



Introduction Track 6.b: Design Literacy enabling Critical Innovation Practices

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doi: 10.33114/adim.2019.6b

Norwegian research group Design Literacy at Oslo Metropolitan University (OsloMet) which is led by professor Liv Merete Nielsen has initiative to this paper track. The paper track was accompanied by a workshop.

Design Literacy can be regarded as a catalyst for a move towards a better citizens participation in innovative design processes. By educating the general public to become design literate, there is a chance to support critical innovation and a possible move towards sustainable societies (Stegall, 2006). The challenge is to articulate content, performance and continuity for a critical decision-making process and how this influence critical innovation and design education at large.

The concept 'Design Literacy' addresses the complex matter of objectives, content and practices in design processes and education. Research on multiple literacies has evoked considerable debate and redefinition within several areas of educational research (Coiro et al. 2008); the understanding of literacy is no longer bound to the ability to read and write verbal text or numeracy. Design Literacy (Nielsen and Brænne, 2013) are among newly coined literacies. Design Literacy is connected both to the creation and understanding of design innovation in a broad sense. In today's mostly artificial world, the Design Literacy is regarded as a competence not only for the professional designer, but also for the general public in their position as citizens, consumers, users and decision makers in innovative processes.

Designed artefacts and services influence our lives and values, both from personal and societal perspectives. Designers, decision makers and investors hold different positions in the design process, but they all make choices that will influence new innovations and our future. In order to solve crucial global challenges, designers and investors must cooperate; for this purpose, we argue that design literacy is necessary for all. We argue that the Design Literacies can support practices associated with innovation, democratic participation in design processes, developing and enacting ethical responsibilities, and understanding and supporting sustainable aspects of production and consumption.

The track called for researchers to explore the following points:

- How development of Design Literacy can support critical innovation and sustainable issues
- Progressions in scaffolding Design Literacies from a pre-school to a university level
- The potential of Design Literacy to support collaborative and experimental approaches of projects between: investors/designers, general public/designers, children/designers



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- How design education for the general public can represent both a foundation for professional design education and a prequalification for lay persons' competence for decision-making and critical innovation
- How might Design Literacy influence sustainability issues in society?
- What are the challenges of professional design, when everyone wants to design?

Research presented at this track addressing the points above have been useful as a point of departure for the Design Literacy workshop and the creation of the Design Literacy International network. The papers have also been useful for the promotion of critical innovation and to inform policy and for educational implementation. The importance lies in the needs to better inform design education itself, to improve the approach of design educators, and to educate reflective citizens, policy makers, entrepreneurs and consumers in perspective of critical innovation.

Eleven papers were accepted and gathered researchers from US, New Zealand, Australia, Chile, Finland, Portugal, UK and Norway to explore the concept Design Literacy through three sessions.

Eva Lutnæs (OsloMet - Oslo Metropolitan University, Norway) authored the first article *Framing the concept design literacy for a general public*. She explored the concept design literacy from a general public perspective. Asking the question 'What does it mean to be design literate in a context of critical innovation' she reviews three key texts storylines on how to cultivate design literacy and arrives at a definition of the concept design literacy for a general public. Lutnæs was awarded Top III Paper submissions for her contribution to the conference. Her paper was used as a point of departure for discussions in the Design Literacy workshop.

Miika J. Lethonen and Jia Jing Chew (Aalto University School of Arts, Design and Business and Aalto University School of Business, Finland) wrote the paper *Developing design literacy for social agency*. They look into how multidisciplinary teams of students in higher education develop their design literacy in an action-oriented course setting. Based on their initial analysis, blending the boundaries between universities and the surrounding society positively contributes towards developing design literacy. The contribution of design literacy to non-designers in higher education is preparing a workforce that is well-equipped with the skills and knowledge to navigate the complexities of our global human society.

Chris Pacione (LUMA Institute, United States of America) presented *A Framework to Accelerate Universal Design Literacy*. He argues the design is poised to become the next universal literacy. Just as arithmetic was once a peripheral skill until the industrial age brought about the need for math literacy, the socioeconomic conditions of our current age are heralding the need for millions of people to level up in design. The expanding role innovation and collaboration play in our daily work, combined with the ever-increasing complexity and rate of change of today's products, services, and systems are making the case for design literacy. The paper propose a framework with a set of skills to accelerate design literacy.

Úrsula Bravo (Universidad del Desarrollo, Pontificia Universidad Católica de Chile) and **Erik Bohemia** (Oslo Metropolitan University, Norway) wrote the paper *Representations of Design Process* where they argue that visual representations of design processes contribute toward social and material practices of design(ing). Metaphors was used to illustrate that they are active material devices of which circulation, production and consumption are informed and informing perceived complexities, ambiguities and paradoxes associated with design. These models can contribute to the development of Design Literacies. Bravo was awarded Top III Paper submissions for students.

