Editorial: A New Home

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Regular readers will recall that the previous issue of the DATE journal was updated with the new branding of the Design and Technology Association, sponsors of *Design and Technology Education: An International Journal*, and we have now moved to a new home to go along with our new look. After many years of being hosted by Loughborough University we have moved to Liverpool John Moores University and over the next few months you will see our webpages being updated with new features from Open Journal System (OJS) 3.3. This change of host has taken a great deal of work in the background and has caused some delays to the publication of this issue, but we hope that you will enjoy the benefits of the updated OJS interface and that you will notice the visual improvement to the webpages too. The move does require that journal users re-register with the new site but once this has been done the interface should feel familiar, but with added features and improved workflows. We hope that you enjoy the new site and we would very much like to thank the open journals team at Liverpool John Moores University for their help in this transition, and also of course the library team at Loughborough University for their hosting of the journal and the archives of its antecedents for many years.

In this issue of the journal we present eight research articles, the first three are from Turkey, two focusing on delivering core skills in electronics and the pedagogic and technical challenges of encouraging an open innovation approach in schools and universities, the third exploring the value of play through game-based learning in supporting design processes with interior design students. The subsequent four articles from USA, Japan and Australia highlight issues and challenges surrounding online and blended design education. The final article is a scholarly review of research on user-centred design practises in design and technology education. We end this issue with a book review.

In *How Electronics Knowledge Relates to Industrial Design Education* H. Güçlü Yavuzcan and Barış Gür of Gazi University, Turkey discuss the issues surrounding teaching electronics knowledge in industrial design degree programmes. The authors note that as design frequently focuses more on the digital interface of products, there is often less emphasis on physical interactions and electronic interfaces in current design education. While industrial design is widely regarded as multi or inter-disciplinary there is often little electronic engineering content in courses. With the current trend towards digitalisation of most products there is a growing need for a more thorough and practised understanding of electronics for designers. Through a literature review and survey of junior and senior industrial designers it was clearly shown that their reasoned problem solving of electronic issues was dependent on their undergraduate studies, and the inclusion of sufficient electronic content. 13 common products were chosen to highlight the gaps in understanding or application of electronic engineering components and theory. Their recommendations include a focus on hands-on terminology and the basics of electronics, although they do question the reliance on using systems such as Arduino which can limit the options available to solve a given problem, which may mask a lack of fundamental knowledge and understanding of the underlying theories.

In *A Study on Designers' Attitude for Open Innovation* in Turkey, Ilgım Eroğlu of Mimar Sinan Güzel Sanatlar University, Turkey, and Deniz Ekmekçioğlu of Ondokuz Mayıs University, Turkey explore the rich and diverse information resources that students encounter on their courses, and how these help to develop innovation habits among the designers' behaviours. Through interviews with 20 designers the authors show that the informational resources that students receive as part of their problem-solution-oriented approaches in their studies are crucial to researching problems in their later professions, and the way that they utilise these resources may be linked to their open innovation tendencies and their attitudes towards open innovation, co-design and co-development practises. The structure of design education can therefore be shown to shape not only shape design professionals' behaviours and functional design performance but also their potential in the wider business and professional environment. The use of problem-based models in project courses with often ill-defined, real-world problems encourage students to adopt trial-and-error structures and the use of outside data to test ideas, both of which help to encourage open-innovation and collaborative practises. By comparing students, in-house, and freelance designers, the authors discuss how information is openly shared and communicated between colleagues, and they suggest ways for this to be encouraged on design courses in order for it to develop quality of open resources and the culture of sharing resources in the commercial design environment.

In *Game-Based Learning in Interior Architecture Education* Tuğçe Babacan Çörekci of Istanbul University, Turkey explores the impact of using game-based learning methods within design processes. The research was undertaken with second year interior architecture students who engaged in a workshop that was structured to reveal how students managed design processes when games based learning was employed. Data was collected via a pre-test in which students evaluated their studio experience of designing, highlighting challenges faced, observations during the workshop and then a post-test and in-depth interviews. The research highlighted students' beliefs that design processes were linear, which resulted in them not going back to correct problems. The workshop structure required students to take a more iterative approach and this resulted in students gaining a more developed understanding of designing and, through the game-based learning, increased aspects such as time management, self-confidence and social dynamics with colleagues. The research was small scale and the author highlights the potential value of a longer study. Despite this, the workshop and data that emerged adds to existing understandings of the value of play in design education.

Echoing the importance of play in the previous article, *Building relationships with remote participants through playful technology interactions in online codesign*, by Jeni Paay, Simone Taffe, and Sonja Pedell of Swinburne University of Technology, Australia discusses how students can learn to co-design in online environments by engaging remote participants in online participatory experiences. Covid-19 had necessitated going online to both teach and practice codesign, and as educators, the authors were left with no alternative but to explore online alternatives to the traditional methods of teaching co-design. They describe codesign activities of postgraduate design teams who created a series of unique online activities to explore designs and trial them in virtual workshops with the local community. The unexpected finding is that online co-design activities need to remain tactile and include multisensory qualities. The authors argue that online codesign needs to focus on building relationships, engaging the senses, keeping it simple and allowing flexible timing. They identify the benefits, challenges and implications for online codesign and provide a checklist for designers wanting to

prepare for a hybrid co-design future. Overall, they argue that online co-design needs to focus on building relationships, engaging the senses, keeping it simple and allowing flexible timing, through the novel use of technologies to support the future of hybrid co-design education.

