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# Enacting the Australian Curriculum: Primary and Secondary Teachers' Approaches to Integrating the Curriculum

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*Abstract: Integrated approaches to curriculum planning and delivery are not a recent phenomenon. In the 1930s John Dewey advocated for a more cohesive conceptualisation of students' learning. Yet, despite state and national endorsement of curriculum integration in Australia, it is generally considered an alternative curriculum design that has failed to gain traction in Australian schools. A qualitative case study, situated in two inner city government schools in the state of Victoria, explored the integrative approaches undertaken by primary and secondary teachers when planning and implementing their curriculum to account for their students' needs, interests and the school and community context. The study identified that the establishment of a concept-based curriculum framework which documented the learning goals, assessment tasks and planned learning experiences sustained the teachers' focus on the cross disciplinary connections. A conceptual framework emerged as critical for generating the professional dialogue pivotal to planning and enacting integrated curriculum.*

## Introduction

The Australian Curriculum and Assessment Authority (ACARA, 2013) acknowledges 21st century learning does not fit neatly into a curriculum organised solely by learning areas or subjects that identify with the disciplines. Reflective of this, ACARA's three dimensional structural framework requires those responsible for curriculum making and its delivery to grapple with the integration of discipline-based learning areas, general capabilities as essential 21st century skills, and contemporary cross-curriculum priorities. Although clearly stating the importance of the distinctive lens of each discipline, the ACARA document, *The Shape of the Australian Curriculum* (ACARA, 2013), recognizes that disciplines are not self-contained or fixed but are interconnected. In addressing learning areas, knowledge and skills in relation to curriculum content, ACARA purports that "[a] discipline-based curriculum should allow for cross-disciplinary learning that broadens and enriches each student's learning" (p. 22). This aligns with the Australian Curriculum's goal that successful learners be "creative, innovative and resourceful, and are able to solve problems in ways that draw on a range of learning areas and disciplines" (p. 8). Implicit in this goal is the need for student exposure to integrative ways of learning that cross the disciplinary boundaries. Educators are afforded some autonomy in how they achieve this goal, with ACARA asserting schools are able "to decide how best to deliver the curriculum, drawing on integrated approaches where

appropriate and using pedagogical approaches that account for students' needs, interests and the school and community context" ( p. 13).

Yet, integrated approaches comprise a broad church and there are a bewildering range of terms that describe attempts to make the curriculum more connected, as opposed to teaching discrete subjects. Examples include: integrated, interdisciplinary, multidisciplinary, transdisciplinary, pluri-disciplinary, cross-disciplinary curriculums and problem-based learning. Although these terms are sometimes used interchangeably, they embody different approaches for different purposes or rationales (Brady & Kennedy, 2007), as discussed later in the article. Whilst ACARA makes explicit its integrated stance, its curriculum documentation offers little clarity or guidance about the choice of approaches and pedagogies. ACARA does, however, provide sample units of integrated approaches as personal learning plans. State curriculum frameworks similarly offer no differentiation of approaches but endorse integrated curriculum and likewise offer sample units. For example, the Victorian Curriculum and Assessment Authority (VCAA, 2015) in articulating its four layers of planning — school, curriculum area, year level, unit/lesson plans — notes "the content of the curriculum (the 'what') is mandated through the learning areas and the capabilities, but the provision of the curriculum (the 'how') is a matter for local schools and their communities'' (p. 9).

Compounding the issue of teachers choosing from multiple integrated approaches, is what Yates (2011) refers to as the "messiness" in the conceptualisation and implementation of ACARA's multi-dimensional model. The complexity of this framework has been the subject of strong criticism in the *Review of the Australian Curriculum: Final Report* (Donnelly & Wiltshire, 2014), commissioned by the then Commonwealth Minister of Education, Christopher Pyne. Donnelly and Wiltshire argue that the discipline-based approach to education is "weakened" by the emphasis on the cross-curriculum priorities dimension (Aboriginal and Torres Strait Islander histories and cultures, Asia and Australia's engagement with Asia, sustainability) developed within the learning areas and the general capabilities dimension (literacy, numeracy, information and communications capability, critical and creative thinking, personal and social capability, ethical understanding, and cultural understanding). Concern has been expressed that their consideration by educators would be tokenistic, and that the skills associated with the capabilities dimension are at risk of being addressed as a checklist (see for example, Bray, 2014; Logan, 2014; Yates, 2014).

Clearly the task of curriculum making and delivery has never been more complex for teachers. While current curriculum documentation is highly detailed and more prescriptive than earlier frameworks, somewhat paradoxically, the curriculum delivery in schools has generally narrowed as an outcome of the current emphasis placed on high-stakes testing and teacher accountability (see for example, Polesel, Dulfer & Turnbull, 2012; Lingard, Thompson & Sellar, 2016). As Yates, Collins and O'Connor (2011) argue in reviewing the history of Australian curriculum making, the sparse curriculum documentation of the 1970s gave schools considerably more freedom with regard to the content of what was taught and how it was delivered. In addition to these constraints, integrated curriculum approaches have been continuously contested and undermined by the subject hierarchies. Hence, mindful of the complexity of planning and delivering integrated approaches, we wondered how teachers in schools that are committed to curriculum integration meet the challenges of fulfilling mandated curriculum and engaging with pedagogical practices that best support their students' learning needs. A qualitative study to explore the planning and delivery of the integrative approaches implemented by two schools in Victoria, one primary and one secondary, was developed by the research team to respond to the paucity of research on cross curricula issues in Australia. This article focuses on two questions that framed the study:

- How do teachers engage at the micro-level of planning an integrative curriculum approach to curriculum design?'
- How do teachers' pedagogical approaches take account of students' needs, interests and the school and community context?

