



**AALBORG UNIVERSITY**  
DENMARK

**Aalborg Universitet**

## **ViLD Annual Meeting Report**

Buhl, Mie

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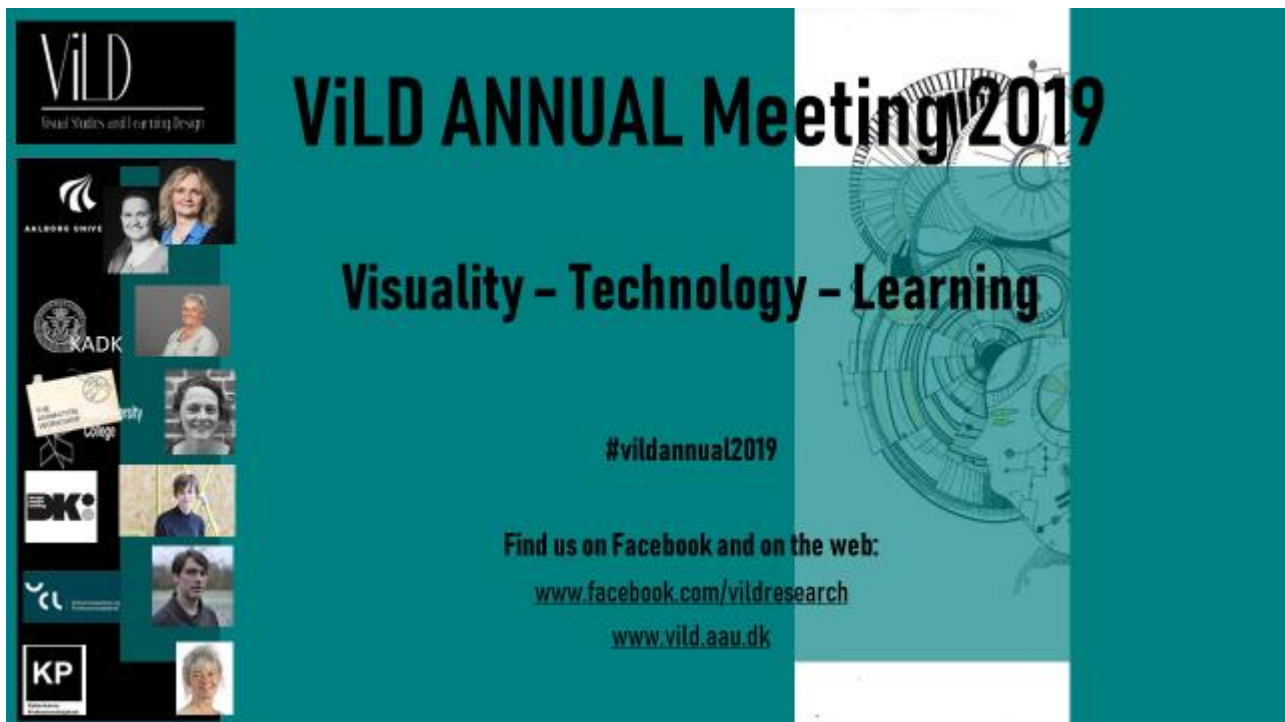
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# VILD ANNUAL MEETING REPORT



The poster features a teal background with a white and teal vertical stripe on the right. On the left, a vertical strip contains logos and portraits of speakers: VILD (Visual Studies and Learning Design), Aalborg University, KADK, and KP. The main text reads 'ViLD ANNUAL Meeting 2019' in large black font, with '2019' in a larger, bold font. Below this is the theme 'Visuality - Technology - Learning' and the hashtag '#vildannual2019'. At the bottom, it says 'Find us on Facebook and on the web:' followed by the links 'www.facebook.com/vildresearch' and 'www.vild.aau.dk'. A faint graphic of a human head profile with gears inside is visible on the right side of the poster.

**ViLD ANNUAL Meeting 2019**

**Visuality - Technology - Learning**

#vildannual2019

Find us on Facebook and on the web:  
[www.facebook.com/vildresearch](http://www.facebook.com/vildresearch)  
[www.vild.aau.dk](http://www.vild.aau.dk)

## Foreword

*Research Center for Visual Studies and Learning Design (ViLD) third annual meeting took place in The animation Workshop, Viborg November 15<sup>th</sup>, 2019.*

*This year's focus on visuality, technology and learning drove the agenda of exploring the visual's potential for knowledge generation forward by addressing the use of technology in visual learning practices and visual knowing as the driver for learning with and understand technology. By bringing together the idea of ideas and interests from researchers, educators and professionals together, ViLD facilitated new and important insights in the field and from the field.*

*ViLD's annual meeting was organised in activities to enhance visual experience, communication and interaction between the participants and to drive the agenda of ViLD forward. Thus reporting from the partners, workshops and a final keynote facilitated a new cross-disciplinary dialogue. This report sums up the eventful day by sharing slides, pictures and text. Thank you to all of you who made this event magnificent. We are looking forward to see you next year on Nov. 12<sup>th</sup> 2020!*

*On behalf of ViLD, Mie Buhl, Director*



Visual Studies and Learning Design (ViLD), Mie Buhl ©

Aalborg University A.C. Meyers Vænge 15, DK-SW 2450 Copenhagen [www.vild.aau.dk](http://www.vild.aau.dk)

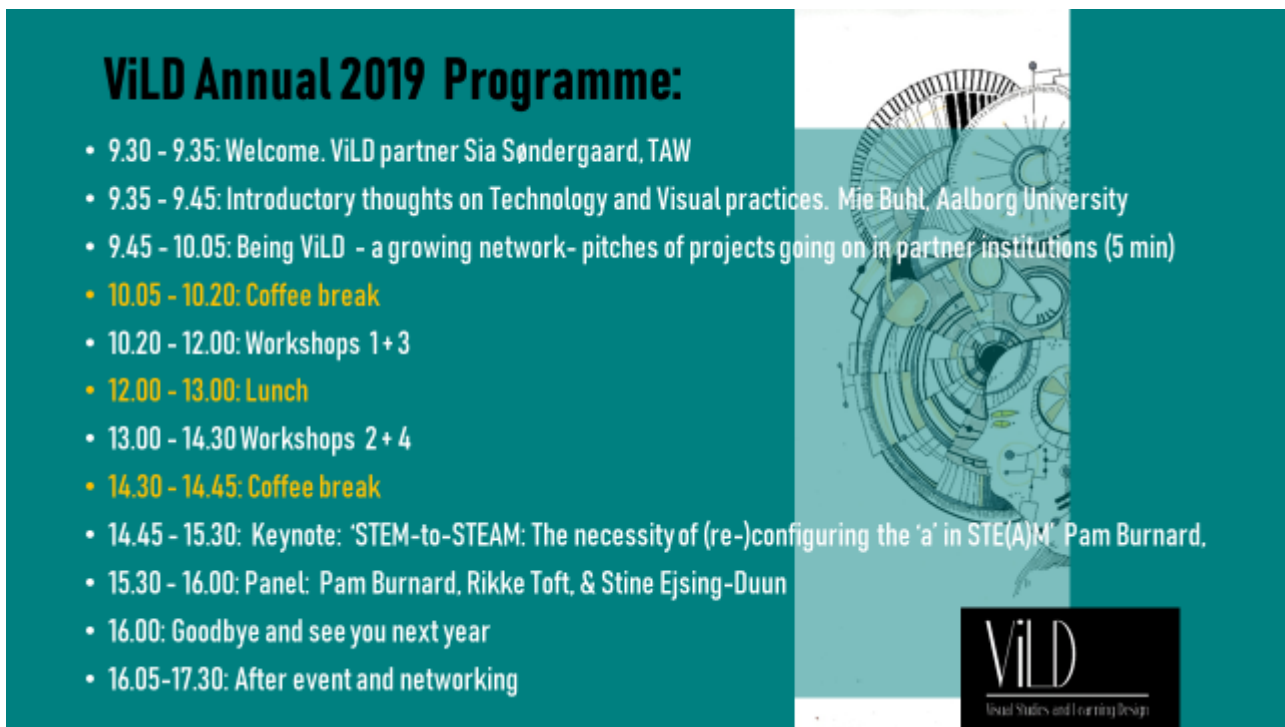
ISBN 978-87-971741-1-1

## Content

1. ViLD programme:
2. Welcome, Sia Søndergaard, ViLD partner
3. Introductory remarks, Mie Buhl, ViLD
4. Being ViLD – a growing network – presentation of activities by ViLD participants
5. Workshops – hosted by ViLD partners
6. Keynote, Pamela Burnard, Cambridge University and Panel with Rikke Toft Nørgaard and Stine Ejsing-Duun
7. After event at The Animation Workshop



## 1. ViLD Programme

The poster features a teal background on the left with a white list of events. On the right, there is a stylized graphic of a human head profile composed of various gears and mechanical parts in shades of blue and white. At the bottom right, the ViLD logo is displayed in white on a black rectangular background, with the text 'Visual Studies and Learning Design' underneath it.

