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Empathy and Wisdom as a Drivers for Unit Design in the Teaching of Digital Technologies

The first mandatory implementation of a Digital Technologies Curriculum across Australia occurred in 2019. We will see the impact of that curriculum when Kindergarten 2019 graduates in 2031. (Education Services Australia, 2016). A 2016 OECD report charts the growth of a digitised future where digital literacy will be essential for the participation of all citizens. The report also argues that subject-based knowledge is undoubtedly important for an innovative society but the most crucial capacities will be critical thinking, creativity and social skills.

Workers in emerging industries across the OECD report the most crucial skills as "Coming up with new ideas and solutions" (creativity), "a willingness to question ideas" (critical thinking), and "the ability to present new ideas or products to an audience" (communication) (Organisation For Economic Co-Operation and Development, 2016, p24). The shaping of curriculum for teaching Digital Technologies then, should emphasise the General Capabilities in the Australian Curriculum. It should also be attractive to a diverse range of students such that they continue in the field beyond compulsory participation in the lower years.

After critiquing currently available resources and exemplars, we sought to develop a new model for designing middle school units of work for the Digital Technologies curriculum that privilege the teaching of Critical and Creative thinking and that resonated with a diverse range of students enough to attracted them into related elective subjects in the following years. A particular focus was the transition from block-coding to text-based coding.

This paper outlines relevant literature to inform the teaching of Critical and Creative Thinking in the context of Digital Technologies including work by David Cropley (2015), James Kaufman and Ronald Beghetto (2009, 2010), Anna Craft (2006, 2015) and Matthew Kearney (Kearney et al., 2020). Two units of work, written using the principles of Understanding by Design (Wiggins & McTighe, 2005) will be presented, Digital Drought Proofing and Digital Art for Reconciliation, with work samples and insights from the students who created them.

The units of work establish empathy as the driver for the design task and seek, as Anna Craft (2006) recommends, to make wisdom a core objective. They are partially student devised and may be a useful model for the teaching of computational thinking and digital technologies in the context of big, unsolved problems that matter to all of us.

Preparation material:
https://processing.org/
https://openprocessing.org/
https://youtu.be/TaE58v_Cyyg