The two schools invited to participate had engaged with integrated curriculum approaches to curriculum design over a sustained period of time. The findings are reported with particular consideration to ACARA's (2013) statement that schools are best positioned to draw on integrated approaches that address students' needs, interests and the school and community context. Also reported is how the teachers work across the disciplinary learning areas and address the general capabilities dimensions.

## Connecting with the Literature

A plethora of terms have emerged to describe approaches to curriculum integration. These terms differentiate the way disciplinary connections are made. Table 1 identifies and defines the integrated curriculum approaches referred to and discussed in this article.

| | |
|---|---|
| ***Cross-disciplinary*** | *Embedding aspects of a discipline or learning area to support and extend the development of another.* |
| ***Multidisciplinary*** | *Linking subjects/disciplines by a theme or issue but without a conceptual framework to support synthesising subject/discipline knowledge.* |
| ***Transdisciplinary*** | *Planning commences with an issue, problem or topic and a framework is established around concepts and a central idea or question. The fluidity of subject curricular frameworks is emphasised.* |
| ***Interdisciplinary*** | *Achieving a synergy by examining a theme topic, issue or problem through disciplinary based perspectives (the discipline's knowledge base, methods of inquiry and forms of communication).* |
| ***Problem-based learning*** | *Relevant disciplinary knowledge is drawn upon to investigate and seek solutions to a specific problem so that learning is integrated from a range of disciplines.* |

**Table 1: Glossary of Integrated Curriculum Approaches**

Dewey (1982) and the progressive movement in the US emphasised the interrelationship between education, schooling, curriculum and community, arguing that school based-knowledge must connect with students' lived experiences. Further, the need to make connections across the disciplines was advocated**.** Gardner and Boix-Mansilla (1994) posit that multidisciplinary and transdisciplinary curriculums are pre-disciplinary versions of integration. They argue that interdisciplinary work can only be truly implemented once students are somewhat conversant in the disciplinary perspectives — their distinctive epistemological and methodological contributions — which is generally not until the secondary years of schooling. Interdisciplinary learning, according to Boix-Mansilla is:

> *the capacity to integrate knowledge and modes of thinking in two or more disciplines to produce a cognitive advancement, e.g. explaining a phenomenon, solving a problem, creating a product, raising a new question – in ways that would have been unlikely through a singular disciplinary means. (2004, p. 4)*

Kincheloe, Slattery and Steinberg refer to integrated curriculum as an investigative, inquiry-based approach to learning around a generative theme or topic (2000, p. 86) that

aspires to make students' learning experiences more relevant and transferable. Absent from their definition is the essential emphasis on a conceptual lens, which enhances opportunities for what Reid (2011) terms 'authentic' cross-disciplinary connections. This conceptual lens is pivotal to teachers' planning of transdisciplinary units for the International Baccalaureate's Primary Years and Middle Years programs.

Research on integrated approaches undertaken by the Harvard Graduate School of Education found that the disciplinary assessment of learning was problematic and perceived as a stumbling block (Boix-Mansilla, 2004; Miller & Boix-Mansilla, 2004; Nikitina, 2002). Dowden (2007) and Connor (2011) similarly cite issues around assessment with regard to the demise of integrative frameworks such as the Tasmanian Essential Learnings (ELs) and the limited take up of Queensland's New Basics. Assessment has consistently been reported as an issue in classroom based studies of integrated curriculum in Australian schools (e.g. Godinho & Abbott, 2011; Godinho & Imms, 2011; Wallace, Sheffield, Rennie & Venville, 2007; Rennie & Wallace, 2009; Venville, 2010).

For some schools, a concept-based curriculum (Drake & Burns, 2004; Erickson, 2007; Godinho, 2016) which resonates with the transdisciplinary mode, is the preferred integrated approach. This involves planning that commences with establishing a topic or unit focus and proceeds outwards to the learning experiences through explicit identification of concepts and / or big ideas (Erickson, 2007; IBO, 2013/2015; Wiggins & McTighe, 2005). Resource materials developed in Australia for the Curriculum Corporation (now Education Services Australia) during the 1990s and the first decade of the new millennium (see for example, Murdoch & Hornsby, 1997; Wilson & Wing-Jan, 2003) are concept driven. Lyn Erikson (2002) argues that it is:

> *[the] conceptual lens on a topic that forces thinking to an integration level … Without the focus concept, we are merely coordinating facts and activities to a topic, and fail to reach higher-level curricular and cognitive integration. (p.63)*

Likewise, the International Baccalaureate's Primary Years Program (PYP) for children aged 3-12 years, and the Middle Years Program (MYP) for students in Years 7-9 describe their approach respectively as transdisciplinary and interdisciplinary (Kushner, Cochise, Courtney, Sinnema & Brown, 2015; IBO, 2019a, 2019b). The starting point for the design of PYP curriculum units are the core concepts: form, function, causation, change, connection, perspective, responsibility, reflection, which with regular revisiting deepen students' level of understanding.

