Australian Curriculum Digital Technologies Curriculum – state of play in Tasmania March 2018

This paper has been written for TASITE (Tasmanian Society for Information Technology in Education) from information in the public domain and jurisdiction contributions as acknowledged.

Background

On 18 September 2015, Australian Education Ministers endorsed Foundation to Year 10 Australian Curriculum in all eight learning areas including Technologies (Australian Curriculum Assessment and Reporting Authority 2015).

The Australian Curriculum: Technologies describes two distinct but related subjects, Design and Technologies, and Digital Technologies. The Digital Technologies subject was introduced as an important contemporary learning area to support the future needs of the Australian economy, to equip young Australians with the skills, knowledge and dispositions necessary to be competitive in the context of a global economy in which the nature of work is being re-shaped due to the enabling and transformative nature of new and emerging digital technologies.

Implementation of the Digital Technologies curriculum is supported by a website, the Digital Technologies Hub, under the auspices of Education Services Australia. On 1 February 2018, the Digital Technologies Hub released F-10 Scope and Sequence documents for the Digital Technologies curriculum (Education Services Australia 2018).

Implementation of the Australian Curriculum is a state responsibility and each jurisdiction makes its own decisions about implementation timeframes and assessment and reporting requirements, albeit influenced by Commonwealth funding agreements.

Introduction

The purpose of this short paper is to capture a snapshot of how the government, Catholic and independent jurisdictions in Tasmania are currently responding to the implementation of the new Australian Curriculum: Technologies subject Digital Technologies. The paper is organised around three guiding questions:

1. What is the jurisdiction's policy with respect to implementation of the Digital Technologies curriculum?
2. How has the jurisdiction provided for the professional learning needs of teachers to implement the Digital Technologies curriculum?
3. How have principals and schools responded to the challenges of implementing the Digital Technologies curriculum?

Digital Technologies Professional Learning

The main opportunities available to teachers in 2016-2017 were the following.

MOOCs

There has been widespread concern about the general workforce capacity to effectively implement the Digital Technologies curriculum. This concern has been shared in recent years among professional associations at state and national levels and from pre-service teacher education faculties at Australian Universities. One response that attempts to address this perceived deficit is the suite of professional learning offerings from the University of Adelaide (University of Adelaide 2017a), specifically the freely available Digital Technologies MOOCs (University of Adelaide 2017b).

At the time of writing, over 1600 Tasmanian educators from all sectors have enrolled in one of the MOOCs and many have completed it. [1] Support from all three jurisdictions' heads of curriculum has been increasingly helpful in supporting the professional learning workshops being held in schools around the State.

Pre-Service Teacher Education at University of Tasmania

Closer to home, the University of Tasmania has included a compulsory unit on Digital Technologies in its Bachelor of Education from 2013, and in the Master of Teaching course from 2017. Each course has approximately 150 graduates per year. It ran a Graduate Certificate in Teaching Digital Technologies from 2014-2016, with very small numbers. [2]

Professional Learning through the Professional Learning Institute

During 2016-2017, a suite of professional learning programs was available to teachers from all sectors, through the Department of Education's Professional Learning Institute (Professional Learning Institute 2017). During this same period, the Department of Education had a full time Curriculum Teacher Leader for Digital Technologies within the Curriculum Services branch, until January 2018 when the officer retired.

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[1] Peter LeLong, Tasmanian Project Officer, Computer Science Education Research (CSER) Group, The University of Adelaide (email 22 March 2018)
[2] Dr Andrew Fluck, University of Tasmania. (email 13 October 2017).

Teacher Development Initiative

The Teacher Development Initiative (Department of Education Tasmania 2018) is an intensive qualification with the University of Tasmania (UTAS), which supports secondary and upper primary teachers to develop skills, competence and confidence in teaching students in the area of Technologies (Design &Technology and Digital Technologies. After successfully completing four units, participants will graduate with a Graduate Certificate (Technologies).

Other professional learning

The University of Sydney, through its Australian Computing Academy is sponsoring professional learning workshops with Australian Government funding[3]. Similarly, Google provides Educator (CS4HS) grants for professional learning[4], and Code Club Australia[5] is providing free training. The Australian Computer Society has expressed interest in helping to coordinate some of these efforts[6].

Department of Education Schools

At the commencement of 2017, there were 196 Government schools across Tasmania, including (State of Tasmania (Department of Education) 2017)
• 126 primary
• 29 secondary
• 25 combined (primary and secondary)
• 8 senior secondary
• 8 support schools

A document titled *Implementing Australian Curriculum in Tasmanian Schools* released by the Department of Education in 2016 (Department of Education Tasmania 2016) , stated expectations for the Technologies curriculum, as summarized in Table 1, below.

Table 1: Department of Education Timeline for Technologies Curriculum Implementation, 2016

	2016-2017	2018
Prep – Year 6	Trial (assessment optional)	Full implementation by end of 2018 – assessment with comment
Years 7 and 8	Trial (assessment optional)	Full implementation by end of 2018 - assessment with A-E.

