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Editorial: Reconceptualising Engagement, Literacy, and Integration in Technology Education

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Introduction

As the field of technology education continues to evolve in response to rapid technological, pedagogical, and societal change, it remains deeply concerned with questions of equity, conceptual understanding, and pedagogical coherence. The articles in this issue collectively contribute to the developing body of scholarship that interrogates how teachers and learners construct technological knowledge and identity, and how educational systems can better support these processes. Together, they reveal a shared preoccupation with the human dimension of technology education—how engagement, literacy, and learning unfold within complex social, cultural, and disciplinary contexts.

Summary of Central Arguments and Structures

Rhodes, in *Exploring the Gender Disparities in Computing Education Motivation*, addresses the enduring gender imbalance within Computer Science (CS) and Computational Thinking (CT). The article draws on existing literature to expose the multifaceted nature of disengagement among girls and women in computing, spanning motivational, social, and systemic dimensions. Rhodes structures her discussion around motivation and engagement theories, highlighting early exposure, mentorship, and inclusive pedagogy as strategies for change. The article culminates in a call for further research into pedagogical mechanisms that might sustain girls' participation and identity formation in computing fields.

Stringer et al., in *The Impact of Professional Learning and Development on Teachers' Digital Technologies Implementation*, present a small-scale empirical study of six primary and intermediate teachers who participated in professional learning aimed at implementing the Digital Technologies Curriculum. The study's structure follows a narrative of impact—before, during, and after professional learning. Findings show that while teachers gained confidence and intentionality in teaching Digital Technologies, systemic constraints such as limited time hindered deeper engagement. The authors conclude that professional learning must be sustained, contextually embedded, and supported by accessible teaching resources.

Metsärinne et al., *in Technological Literacy in Finnish Craft*, investigate how teachers and student teachers conceptualise technological literacy (TL). Importantly, this study distinguishes between conceptual and functional dimensions of TL and finds that while participants value overarching goals and objectives, they are less certain about the connection between these and the practical content and methods of teaching. The article offers a nuanced framework for understanding TL, revealing that coherence between theory and practice remains an ongoing challenge in craft and technology education more generally.

Thomas and Williams, in *Science and Mathematics through a Technological Design Context: The Potential*, examines how students engage with scientific and mathematical concepts within design-based learning contexts. The study finds that while students apply disciplinary knowledge within design and experimentation, their understanding of underlying principles often remains implicit. Teacher facilitation was identified as a critical factor in making these connections explicit, reinforcing the need for pedagogical approaches that balance autonomy and structured guidance to deepen conceptual learning.

Finally, a book review by Lemon, examines *A Nomadic pedagogy about technology: Teaching the ongoing process of becoming ethnotechnologically literate*, by J. R. Dakers, arguing about how essential it is to ensure that there is a place for the teaching of technological literacy within the technology curriculum learning area in at least the compulsory education sector. Dakers provides three strengths to assist the technology teachers or school leaders who are looking to expand their technology department and celebrate technology education.

Implications for Teachers and Researchers

For teachers, the articles presented in this issue collectively reaffirm that technology education is as much about cultivating dispositions and identities as it is about developing technical skills. Rhodes' work highlights the need for inclusive classroom cultures that affirm diversity and promote sustained engagement. Stringer et al. stress that teacher learning must be continuous and collaborative, situated within supportive networks. Metsärinne et al. point to the value of reflective practice in aligning conceptual and practical teaching goals. Thomas and Williams underscores the critical role of teacher facilitation in fostering integrative STEM learning.

For researchers, the implications centre on methodology and scope. These studies call for longitudinal, cross-contextual, and design-based research capable of tracing learning and professional growth over time. They also invite deeper philosophical engagement with what it means to be technologically literate, motivated, or professionally confident in a world of accelerating change. Future inquiry must continue to bridge empirical classroom practice with theoretical and ethical reflection, ensuring that technology education remains both rigorous and responsive.