

Hybrid Practices in Art and Science 1

Otakaari 1X, room A1, 1st Floor

Session chair: **Mamdooh Afdile**

Anniina Suominen, Pia Lindman, Timothy Smith and Leena Valkeapää:

Hybrid Articulations of Arts and Science: Educating for Ethical Sustainability

The authors of this paper/presentation are artists, researchers, and educators exploring hybrid combinations of cross-discipline theories to study how to research, create, and teach in ways that may have long-term sustainable impact of attitudes, thinking, practices, and policy. Each member of this working group articulates how they have arrived at their current positions through practice-based knowledge as well as informed by various theories. While their positions vary, the group shares an interest in exploring the ethics and demands of researching and educating for sustainable futures. The presenters' foci are transdisciplinary, yet each member centralizes the arts in their quests for learning and in the articulations of what is learnt. Central to their inquiries is to question normative ways of thinking and acting, and rather to formulate ways that create the conditions for re-imagining and reframing the dominant image and normative ideal of the human vs. anything/something other. Another reconsideration is human subjectivity in the face of radical transformations caused by technological development, ecological crises, and the complex immediate and long-term consequences these have. The presenters draw partially from posthumanism which aids in addressing significant ethical questions in natural science and social science research. However, there is very little shared understanding of what kinds of learning in research and teaching may result in broader long-term sustainable changes. Through their collaboration and sharing, the presenters explore why they have devoted their scholarship and practice to these quests and how might this commitment gain forms in their work with others.

Keywords: posthumanist theory, education for ethical sustainability, hybrid articulations of arts and science

Nedyalka Panova and Ross Gillanders:

Explosive Botanic

Plants can be used to detect toxic materials in soil. Existing vegetation or especially genetically modified plants can 'point out' to suspicious areas affected by landmines.

Willing to learn from nature is a sustainable way to solve ecological problems such as detecting unexploded landmines - an existing threat for civilians, causing long-lasting soil contamination, preventing people from traveling on land, denying the safe use of land for agriculture or recreation and halting any future development of the infrastructures in the affected areas.

This Art and Science project, developed in 2016/2017 at the University of St. Andrews shows the impact of artistic research and creative thinking-through-making processes in experimental studio and laboratory based practice, run in parallel with scientific research for explosive detector sensors.

Inspired by the input of researchers from Organic Semiconductor Centre, visual artist in residency Nedyalka Panova explores the possibilities of studying the response of non-genetically modified plants to the presence of explosives in the soil. Features such as root formation, speed of growth, germination rate and difference in

pigmentation were among the parameters to compare between plants grown in soils with different concentration of toxic explosive materials such as DNT and DNB.

The ephemeral biomass was used and transformed in permanent art works with a tangible determination and emotional resonance. Art practices for this project included field trips to landmine fields in Croatia, laboratory based research using Green Chemistry techniques and art exhibitions at Mine Action conference in Croatia and at Snail Aid in Genova (2017).

Keywords: landmines, visual art, biology, green chemistry, sustainability, digital imaging

Kirsi Manninen:

An Empathy–Oriented Drawing Method: Training Digital Drawing through Mindful Embodied Awareness

The development of technology has changed sketching methods in the field of costume design. Costume designers are now using mobile devices in addition to traditional hand-drawing in the character creation process. The purpose of this research is to find the benefits and challenges of mixed media sketching techniques used by costume designers. This study presents an empathy–oriented drawing method for costume sketching in which empathy and embodiment are used as methodological approaches to character creation in digital costume sketching. In this method, the costume designer begins the ideation of the costume sketch with the mental and bodily representation of the character: through the embodied process of immersion of the character. The data for this study is collected through a mixed method approach, and the paper uses a qualitative case study to investigate the experiences of using the method. The initial results show that the research participants considered the method useful in their costume sketching process, because the method enables costume designers to experience a stronger bodily connection with the digital medium, which is not possible by traditional means. Hence the findings of this study can be used to develop teaching practices in the field of costume design, but also in other design processes involving sketching.

Keywords: costume design, digital sketching, touch screen, mixed media, empathy, embodiment

**Mikko Sams, Mamdooh Afdile, Tommi Himberg, Marcus Korhonen,
Mikko Kurimo, Jaakko Lehtinen, Tuukka Raij and Enrico Glerean:**
eFilm: Hyperfilms for basic and clinical research

We present the eFilm concept, a novel computational platform for producing and easily modifying films to be used in basic and clinical research. The use of films as stimuli in experimental settings is gaining popularity in the science community due to their unique ability to transport the observers into the world depicted in the film and tap both unconscious and conscious behavioral mechanisms. However, as films were not designed to be used for experiments, they lack the flexibility needed to allow the researchers to modify them according to their needs. The ability to manipulate events in the film will allow further understanding of the significance of these events for the viewer. Based on the current trajectory of research and developments of analysis tools allowing further understanding of how films are processed in the brain, we are convinced that carefully tailored films will provide a very efficient stimulus to progress our understanding of human behavior. This requires transforming films from a fixed into a more fluid structure that will allow manipulations such as replacement of background, changing dialog and even swapping the faces and bodies of the characters. Our eFilm approach significantly advances the use of films to understand the perception of constructed social reality in healthy subjects and patients. In this paper we demonstrate the necessity of such a platform, why it will help overcome current limitation in using films as an investigative tool, as well as how eFilm might be realized to overcome these limitations.

Keywords: Digital humans, Face swapping, Brain, Cognition, Emotions, Social Interaction
