Queensland Catholic Education Commission
Level 1, 143 Edward Street, Brisbane Qld 4000
GPO Box 2441, Brisbane Qld 4001
Ph +61 7 3316 5800 Fax +61 7 3316 5880
email: enquiries@qcec.catholic.edu.au
www.qcec.catholic.edu.au
ABN: 57 525 935 419

QCEC Submission:
Monitoring the Australian Curriculum F-10

July 2018

Introduction

The Queensland Catholic Education Commission (QCEC) provides this submission to the Australian Curriculum, Assessment and Reporting Authority (ACARA) to inform the fourth annual process of monitoring the Australian Curriculum for Foundation to Year 10.

QCEC is the peak strategic body with state-wide responsibilities for Catholic schooling in Queensland. This submission is provided on behalf of the five Diocesan Catholic School Authorities and 17 Religious Institutes and other incorporated bodies which, between them, operate a total of 304 Catholic schools that educate more than 147,000 students in Queensland.

The feedback in this submission is provided in response to the key areas and associated questions identified for 2018 by ACARA:

1. Technology in the curriculum
2. Literacy and numeracy demands across the curriculum
3. General comments.

1. Technology in the curriculum

a. Provide a high-level summary of the implementation of the ICT capability, and the two subjects of the Technologies F-10 curriculum.

The general capability of Information and Communication Technology (ICT) provides a general view of how technology and the digital world needs to be considered in context - how ICT can be used responsibly, efficiently, and effectively. The ICT capability can be incorporated across many key learning areas, for example, the learning areas of English, HASS and Media Arts are considered when a student is required to create a brochure to inform consumers on bushfire prevention.

The two subjects that sit under the Technologies F-10 curriculum are more content specific than the ICT general capability.

i. The Australian Curriculum: Digital Technologies is focused on design thinking, systems thinking, computational thinking, problem solving and creating solutions. The Digital technologies subject encourages students to create digital solutions by examining digital systems, representation of data and computational thinking. The two strands of Knowledge and understanding and Processes and production skills make the subject relatively easy to integrate with other learning areas when common content and skills are located.

ii. The Australian Curriculum: Design and Technologies focuses on complex situations by thinking critically and creatively. Students are encouraged to be future-oriented by considering such topics as ethics, social responsibility and the impact of consumer choices. Design is included from the early years, providing young students with the opportunity to be innovative and provide design solutions for real world problems.

The implementation of the ICT capability varies considerably across schools as well as between teachers within a school. Many schools have used the ICT learning continuum as the starting place for implementing the ICT capability as it provides a comprehensive coverage of ICT expectations. However, insufficient time for teachers to collaborate across year levels to reflect, adjust and monitor the learning continuum is an ongoing issue. The ICT learning continuum needs to be constantly fine-tuned as students are coming through the school system with increasingly sophisticated digital skills.

The ICT capability has been implemented in a number of different ways across Catholic School Authorities and schools, including:

iii. creating Professional Learning Communities, e.g. Technology Together and Innovate, have planned sequenced learning for students and modelled how the ICT Capability can be implemented across year levels using different frameworks, e.g. Substitution, Augmentation, Modification, Redefinition (SAMR) and Technological Pedagogical Content Knowledge (TPACK).
iv. conducting NAPLAN Online workshops showing how the development of ICT capabilities supports student performance
v. reviewing 1:1 school device implementation in developing the ICT capabilities across learning areas
vi. enabling schools and teachers to share innovative practices for implementing the ICT capability within curriculum areas e.g. Big Arts Day
vii. hosting a gathering 'Engage Innovate Educate' for schools where sessions were based on either the ICT capability or the Digital Technologies curriculum
viii. Initiating a Digital Skills Project to develop the Managing and operating element of the ICT general capability.

The focus on STEM education has been a platform and springboard for the implementation of the Technologies curriculum as it has motivated schools to engage with design concepts. The development of new technologies and future career opportunities for students is evident when schools have responded with enthusiasm in the areas of drone technology, topological optimisation and dark factories.

The shift to plan, teach and assess from traditional subjects to the Design and Technologies curriculum has been slow in some secondary schools. Vocational Education and Training (VET) and apprenticeships are a pathway for many students, and some schools have not yet worked through the process of how to effectively transition from a skills approach to a design approach. The following factors are seen as barriers to the implementation of a design focus:

- inadequate teacher curriculum knowledge and resources.
- students not having the pre-requisite skills to engage in much of the planning and design components of the curriculum and teachers continuing to focus on the practical skills industry require.

- the purchase of new equipment and technologies (3D printers, software programs, and computer catalysed machinery) has become the catalyst for the teaching of design skills rather than the curriculum.
- due to geographical distance, some staff are isolated from professional development and face to face networking opportunities.

b. Comment on the consistencies between the ICT General Capability and the Australian Curriculum: Digital Technologies subject.