In *3D Virtual Site Visit as an Alternative to On-Site Experience in Interior Design Education*, Ye Ji Yi and Suchismita Bhattacharjee of University of Oklahoma, USA discuss the use of a 360-degree panorama-based Virtual Reality (360VR) tool to simulate real-world site visit experiences in interior design education. Second year undergraduate interior design students were given multiple project briefs with interactive 3D virtual tours. They were then surveyed on their 360 VR experiences on their engagement in learning, special layout, visualisation, and educational effectiveness. While the result of the student learning outcome evaluation showed no significant difference between 360 VR method compared to no site visit, there was a significant improvement in students' spatial planning, finish selection, and total scores when using the 360 VR method compared to an on-site visit. The students could engage with the 360VR technology in this study through computers and mobile devices, but further studies using more immersive emerging tools such as wearable devices, VR glasses, and Oculus Quest are suggested as future work. While the study underlines the need for a physical site visit to help develop a visual understanding of the space, the 360VR technology has been a crucial part of these design projects as it promotes students' imagination, provides sensory experiences, and allows accurate measurement, while providing a more controlled, flexible and accessible learning environment.

In "*How am I supposed to tell my mother what happened in today's class?": at the intersection between blended learning and design (thinking) education*, Miikka J. Lehtonen of Rikkyo University, Japan explores how the hands-on, experiential and collaborative learning that is so fundamental to most design education and design studio teaching can be replicated in blended learning environments. Visual learning diaries of postgraduate students from Aalto University, Finland, were analysed and showed that there is a perception that blended learning can influence how students approach designing for societal issues, and how they explore ambiguity. Triggers for personal development are discussed, and the results challenge the assumption that face-to-face learning is always the most effective way to deliver design education across disciplines. How technology can provide a structure to learning is discussed, as well as the potential shortcomings of many widely used online collaborative tools. The need for a learning frame to help develop and scaffold student learning and design briefs that specifically nudge students to use more first-hand experiences outside the classroom, especially important with post-pandemic students, is highlighted.

In *German Design Educators' Post-Covid Challenges: Online, Artificial Intelligence (AI) and Government Data Restrictions*, Dr Katja Fleischmann of Griffith University, Queensland College of Art, Australia explores the experiences of design students from a variety of disciplines during the Covid-19 pandemic and the subsequent move to online studios and digital communication. The author shows how this has profoundly altered the practises of design educators in Germany due to restrictive legislation which is limiting the integration of online educational technology, and there is comparison with international colleagues' experiences to provide a wider context. Design educators were surveyed during and after the pandemic to gauge the effects on student behaviour and learning and the results show the importance of encouraging a back-to-campus policy in order to benefit from the physical design studio pedagogy.

Furthermore German data protection laws make open-source collaboration platforms that were developed and used successfully in many countries over the lockdown period very difficult to implement without strict control of the data. There is however an emerging consensus that some of the online tools and platforms that were introduced in the pandemic could be utilised in a blended design studio moving forwards, although there remain concerns regarding how to maintain the social cohesion encouraged by physical design studios, with the associated opportunities for informal learning.

We have always encouraged contributions to the DATE journal in a number of different formats, so that in addition to the regular research articles we often include book reviews and opinion pieces, but we have also in the past published scholarly reviews which are relevant to our readership. Our final research paper is such a scholarly review which, given that this is the first issue from the journal's new home, we are delighted is by an author from Liverpool John Moores University.

In *Interaction with end-users in design and technology education: a systematic review* Philip A. Jones of Liverpool John Moores University, UK presents a systematic literature review of user-centred design practises and their potential application in design and technology education. Literature from *International Journal of Technology and Design Education* and *Design and Technology Education: an International Journal* highlighted the advantages to students from engaging in user-centred practises, improving both their design outcomes and their social and emotional skills. The exposure to real world problems and problem-solving contexts helped to develop reflection and empathy, and disability or so called 'extreme users' emerged as a focus of many of the studies. It is clear that participatory practises lead to more relevant design outcomes, and yet many students are not introduced to these until higher education. The author suggests that user-centred design methodologies should be further explored in schools alongside 21st-century skills development to ensure that design and technology education becomes remains human-focused and based on 'real', authentic interactions with 'real' people.

Finally, in addition to the research articles we present a book review by Alice Hellard of Goldsmiths, University of London, UK of the recently published *Debates in Design and technology Education (2nd Edition)* edited by Alison Hardy and published by Routledge. This book and the review are of particular importance as, at this moment in time, Design and Technology Education in England is under threat as a subject in schools.

We hope that you enjoy this issue and welcome any comments readers may wish to make.