Project-based learning (PBL) is based on challenging questions or problems that involve students in problem design, problem-solving, and problem decision making, or investigative activities that provide students with the opportunities for working relatively autonomously over extended periods of time (Thomas, 2000). According to Thomas, there is no universally accepted model but he identifies five criteria for PBL project foci:

- are central, not peripheral to the curriculum;
- are focused on questions or problems that "drive" students to encounter (and struggle with) the central concepts and principles of a discipline;
- involve constructive investigations that are goal directed and involve inquiry, knowledge building, and resolution;
- incorporate more student autonomy and teacher facilitation, rather than explicit direction; and
- embrace real-life challenges with a focus on authentic problems or questions.

Project-based learning, which some Australian schools have adopted as an alternative program for secondary students, is an approach closely aligned with the problem-based learning model originating in the 1960s from Canada's McMaster Medical School. Savery (2006) describes problem-based learning as a learner centred pedagogy that facilitates

students working collaboratively in small groups to research a defined problem, and then to seek and develop a solution by applying the skills and knowledge acquired by integrating their learning from the relevant disciplines/subjects.

As the literature reveals, integrated approaches have a range of explicit rationales and purposes. In the case studies discussed in this paper, two very different approaches are undertaken by the teachers with their respective classes — in the primary class an integrated, transdisciplinary curriculum design is implemented and in the secondary class an adaption of project-based learning is enacted.

## Methodology

Two inner suburban Government schools in Victoria were selected as classroom research sites on the basis of their capacity to 'yield the most important information and have the greatest impact on the development of knowledge' (Patton, 2002, p. 236). Both schools were recognized for their sustained engagement with integrated approaches. The primary school (Foundation to Year 6) was situated in a rapidly gentrifying location. The Year 1 class participating in the study comprised 26 children from a diverse range of cultural backgrounds and two teachers who shared the teaching load. In the combined primary and secondary school (Foundation to Year 12), the 23 Year 7 student participants were similarly from diverse cultural backgrounds but many commenced their school years with very limited English, and the school embraced a broader cross-section of the community. Their Humanities teacher, recently arrived from one of the state's high achieving government secondary schools, taught the new project-based learning (PBL) subject and was supported by a pre-service teacher.

A qualitative case study methodology was deemed the best match for the study. The question focused how teachers engage with the micro-level of planning and enact an integrative curriculum and "in-depth description of some social phenomenon" (Yin, 2009, p. 4). Qualitative data collection techniques included: classroom observations; semi-structured interviews with the class teachers pre and post implementation of their integrated unit/program; focus groups of teacher-selected students on conclusion of the unit/program; video-taping of six lessons across a range of subjects; and journal field work entries. However, in this article the focus is on classroom observations, interview and focus group data. Ethics approval for the study was granted by the Human Ethics committee of the respective universities and consent forms were signed by the participants following the distribution of a plain language explanation of the study, detailing its purpose and what was required of them.

Data were collected over two school terms to monitor the planning, implementation and assessment processes. Video-taping, teacher and student interview transcriptions and lesson observation notes were analysed by the investigators. Data analysis commenced with 'open coding' (Merriam, 2009) whereby some initial code construction was undertaken by annotating potentially relevant data. As the data collection progressed, analytical or axial coding (Corbin & Strauss, 2007), that required interpretive work and reflection, enabled the formation of broad categories or emergent themes which in turn captured recurring patterns across the data sources. These categories were informed by the literature and responsive to the purpose of the research and the research questions. Merriam (2009) suggests that categories do not always tell the whole story so we then endeavoured to link the conceptual categories in a meaningful way to make sense of and explain the study's findings.

**Integrative Planning: Compliance and Autonomy**

The primary school dedicated three hours per week each for the implementation of integrated curriculum units and the school's concurrent commitment to developmental curriculum (Walker & Bass, 2011) for the Early Years students (Prep – Year 3). The embedded whole school inquiry approach to integrated curriculum was evidenced in the primary school's scope and sequence and documentation of units. Student inquiries for the developmental curriculum were based on topics of personal interest, whereas, the integrated inquiry focus was predetermined by the school's scope and sequence of topics. The unit "Celebrations" undertaken by the Year 1 class addressed the concept of "identity" and the big idea that "an understanding of other cultures promotes tolerance and acceptance."

The school's adoption of a commercially available electronic unit planner supported the establishment of a conceptual lens and Reid's (2011) emphasis on 'authentic' cross-disciplinary connections. The planner included prompts for identifying the unit's rationale, driving concept/s, big ideas, the targeted knowledge and skills, the inquiry focus, the essential questions, and the assessment tasks. In addition, connections were made to the relevant state and national curriculum frameworks. The "Celebrations" unit targeted the Victorian Curriculum Assessment Authority (VCAA) Humanities/Social Sciences curriculum foci for Foundation to Level 2 that sought to develop students' awareness of family history and community heritage, albeit at this level there are not specific learning standards to address. English curriculum connections and the personal and social learning capability were also targeted to address. The 24 page documentation of the unit embraced a backward design approach (Wiggins & McTighe, 2005) whereby the learning foci and outcomes and assessment are identified prior to establishing the learning experience sequence.