**ViLD Annual 2019 Programme:**

- 9.30 - 9.35: Welcome. ViLD partner Sia Søndergaard, TAW
- 9.35 - 9.45: Introductory thoughts on Technology and Visual practices. Mie Buhl, Aalborg University
- 9.45 - 10.05: Being ViLD - a growing network- pitches of projects going on in partner institutions (5 min)
- 10.05 - 10.20: Coffee break
- 10.20 - 12.00: Workshops 1 + 3
- 12.00 - 13.00: Lunch
- 13.00 - 14.30 Workshops 2 + 4
- 14.30 - 14.45: Coffee break
- 14.45 - 15.30: Keynote: 'STEM-to-STEAM: The necessity of (re-)configuring the 'a' in STE(A)M' Pam Burnard.
- 15.30 - 16.00: Panel: Pam Burnard, Rikke Toft, & Stine Ejsing-Duun
- 16.00: Goodbye and see you next year
- 16.05-17.30: After event and networking

**ViLD**  
Visual Studies and Learning Design

## 2. Welcome to The Animation Workshop Viborg, host of this year's meeting

The Animation Workshop has since 2016 been a partner in ViLD. Member of the steering group, Sia Søndergaard hosted ViLD annual on Kasernen in Viborg and welcomed the participants.



### 3. Introductory remarks and of the theme, Mie Buhl, Director, ViLD

## Visuality – technology – learning. ViLD ANNUAL 2019

Welcome and introductory remarks and programme

*Mie Buhl, ViLD director*

“Welcome to ViLD annual meeting. This is our third meeting. ViLD is a research center exploring the visual’s potential for knowledge generation. And we are an open network for researchers and professionals who share this interest with us. As you can see six partners constitute the center’s steering group and the center is managed from Aalborg University Copenhagen. Thank you to ViLD partner TAW – for hosting this year’s meeting. Being a partner is one way to participate, but there are other ways of participating too (please visit our website for more information). Our mission is to create a cross and transdisciplinary platform for exploring and development of a visual take on knowing and learning. Our activities – project, meetings, seminar, and workshops are dedicated to this mission. Some of our activities are proposed of participants interested, some are executed by ViLD partners which will be presented today. The idea of these annual meetings as meetings is to emphasize our idea of participating, doing and discussing as ways of knowing. We have composed today’s programme accordingly.

Contemporary Danish education is devoted prepare its citizens and future workforce to promote national growth and to deal with global challenges as articulated in the UN’s goals for Global Sustainable Development along with uncertainty of how the future political world scene evolves. To meet these challenges, the Danish education system is occupied with strengthening technical and natural sciences. Especially, Technology is highlighted as the key to solutions.

Digitalization is reflected in the educational system: ICT is a cross-disciplinary theme in all school subjects in elementary school and high school due to the latest reforms in 2014 and 2017. At universities DIGITALISATION OCCUR IN STRATEGIES FOR RESEARCH AND STUDY PROGRAMMES. In adult learning various e-learning formats emerge in order to meet the needs for flexibility in time, space and pace for a busy workforce. In other words: education, research and professional practices strive to respond to technology’s powerful influence in society.

## BUT IF TECHNOLOGY IS THE ANSWER, WHAT IS THE QUESTION?

With this year's theme, ViLD is keen to explore the relation between visuality and technology in education and in different learning practices. We have chosen to pose the following questions:

- What role does visuality play in the new Danish school subject Technological Understanding

and how about technological understanding in Visual arts education? How is the development of computational thinking informed by insights from visuality? Workshop 3 will address this by reporting from the ongoing project and showcase a hands-on

- How do we deal with matters of visuality in digitalization of youth- and further education?

Workshop 1 + 2 + 4 will give you hands-on experience with three technologies.

- Do the so-called STEM (science, technology, engineering, mathematics) disciplines need the

arts - to add the 'a' in STEM and thereby become STEAM? Our keynote speaker, Pamela Burnard will address this and discuss this further with our invited panel

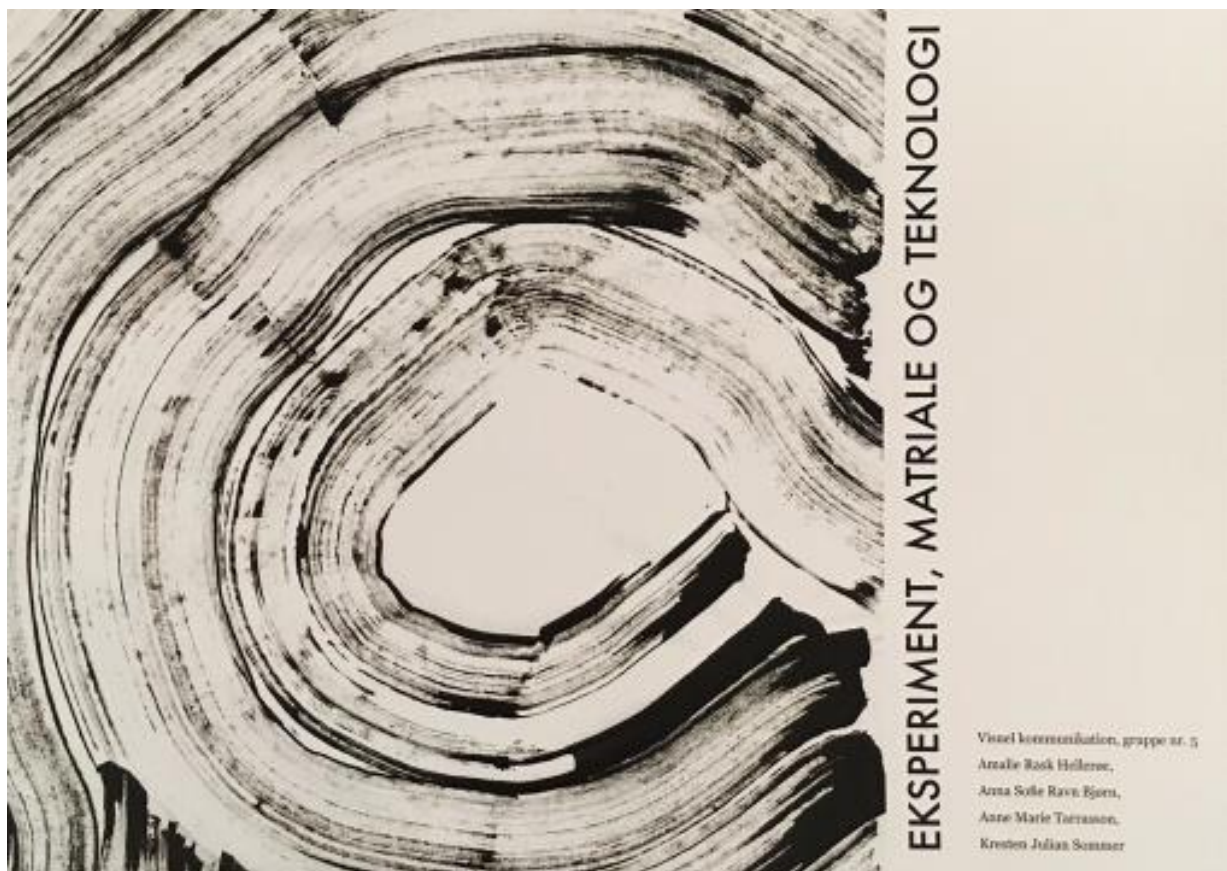
- Can contemporary art and visual culture teach us new approaches to work with and understand technology or is it technology that change artistic work fundamentally? And does technology promote creativity or do we need to stimulate creativity in order to deal with technological and human entanglement? These questions will be addresses in, by and through all our activities during the day and in panel with Pam Burnard, Stine Ejsing-Duun and Rikke Toft Nørgård.

We hope that the day will provide new aspects of the visual's potential in dealing with, using, understanding and reflecting on technology and the function of it in learning and I wish you a fruitful meeting."