Randi Veiteberg Kvellestad, Ingeborg Stana and Gunhild Vatn (all from Oslo Metropolitan University, Norway) had written the paper *Working Together - Cooperation or Collaboration?* where they elaborate on the difference between cooperation and collaboration through an action-research project in design education for specialised teacher training in design, arts, and crafts. At the Oslo Metropolitan University including the material areas of drawing, ceramics, and textiles. The project developed the participants' patience, manual skills, creativity, and abilities, which are important personal qualities for design education and innovation and represent cornerstones in almost every design literacy and business environment.

Anita Neuberg (Oslo Metropolitan University, Norway) presented her paper *Social innovation for modified consumption by means of the school subject Art and craft*. In her paper she asked: How can we, based on the subject of Art and craft in primary schools, facilitate the change in consumption through social innovation? Opportunities for actions were discussed under the subject of Art and craft, in Norwegian general education, ages 6–16.

Fiona Peterson (Auckland University of Technology, New Zealand), **Cathy Lockhart** and Catherine Raffaele (both from University of Technology Sydney, Australia) had written the paper *Adaptive digital capability development: Professional learning for educators across disciplines*. In a cross-university project, a mixed methods approach was adopted to design a learning model for digital work practices in line with evolving industry needs. Their responses indicated a predominantly functional digital capability focus in their current learning and teaching practice; rather than integrating functional, perceptual and adaptive digital capabilities, which are in high demand but short supply in industry. They argue it is vital for students and educators to learn and use the vocabulary of technology affordances, to strengthen professional learning for digital work futures.

Rebecca Kelly (Syracuse University: VPA, School of Design, United States of America) presented her paper *Democratizing Design: Can Higher Education Survive?* She claims that the tools and techniques of graphic design have become accessible to the public at large to such a degree that the profession itself may be threatened with extinction. At the same time, design literacy — the knowledge and reasoning beyond the use of those techniques — does not seem to be experiencing the same widespread dissemination. Educators must be innovative in order to prepare a new generation to evolve quickly and continuously. Programs must be fluid and adaptable, which requires educators to treat their curricula as design problems, to be solved with radical thinking and creativity.

Lars Groeger (MGSM, Macquarie University, Australia; 2: RWTH Aachen University, Germany) and **Jochen Schweitzer, Leanne Sobel and Bridget Malcolm** (all from University of Technology Sydney, Australia) had written the paper *Design Thinking Mindset: Developing Creative Confidence*. Their study examines the effect of an experiential Design Thinking (DT) learning environment on the development of a DT mindset. They analysed the extent to which key attributes of a DT mindset are understood, evaluated and assessed. They provide a framework for learning objectives and exemplary activities to teach and encourage designerly ways of thinking and doing in business education is provided, and argue that a mindset that embodies DT can address deficits in business school education, better preparing students for future work.

John Richard McCardle, Samuel Dempsey and Max Humberstone (all from Loughborough Design School, United Kingdom) had written the paper *Stressors and creativity in Industrial Design practice*. Current literature suggests that stress influences creativity, and current views are clearly divided on whether any negative effects on creativity are more dictated by environmental stressors or the reactions of individuals whilst under stress. In their study, participants completed a questionnaire comprising of a perceived stress scale and thematic questions. The results suggested that participants who identified as being more affected by their own negative reactions to stress displayed a lower calibre of creativity when time-pressure increased, whereas the participants who were suggested to be more influenced by their environment remained at a relatively constant perceived level of creativity.

Tore Andre Ringvold and Liv Merete Nielsen (both Oslo Metropolitan University, Norway) had written the paper *Complexity, interdisciplinarity and design literacy*. For decades, global organisations and researchers have pointed to interdisciplinarity as a way forward for educational systems. Educational research offers great possibilities and gains for students involved in interdisciplinary teaching and learning processes, and the interdisciplinary nature of design thinking and practice can play a vital role in interdisciplinary general education. This paper explores how future scenario-building, as part of general design education, can serve as a framework for inter-disciplinarity in general education and contribute to a better understanding of complex problems, challenges and design literacy.

Irene Brodshaug and Janne Beate Reitan (both Oslo Metropolitan University, Norway) had written the paper *Networking for strengthening design literacy*. This paper focuses on design education for the general public and the ways in which students and teachers can become more design literate through the development of networks, such as professional groups for teachers. The emphasis of this study is on how each municipality gives time and space for the development of design competence through professional groups. A well-organized professional group will hopefully contribute to a deeper level of expertise in schools and an increased ability for the general public to recognize design education.

Catarina Lelis (University of West London, UK) and **Oscar Mealha** (University of Aveiro, Portugal) had written the paper *Developing design literacy through brand-based artefacts*. They state that the brand is a powerful representational and identification-led asset that can be used to engage staff in creative, sustainable and developmental activities. Being a brand the result of, foremost, a design exercise, it is fair to suppose that it can be a relevant resource for the advancement of design literacy within organisational contexts. The main

objective of this paper was to test and validate an interaction structure for an informed co-design process on visual brand artefacts.

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