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[3] https://aca.edu.au/workshops.html
[4] https://edu.google.com/computer-science/educator-grants/#?modal_active=none
[5] https://codeclubau.org/get-involved/teachers
[6] https://www.acs.org.au/governance/ict-educators-committee.html

A replacement document was released in September 2017,(Department of Education Tasmania 2017). In this document, the timeline was revised as described in Table 2, below.

Table 2: Department of Education Timeline for Technologies Curriculum Implementation, 2017

Key:

Engagement stage	Implementation stage	Consolidation stage	Full assessment and reporting

	2018	2019	2020
Primary	Implementation	Consolidation	Full assessment and reporting
Secondary	Engagement	Implementation	Consolidation

The Department of Education provided the following responses to TASITE's request for information.

1. What is the jurisdiction's policy with respect to implementation of the Digital Technologies curriculum?

The Department of Education is rolling out the Digital Technologies Curriculum as outlined in the Curriculum Implementation Guidelines for Tasmanian Government Schools document (Department of Education Tasmania 2017). This document sets out the minimum teaching and assessment requirements for all Australian Curriculum areas. DoE Schools that choose to implement the Digital Technologies component of the Australian Curriculum in more depth than this will be supported to do so.

2. How has the jurisdiction provided for the professional learning needs of teachers to implement the Digital Technologies curriculum?

Tasmanian Government Schools have access to a range of professional learning sessions delivered by Curriculum Services staff. They are also encouraged to undertake the federally funded Computer Science Education Research Group CSER MOOC run through the University of Adelaide (University of Adelaide 2017b).

Teachers are also encouraged to undertake the Graduate Certificate (Technologies), as part of the Teacher Development Initiative (Department of Education Tasmania 2018).

3.   How have principals and schools responded to the challenges of implementing the Digital Technologies curriculum?

Schools are at different stages of implementation of the Digital Technologies Curriculum. Some schools are very early in the journey, while others are much further along in their understanding. Schools will continue to be supported to develop their ability to implement the Digital Technologies Curriculum through resource development and professional learning.

Catholic Education

The Tasmanian Catholic Education Office consists of a community of 24 Parish Primary Schools and 14 Colleges across the state, with in excess of 16000 students and 1900 teaching staff.

The Australian Curriculum document currently available on the CEO website (Tasmanian Catholic Education Commission 2013) includes the following implementation timeline, suggesting 2015-2016 as the implementation and formalization years for Technologies including Digital Technologies.

	2012	2013	2014	2015	2016
FAMILIARISATION Engagement with relevant documents. Key/lead teacher capacity building		Geography Arts HPE	Languages Arts (Primary) Technologies Civics & Citizenship Business & Economics		
IMPLEMENTATION	English maths Science History		Geography Arts (Secondary) HPE	Languages Arts (Primary) Technologies Civics & Citizenship Business & Economics	
FORMALISATION Moderation Reporting Documentation		English maths Science History	Geography	Arts (Secondary) HPE	Languages Arts (Primary) Technologies Civics & Citizenship Business & Economics

■ Phase 1 KLAs   ■ Phase 2 KLAs   ■ Phase 3 KLAs

The Catholic Education Office provided the following responses to TASITE's request for information.

What is the jurisdiction policy with respect to implementation of the Digital Technologies curriculum?

Following introductory familiarisation sessions in 2016, formal implementation of the Technologies curriculum commenced in 2017 with teachers across the Foundation to Year 6 space beginning to teach and assess the Digital Technologies subject. During 2018, teachers working in Foundation - Year 6 will be supported to implement the Design and Technologies subject of the Technologies curriculum. The current intention of the system is to complete the implementation cycle with teachers reporting against the Technologies curriculum in 2019.

How has the jurisdiction provided for the professional learning needs of teachers to implement the Digital Technologies curriculum?

Throughout 2017 a significant level of Digital Technologies focussed professional learning was undertaken by teachers across the state.

Across the system schools identified leading teachers to take on a position of leadership in the Digital Technologies space. The leading teachers supported classroom practice and curriculum implementation. The leading teachers were supported by two Digital Futures Education Officers, supporting their professional learning in the areas of Digital Technologies and Change Management.

An important part of the professional learning undertaken across the system was engaging with the University of Adelaide - CSER, F-6 : Foundations and 7-8: Next Steps courses. Schools within the system were encouraged to support all Foundation - Year 6 teaching staff to engage with the course as a basis for increasing awareness and understanding of Digital Technologies. The system provided funding to support teachers to engage with the course and provided them with resources to implement the subject. A significant number of teachers across the system undertook the course using various models including, self-guided independent completion, Lead teacher supported school based sessions or Education Officer facilitated sessions. Teachers undertaking the course as facilitated sessions reported higher engagement and completion of the course, with early indications that these teachers were also more successful in implementation of the curriculum in their classrooms.