#### 4. Being ViLD – a growing network presentation of activities by ViLD participants

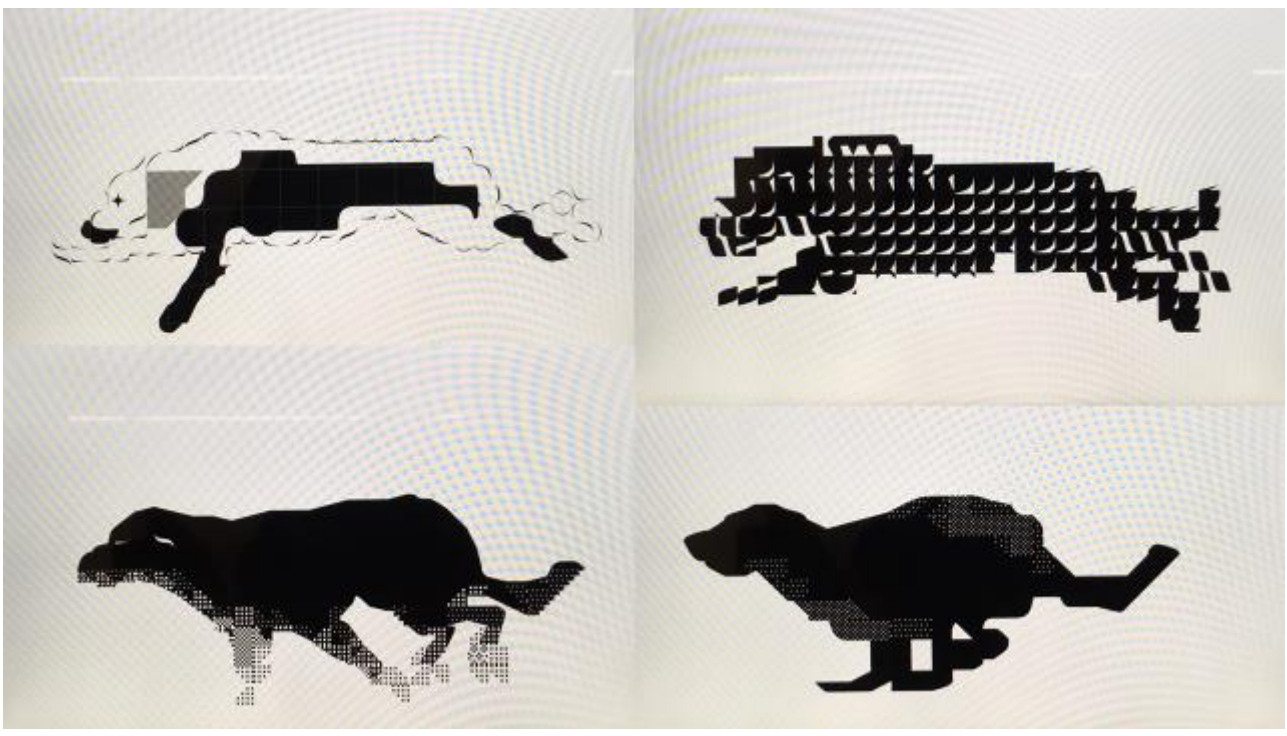
This year's 'Being Vild' was a reporting from activities initiated by the partner institutions and took place as five minutes pitches:

Slides from the reporting from The Royal Academy of Arts (KDAK), Department for visual design, showing how KDAK students explored the software program GLYPH Drawing club to develop an alternative visual language. Presented by Tine Kjølser, Head of programme, KADK.









Slides from the reporting from of a collaborative research project between Aalborg University and University College Absalon presented by Lars Bo Kinnerup, Lecturer, University College Absalon

# Visual learning in teacher education's teaching subjects

**ABSALON**  
PROFESSIONS-  
HØJSKOLEN  
ABSALON

A small scale research project on teacher student's visual pedagogical content knowledge.



Lars Bo Kinnerup  
Viborg 15/11 2019



## Participants

**ABSALON**

- Mie Buhl, Professor AAU, Cph dept.
- Birgit Brænder, Lecturer, Arts, Teacher Education, UC Absalon.
- Merete Schou von Magius, Lecturer, Danish, Teacher Education, UC Absalon.
- Lars Bo Kinnerup, Lecturer, Geography, Teacher Education, UC Absalon.



## The research project

### Purpose:

- To investigate the potentials of visual learning in order to develop teacher student's professional competencies.

### Why?:

- We assume that images and visualizations have untapped opportunities to promote specific teaching skills.

### Research question:

- How does the use / production of visualizations and images generate professional competence, eg in the teaching subjects Arts, Danish and Geography



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## The research design

	Activities	Source of data for research
<b>Teacher Education</b>	Educators teach with emphasis on visual elements in relation to topics	Teaching plans Student's port folios Artefacts
<b>Intern ship (teaching practice)</b>	Students plan and conduct teaching, incorporating visual elements	Teaching plans Artefacts Researchers observations

**Note:** Teacher Educators and researchers are same persons



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## Emperical data

Emperical element	Scale
Students in total	50
Portfolios	44
Observations of internship teaching	Arts: 2 observations, 4 students Danish: 3 observations, 7 students Geography: 3 observations, 5 students
Elements transferred from TE to Internship	Origin in project period: 13 Origin before project period: 5



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## Some results from the internship

	Receptive	Productive	Reflective
Arts (crafts and design)	Pictures as inspiration	Making figures of felt	-
Danish	Content made available and comprehensible	Visuals as mode of expression	Identification of problems and suggestions for their solutions
Geography	Informations from maps. Pictures of people and places.	Visuals support explaining facts and concepts in presentations	Use of different thematic maps to detect patterns and connections



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## Some results from the Teacher Education

- With visualizations we can ...
  - create and retain motivation and attention,
  - share knowledge and experiences
- Visualizations can ...
  - be vehicles for meaning making and development of new knowledge
  - stimulate critical as well as spatial thinking
  - create awareness of emotions, attitudes and values
- Visualizations has been used for ...
  - receptive purposes
  - productive purposes
  - reflective purposes

ABSALON



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## Conclusions

- We found that students have learned at the teacher education to the embedded understanding of text and verbal language as the subject's meta language.
- However, students has apparently not learned the use of images and visualizations as part of what literature is and can do.
- This points back to us as teacher educators and the tradition of what literature is and can do. - and maybe wrong too? - seen in a classic understanding
- **Therefore:**
  - Further research is needed to establish visual pedagogical content knowledge as foundation for didactics of visual elements in teaching subjects.

ABSALON

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Slides from a collaborative research project between Aalborg University and University College (KP) Copenhagen presented by Kirsten Skov, Associate professor, University College Copenhagen (KP)



## COLLABORATION BETWEEN AAU & KP

### COLLABORATION BETWEEN AAU & KP

The institutions: AAU & KP /University college Copenhagen

#### Collaboration between

- International teacher training students attending an INNOLAB module
- AAU students at Communication & digital media
  
- Innovation in teacher training education
- Design of a solution to a stakeholder

## COLLABORATION BETWEEN AAU & KP

### Stakeholder

- KP offers an innovation module **INNOVATION LAB** to Erasmus students at the teacher training education
- AIM: to give students the capability to work with innovation in their future profession in school with kids and youngsters
- Students have different backgrounds - Study different subjects and have different experiences with teaching cultures
- However it's a challenge for these students to work in a creative and innovative way. They need scaffolding in processes, that facilitates creative thinking & innovation

## COLLABORATION BETWEEN AAU & KP

### **WHAT AAU students are asked**

#### Designers

- Develop a digital solution
- An IT-didactic design that can be used by international students at INNOLAB to help them developing creative thinking & innovative competences
- Use technologies or applications that supports competences in creative thinking - ex a game or an app

### **PURPOSE**

- Helping teacher students to be more creative & innovative in their future profession being able to develop innovative competences for pupils by using innovative learning processes



## COLLABORATION BETWEEN AAU & KP

### **WHAT THE STUDENTS GAIN from the collaboration**

- The aim and purpose

- Bringing two perspectives together - learning & profiting from different study cultures and knowledge fields
- Utilize the capacity from communication and digital media students to develop a digital learning resource for teacher students
- Utilize the capacity from INNOLAB teacher educator and teacher students to qualify the didactics of the learning resource
- Developing curiosity and getting inspired
- Enhance motivation, responsibility to their study and being more attentive to own professionalism



Reporting from Aalborg University: Slides from a research project presented by Stine-Ejsing Duun, Associate professor Aalborg University

# Design as a mode of inquiry

**Stine Ejsing-Duun**  
**ViLD Annual 19**



## Thinking or presenting

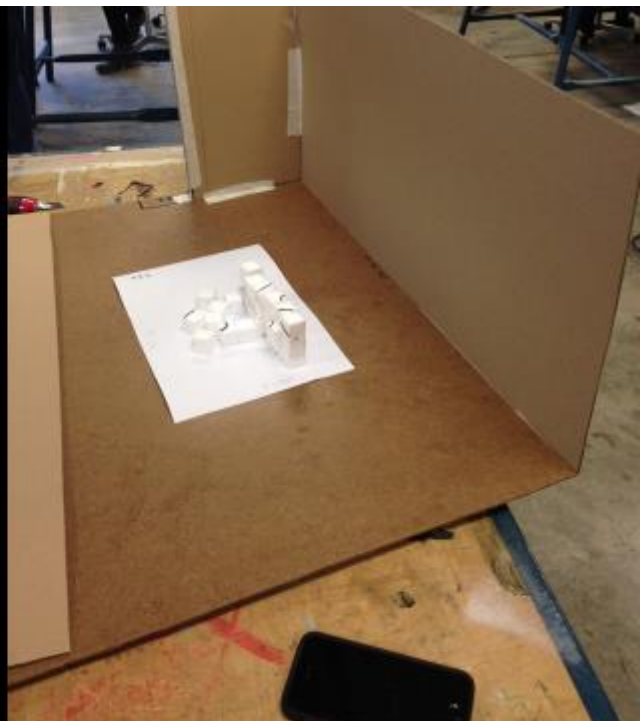
"We cared so much about it being straight", she says while her fingers slide across the edge of the cartridge wall.