Overall, the teachers expressed satisfaction with the functionality of the electronic documenting of the unit's framework and content, acknowledging "we've done a lot of PD (professional development) to help [familiarise] us [with it]." However, one interviewee described it as "a hard tool to use in terms of that printout, and if you are a visual person that likes paper and being able to look at what's happening in front of you." A full day was allocated once a term for planning and time was also dedicated on Mondays and Wednesdays. The teachers noted that because this unit was part of a well-established scope and sequence of integrated curriculum unit topics, "We can go back and have a look at what others have done and it means we have that skeleton sort of, those ideas are there for you."

By contrast, the secondary school's project-based learning (PBL) approach to curriculum integration had only recently been operationalised in the school and as yet there were no resources or formal planning documents as reference points. Whilst the integrated approach was not as clearly articulated and theorised as in the primary school, it was stated explicitly that PBL was adopted for its potential to make the learning of English more meaningful — a critical consideration in a school where a notable number of students spoke little English. The concept of adaptation for the PBL topic of "Desert Animals" was similarly taken from the Humanities/Social Science state curriculum learning area, albeit the cross-disciplinary links were somewhat spontaneous, rather than pre-planned. The PBL coordinator described planning as "on the run" stating, "I approached the art teacher … I gave him the heads up of what we're going to do, [and] he's actually started … drawing with them." The plan was to collaborate initially with a few responsive teachers during the PBL introduction phase.

Although 'The Problem' focus emerged from the Humanities and Social Sciences learning area it was noted that "we are open to other things as well, including a strong English emphasis… There is no formal sitting down to pre plan" curriculum or a syllabus. Yet, it was intended that once the PBL approach had been trialled, other subjects would be

included according to their connectedness with PBL topics, and a structural framework would be developed. Whilst the primary teachers valued having access to a pre-planned unit and complying with the conceptual framework, the secondary school co-ordinator relished her freedom to shape a new curriculum claiming, "I can do whatever I want with them [the students]. I don't have to compare with other teachers … I cannot believe the freedom I have." This celebration of no "road map" to follow, no formal meetings for planning the subject connections and how the subject learning experiences would prepare the students for the assessment task, initially appeared somewhat counterproductive to integrative learning. However, despite their very different starting points and approaches, both schools complied with making explicit connections to the state and Australian Curriculum frameworks.

## Enactment: Developing General Capabilities through the Disciplines

### The Primary Classroom

Opportunities for developing general capabilities within the Year 1 unit's activities on Celebrations included: interacting in small groups and with partners on shared tasks; building positive social relationships; and recognizing and acknowledging the different experiences that their peers contributed to their learning (personal and social learning capability). The students were also encouraged to reflect on what they had learnt and share their learning with others. Furthermore, they were able to articulate their thoughts clearly drawing on integrative mathematical and numeracy ideas.

S4: There's different types of Chinese celebrations. There's the Autumn Festival and the Chinese New Year.

S2: So there's like not much rain in the other areas until Chinese New Year because the sea dragon's been in there and the water gets in the scales and then he comes out of the water on Chinese New Year and flies around and then the water gets out of his scales and makes rain.

S1: So the crops can grow again.

S5: We learnt about the Chinese dragon. It holds about 24 people.

S2: Twenty-two.

S5: Yeah, 22 have to hold it up - yeah, and like four people for the tail and eight for the head. Well that equals 12 people and then there'll only be 10 more people.

In this primary school, the teachers acknowledged an affordance of space within the curriculum for the inclusion of value adding opportunities as this comment attests:

> *We followed the original design pretty much to the 'T'. We just tweaked some of the activities and had to swap things around from week to week. We added some extra bits and pieces that have come up incidentally from the children.*

The Fijian Diwali celebration and the Chinese mid-Autumn festival celebration were added to the unit's content, following parental responses to a family survey identifying their country of origin and why they had come to Australia. As one teacher said in the interview, "When I say the work is about celebration, the big picture idea is about identity. And that's why we start with looking at themselves and their family." The survey provided the data for a teacher and student co-constructed bar graph representing the students' countries of origin, the skills having been previously taught in the numeracy block. Explicit connections were made to the Mathematics Statistics and Probability content strand for the Foundation Year students where students are required to collect data, draw simple data displays, and to pose and answer questions about displays.

Similarly, explicit cross-disciplinary connections with the English curriculum were evidenced when students read simple texts about cultural celebrations and then completed a data chart with information sourced about their chosen celebration. Here, the literacy block was utilised to build the skills base for completing a data chart about their chosen celebration. Follow up activities from a visit to the Chinese Museum entailed a repertoire of listening, viewing, reading, speaking and writing activities as specified by the English curriculum. Despite allowing for flexibility, the teachers acknowledged that they over planned and then felt "under pressure because you're trying to mark off, you know tick off all these boxes at the end, particularly for the state and national curriculum's personal and social learning focus for Foundation students".

**The Secondary Classroom**

Although there was no formal documentation for the PBL subject undertaken in the secondary classroom, the interdisciplinary learning and the personal and social learning connections were clearly evidenced.

The secondary students were well aware of the subject/disciplinary focus stating, "It's either history or geography; right now we're doing geography." They welcomed the transition to PBL topics that matched the disciplinary-based learning content, as opposed to the freedom of choosing their own topic. They asserted this had resulted in "weird" topics such as skate boarding, "historical stuff', "Harry Potter", and "movies." As a staff member commented, having a defined topic with some aspects being open to choices was seen by the students as a very positive change that flagged they were now participating in an academic program.