Both the ICT general capability and the Australian Curriculum: Digital Technologies focus on developing students' digital literacy skills. The ICT general capability focuses on ways for students to effectively use and apply ICT knowledge whereas the subject Digital Technologies addresses the acquisition of deeper digital understanding and skills in the areas of representing data; exploring digital systems, social and ethical protocols; and investigating, producing and evaluating digital solutions.

The most frequently cited consistency between the ICT capability and the Digital Technologies is in the area of 'data' as both address understanding, analysing and visualising data, systems and computational thinking. Students apply knowledge and skills in these areas to create solutions, communicate and collaborate. The importance of consistency between the ICT capability and the Digital technologies curriculum is evident when students formulate a problem and decide on the best way to solve it. The topic of cybersafety is also a topic consistently addressed in both the ICT capability and Digital Technologies curriculum.

It is important that the ICT capability and the Digital Technologies curriculum are aligned and able to be integrated as they both focus on collaboration, communication, creative thinking and developing transferrable skills. While there is a natural synergy between ICT general capabilities and Digital Technologies, it is important that teachers understand that the general capabilities are developed across all areas of the curriculum.

2. Literacy and numeracy demands across the curriculum.

a. Literacy demands in Learning areas

The literacy demands are clearly embedded across all the learning areas of the curriculum. Teachers working in primary schools appear to know and understand, more than teachers in secondary contexts, the literacy demands for students across all learning areas and that literacy is not just taught in the learning area of English. Effective teachers of all year levels strive to develop student's visual and word knowledge, authentic ways to use various text types and strategies for comprehending a range of texts.

As students progress across years F-10, the literacy demands in all learning areas increases considerably and it becomes increasingly challenging for students to develop knowledge and understanding when the majority of information sources, opportunities for learning, and assessment tasks are literacy dominated. It is a challenge for teachers to assess learning without relying heavily on literacy skills as most sources of information need to be read and assessment tasks ask for evidence of understanding in a written medium.

b. Numeracy demands in Learning areas

There are many ways that students can apply numeracy concepts and skills across key learning areas as their learning progresses. As the year levels increase, students need to have a deep understanding of how to analyse and interpret data to enable them to identify key findings and draw conclusions.

Numeracy demands are more evident in some subjects such as HASS, Science, HPE, and Technologies where the explicit use of numeracy knowledge and skills are required to support understanding within the learning area. Some of the numeracy demands of these subjects align with the Australian Curriculum: Mathematics which means students have prior knowledge of the Mathematics needed to apply knowledge within the subject areas. For the most part the numeracy demands of the learning areas align with year level expectations and provide learners with an opportunity to apply their mathematical knowledge in subject specific contexts.

However, there are some situations where students are required to perform numeracy tasks in subjects, e.g. Geography, without the necessary mathematical knowledge being taught. This means the numeracy demands are specific to the subject/learning area and the mathematical knowledge required to apply to the context maybe unknown or unfamiliar to students.

One Catholic School Authority has used the 21st Century Numeracy Model to support teachers to understand, plan and respond to the numeracy demands of the curriculum. This model views numeracy as more than just applying mathematical concepts and understandings to different subject areas – it views numeracy as also encompassing tools and dispositions needed to acquire a critical orientation to using mathematics.

c. Literacy General Capability

The Literacy general capability reinforces the literacy skills required across all learning areas, so that all teachers of all year levels understand that literacy is not exclusive to just the learning area of 'English'. The Literacy general capability shows how dependant the other learning areas are on a student's literacy skills as students need the skills to comprehend texts through listening, reading and viewing as well as composing texts through speaking, writing and creating.

d. Numeracy General Capability

The focus of the Numeracy general capability is on students developing the knowledge and skills to use mathematics confidently in their lives. As the ACARA website states, 'numeracy encompasses the knowledge, skills, behaviours and dispositions that students need to use mathematics in a wide range of situations', so it has a much broader application that the learning area of Mathematics.

The Numeracy general capability is based on mathematical knowledge and considers the real-world experiences of mathematics and the application of mathematical skills and knowledge in real life situations. The learning continua for the Numeracy general capability breaks down mathematical knowledge as a mathematics progression across year levels and is a particularly useful resource when creating numeracy plans for students with additional needs.

A broader view of numeracy sees the general capability as being more than simply applying mathematical knowledge across the curriculum, to include dimensions that acknowledge 'tools' and 'dispositions' needed to use mathematical approaches in life-related tasks.

Research undertaken by Goos and colleagues (2014) investigated the effectiveness of a teacher professional learning program aimed at enhancing numeracy teaching practice across a range of learning areas. The program was based on a multi-faceted model of numeracy the incorporates the four dimensions of *contexts, mathematical knowledge, tools* and *dispositions* that are embedded in a *critical orientation* to using mathematics. Figure 1 below provides a graphic of the model for numeracy in the 21st century.

