



Teaching the Unexpected Mathematics: How Digital Technologies Unlocked Incidental Primary Mathematics Concepts

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Diminishing duplication and finding connections between the *Australian Curriculum: Mathematics* and *Digital Technologies* were a focus of the revision to version 9 (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2021). These connections provide opportunities for integration. The project supported teachers, through professional development (PD) on integrating mathematics and technological content knowledge to demonstrate connections between *AC: Mathematics* and *AC: Digital Technologies* in the primary years and mentoring to develop integrated tasks and learning experiences. The PD focused on integrating mathematics and digital technologies, teaching, and assessing both curriculum areas in a single task. The tasks teachers developed were trialled in their classrooms, and their reflections were the focus of mentoring sessions, which supported teachers' exploration of students' learning and determining next steps for effective integration.

Through mentoring sessions, we explored instances of unplanned teaching where connections emerged spontaneously when teachers leveraged their *knowledge of content and curriculum* to identify opportunities for establishing mathematical connections (Ball et al., 2008). Incorporating digital technologies into mathematics has unveiled opportunities for incidental mathematical learning, that is other mathematical concepts that were not considered during planning. For example, the understanding of one-to-one correspondence necessary to program Bee-Bots before exploring concepts of position and location. The use of Pro-Bots for symmetry led to consolidation of directions and directional language, angles, measurement, patterning, and mirroring, and inverse relationships discussing addition and subtraction.

Making mathematical connections is necessary to construct mathematical knowledge. Teachers need an understanding of both *AC: Mathematics* and *AC: Digital Technologies* curriculum content, the pedagogical underpinnings of the curriculum and knowledge of how both learning areas are connected to create integrated learning experiences. Emphasising connections between the two curriculum areas and promoting a holistic view of mathematics lays the foundation for students to apply a range of mathematical concepts in real-world situations using digital technologies. These findings indicate that integrating mathematics and digital technologies can potentially provide opportunities to deepen and consolidate learning in mathematics through connections beyond the initially intended concepts.

References

- Australian Curriculum, Assessment and Reporting Authority (ACARA) (2021). *What has changed and why? Proposed revisions to the Foundation – Year 6 (F–6) Australian Curriculum*.
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