



Delft University of Technology

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Editorial: theme Education

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The theme of Design Education always attracts a great number of submissions at DRS conferences, and this year is no different. The call for papers asked for contributions which explored how design education is changing and needs to change, and how working designers and design researchers update their skills to meet the challenges of the present and the future.

When submitting papers, authors were able to pick appropriate keywords for their papers which allowed the emergence of seven sub-themes within the Education theme – Design Thinking, Design Techniques, Design Inspiration, Researching the Material, Ethics and Health, Community and Communication, and Transdisciplinarity. This is in addition to the DRS SIG PedSIG which also has a themed Education session within the proceedings in which they highlight a number of papers that speak particularly to current themes in Design Education. However, all of the papers in the education theme are relevant to PedSIG. The papers in this Education theme are wide-ranging in scope and address education in its broadest sense. There are both examples of design research within educational settings and also in applied settings where education is implied more through the developing and changing practices of those in the real-world.

The first Education sub-theme is **Design Thinking**, with papers which describe design thinking both within educational settings and within an applied public health context. Paper 334 describes an approach to design strategy as innovation for social impact and a pedagogical approach/curriculum for teaching design strategy is discussed as a core design research activity. Paper 166 traces how a Design Thinking approach can be introduced in public health services. It does so through the introduction of a workshop in which stakeholders were guided in using it to develop public health strategies in Taiwan, using adolescent tobacco prevention as a case for research. Paper 294 acknowledges the need to improve the narrative design of educational interventions such as digital simulations and scenario-based learning programmes to aid experiential learning. The reported study turns to the expertise of narrative designers for games, where storytelling for interactive narrative has a long history of testing, iterating and perfecting.



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There are three papers clustered into the sub-theme of **Design Techniques**, describing research into different types of design technique. Paper 280 starts with investigating and discussing the changes in designers' conception throughout product innovation projects. The analysis revealed specific conditions that facilitate novel conceptual changes necessary to create an innovative product design concept. The next two papers both describe two specific techniques and the development needed for the future: Paper 109 critically examines brainstorming and the how to develop it to answer the need for it for collective creativity in the future, while Paper 256 does not report on pedagogy so much as it develops building blocks for it: new Design Heuristics as a tool to help boost designers' creativity in the early design process.

The **Design Inspiration** sub-theme specifically draws together papers using design research within student settings, thus inspiring the educational experience. Paper 203 reports on the development of a modular prototyping system for the design of space vehicle interiors, deploying it in a student class studio setting where designers utilised these elements throughout a team project. Paper 284 shares learnings from three case-studies across undergraduate, postgraduate, and design research projects, exploring the possibilities and limitations of VR tools for future industrial design practitioners. These projects detail the possibilities for VR in industrial design and illuminate some of the challenges in teaching these emerging technologies and tools to design students. Finally, Paper 298 explores the benefit of incorporating both distant and near sources of inspiration in concept generation in a design studio context. An idea-generation process implemented in a third-year industrial design studio for three years is discussed.

The **Researching the Material** sub-theme draws together papers which focus on research practices. Paper 229 present an interdisciplinary undergraduate course in which students interacted with clay and wool. By engaging novices in material-based craft processes, they examined renewed ways of experiencing the materials to reconsider everyday material interactions and dependency and responsibilities in regard to materials in general. Paper 335 asks whether too much passion can be detrimental in the design studio, using autoethnographic accounts as design educators in a university recently established in the Middle Eastern and North African (MENA) region. Paper 337 investigates the use of five postphenomenological concepts by bringing them to design practice and using them as a "generative lens" in design research. The reflections point to a responsibility of the designer to incorporate ways of being, ways of knowing and values on top of specific uses and utility.

The **Ethics and Health** sub-theme describes two studies in which students work on ethics and health design problems, and another paper which looks at decision making. Paper 107 identifies how triads of student designers from user experience (UX) and industrial engineering (IE) disciplines frame the problem space and generate solutions, foregrounding the ethical character of their judgments in response to an ethically-nuanced design task. Paper 110 tackles the support of contraception decision-making and examines the relevant goals of the immediate actors: personal goals of the patient and physician as well as the goals of the public health system. Paper 376 addresses the multifaceted problem of psychotherapy,

exploring what design can do for psychotherapy in a digital age. Student cohorts worked on this question in design classes.

The **Community and Communication** sub-theme draws together three papers which provide case studies of real-world educational initiatives in Australia and China. Paper 276 presents LiveSpace, a transdisciplinary work-integrated learning (WIL) design studio unit at Griffith University and highlights two highly successful community projects. Paper 291 presents Tongji-Huangpu School of Design and Innovation, a newly reformed educational institution in China. The case study gives an overview of the school, outlines the practice of since its establishment and elaborates the tensions during transition phases. Synergy, the concept of the whole being greater than the sum of its parts, is identified as the goal of reducing tensions. Finally, Paper 317 details the development of a new design curriculum at Queensland University of Technology, which prompted a study to revisit the nature and purpose of portfolios.

The final sub-theme before the Education special interest group highlights is **Transdisciplinarity**. These papers demonstrate transdisciplinary approaches for students and academics working with external partners, stakeholders and communities and represent a growing area of importance for design research. Paper 143 discusses how visual communication design education could be improved by incorporating transdisciplinary learning within the design curriculum and providing lifelong training to professional designers and design educators. The conclusion is that design education needs to be adapted to allow future designers to solve the gradually complex design problems and work in non-design industries. Paper 243 describes the work of the Department of Design (Brunel Design) at Brunel University London, which provides design innovation support programmes to businesses by involving its students and academic and professional staff. This paper presents a literature review on design innovation and its benefits in collaborations between academia and industry. Finally, Paper 344 acknowledges that society is dealing with challenges which are complex, dynamic and networked and posits that Transdisciplinarity is one of the responses to this. Transdisciplinarity, however, is seen as disruptive to existing university structures, and there is a need to examine the challenges to inform future directions. The paper presents an exploratory study into the existing challenges towards implementing transdisciplinary education through action research in a graduate degree program.

Overall, the papers within the Education theme demonstrate a body of design research which tackles education as a broad concept, both within educational settings, and also more widely within practice. There are examples of inspiring innovation within design education, with a variety of case studies and real-world examples within an international context. Many of the papers point to the need for further research, and in this sense, these papers provide inspiring directions for future design research. The area of Transdisciplinarity in particular is an evolving area of importance due to the complexity and networked nature of the problems that design can tackle. But how this translates into design education is currently less clear, given the static and traditional structures of many academic institutions. This calls for a new type of synergy within design education, as students develop new mindsets to think in

transdisciplinary ways and become the agents of complex change.

The Education special interest group highlights will point to two issues of interest in this regard: the development of the individual learner, and the relationship between student and teacher.