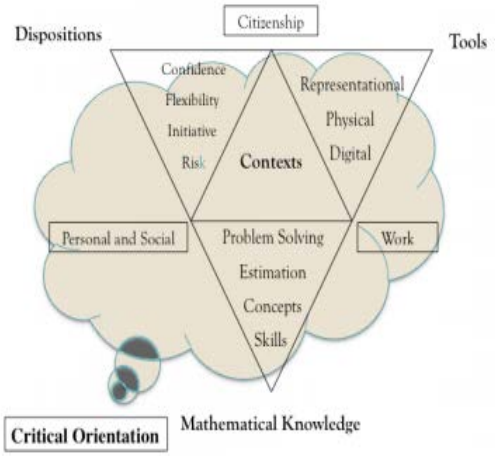

Figure 1. A model for numeracy in the 21st century (Goos, Geiger, & Dole, 2014)

Descriptions of the dimensions and critical orientation of the numeracy model

Mathematical knowledge	Mathematical concepts and skills; problem solving strategies; estimation capacities.
Contexts	Capacity to use mathematical knowledge in a range of contexts, both within schools and beyond school settings.
Dispositions	Confidence and willingness to use mathematical approaches to engage with life-related tasks; preparedness to make flexible and adaptive use of mathematical knowledge.
Tools	Use of material (models, measuring instruments), representational (symbol systems, graphs, maps, diagrams, drawings, tables) and digital (computers, software, calculators, internet) tools to mediate and shape thinking.
Critical orientation	Use of mathematical information to: make decisions and judgements; add support to arguments; challenge an argument or position.

Goos, M., Geiger, V., Bennison, A., & Roberts, J. (2015). Numeracy teaching across the curriculum in Queensland: Resources for teachers. Final report. Brisbane: The University of Queensland

One way suggested to improve the Numeracy general capability is to draw out all the 'numeracy demands' in the each of the learning areas of the curriculum as this would enable teachers of all subjects and all year levels to see numeracy as their responsibility. Even though this action would address the 'numeracy demands' of the curriculum, it would not address 'numeracy opportunities' as teachers need the capability to 'see' opportunities as they arise in the students' learning environment – these opportunities cannot be placed on a progression as they can arise at any time in a multitude of ways.

e. Literacy Learning Progression

The Literacy Learning Progression is a helpful tool to determine where students are at in their learning and see where they are headed – i.e. the next step in their learning journey. As a tool it supports teachers in targeting an individual student's learning needs to progress their knowledge and skills. This is especially useful where students are operating are at a wide variety of points on the progression, e.g. in multi-aged classrooms.

The elements and sub-elements of Literacy Learning Progression are useful for teachers to track student's understanding on a concept area - to guide them on filling a gap in their understanding or consolidating knowledge before moving on. However, it does take a considerable amount of time for a teacher to know where a child would be located on the Literacy Learning Progression if they are operating at different levels across elements and sub-elements.

f. Numeracy Learning Progression

The Numeracy Learning Progression provides a detailed, comprehensive sequence of numeracy development as they unpack mathematical concepts through a set of progressive skills-based understandings.

Positive aspects of the Numeracy Learning Progression include:

- knowing where students are located on their numeracy development and where to go next in a student's learning
- able to target an individual's learning needs to keep them on the right track in progressing their knowledge and skills
- can be applied flexibly as it is not age or year level related, e.g. in situations where students are streamed across year levels
- has fine-grained statements which provide clarity for teachers
- tracks student's understanding of major concepts.

One Catholic School Authority has expressed the view that as the Numeracy Learning Progression is primarily based on mathematical understandings, with little or no real-life application or personal/social context, it would be more accurate to call the Numeracy Learning Progression a Learning Progression of Mathematical Understanding.

Suggestions for improvement:

- As the mathematics proficiencies of understanding, fluency, problem-solving and reasoning are only 'reflected' in the Numeracy Learning Progression rather than specifically identified, QCEC suggests the Numeracy Learning Progression be strengthened by including specific references to the four proficiency strands. In addition, an increased emphasis on the proficiencies in mathematical content would help transference within and across the curriculum.
- Teachers sometimes have difficulty understanding the Mathematics content descriptions and what the curriculum is asking them to teach. QCEC requests more clarity in the content descriptions and elaborations to help teachers fully understand the content they are expected to teach. In addition, more content being identified in the achievement standards would also support teachers to report on students mathematical understanding.
- There are a number of key big ideas/concepts that are essential for conceptual understanding however these are not always evident in the curriculum and teachers require assistance to understand the key mathematical ideas within content. QCEC suggests framing the Mathematics curriculum in big ideas and concepts to support teachers in developing an understanding of mathematical concepts.

