COMPUTATIONAL THINKING IN AUSTRALIAN PRIMARY SCHOOLS

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THEME:

Teacher education and professional learning in STEM

BACKGROUND AND AIMS

Implementation of Digital Technologies (DT) is mandatory in Australian primary schools. Computational thinking (CT), a problem-solving approach that uses human knowledge and digital technologies to address problems, is part of the DT curriculum.

Aims for this research include identification of professional learning (PL) to support teachers to develop knowledge and resources needed to implement CT aspects of DT.

METHODOLOGY

This study forms part of a larger design-based research (DBR) which aims to define a CT Technical, Pedagogical and Content Knowledge framework and develop PL and resources for teachers. Issues related to the implementation of CT aspects of DT have been investigated through a literature review and semi-structured interviews with four experts.

A hybrid approach was adopted for the thematic analysis of the literature review and interview data. Deductive analysis was used to organise themes from the literature review and create a code book which was then initially used in the analysis of the interview data. An inductive approach was used to modify the codes during the data analysis. Interviews were coded and summarised as findings.

RESULTS AND CONCLUSIONS

While teachers are reporting on DT many are not fully implementing the DT curriculum. Factors that contribute to this are:

- the technical language used in the curriculum
- the number of learning areas being addressed in primary school and the limited time to do so (crowded curriculum)
- lack of content knowledge

CT is considered an important part of the DT curriculum and a useful skill for life. Literature indicates that teachers' confidence and efficacy in the implementation of computational thinking programs can be improved through provision of PL (Bower & Falkner, 2015).

PL was made available through Australian Government funding following the release of the curriculum. Teachers who are new to teaching or were not able to participate at that time are now limited in the availability of PL. Experts in this study suggested that teaching and learning materials that can be adapted, video of Australian classroom practice and identifying and explaining terminology would help improve teacher efficacy.

REFERENCES

Bower, M., & Falkner, K. (2015). Computational thinking, the notional machine, pre-service teachers, and research opportunities. In D. D'Souza, & K. Falkner (Eds.), *Proceedings of the 17th Australasian Computing Education Conference* (ACE 2015) Sydney, Australia (pp. 37-46). ACE.