The students identified that PBL was cross-disciplinary and involved "lots of English, Art and sometimes Maths". Reference was made to doing water colour paintings of desert animals in their art classes, history classes including mapping activities and climate graphing being undertaken in maths classes. Despite the absence of a clearly defined conceptual lens, the PBL teacher was adamant that Art and Maths classes were only allocated to PBL when the subjects contributed in a meaningful way to the topic focus and the students' learning, a point also made by the students when interviewed. Yet without elaborating the driving concepts, essential questions and/or big ideas, links remained somewhat tenuous and opportunities for making interdisciplinary connections within their subject classes were at risk of being overlooked.

When asked what differentiated the subject from other subject classes, the secondary students mentioned, "you have fun while you are learning", "there are more activities" and it is more "interactive". They claimed that their engagement with PBL classes meant they were more open to learning. As one student said, "[B]ecause you're more interested, you learn more".

Students were unanimous in their belief that they learnt more in PBL than if the topic was taught within a single subject/discipline. Interestingly, what the students particularly noted, and was affirmed by the research team's observations, was the general capability dimension that PBL addressed, albeit implicitly. These outcomes related to the Year 7 curriculum foci on the personal and social learning capability, as well as to the teacher's overarching goals for the students that year. Students (1-5) commented that the pedagogical strategy of working in pairs or as a group for project work assisted in building their confidence, often an issue when English is not the students' first language. Their personal agency is summarised in the following comments:

S:5 We get a little more confident

S:4 Yeah, we feel good about ourselves
S:1 You feel better when you have a partner.

The PBL students' sensitivity to the cultural diversity within the class (intercultural understanding) was notably demonstrated in their willingness to translate for each other, as the teacher "couldn't understand most of the stuff so we had to help, we had to butt in and explain it all the time" (S:1). As another student noted, "Lucky there's people that can translate what they're saying" (S:3). The students recognised that they could learn from and with each other and accommodated the different strengths and weaknesses in the group, helping students with low self-confidence. This was identified in classroom observations and highlighted in the student interviews, one student referring to a girl being very good with English but "She's just really shy. So she always talks with me, except she can't say it in front of people" (S:3) with another student adding, "She's so nervous" (S:1).

According to the students, PBL supported the development of a range of learner capabilities; two students articulating, "Everyone can contribute even if they are not smart, they could still [participate] you know" (S:3) and "They could still complete the work" (S:1). The enactment focus was on learning to be learners: "to understand themselves and others, and manage their relationships, lives, work and learning more effectively" (VCAA, n.d.). Essentially, both in primary and secondary classes the general capabilities were developed through the disciplines. As Reid (2015) argues, the general capabilities work in partnership with the disciplines/subjects.

## Assessment: Targeting the Disciplinary/Subject Learning Outcomes

Both schools planned and established their key assessment task prior to embarking on the curriculum delivery. In the primary school, the four weeks of sequenced, planned learning experiences culminated in a summative assessment task for students, but formative assessment was also conducted at regular intervals during the unit. The students were familiarised with the assessment criteria, which was presented in a rubric, and the expectation of teacher, self and peer assessment components. As one teacher expressed:

> *We'll talk about what each area is, what we're looking for, the sorts of examples we'd expect to see in each area. Children know what they are being assessed against before they've started and know it is going into the portfolio… We have it [criteria] up on the white board. We have anecdotal record books that we keep and then we keep student work samples. Every couple of weeks we'll have a focus area that we'll assess against and we do portfolios.*

In addition to inclusion of the rich task in their portfolio, students could self-nominate work items that record their learning journey for the unit to be shared with family during the teacher-parent-student interviews. For these students, the assessment focus was the state curriculum focus for English Speaking and Listening for Level 1 as the teacher's explanation of the rubric scoring indicates:

> *If you present your work to the group you get one point. You get two if you present and make good eye contact and talk about the key points of the celebration, and three if you are able to speak confidently in a loud and clear voice, look at your audience, and cover the key points.*

The students gave each other oral feedback using the rubric to inform their comments but the teacher feedback between teacher and student was confidential. Despite their young age, the students were already familiar with this routine and viewed assessment as an integral part of their learning, talking openly in the interviews about the choosing of work for the portfolios and preparing their presentations. Having a clearly defined conceptual lens and

identifying subject/disciplinary learning standards and general capability foci to target assisted the teachers to sustain the unit's integrity, particularly when diverging from the planned activities, ensuring that 'authentic' cross-disciplinary connections (Reid, 2011) were maintained.

In the secondary school, the assessment task associated with the PBL topic was creating a hybrid animal that had the best chance of survival in its desert habitat. Given English was generally students' second language, communication was targeted for the assessment along with the learning standard for Humanities/Social Science discipline content, including whether students had developed an understanding of animals' adaptation to the desert environment. The content of "quizzes" — a term used rather than tests to put the students at ease — addressed the discipline-based curriculum content exclusively, and they increased in complexity over the duration of the PBL topic. General capabilities were not assessed against explicit criteria and the presentation of their hybrid animal was teacher and peer assessed. This was not viewed favourably by the students with several students referring to the peer assessment as "a popularity contest" and "they don't give you much points cos they probably hate you". The students concurred that the teacher assessment feedback on capabilities address "a couple of things we are good at and something we need to improve". While individualized feedback is critical for improving students' learning, it needs to be rigorously monitored and tracked alongside explicit goals to regularly assess students' understanding, and to analyse progress against learning goals (Goss, Hunter, Romanes & Parsonage, 2015), which in this instance were not clearly identified.

