

ACCE Position Paper on ICT in the Australian Curriculum

Current position

The Melbourne Declaration recognises the place of ICT in education by it being both a general capability (GC) and a learning area conceptually placed under the umbrella of Technologies. This dual recognition acknowledges the shift to a knowledge-based society and the need for all students to acquire and apply a depth and breadth of ICT knowledge, skills, attitudes, values and ethics in order for them to be successful learners, workers and active citizens.

Currently there is no published curriculum documentation for ICT competence as a GC. Rather its place in the Australian Curriculum is recognised within each of the four published learning areas, English, Mathematics, Science and History through embedding in content descriptors and/or achievement standards and through an introductory paragraph explaining the role of ICT in that learning area.

As a learning area, work is just beginning on determining its conceptual 'home' and its content. In December 2010, a group of experts representing areas ('contexts') such as ICT, design and technology, systems engineering, primary industries, food and technology and textiles met at ACARA to discuss what in essence comprises a technologies learning area. Nick Reynolds, President ICTEV was present at meeting. One key issue raised at the meeting was the role of the 'design process' in defining what constitutes Technology education.

Expressions of interest for membership of the Advisory Panel for the Technologies Learning Area have been issued and while membership has not been finalised, the ACCE will have a representative on that Panel (Helen Otway, Manor Lakes College, Victoria). The role of this panel is to inform the direction of the Shape Paper for the Technologies Learning Area.

Concerns with current position

There are concerns relating to:

- the curriculum articulation of ICT competence as a GC
- the developmental pathways of ICT as a learning area
- the relationship between both ICT competence (GC) and ICT as a learning area.

Curriculum articulation of ICT competence

International research is conclusive in stating that the curriculum must be clear about expectations by establishing standards. The conceptual basis on which all general capabilities are built is a continuum – there are no standards, but rather broad statements of learning at varying year intervals. For ICT competence this is years 2, 6 and 10. The audience for these continua was the writers

of the learning areas for the purpose of determining how the GCs could be embedded, not for teachers implementing the curriculum.

Effective learning does not usually occur through osmosis; rather teachers must be clear about what students need to learn and what indicates success in learning. The content to be covered and the skills to be developed must be clearly stated so that developmentally progressive learning programs can be designed by schools. This in turn supports informed decision making about measuring and reporting student progress.

Most embedding instances of ICT in the learning areas are typically devoid of any standards, for example, Year 10 History achievement standard reads 'They identify and locate both primary and secondary sources using information technologies ...'. This provides no indication of the ICT knowledge and skills required to find information that meets its purpose.

Developmental pathways of ICT as a learning area

There is a body of knowledge associated with ICT that is not covered in other learning areas. Typically this content focuses on the characteristics of data, people, procedures and electronic equipment and how they interact to create structured information. These knowledge and skills form the educational and career pathways to supporting the digital economy. Developmental pathways, both from the compulsory to the post compulsory years, and beyond formal schooling need to be obvious in the curriculum. Australian education needs to reinvestigate ICT career pathways but at the same time strengthen the use and integration of ICT to support powerful learning and teaching.

From a curriculum perspective, design tools and design elements are usually covered in 'dedicated' ICT offerings, but the application of a 'design process' framework, as discussed at the December meeting at ACARA, is not an fundamental underpinning of ICT; in fact it is limited and limiting for ICT. Being able to exploit the capabilities of ICT to engage in risk-taking and tinkering are intrinsic qualities of ICT that appear incompatible with a structured problem-solving approach.

This misalignment with a key criterion that defines the Technologies Learning Area, together with the key role that ICT plays in learning and everyday life, makes ICT being beyond a single context within the Technologies Learning Area. *Relationship between both ICT competence (GC) and ICT as a learning area*

By placing ICT as a context within the Technologies Learning Area and having it as a general capability, may cause confusion about their relationships. When planning teaching and learning programs, teachers must be clear about the expectations of students. Is there a hierarchical order? When do they overlap? Teachers should not be expected to refer to two different curriculum documents with different constructs and status, draw connections and then plan a teaching and learning program.

Solution requirements

To service the needs of ICT being both a general capability and a learning area, the solution requires the following features:

- clear articulation of what content needs to be covered and developmentally sequenced standards so that progress in learning can be measured and reported, wether in other learning areas or in dedicated subjects
- ICT pathways should be obvious through curriculum content
- Two-year intervals of content and standards to assist in mapping learning and progress
- Clarity about the relationship between ICT as a general capability and ICT as a learning area
- Clarity of expectations to support ease of the design of teaching and learning programs.

Proposed solution

In order to meet the solution requirements, the following is proposed:

- One learning area, provisionally titled ICT, that sits under the conceptual banner of the Technologies, and comprises **two** strands:
 - ICT competence, which maps the ICT general capability
 - Digital Technologies (provisional title), which maps specific ICT knowledge and skills relating to a deeper study of ICT. See figure 1: Construct of ICT Learning Area
- The ICT competence strand to be articulated in two-year intervals, with content descriptors and standards at Years 2, 4, 6, 8 and 10. These support the acquisition and demonstration of knowledge and skills relating to a range of learning areas. These descriptors and standards will be accompanied by elaborations showing rich applications.
- The Digital Technologies strand to be articulated in two-year intervals with content descriptors and standards at Years 8 and 10. These will be accompanied by elaborations showing rich applications. This means that from F–6 ICT is treated only as a general capability.

ICT Learning Area

Figure 1: Construct of ICT Learning Area

Digital Technologies (content descriptors and achievement standards)	ICT competence (content descriptors and achievement standards)	Level
		2
		4
		6
		8
		10

Key:  Content descriptors and achievement standards

Advantages of this proposal

Articulation in one curriculum document facilitates the incorporation of ICT in all areas of curriculum planning. If ICT is incorporated as a context within the Technologies Learning Area as well as being documented as a General Capability, the curriculum design pathways would be very unclear, as would the difference in their status, namely that a learning area has content descriptors and achievement standards and a GC has nothing, except for isolated instances of embedding.

There will be a reference point for elaborating what is meant by instances of embedding in other learning areas. For example, for the Year 10 History achievement standard, teachers would know what ICT knowledge and skills are expected to be acquired and demonstrated at that level.

CONCLUSION

ICT is best documented as a single entity. This facilitates ease of use and consolidates its status.

In today's digital economy it is crucial to minimise the new digital divide, premised on the capacity of people to add value to the plethora of available information through the application of ICT knowledge and skills. A significant contribution to this would be the explicit statement of content and standards required for all students to be successful learners, active citizens and versatile workers.