"But we had to remind ourselves, that it wasn't the intention."

...It was merely a "sketch"

[Excerpt from field notes, Skovbjerg, 2017]

Design process as an inquiry – could this be it?



# Inquiry through materials

They stand and talk about the room looking at their scale model.

They talk about what you see when you enter the door, and what you do not see – and about the trajectories.

One says while looking down on the model: "Our room is not a passageway"

(From field notes, Ejsing-Duun, December, 2017).

(Ejsing-Duun, S. & Skovbjerg, H.M. 2018, in press)

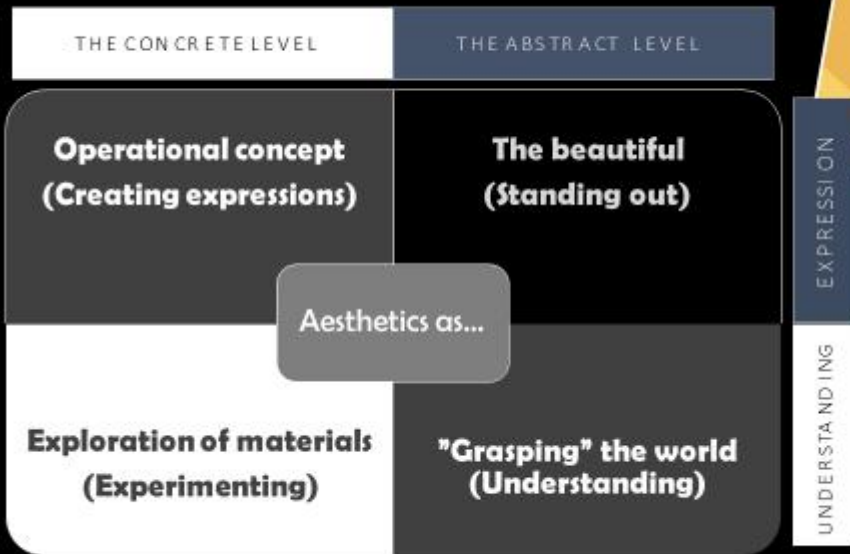


## Design as a mode of inquiry in design pedagogy and design thinking

(Skovbjerg & Ejsing-Duun, 2018)

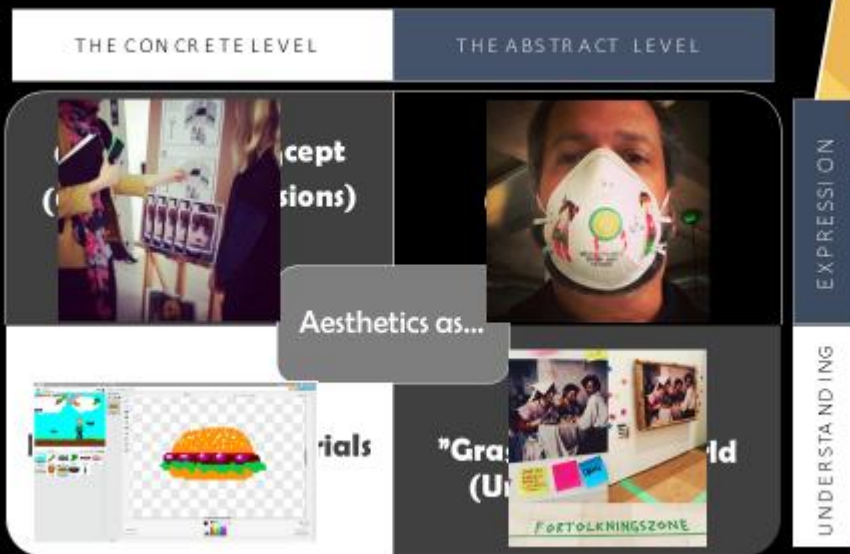
	1. Mode: Process (Reflective practitioner)	2. Mode: Research (Design-Based Research)	3. Mode: Politics (Critical design)
<b>Indeterminate situation</b> <i>What kinds of questions can be asked?</i>	<u>Starts with:</u> - Clients' problems - Users' practice - Designers' own practice	<u>Starts with:</u> - Lack of knowledge on domain - Questions about domain	<u>Starts with:</u> - Designers identification of issue - Non-awareness of/carelessness about a political issue amongst citizens
<b>Controlled/directed transformation</b> <i>What does the inquiry aim to change?</i>	<u>Aims to:</u> - Solve issues for the target users - Solves the client's problem - Improve practice for the designer	<u>Aims to:</u> - Gain knowledge about domain - Solve issues for the users	<u>Aims to:</u> - Raise awareness of structures - Make the issue actionable - Look like a real design
<b>Assumptions/knowledge</b> <i>What does design build upon?</i>	<u>Assumptions are made based on:</u> - Experience - Empirical observations - and possibly theory	<u>Assumptions are made based on:</u> - Theories about the domain - and empirical knowledge	<u>Assumptions are made based on:</u> - Research knowledge about (tech) development for the future - or Knowledge about consequences of past choices
<b>Methods applied</b> <i>How does design determinate its constituents, distinctions and relations?</i>	<u>Approach to problem:</u> - Naming and framing - Generative metaphors	<u>Approach to problem:</u> - Iterative process going from knowledge of the domain to lab, to intervention, to reflection that leads to new insights about the domain	<u>Approach to problem:</u> - Tracing and projection tactics (both analytical and synthesising)
<b>The mode's objective</b> <i>What is regarded as a determinate/stable situation?</i>	<u>Goal:</u> - Designer solves the issue - ...and become a better designer	<u>Goal:</u> - Design knowledge and principles are found and tested - The intervention is implemented	<u>Goal:</u> - Publics are raised in relation to the issue

# Four forms of aesthetics in learning

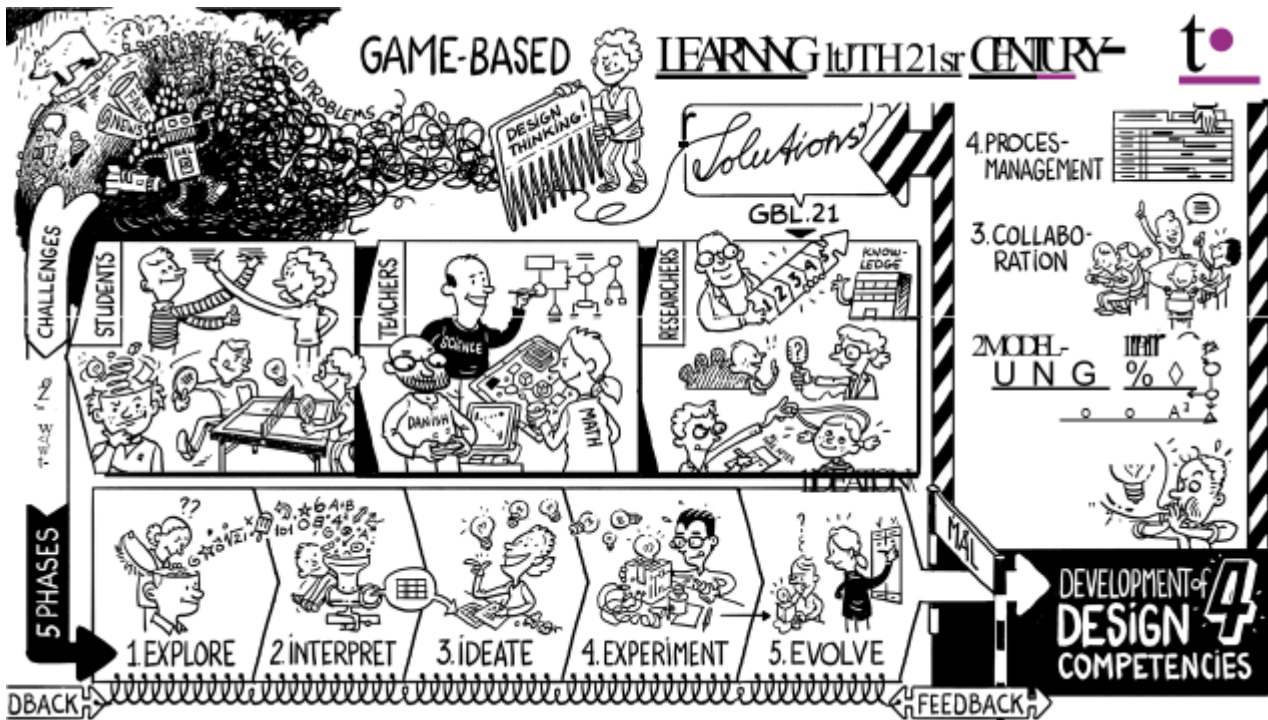


Ejsing-Duun & Tosca (2017)

# Four forms of aesthetics in learning



Ejsing-Duun & Tosca (2017)



Thanks!