A significant level of additional professional development has been delivered through system-wide primary network days, pop up professional learning sessions and school-based meetings.

A number of teachers across the system have also been supported through professional learning opportunities external to Catholic Education, including accessing professional learning delivered by TASITE and EdTech.

How have principals and schools responded to the challenges of implementing the Digital Technologies curriculum?

As a starting point to Digital Technologies implementation in the primary years many schools chose to focus on Computational Thinking. Highlighting the role of Decomposition, Pattern Recognition and Algorithm development in understanding everyday classroom processes and procedures. Many primary teachers undertaking Digital Technologies education were also assisted with facilitated planning sessions led by school based Lead Teachers or Education Officers.

Schools across the Tasmanian Catholic system have responded to the challenge of implementing an additional Key Learning Area by encouraging staff to integrate Technologies learning along with other Key Learning Areas, especially integration with Science and Mathematics. Professional Learning undertaken across the system has also highlighted the ways in which the General Capabilities can be explored through the STEM based education approaches.

Many schools have identified challenges related to resourcing the programming elements of the Digital Technologies subject. Many Lead Teachers have responded to this challenge by identifying common resources, allowing them to share the load of professional learning and unit development. This initiative has been supported by the system, through provision of a limited number of robotics resources to schools attending focussed professional development sessions.

Lead Teachers across many of the system's schools have expressed a desire to continue to undertake training in the Technologies space and to receive assistance implementing the Technologies curriculum area. Assessment of Technologies understandings continues to be an identified need across the system.

Independent Schools Tasmania

The Independent Schools Tasmania (IST) is an association of non-government schools. It comprises 33 schools (39 campuses) from the Independent and Catholic sectors and it is affiliated to the Independent Schools Council of Australia (ISCA). IST is not a system as such and each school is responsible for its own implementation of the Australian Curriculum.

IST provided the following responses to TASITE's request for information.

What is the jurisdiction's policy with respect to implementation of the Digital Technologies curriculum?

While our advice to schools is to adhere to the Department of Education, Tasmania schedule for implementation, each independent school its able to make their own decision and develop their own policy. AIST has limited capacity to collect data from schools and independent schools have no obligation to provide data to AIST unless required to do so by the Australian Government, so it is not possible to comment on the extent to which this advice has been taken .

How has the jurisdiction provided for the professional learning needs of teachers to implement the Digital Technologies curriculum?

Through the promotion and support of Computer Science Education Research (CSER) Group The University of Adelaide. National & state based PL promoted & supported, MOOCS, Networking opportunities.

How have principals and schools responded to the challenges of implementing the Digital Technologies curriculum?

With varying degrees of interest and commitment at this stage. For a more accurate assessment it would be necessary to survey all schools.

Discussion

It is clear from the information provided by jurisdictions, and from the engagement with the various professional learning opportunities that there is a significant though not uniform, level of interest, enthusiasm and willingness by teachers to engage in this learning area. This is particularly the case in primary schools but less consolidated in the secondary area. The disparity in Digital Technologies implementation between schools and sectors could see many students finishing their education without encountering the subject.

Issue: Department of Education timeline

One area of significant concern is the changed timeline for implementation for DoE schools. Teachers need to focus on the priorities outlined in their School Improvement Plan, which in turn align to priorities in the DoE Strategic Plan. There is no requirement for schools to prioritise Digital Technologies in this context. It will be problematic if students have begun their learning journey in digital technologies in primary school and it is not continued as they transition to secondary school.

However, when one considers the 2018-2021 DoE Strategic Plan in its full context, there are many reasons for schools to choose to implement Digital Technologies. For

example, the DoE priority on MyEducation[7], which aims to foster a futures orientation, may be one vehicle through which digital technologies may be promoted. Similarly, the Digital Technologies curriculum may be a vehicle to support the DoE goal of access, participation and engagement. The success of these reasons to implement the Digital Technologies curriculum sooner than required relies on school leadership.

Opportunity Cost

We are in the middle of the implementation stage of Digital Technologies from a national perspective and so there is a significant amount of freely available professional development, online and face-to-face. This will almost certainly not be the case when full implementation of Digital Technologies is required by DoE schools.

Conclusion

This paper serves the purpose of being a snapshot in time about the status of the implementation and support of the Digital Technologies curriculum in Tasmania. There is a rich set of professional learning opportunities readily available to support teachers and schools, in any educational sector, who choose to implement the Digital Technologies curriculum. TASITE is committed to advocating implementation because of the reasons outlined in the introduction, specifically to equip young Australians with the skills, knowledge and dispositions necessary to be competitive in the context of a global economy in which the nature of work is being re-shaped due to the enabling and transformative nature of new and emerging digital technologies.

Acknowledgements

TASITE wishes to acknowledge the following people for taking the time to respond to the request for input for this paper.

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[7] https://my.education.tas.gov.au/Pages/default.aspx

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