Spaces and Making

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"Spaces and Making" is a very suitable title for this collection of papers which deals with the physical spaces and human mediated activities that happen within the sphere of technology education. While generally taken for granted, the spaces that we occupy while enacting technology education have a profound influence on the outcomes of our making, and subsequently the teaching and learning that takes place. Within the following pages two themes will be discussed within the larger framework of the spaces we occupy and the learning through making that happens: Learning through technology and the development of safe and inclusive environments and culture.

The first theme deals with questions of what is being learned and how, through the engagement in technological activities by teachers and their students. Kilbrink, Asplund, and Axelsson start this section with their discussion of the interplay between theoretical and practical knowledge in technical vocational learning content within the Swedish context. One of their findings indicates that less can be more when dealing with critical aspects of learning objects in relation to supporting learning. Piilikangas and Lindfors continue the discussion of supporting learning, but under very different circumstances. The global COVID-19 pandemic has impacted every aspect of life, including education. In an attempt to gauge how Craft, Design, and Technology (CDT) student teachers were dealing with the move to forced emergency remote teaching (ERT), Piilikangas and Lindfors highlighted the importance of not losing the face-to-face aspects of CDT experiential learning while recognizing that some positives in relation to learning flexibility and student independence were pushed to the surface during these unprecedented times. Flexibility and resilience are also prominent themes found in Toennsen's paper on learning through trial and error. While popular opinion may view trial and error as devoid of thinking and learning, Toennsen demonstrates that trial and error can be an iterative approach to problem solving and that learning is happening within context. Borg, Porko-Hudd and Hartvik end this section theme with a case study on types of knowledge and skills developed by grade 7 students within the Finnish context. By investigating the use of 3D modeling, 3D printing, and e-textiles they were able to ascertain students' beliefs about their own knowledge and skill development and their attitudes towards the technological content of the study.

Moving on to the second theme of developing safe and inclusive environments and cultures, Schröer and Tenberge explore the relationship between students' basic needs and the desire for technological education for all children. Their study outlines the development of a quantitative instrument that was designed to identify German primary students for future interviews on their thoughts on technology. The paper is based on the premise that participation in technological development is fundamentally a part of full participation in society in general. Leino and Lindfors move the conversation from the abstract to the concrete with their analysis of the role of safety documentation in creating a culture of safety for Craft, Design, and Technology (CDT) students and teachers. Their examination of the elements of safety found within the Finnish documents illustrates the high level of accountability that is expected when the technological activities that are conducted are high risk. This paper is a perfect contextual primer for the final paper of this section by Kaipainen and Lindfors. Kaipainen and Lindors end the section with a living example of the importance of establishing a culture of safety and inclusion within the high risk domains of Craft, Design, and Technology (CDT) and special education. The collection and analysis of critical incidents over a one year period aims to help with incident management and safety culture management and further decrease occupational safety incidents in the intersection between technology and special education.

While reading and preparing these papers for publication in isolation it was not always apparent what thread ran through them all. After some careful consideration and thought we hope that you find our analysis of learning safely and inclusively through technology as an appropriate summary of this section. It is also our hope that something within this section speaks to your own practice and research and we encourage you to reach out to the authors if that is the case.