**DON'T BE A STRANGER**

- Social Media: @agentnifty
- Mail: [sed@hum.aau.dk](mailto:sed@hum.aau.dk)

About GBL21: <http://gbl21.aau.dk>

My research: <http://personprofil.aau.dk/100986>

LinkedIn: <https://www.linkedin.com/in/stineejsingduun/>



## 5. Workshops – hosted by ViLD partners

### Workshop 1

#### Developing educational VR-games *Andreas Husballe and Jannick Lund from Vizlab Studios*

The workshop invites you to explore the world of virtual reality and learn about the pros and cons of using VR for educational purposes.

During the workshop you will be able to try the educational VR-games developed by Vizlab Studios and get hands on experience on how to generate and validate educational concepts for VR.



The graphic features a teal background with a white circular logo on the left containing a stylized globe. To its right, the text reads "Workshop 1: Virtual reality". Below this, it says "Hosted by:" followed by two portrait photos of men, with the names "Andreas Husballe & Jannick Lund," listed to their left. At the bottom left, the "Vizlab Studios" logo is displayed. The central part of the graphic is a screenshot from a VR game showing a virtual environment with a "BLAGOVISTAN NEWS" sign, a "PLANET GREEN" sign with a radiation symbol, and several avatars. A large atomic model is visible in the background. The top right corner of the graphic shows a partial view of a Ferris wheel.

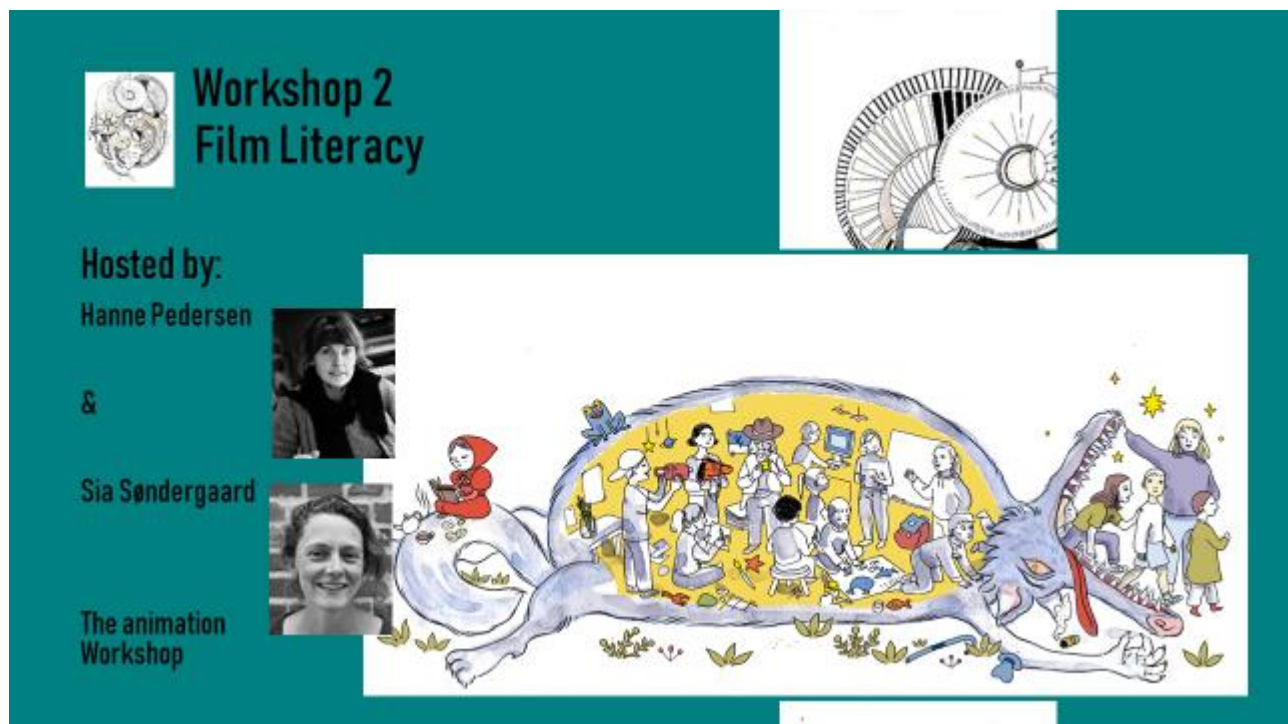
## Workshop 2


### Film literacy – learning through producing in and across disciplines


*Hanne Pedersen and Sia Søndergaard from The Animated Learning Lab/VIA UC*

The workshop invites you to explore the potentials and solutions of creative and production-oriented learning through film and media literacy, and will present the experience from Animated Learning Lab/VIA UC. We will discuss film and media Literacy as a key when developing new didactic designs for- and with teachers and pedagogues.


During the workshop you will be presented for a new competence-development method - expanding learning communities and skill development networks and fostering partnerships between schools and the audio-visual industry. With stop motion we will take you through a little hands on workshop to get the picture.



 **Workshop 2**  
**Film Literacy**

**Hosted by:**  
Hanne Pedersen   
&  
Sia Søndergaard 

**The animation Workshop**



### Workshop 3

#### Computational thinking utilizing visual arts or the other way around

*Kirsten Skov University College Copenhagen, Anders Stig Christensen, University College Lillebaelt, Mie Buhl, Aalborg University*

The workshop invites you to explore the role of visualizations in the implementation of the new school subject Technological understanding [Teknologiforståelse] in the Danish school system – but from the existing school subjects' point of view. How can the school subject visual arts engage in activities developing computational thinking, construction, and design and still be taught as visual arts? Likewise, from the perspective of the school subject social studies: How may visualizations support students' critical thinking and reflection of digitalisation? This workshop reports from the ongoing national project Tekforsøget <https://xn--tekforsget-6cb.dk/> During the workshop you will have the opportunity to try parts of the prototypes already developed and discuss the implications of technological understanding from a visual perspective with participants from the project.



### Workshop 3: Computational thinking



Hosted by:  
Kirsten Skov,



Anders Stig  
Christensen



& Mie Buhl



Copenhagen UC,  
UC Lillebaelt &  
Aalborg University



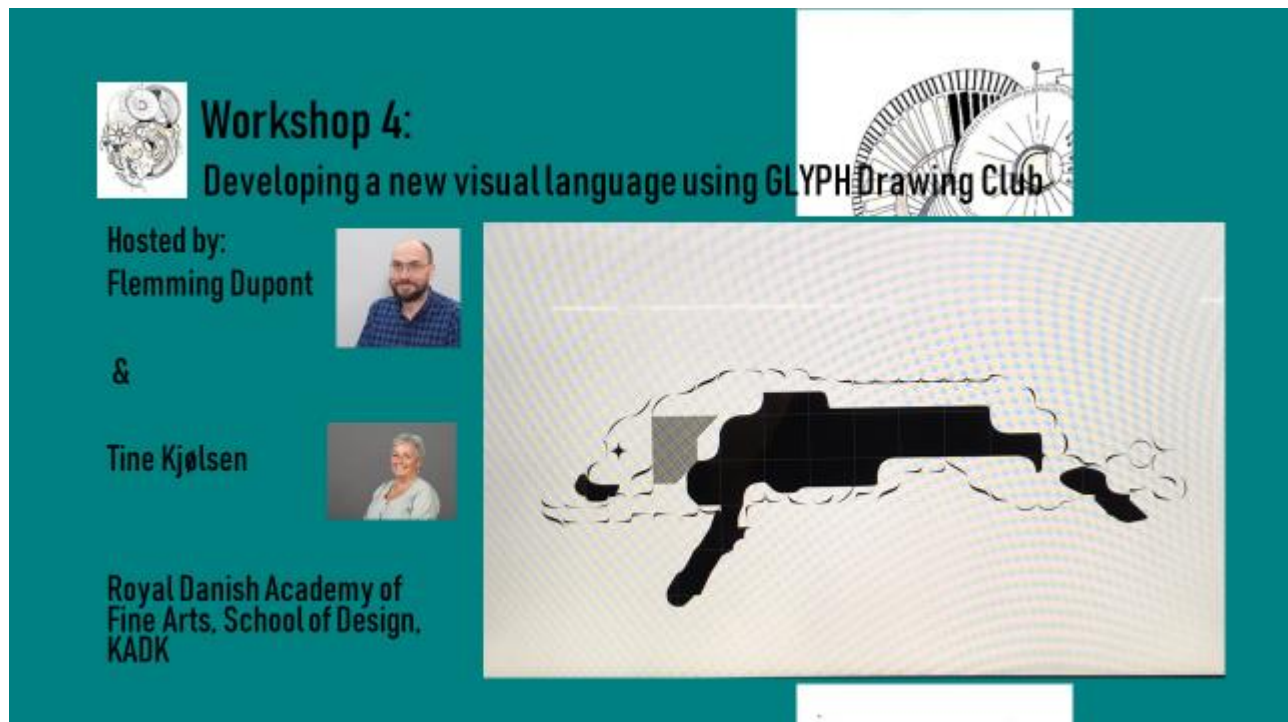


## Workshop 4

### Developing a new visual language using GLYPH Drawing Club

*Flemming Dupont and Tine Kjølsten/ KDAK*

The workshop invites you to explore how the software program GLYPH Drawing Club can be used to develop an alternative visual language. The visual language is developed through the user's interaction with the program that contains restraints. The user's new developed visual language serves as a database of ideas that forms the basis for making graphic solutions. The program is part of bachelor students experimental work in visual design at the KDAK in Copenhagen. During the workshop you will have the opportunity to try the program and learn from the experiences made.



