

## Endings and beginnings

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The publication of this final issue of the journal for 2019 comes at a very sad time for many of us involved in design education as it coincides with the death of Ken Baines, one of the pioneers of design education in schools and a lasting inspiration to many readers and contributors to this Journal and its predecessors. In this Issue's Reflection, Eddie Norman, Editor of the Journal from 2005-2015 pays tribute to Ken's massive contribution to design and technology education, along with a tribute from Niall Seery and Donal Canty whose research group built so much of its foundation on working with Ken and on his writing. For both those that did and didn't know Ken, these tributes combine to present understandings of who Ken was and how and why he has been such an inspiration for over fifty years. Adding a personal note, Ken was a particularly important person for Kay, having become a role-model, unofficial mentor and guiding light when she studied with him at the Royal College of Art in the Design Education Unit, beginning her formation as a design education researcher and enabling the development of her foundational thinking on the importance for humanity of design capability and its development through education. Very little that Kay has done as an educator, researcher and writer doesn't bear witness with this either implicitly through her philosophy and thinking or explicitly through extensive citation of Ken's own writings. He will be missed, but his contribution lives on through the impact he has and continues to have on others.

The foundational thinking on humans and design capability that Ken's work provided had strong elements of how we design, the processes at play, and the realisation of design's contribution to the world. In the research articles presented through this issue of the journal both the underpinnings of designing and new ways of developing young design and technologists are apparent. Through the articles there is a pedagogic thread, critiquing existing approaches and providing new pedagogic perspectives responding to shifts in thinking and advances in technology.

In **Design for the well-being of domestic animals: implementation of a three-stage user research**, Pinar Kaylan and Gülşen Töre Yargın (Middle East Technical University, Turkey) present a study of user-centred design where the users in question are domestic animals. The research aimed to explore student's perspectives on their learning and design experiences in this unique context where the focus was on the pets themselves – their well-being rather than that of their owners. One aspect of this was an intention to break away from more anthropocentric approaches to designing for animals. The project involved students work in teams of three to design a "product family" that aimed to improve the "emotional intelligence and well-being of dogs and cats". Students were encouraged to focus on daily routines, behavioural patterns and instinctive motivations. The 8-week project involved an introductory home visit, working with veterinary experts to lab test initial models and a final home visit to test final outcomes. The researchers took an

interpretivist stance, gathering data from an interview with students sometime after the completion of the project. The article reports on the analysis of the interviews, highlighting the particular value of the stage where the students are working with experts and also the final home visit for testing their outcomes where the owners acted as interpreters for their pets. A particularly valuable contribution from the research is the extent to which students were challenged by being taken completely out of their prior experience, and the design learning that came from genuinely being placed in a situation riddled with uncertainty and wicked problems, where their preconceptions had to be re-considered and where the more their gained understanding and empathised with their users, the more they abandoned ideas that were based on anthropocentric considerations. A great example of this is given in the article where students reject an idea for designing a toilet for dogs who are left alone for long hours when they realise that the idea is beneficial for an owner, but not for a dog who needs regular walks. The research presented in the article provides both food for thought and inspiration for creating scenarios that genuinely disrupt thinking and confront students in ways that develops deep understanding of user-centred design.

Those particularly interested in this article may wish to read an article on designing for stray animals, published in Issue 24.1 of the Journal (February 2019), contributed by Yavuzcan, Şahin, Gür, Sevgül & Yavuz.

**In A case study of game-based learning in interior design studios**, Zina Alaswad (Texas State University, United States) presents research that provides fresh and detailed insights into design pedagogy enabled by game-based learning. She begins by presenting a critique of traditional design studios, identifying a misalignment between allotted studio time and workload expectations, an unhelpful master-apprentice model and unclear assessment approaches. She then moves to explore this further by using activity system theory to research a game-based learning approach as an alternative model. As an introduction, brief account of the theory of activity system theory is presented, followed by an outline of identified affordances of game-based learning. The two main questions explored how students perceived game-based learning as an approach to address the issues raised by her critique and how the students' perceptions confirmed the affordances identified. The research design presents the structure of the case study approach, the context in which the study was conducted and details of sampling, data collection and thematic data analysis. The research itself was small scale but highly detailed and, in itself, provides a valuable model for conducting in-depth, progressive, case study research. The thematic analysis provided insight into the two major areas being researched at a level that goes far beyond the surface level of the questions. For example, in exploring the ways in which game-based learning addresses workload distribution, we hear about the understandings that students gained about their own approaches to designing, the deep thinking that was afforded, their understandings of how the approach maintained the flow of their work, how they used their time, how they experienced creative freedom within a structure. The author recognises the limitations of the study, not least the small number of participants, but her claims are for the ways in which this study can contribute to pedagogical developments in design studios. Despite the small numbers, the richness of insight provided makes the article a fascinating and highly valuable contribution.