## Discussion

As the findings revealed, the two schools undertook very different integrated approaches. The primary school engaged with a transdisciplinary approach, where its "Celebrations" unit was planned around a clearly defined concept and big idea that drove the documented sequence of learning experiences. By contrast, the secondary school's lack of a documented conceptual framework to generate cross-disciplinary connections identified the secondary school's integrated approach as multidisciplinary. Whilst the concept of adaptation was understood, the absence of a clearly articulated problem/issue and a strong conceptual lens and framework meant the opportunities for students to make 'authentic' cross-disciplinary connections were diminished (Erickson, 2007; Reid, 2011). As Nayler (2014) suggests, for purposefully connected curriculum, the integrity of the disciplines must be maintained, which is not disputed in both schools' approaches. But additionally, she states there needs to be a clear conceptual link among the curricular area content descriptions connected in planning for teaching and learning, which as yet had not been articulated and documented in the secondary school.

Boix-Mansilla (2004) believes a truly interdisciplinary approach cannot be achieved until secondary school, given that students are unlikely to be sufficiently conversant in the disciplinary perspectives. However, the integration of several disciplines within the teaching of the "Celebrations" unit to develop the driving concept and big idea did enable the primary students to achieve a "cognitive advancement" (p. 4). This was evidenced in the student classroom observations, and in group interviews when students were able to articulate that the level of learning they achieved would unlikely have been experienced if Humanities/Social Sciences was taught as a single subject. The secondary students believed they too had achieved a "cognitive advancement" that would not have happened if their PBL classes were taught as a single subject. Importantly, as one of the teachers noted, "The kids think they are now in an academic program and they attribute this to PBL". Essentially, the students

believed that the PBL approach enhanced their awareness of how the different disciplinary foci of the lessons contributed to their learning.

Both secondary and primary teachers were confident that their choice of an integrated approach and pedagogies reflected their students' needs, interests and the school and community context. The enactment of both approaches reflected the importance that Dewey (1982) and the US progressive movement placed on the interrelationship between education, schooling, curriculum and community. Within the primary school, mindfulness of the cultural representation of the students led the teachers to modify the unit's learning activities to include specific cultural celebrations relevant to the students' lives. In the secondary setting, the specific needs of the second language learners informed decision-making around working in pairs or small groups to support each other. Dewey (1982) refers to the need for social consciousness and the adjustment of the individual activities accordingly. In both the primary and secondary school contexts, school and community life were closely bound, and the pedagogies enacted with the integrated approaches were student-centred.

## Straddling the Tensions between Meeting Student Needs and Curriculum Compliance

Dowden (2007, 2011) argues that historically integrated approaches can be categorised as either student-centred or subject-centred. In a student-centred integrated curriculum, James Beane (2006) advocates that curriculum ought to be about problems, issues and concerns that are self or personal concerns, or are issues or problems related to the larger world. The schools' topics meet this criterion. However, Dowden's (2007, 2011) binary of integrated approaches being either student-centred or subject-centred does not fit comfortably with the study's findings. Both schools complied with the Australian Curriculum and their state's curriculum foci and learning outcomes, and they informed and shaped the planned learning experiences and the assessment. Dowden appears somewhat critical of what he describes as "top-down" student-centred approaches that map the school curriculum (see for example, Jacobs, 2004; Jacobs & Johnson, 2009; Murdoch & Hornsby, 1997) in compliance with curriculum frameworks. Yet, the scope and sequence mapping that the primary school unit drew on provided a conceptual framework that strengthened immeasurably the integrated unit's enactment and the assessment processes. Nayler (2014), likewise contests Dowden's critique of mapping curriculum, countering that it is highly effective for what she terms purposefully connected curriculum approaches. There are inevitably tensions between meeting students' needs and curriculum compliance, but both schools showed that it is possible to straddle the subject-student centred divide, rather than be categorized by the binary.

The study revealed that the general capabilities were pivotal to the schools' integrated approaches and delivery of the discipline-based content. This affirms Reid's assertion, in response to the Donnelly and Wiltshire's (2014) report on The Australian Curriculum, that general capabilities "do not exist independently of the learning areas and subjects, [and] they cannot exist without them. They are developed THROUGH the subjects" (author's emphasis, 2015, p. 27). Indeed, the case study strongly supported Reid's argument that the general capabilities have "the potential to be a unifying element in the curriculum", and as such merit their own entity in the Australian Curriculum. As Reid stipulates, the capabilities work in partnership with the learning areas and subjects (disciplines).

While the VCAA agrees with this notion in principle, a different approach is taken in the representation of the general capabilities in the Victorian Curriculum F-10. It highlights four of the seven capabilities that are represented in the Australian Curriculum which include: critical and creative thinking, ethical, intercultural, personal and social capabilities. However,

unlike the ACARA, the VCAA have opted not to highlight literacy, numeracy or ICT as separate learning areas or capabilities with discrete knowledge and skills. The VCAA makes the following argument:

> *Given the inclusion of a Literacy strand in English, and the proficiencies of understanding, fluency, problem solving, and reasoning in Mathematics, it is unnecessary to define Literacy and Numeracy as a distinct curriculum. The learning of the skills and knowledge defined by the ICT general capability are now embedded in student learning across the curriculum. (VCAA, 2016)*

This sits in contrast with Reid's arguments (2015) and serves as an example of the kinds of nuanced complexities faced by teachers in negotiating the layers of curriculum planning, when straddling state and national frameworks.