3. General comments about the F-10 Australian Curriculum

The following comments are provided on various aspects of the Australian Curriculum for the period July 2017 to June 2018:

- **F-10 Australian Curriculum**

The F-10 Australian Curriculum has provided a starting point for planning, teaching, assessing and reporting student learning. As with all curricular, it is a construct with strengths and weaknesses.

Teachers continue to express concern about how to effectively and successfully integrate the key learning areas, cross-curriculum priorities and general capabilities. It is increasingly challenging to integrate the learning areas, address the general capabilities and embed the cross-curriculum priorities. The three dimensions of the Australian Curriculum, including the Literacy and Numeracy Learning Progressions, are all professionally well written documents but they require a substantial amount of time for teachers to unpack to realise their full potential.

As the curriculum has been primarily focused on the content descriptions and achievement standards, with content to be taught sitting within eight learning areas, it has been a challenge for teachers to make meaningful and authentic learning connections. It is important that both teachers and students see the big concepts or ideas as a starting point and integrate content descriptions, general capabilities and cross-curriculum priorities to enable a sense of 'wholeness' in learning rather than disparate learning across the subject areas.

It is challenging for classroom teachers to keep abreast of all the changes and updates to the Australian Curriculum. The professional development of curriculum leaders is vital as information needs to filter down to teachers in a way that encourages them to continually improve the way they plan, teach, assess and report. The amount of evidence required to report on student achievement and progress is becoming increasingly complicated and burdensome.

- **General capabilities**

QCEC supports Recommendation 7 in the *Through Growth to Achievement, Report of the Review to Achieve Educational Excellence in Australian Schools*, (March 2018) that states; 'Strengthen the development of the general capabilities and raise their status within curriculum delivery, by using learning progressions to support clear and structured approaches to their teaching, assessment, reporting and integration with learning areas.'

This review on the place and role of general capabilities in the Australian Curriculum is welcomed as currently there is no guarantee they are comprehensively developed across learning areas or there is continuity of development across year levels. There is the assumption the general capabilities will be developed from F-10 as they are embedded within and across the learning areas, however, in Queensland the general capabilities are not formally assessed or reported upon to parents.

- **Learning Areas**

English: some teachers have difficulty in understanding the meaning of the content descriptions, even after reading the elaborations. This lack of knowledge and understanding appears in the areas of text structure and organisation; and expressing and developing ideas. Finer-grained detail in the Language strand would be helpful.
HASS: some content descriptions do not match learning expected in other learning areas for the same year level. For example, Year 5 HASS covering the impact of bushfires/floods (ACHASSK114) and how people can respond but the content knowledge of extreme weather events is covered later, in Year 6 Science (ACSUU096).
Other areas: some aspects of the curriculum are covered well across a range of areas, for example, multimedia is addressed in the Digital Technologies, The Arts (Media Arts) and English learning areas.

- **Implementation**

In general, the Australian Curriculum has been implemented effectively across Catholic School Authorities with a rolling implementation supported by system and/or school curriculum support teams. The transition to a new Queensland Certificate of Education (QCE), to commence in 2019, has been an important impetus for revitalising the curriculum in many secondary colleges as the senior syllabuses are firmly founded on the P-10 Australian Curriculum.

- **Literacy and Numeracy Learning Progressions**

Literacy and numeracy are foundational to mastery and deep learning across all curriculum areas. QCEC supports Recommendation 5 in the *Through Growth to Achievement, Report of the Review to Achieve Educational Excellence in Australian Schools*, (March 2018) states 'revise the structure of the Australian Curriculum … to present the learning areas and general capabilities as learning progressions' and Recommendation 6 'prioritise the implementation of learning progressions for literacy and numeracy in curriculum delivery during the early years of schooling …' While these recommendations are supported, one Catholic School Authority has expressed caution in using the Literacy and Numeracy Learning Progressions in their current form as the starting point for this work.

- **Australian Curriculum website**

Recent changes and updates to the website have made it challenging to locate the content descriptions in each of the learning areas. Although the learning areas are only one of the three dimensions of the F -10 Australian Curriculum, the focus in schools has primarily been on the learning areas and their content descriptions and achievement standards.

Conclusion

QCEC is appreciative of the opportunity to provide feedback to ACARA in the fourth annual process of Monitoring the Australian Curriculum for Foundation to Year 10. QCEC trusts that the feedback provided in this submission will continue to improve the curriculum for all Australian students, so they have the necessary knowledge, skills and dispositions to be competent and confident 21st century learners.

If you require any further information or clarification, please contact Ms Jane Slattery, Executive Officer – Education, by email janes@qcec.catholic.edu.au or by phone (07) 3316 5845.

Dr Lee-Anne Perry AM
Executive Director