digital technology in an **extended way, as being the result of firstly the matter**; here clay, - and secondly the process; here interventions by the designer, 3d printing, firing and glazing.
'Filigree Robotics'
at Gallery Leth&Gori

-by ceramist Flemming Tvede Hansen [KADK Superformlab] in collaboration with architectural researchers from CITA [Martin Tamke, Henrik Leander Evers, Esben Clausen Clausen Nørgaard]
We investigates:

• a **handmade shape** as input for a responding pattern based on an algorithm that guides the ceramic artists to provide **feed-back**

• digital technology in an **extended way, as being the result of firstly the handmade input**: here the shape in clay, - and secondly the process; here interventions by the designer, 3d printing, firing and glazing.
Ceramics and its Dimensions: Shaping the Future

WORKSHOP – TOURING EXHIBITION – PUBLICATION
As a part of the bigger project, *Ceramics and its Dimensions*, the module *Shaping the Future* is concentrating on exploring the future dimensions of ceramics in Europe. With the future in mind, the module conducted a student workshop with 4 partner Universities: Aalto University, Helsinki, Berlin Kunsthochschule Weißensee, Ulster University, Belfast campus and The Royal Danish Academy of fine Art, Copenhagen.
be related to small classic series of hand painted mass-produced ware or hand modelled flower decoration on dinner service.

This idea was first introduced in the workshop as a decorative effect by printing directly on the lid of a sugar bowl (Figure 4) and then by replacing a handle on a cup with a 3D printed handle (Figure 5). Here, simple geometries were artistically unfolded on and in interplay with the mass-produced ware. Through simple and playful interventions, such as different heights of the print-head, different positions of the object or printer settings, the 3D printed parts can easily vary and thus add a hands-on and one-off touch to mass produced objects.

These demonstrations were first opened up for periods of brainstorming through practical experimentations in groups of students mixed from the four universities. Secondly, the demonstrations and suggestions functioned as inspiration for the students for further work and the final call for the travelling exhibition.

For some of the students, 3D printing as a technique gave a new space to develop their personal ways in the field of cerami-

ics. This approach to 3D printing was seen to be more adaptable than first expected. In the case of those students with no experience in 3D printing, it was quickly discovered how fast one could adopt the technique.

3D printing as a tool in the future

Ceramics has a long history of producing valuable and functional objects with its traditional material and a practice, ceramics is easily transferred to traditional ways of making. Ceramics also have a long history as a material. As a material, ceramics are so versatile that they have been developed for multiple different purposes. Ceramics have played a role, for example, as furniture and tiles in buildings. The less conventional is how widely it has also been used within fields, such as in nuclear science, spacecraft and biomedical solutions. Having an understanding of ceramics' wide range and potentials, it examined the studio practitioner's perspective
As stated, 3D printing can be explored and modified in many different ways. Here we have been paying special attention to materiality and the potential of the material to unfold at the very moment of the 3D printing. We have named this latter approach material driven 3D printing in clay. We have shown how simple shapes can be unfolded in numerous ways by different printer settings and by simple and playful interventions, thus letting the ceramic material have a say, adding a hands-on and one-off touch. We have argued how the ceramic craftsman can utilise a high level of tacit knowledge and haptic skills within this approach and express himself through and with the material. We argue this approach to be similar to the concept of crafting through an immediate interface to matter, an idea already discussed by Dormer, and seeing crafting and execution as a unity that is intuitive and humanistic, as already proposed by Bernard Leach. In this sense, we consider material driven 3D printing in clay to be utilising 3D printing as a ceramic craft tool in its own right.

Furthermore, we have suggested how in the future 3D print-
2016

- 10th November – 7th December 2016 White Hall, Copper Smithy (Fiskars, Finland)

2017

- 21st January – 1st May 2017 (Tue – Sun 10 am – 5 pm) Porzellanikon – Staatliches Museum für Porzellan (Selb, Germany)

- 24th June – 22nd July 2017 Millennium Court Arts Centre (Portadown, Northern Ireland)

- 23rd September – 5th November 2017 British Ceramics Biennia (Stoke-on-Trent, United Kingdom)

2018

- 20th January – 18th April 2018 Bröhan-Museum, Landesmuseum für Jugendstil, Art Deco und Funktionalismus (Berlin, Germany)


- 2018 Museum of Decorative Arts in Prague (Prague, Czech Republic)
EXPERIMENT MATERIAL TECHNOLOGY

5 OCT - 24 OCT 2017

SEMESTER 1 BLOK 1 2017
DET KONGELIGE DANSKE KUNSTAKADEMIS SKOLER FOR ARKITEKTUR, DESIGN OG KONSERVERING

EXHIBITION: 5 - 24 OCT
RECEPTION: 5 OCT AT 16.00
LOCATION: KADK LIBRARY

KADK LIBRARY HOURS:
MON - THURS 9.30 - 20.00
FRIDAY 9.30 - 16.00
Groups and group leaders

- (GK) CRAFT – GLASS AND CERAMICS
  (CSC) Christina Schou Christensen
  chch@kadk.dk

- (BT) BEKLÆDNINGSDESIGN OG TEKSTIL
  (ADA) Anne Damgaard
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- (SI) SPIL OG INTERAKTIONSDESIGN
  (CAF) Caroline Fangel
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- (VK) VISUEL KOMMUNIKATION
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END