## The General Capability Dilemma

Whilst the secondary teacher did articulate her key goals for the year were around personal and social capabilities in the research conversations, the assessment focus reflected the subject/disciplinary learning outcomes. Yet, what the students referred to with regard to their own learning aligned with the personal and social capability foci identified in the Victorian state and Australian Curriculums. This was evidenced in their capacity for empathy for others and working in teams, in ways that assisted students to work and learn more effectively (VCAA, n.d.). Similarly implicit student references were made to the intercultural capability when the students spoke of supporting their peers who were struggling with the English language, demonstrating their capacity to make connections with others, to negotiate or mediate difference, and to communicate and empathise with others (ACARA, n.d). Our case study found no evidence of the skills associated with the capabilities dimension being addressed as a checklist (see for example, Bray, 2014; Logan, 2014; Yates, 2014). We therefore question Donnelly and Wiltshire's (2014) claim that the discipline-based approach to education is "weakened" by the emphasis on the general capabilities dimension and their subsequent recommendation that they be subsumed or embedded within the disciplines, with the exception of IT, Literacy and Numeracy.

However, the study's findings indicate that general capabilities need to be targeted explicitly within the assessment criteria or learning goals when integrated approaches are used. Assessment has often been identified as the Achilles heel of integrated curriculum (for example, Boix-Mansilla, 2008/9; Godinho & Imms, 2011; Rennie & Wallace, 2009; Venville, 2010). This requires a commitment to collaboration across departments in secondary schools, to determine the cross-disciplinary and general capability learning goals or criteria. Whilst departmental collaboration is less of an issue with generalist primary teachers, Nayler (2014) reminds educators that when the Australian Curriculum is fully implemented in Years 3-4 and 5-6 there will be 15 and 16 curriculum areas to address respectively. Thus the complexity of the Australian Curriculum's three dimensional model requires that assessment be streamlined so that assessment tasks target multiple disciplines and the general capabilities.

Indeed, if the general capabilities are to be given the credence and merit they rightfully deserve, as Reid (2015) suggests, they need to be developed over time and the progression towards their achievement identified. Assessment of general capabilities must be targeted alongside the disciplinary/subject learning outcomes, rather than perceiving them as long term goals that cannot be measured over the course of a project/unit, as was the case in the secondary school. Goss, Hunter, Romanes and Parsonage (2015) argue that a baseline must be established for tracking learning progress, which includes assessing current

understanding and agreeing on appropriate goals, so robust evidence is collected. This should enhance the credibility and authenticity of integrated approaches. Rigorous assessment practices are contingent to sustaining these approaches, as the demise of the Tasmanian Essential Learnings (ELs) framework and the limited take up by schools of the innovative Queensland's New Basics framework have revealed. In both instances their failure to gain long term traction was attributed to the problematics of assessment (Dowden, 2007).

What has emerged from this small scale study is the importance of a framework that guides and supports the professional dialogue pivotal to planning and delivering integrated curriculum. Figure 1 conceptualises the planning layers for student-centred integrated approaches that the discussion has identified as critical to the process. This conceptual framework offers a potential starting point for documenting units. Its usefulness can be explored and refined in future inquiries into integrated curriculum practices.