The graphic features a teal background with a white grid pattern. On the left, there is a small circular icon containing a complex geometric drawing. To its right, the text 'Workshop 4: Developing a new visual language using GLYPH Drawing Club' is displayed in a bold, sans-serif font. Below this, the hosts are listed: 'Hosted by: Flemming Dupont' with a small portrait of a man with glasses, and '& Tine Kjølsten' with a small portrait of a woman. At the bottom left, the text 'Royal Danish Academy of Fine Arts, School of Design, KADK' is written. On the right side, there is a large, stylized black silhouette of a dog lying down, set against a white background with a grid pattern. Above the dog, there is a small circular icon containing a complex geometric drawing, similar to the one on the left. The overall design is clean and modern, with a focus on geometric shapes and patterns.

**Workshop 4:**  
Developing a new visual language using GLYPH Drawing Club

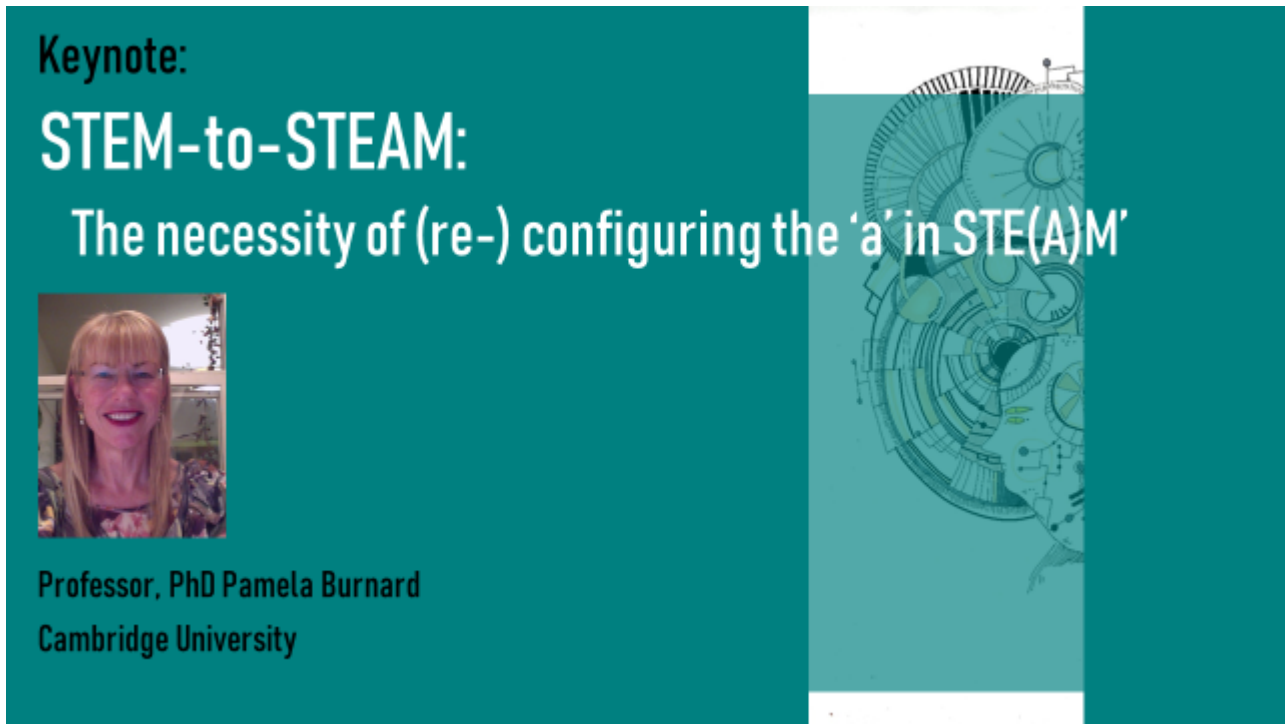
Hosted by:  
Flemming Dupont

&

Tine Kjølsten

Royal Danish Academy of  
Fine Arts, School of Design,  
KADK

6. Keynote, Pamela Burnard, Cambridge University and panel with Rikke Toft Nørgaard and Stine-Ejsing-Duun



Keynote:  
**STEM-to-STEAM:**  
The necessity of (re-) configuring the 'a' in STE(A)M'

Professor, PhD Pamela Burnard  
Cambridge University

**Keynote Title 'STEM-to-STEAM: The necessity of (re-)configuring the 'a' in STE(A)M'**

*Pamela Burnard, Professor of Arts, Creativities and Education at the Faculty of Education, University of Cambridge*

**Abstract:** If STEAM is seen as a continuation of STEM, adding to the economic drivers supporting scientific and technological developments, the arts are framed as a handmaiden to STEM, to facilitate engagement, to raise interest, to increase appeal. Such a position is contested on a number of grounds one such that it denies the intrinsic value of the arts, but also that of the sciences; that it presupposes a hierarchy of knowledge and that it assumes that the arts should necessarily be appealing to everyone. But there is also another line of thinking which forms the basis of this talk. The relationship between STEM and STEAM can be seen as an important forum for addressing questions of scientific and technological development vis-à-vis society and the environment. This view seeks further dialogue and experimentation across different fields of knowledge, practice and inquiry to deepen understanding of knowing in the arts and sciences and to widen their purpose and evolution to support prosperity as well as sustainability and wellbeing. The current movement to integrate arts within STEAM education is relevant not only for responding to complex societal and economic problems of the twenty-first century, but in that it carries its own paradigmatic shifts

that decentre dominant discourses in education. Drawing on a British Educational Research Association (BERA) Research Commission 'Reviewing the Potential and Challenges of Developing STEAM Education' (Colucci-Gray, Burnard, Gray and Cooke, 2019), and a forthcoming edited collection on 'Why Science and Arts Creativities Matter: (Re-)Configuring STEAM for Future-making Education' (Burnard and Colucci-Gray, 2020), Pamela will argue the imperative for widening the (re-)configurings of STEAM, as a boundary-object and knowledge-practice in design; a construct that can be shared by different communities and networks, as they come to interact with one another. She will also present a novel analysis of 200 "math-artworks" that were created by South African young people in Grades 8–12 following a series of experiential workshops. She offers insights on how STEAM uniquely engenders a "mutuality of disciplines" that STEM-TO-STEAM work intra-actively in STEAM practices such as in videogames.



Slides from the keynote:



**STEM-TO-STEAM**  
THE NECESSITY OF (RE-)CONFIGURING THE 'A' IN STEAM

Prof. Pam Burnard  
[pab61@cam.ac.uk](mailto:pab61@cam.ac.uk)  
[educ.cam.ac.uk/people/staff/Burnard](http://educ.cam.ac.uk/people/staff/Burnard)

## Thinking-with Erin Manning (2013)

- \* **Repositioning visibility:** posthumanism, the nonhuman, the more-than-human, 'choreographic thinking', creative ecologies, ecologies of perception, and how knowledge creation transforms practice
- \* **Reconfiguring STEM-to-STEAM:** as an enactment of education reform; what we perceive-and-live through the densely articulated webs (a rhizome) of ecology between Science (scientific knowing/being/doing) and the Arts (knowing/being/doing) = co-constitutive of **new forms of professional knowledge production**
- \* Interweaving the contribution of both arts-based and creative pedagogies to STEAM = co-constitutive of **new forms of experience-knowledge**
- \* Co constituting of new forms of inter/intraprofessional partnerships in dialogue with and embracing an ecological politics of **'collective individuation'**

## CREATIVE CAMBRIDGE?



What material, cultural, symbolic, political, economic, and practical changes are taking place in this institution?

When viewed through the lenses of **Posthumanism** and **Feminist Materialism**, it seems these changes will shape new **"creative ecologies."**

# POSTHUMANISM

"GIVING TO THE WORLD THE POWER TO  
CHANGE US, TO FORCE OUR THINKING."  
(STENGERS 2008, P. 57)

How can an approach to change that  
situates 'the human' as just one part of a  
greater network of human and non-human  
actants be realised in Education  
Research? Particularly in research on the  
change from STEM to STEAM?



# FROM STEM TO STEAM

REVIEWING THE POTENTIAL AND CHALLENGES OF DEVELOPING STEAM  
EDUCATION THROUGH CREATIVE PEDAGOGUES  
(...AND STEAM ASSESSMENT?)