**In Constructivist Digital Design Studio with Extended Reality for Effective Design Pedagogy**, Zahid Islam (University of North Texas, United States) highlights challenges for design education pedagogy that arise from advances in technology along with Generation Z's ubiquitous use of electronic devices and a shift from the 'Information Age' to the 'Experience Age'. The research focuses on these challenges in the context of learner preferences and cognitive processes of learning when traditional approaches are compared to using Extended Reality (virtual, augmented and mixed) platforms. A very useful background is provided to the shifts from traditional studio pedagogy rooted in 18<sup>th</sup> and 19<sup>th</sup> Century 'French Rationalism, through 20<sup>th</sup> Century developments from the Bauhaus onwards to recent developments, including those linked to a shift from information to experience and the increased influence on pedagogies of new technologies. There has been much discussion in recent years about the effectiveness of pedagogies in respect of both cognitive load and learner preference and this study provides interesting evidence in relation to these in the context of design pedagogy. Taking a constructivist stance and applying a quantitative methodology, the author explored the correlation between learner preference and the mode of information delivery – tradition words and images compared with extended reality approaches. A rationale is presented that design students, mostly visual and kinaesthetic learners, prefer information delivery that has a high level of tactility and visual cues and that extended reality could support this in ways that decrease cognitive load whilst increasing motivation to learn. 32 interior design students from various levels of tertiary education were involved in a universal design project. The group were split in half – one receiving a traditional approach, the other the extended reality approach. Pre-testing via a Visual, Aural, Reading & Writing and Kinaesthetic (VARK) learning styles inventory and post-testing via a Technology Acceptance Model (TAM) survey provided data on learning preferences and on subjective perceptions of the use of technology for delivery information in design studios. Results included that the perceived ease of use and perceived usefulness of the extended reality delivery mode was significantly higher than a traditional approach and that the two delivery modes compared with learner preference showed higher levels of perceived usefulness for visual and kinaesthetic learners. The research opens up ideas for technology related pedagogic approaches in our changing world.

**In Examining Estonian school teachers' attitudes towards the use of applied scientific knowledge within craft education**, Gisli Thorsteinsson, (University of Iceland) and Andry Kikkull (Tallinn University, Estonia) explore possibilities for craft education can be supported by linking to knowledge that is being covered in science lessons. Their research took place in Estonia where, in 2014, the government introduced a new curriculum that emphasised integration and cross-curricular activities. The article provides a case for linking science and craft through focusing on applied science. It also provides a background to the history of craft education in Scandinavian countries, particularly emphasising the pedagogic aspects and historic linking of craft and science. Current craft subjects have a technological focus, alongside hands-on learning and creative thinking. The research involved interviews with craft teachers and observation of craft lessons through which they explored aspects such as whether teachers considered that their National Curriculum was helpful in integrating science knowledge in craft education, how aware teachers were of integrating science and craft, how applied knowledge was used in lessons and what teachers consider benefits of integration to be. The researchers present findings that suggest a common trend – that

teachers support the theory of integration and can see how craft can play a significant role in helping learners engage with and understand scientific and mathematic knowledge, but that in practice there was little evidence of this happening. The exception to this was where a teacher already taught more than one subject. Various reasons are suggested for this, such as lack of guidance for integration science and craft provided in the national curriculum craft syllabus itself alongside a lack of support resources, a fear that craft could become a supplementary subject, supporting maths and science. The authors defend the value of integration, but, based on their research, provide a valuable list of conditions for success for introducing integration, presented in the conclusion to the article.