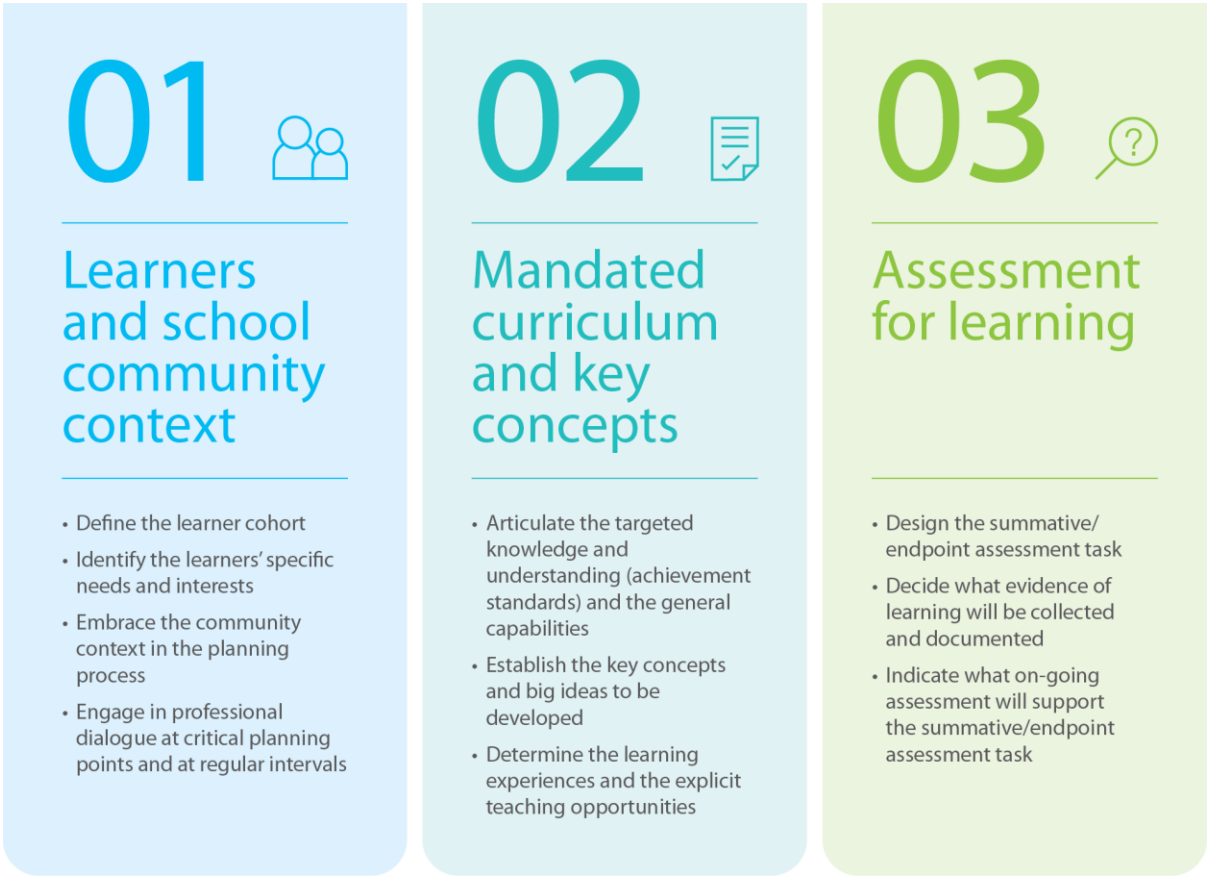


**Figure 1: Integrated Curriculum: A School Wide Conceptual Model**

Central to planning a unit, is consideration of the learners' needs and interests and the school community context so that teachers respond to students' needs and interests and thereby make their learning relevant and engaging. This was evidenced in the primary school case study, when the teachers drew on students' sociocultural backgrounds to personalise their learning experiences. Identifying the mandated curriculum connections is the essential layer which, in the context of the Australian Curriculum, means identifying the targeted content and achievement standards for the learning areas and the general capabilities. It also requires connecting learning areas to cross-curriculum priorities. ACARA (n.d) claims, "Learning area content that draws on cross-curriculum priorities and the general capabilities at the same time can provide very rich learning experiences for students". Importantly, the

key concepts and big ideas that underpin the unit must be articulated. These may be drawn and adapted from the mandated curriculum but must be clearly stated.

An endpoint cumulative assessment task, the third layering of integrated curriculum is planned to assess student achievements and to inform future planning, and includes what evidence of learning will be collected and documented. This planning layer also entails determining what formative assessment will be undertaken throughout the unit to provide evidence of a student's learning progression. Once these three layers of the framework are established, the learning experiences can then be planned.

As the secondary case study revealed, assessment criteria need to be clearly defined and explicit. When these layers are invoked, only then are the learning experiences planned and documented. Essentially, it is the experiences that prepare students for undertaking the cumulative assessment task. At this point it is essential to plan the explicit teaching that will support students' knowledge acquisition and learning. The conceptual framework of levels poses questions for teachers to address, offering a potential starting point for whole school planning and documenting of units. Its usefulness can be explored beyond this pilot project and refined in future inquiries into integrated curriculum approaches.

## Conclusion

If 21st century learning does not fit neatly into a curriculum solely organised by learning areas or subjects that reflect the disciplines (ACARA, 2013), it signals the necessity for teacher engagement with integrated approaches to curriculum design. As this study has highlighted, doing so requires an understanding of how authentic connections are made across the subject/disciplinary divides, and an ongoing commitment to developing and adopting a conceptual planning framework that focuses and guides teaching and learning. Prior to undertaking an integrated approach there must be clarity of purpose and a preparedness to participate in professional dialogue with colleagues so that learning goals, mandated curriculum connections, and assessment processes and performance tasks are explicitly defined. This is both intellectually challenging and time consuming, particularly at the secondary level, as it generally necessitates moving beyond working within the confines and constraints of teachers' disciplinary/subject alignments.

Effective integration approaches involve teachers exploring how the subject/disciplinary perspectives can work together to enhance students' engagement with a topic and deepen their understanding of complex concepts, issues and problems. Whilst it is the exposure to different disciplinary/subject knowledge and ways of inquiring and communicating which enrich students' learning, it is paramount that integrative approaches do not dilute the disciplinary/subject curriculum coverage and delivery. We endorse Mansilla and Gardner's (2008) argument that nurturing the disciplined mind and disciplinary ways of thinking is essential, but students "must also be able to integrate disciplinary perspectives to understand new phenomena" (p. 19). The intellectual challenge of curriculum integration is indisputable, if educators are to move beyond a tokenistic multidisciplinary approach. Yet, this way of learning and applying subject/disciplinary knowledge and, importantly, general capabilities will equip students to be lifelong learners who are enabled to participate meaningfully in an increasingly complex, information-rich, globalised world.

As we acknowledge, this is a small case study. However, given the paucity of research on cross curriculum issues that focus on the enactment of the Australian curriculum, the study has indicated that mandated curriculum, albeit state or national, needs some explicit documentation of what constitutes effective integration. Importantly, it flags that more research be undertaken on how theorising of integration translates into good practice,

ultimately to generate some guiding principles for teachers undertaking integrated approaches to curriculum design.

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