It is time for (re-)seeing differently  
 Why 'each intra-action matters' (Karen Barad, 2007)  
 Why 'pedagogic practice-ings' matter  
 Why 'choreographic thinking' (chunking) underlies perception (Erin Manning, 2013).  
 On coming to see, to know, to shape, to show, to teach, to learn, to attune, differently (Laura Colucci-Gray, et al, 2017)  
 As the 'moment-by-moment material doings', in the entangled, relations of knowing and being, which activate matterings and encounters which become more than human-nonhuman' bodies' (Carol Taylor, 2018).  
 How the digital condition (Felix Stalder, 2018) mean re-mixing, re-making, re-enacting  
 Focusing on three forms  
 Referentiality (processes which inscribe ourselves as producers)  
 Communality (formations which embeds individual into complex social relationships)  
 Algorithmicity (processes that are socially constructed, that pre-sort, convert and invest large volumes of data)  
 shifts to digital culture and the digital child.

We learn that we are 'not obliged to reproduce the system' (bell hooks, 2000)  
 'Rejoicing in, not reducing, not afraid to let go, not afraid to take the plunge' to take risks, to create, to innovate (Helene Cixous, 1992)  
 We voice risk  
 We voice possibility  
 We perform  
 We are performed  
 'Voicing the silenced'  
 Disrupting the 'same old same old' performing the 'as-yet-unknown' 'improvising vulnerability' (Liz MacKinley, 2019)  
 There is no lack of cutting-edge alternatives  
 Outside & inside of the market and the state  
 Shaping new expectations  
 Embodying new possibilities  
 Involving distributed creativity (Vlad Petre Glaveanu, 2014) new configurations of STEM-to-STEAM,  
 Co-constitutive of a 'third path' in schooling (Mie Buhl, 2019), where 'immanent relations of knowing and being is an ethical call' (Karen Barad, 2007)

# THE CHILD IN GAMES

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- Much has been written about *child-players*, but next to nothing has been written about *child-characters*...
- Research project catalogues and critiques video games in which you play as a child-character or *with* a child-character
- How do videogames affirm or subvert ideological beliefs about children? Do digital kids in virtual spaces provide a safe environment in which we can experiment with social constructions of childhood?





## Can digital kids make children 'see' themselves in new ways?

Virtual children in simulated worlds point to the active construction and delimitation of 'the child' in society, and can reveal that much of what is assumed to be natural, obvious, and universal about children may in fact be ideological. It hints at the possibility that just as virtual children are used as rhetorical figures to explain and justify the rules, mechanics, and moral systems of digital games, so too is the figure of 'the child' used to routinise and vindicate the rules, workings, and moral systems of Anglo-American culture.



## Will video games be the medium historically associated with the emancipation of the child and the end of adult hegemony?

Video games already provide virtual spaces into which children can retreat from adult control - so maybe this is where the revolution will be staged. In this context, it **matters** whether child-characters are simply superstructural objects signifying unquestionable moral values (and if this is tempered with irony or meta-awareness) or whether they are **multidimensional subjects with agency and personhood**.



# VIDEO GAMES, MOOD, AND PSYCHOLOGICAL WELLBING

DAVID BRIERLEY, MPHIL  
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- Monitoring the emotional state of students participating in an after-school video games club
- Differentiating between game genres - not treating 'video games' as homogenous, but showing that cooperative games, narrative driven solo-player games, and multi-player competitive games all have distinct effects



EXPERIENCE WORKSHOP  
  
THE EXPERIENCE-CENTERED  
MATH/ART MOVEMENT  
[www.experienceworkshop.org](http://www.experienceworkshop.org)



## PHENOMENON-BASED LEARNING IN CREATIVE COMMUNITIES

# KIDS INSPIRING KIDS (KIKS)

A EUROPEAN ERASMUS+ PROJECT INVOLVING UK, SPAIN, FINLAND, AND HUNGARY

Q: "How would you get your schoolmates to love STEAM?"



**HOTHOUSING** - STUDENT-LED WORKSHOPS

**LOCAL CHALLENGES** - STUDENT-DEVELOPED SOLUTIONS

**INTERNATIONAL COLLABORATION** - USING SKYPE, FACEBOOK, WIKI, AND MOODLE

**IMPACT** - ELEGANT SOLUTIONS, 90% COMPLETION RATE, IMPROVED PERCEPTION OF SELF AND STEAM

## NOISE SOLUTION

MUSIC MENTORING PROGRAMME, DRAWING ON SELF-DETERMINATION THEORY, COMBINING MUSIC MAKING WITH DIGITAL STORYTELLING



- Digital platform to create and share music with important adults
- Increases well-being of youth in challenging circumstances
- Collected SWEMWBS data from 60,000 respondents and found 63% showed marked increase in general well-being

# SONIC PI - A CODEBASED MUSIC CREATION AND PERFORMANCE TOOL

## A NEW KIND OF MUSICAL INSTRUMENT

Learn to code whilst composing music in any genre



```

69 with_fx :lcr techno, mix: 0.1, phase: 0, cutoff_min: 90, cutoff_max: 120, res: 0.9, amp: 1 do
70   with_fx :lpf, mix: 0 do
71     funk
72   end
73 end
74 end
75 end
76
77 live_loop :extra_beat do
78   sync :main
79
80   32.times do
81     tick
82
83     with_fx :lcr do
84       sample :bd_fat, amp: 2 if spread(1, 16).look
85       sample :bd_fat, amp: 1.5 if spread(1, 32).rotate(4).look
86       synth :choise, release: 0.5, cutoff: 130, env_curve: 7, amp: 1 if spread(1, 16).rotate(8).look
87       synth :choise, release: 0.1, cutoff: 130, env_curve: 7, amp: 0.25 if spread(1, 2).look
88     end
89   end
90 end
91 end
92
93 live_loop :solo do
94   sync :main
95
96   pluses = [

```

```

[run: 27, time: 18.3637, thread: "live_loop_extra_b
  ↳ synth :choise, release: 0.1, cutoff: 130, env
[run: 27, time: 18.3637, thread: "live_loop_extra_b
  ↳ sample :bd_fat, amp: 2
  ↳ synth :choise, release: 0.1, cutoff: 130, env
[run: 208, time: 0.7512, thread: "live_loop_intro")
  ↳ sample :choise :choise
[run: 206, time: 17.3402, thread: "live_loop_solo")
  ↳ synth :choise, release: 0.1, cutoff: 130, env
[run: 209, time: 18.5576, thread: "live_loop_extra_b
  ↳ sample :bd_fat, amp: 1.5
  ↳ synth :choise, release: 0.1, cutoff: 130, env
[run: 207, time: 18.5576, thread: "live_loop_extra_b
  ↳ synth :choise, release: 0.1, cutoff: 130, env
[run: 208, time: 18.3637, thread: "live_loop_solo")
  ↳ synth :choise, release: 0.1, cutoff: 130, env
[run: 207, time: 18.3637, thread: "live_loop_extra_b
  ↳ synth :choise, release: 0.1, cutoff: 130, env
[run: 206, time: 18.3637, thread: "live_loop_solo")
  ↳ synth :choise, release: 0.1, cutoff: 130, env
[run: 207, time: 18.5576, thread: "live_loop_extra_b
  ↳ synth :choise, release: 0.1, cutoff: 130, env

```

Buffer 0 Buffer 1 Buffer 2 Buffer 3 Buffer 4 Buffer 5 Buffer 6 Buffer 7 Buffer 8 Buffer 9

### Low Pass Filter

```

with_fx :lcr do
  play :b
end

```

Deposits the parts of the signal that are higher than the cutoff point (typically the crunchy 'fizz' harmonic overtones) and keeps the lower parts (typically the bassiest of the sound). Choose a higher cutoff to keep more of the high frequencies/treble of the sound and a lower cutoff to make the sound more out and only keep the bass.


introduced in 2.0

Turntable Examples Scripts **API** Screenshot Log

# DATA DRIVEN DANCE

GENEVEVE SMITH-NUNES, MPhil  
[GENEVEVE@READYSALTEDCODE.ORG](mailto:GENEVEVE@READYSALTEDCODE.ORG)

## Combining classical ballet with computing



**Genevieve Smith-Nunes** research draws across dance, performance, lighting design, video production, VR, digital ethics, and coding.

She is interested in bio-metrics and bio-tech, and their intersection with art. For example, she transforms 'dirty data' collected from EEG readings taken during dance into evocative visualisations to be displayed during performances.

# UNBIAS YOUTH JURIES

EMANCIPATING USERS AGAINST ALGORITHMIC BIASES

Free resource to teach young people about data privacy, data personalisation, data as currency, and 'personal filter bubbles'



*Exchanging Notes Research Report*

Birmingham City University for Youth Music, May 2019

 BIRMINGHAM CITY  
UNIVERSITY

 YOUTH  
MUSIC

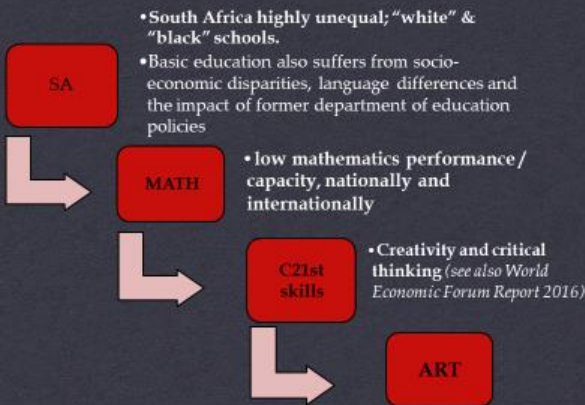
 ARTS COUNCIL  
ENGLAND

**BERA Research Commission** Reviewing the potential and challenges of developing STEAM education through creative pedagogies for 21st learning: how can school curricula be broadened towards a more responsive, dynamic, and inclusive form of education?

Colucci-Gray, Burnard, Cooke, & Davies (2017)



## STEAM-ing MathArtWorks from South Africa



• South Africa highly unequal; “white” & “black” schools.

• Basic education also suffers from socio-economic disparities, language differences and the impact of former department of education policies

• low mathematics performance / capacity, nationally and internationally

• Creativity and critical thinking (see also World Economic Forum Report 2016)

Collaboration between researchers and practitioners across UK, Finland and South Africa

A Math Art Competition, result of the efforts at the Nelson Mandela University

-to enhance blended teaching and learning solutions, and

-to improve student outcomes in mathematics and science especially in rural areas of the country.

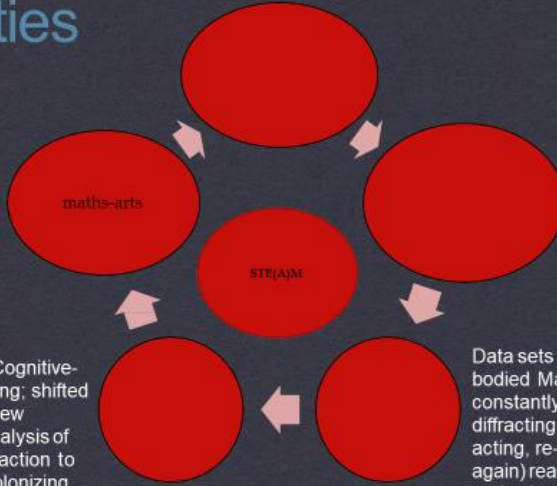
Open to all the secondary school learners (Grade 8 – 12) in the region.

18 out of the 37 (i.e. 49%) participating schools were historically “black”, non-fee paying or low socioeconomic status schools and learners. The 18 schools include four private schools with generally excellent facilities and motivated staff.

# A Spectrum of Diverse Creativities

Levels of selection process and analysis: 1) Math & Arts knowledges; 2) Math-art creativities; 3) Abstraction of knowledge.

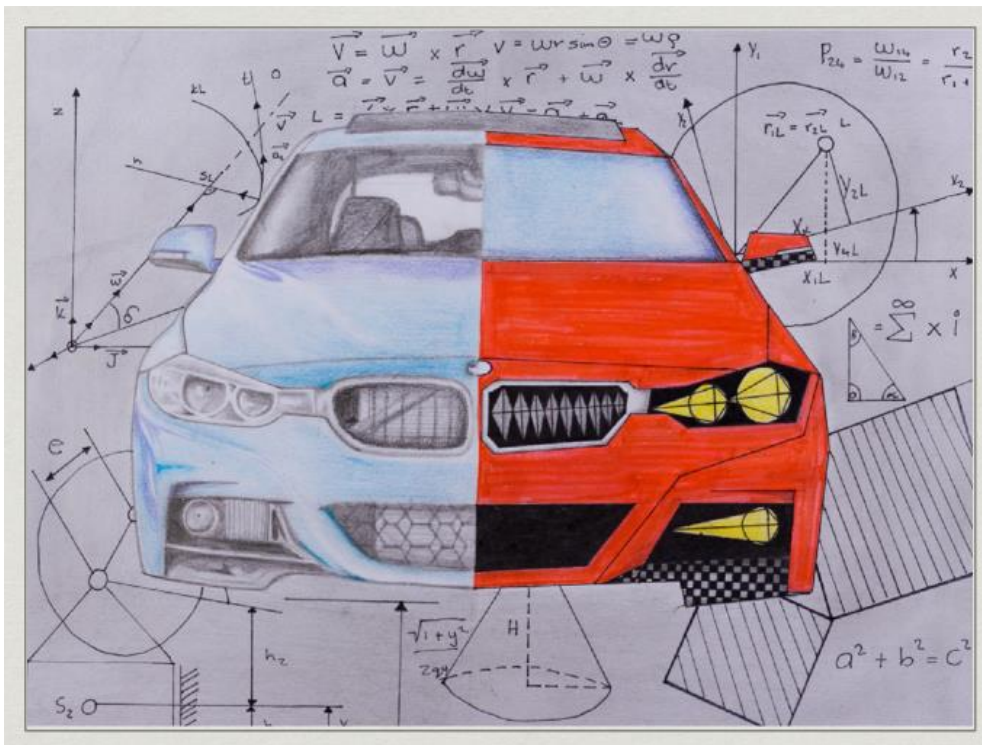
"MathArtWork" conceptualised as the intra-disciplinary Creativity – A DYNAMIC CONFIGURATION OF STE(A)M

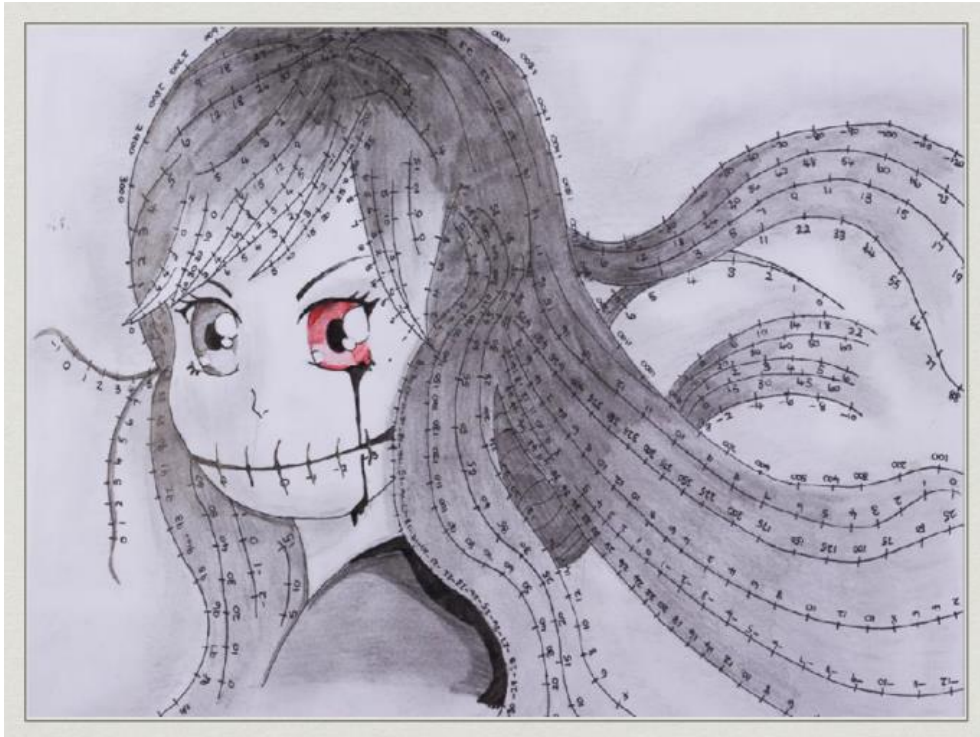


20/200 sampled artworks & paragraphs included of learner perspectives in dialogue with the image.

Initial Socio-Cognitive-Cultural framing; shifted to Feminist New Materialist analysis of temporal diffraction to disrupt the colonizing science-art binaries

Data sets analysed as embodied Math-Artworks constantly re-turning, diffracting through, and intra-acting, re-turning again (and again) reading and re-reading and re/configuring of/with/in theory







## CONCLUDING THOUGHTS

- Can contemporary art and visual culture teach us ways to approach and understand technology?
- Is technology radically changing the way we approach and understand art and visual culture?
- What can STEAM education learn from the way video gaming reconfigures visual culture / visual technology?



## Thinking-with Erin Manning (2013)

- **Repositioning visibility:** posthumanism, the nonhuman, the more-than-human, 'choreographic thinking', creative ecologies, ecologies of perception, and how knowledge creation transforms practice
- **Reconfiguring STEM-to-STEAM:** as an enactment of education reform; what we perceive-and-live through the densely articulated webs (a rhizome) of ecology between Science (scientific knowing/being/doing) and the Arts (knowing/being/doing) = co-constitutive of **new forms of professional knowledge production**
- Interweaving the contribution of both arts-based and creative pedagogies to STEAM = co-constitutive of **new forms of experience-knowledge**
- Co constituting of new forms of inter/intraprofessional partnerships in dialogue with and embracing an ecological politics of **'collective individuation'**

After the keynote, Associate Professor Rikke Toft Nørgaard, Aarhus University and Associate professor Stine Ejsing-Duun, Aalborg University engaged in a panel discussion with Professor Pam Burnard about the potentials and challenges in integration of arts in the STEM construction.



Panelists afterwards

## 7. After event at The Animation Workshop

### Tour on The Animation Workshop, gathering and network



See you November 12<sup>th</sup> 2020!