Improving Learning

The impact of the IB Primary Years Programme (PYP) on student wellbeing and other related social-emotional learning outcomes

Report to the International Baccalaureate Organization

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EXECUTIVE SUMMARY

Background

This study investigated the impact of the International Baccalaureate (IB) Primary Years Programme (PYP) on student wellbeing and related outcomes. The PYP, an educational framework for children ages 3–12, offers a holistic education focusing on whole-child development through an inquiry-driven approach. It does so through multiple programmatic elements that include leadership and teacher professional development, to deliver an inclusive curriculum in classrooms that builds transdisciplinary skills, culminating in the development of students' international-mindedness, critical thinking and attributes of the IB learner profile.

Research design

The research aimed to address the research questions generated by the IB:

- How do PYP students compare to non-IB students on measures of wellbeing and related outcomes?
- What are PYP students' levels of wellbeing and related outcomes, and how are these influenced by exposure to the PYP?
- To what extent is school climate in PYP schools associated with students' wellbeing and related outcomes?
- What programmatic elements of the PYP are associated with students' wellbeing and other related social emotional learning outcomes?

This mixed-method study viewed student wellbeing through a variety of lenses captured in a three-phase approach, in order to identify and assess the impact of the PYP on student wellbeing. The first phase involved a review of the literature on student and school-related wellbeing with a comprehensive desk-review of IB documentation for wellbeing. During this phase, researchers sought to determine whether wellbeing was encouraged through the PYP written curriculum. The second phase undertook a propensity-matched comparative analysis of PYP and non-PYP schools using an existing Australian student wellbeing database involving 4,282 students. The last phase of the study involved tailored surveys of PYP teachers (n = 114) and their Year 5 students (n = 1,639; mean age 10.69 years): these surveys were responded to by a representative sample of 56 PYP schools across Australia at various stages of implementing the PYP. The surveys contained items to measure curriculum-specific PYP inputs and activities, and wellbeing-specific outcomes and impacts. These inputs, activities, outcomes and impacts were designed to contribute to a logic model and theory of change that described and assessed PYP implementation and impact whilst controlling for wellbeing promotion in schools.

Key Findings

1. **The IB learner profile and ATL are key programmatic elements that may already encourage wellbeing in PYP schools.** Current PYP curriculum documents indicate that there are clear opportunities for students to develop their own skills and practices for wellbeing through participation in the PYP. Most notable in the documentation is the positioning of the learner profile attributes as a set of aspirational student outcomes, and the approaches to learning that offer consistent practical opportunities for students to engage in improving their social and emotional understanding and abilities across the curriculum.
2. **PYP students demonstrate consistently higher levels of wellbeing compared to non-PYP students, suggesting a moderate advantage equivalent to three months' additional development.** This finding was identified through the retrospective analysis of existing data that captures student levels of wellbeing.
3. **The PYP Index is a new and useful way to distinguish between PYP schools**. The study used teacher reports of the extent to which schools are addressing IB programme standards and practices to generate a PYP Index. While schools are still considered to be on a progressive continuum in developing their practice as an IB school, the PYP Index offers a useful snapshot to enable comparative analyses.
4. **There is no significant relationship between years of accreditation as a PYP school and the level of implementation quality in the cohort of schools surveyed**. The PYP Index showed that there is little to no relationship between length of time as a PYP school and implementation quality. While there are anecdotal explanations for this in the Australian context, this may pose an opportunity for future research.

Considerations

This study was not an evaluation of the PYP and, as such, recommendations for programme improvement were not given. However, insights about the PYP emerged through the study for further consideration.

- We found strong conceptual alignment between the learner profile attributes, the IB approaches to learning skill categories, and the widely regarded CASEL Core Social-emotional learning (SEL) Competencies of Relationship skills, Self-management, Social awareness, Self-awareness and Responsible decision-making. *There is opportunity to make explicit in PYP documentation the clear links to social-emotional learning skills and wellbeing.*
- Of all the elements of the PYP examined, the PSPE was least understood by teachers. Given that almost all schools have a specialist PE teacher, it is likely that the classroom teacher assumes that the PS component is also done by the PE teacher. Nevertheless, teachers who viewed it as highly useful, tended to give it high priority in the classroom. *There is opportunity to clarify the PSPE and perhaps separate the PS component to better provide a core wellbeing focus in the classroom.*

Conclusions

This study found the PYP curriculum and programmatic elements to be imbued with activities and practices that promote wellbeing. In its attempt to assess the potential impact of the PYP on student wellbeing and associated outcomes, this study developed a useful new tool – the PYP Index – to aid in comparative analyses between schools. The PYP Index provided a measure of fidelity that was used both to understand school-level implementation and to explore relationships between implementation and outcomes. By doing so, we identified a group of schools in Australia, characterised as high performing PYP schools. These schools consistently showed a more-positive school climate and higher levels of teacher engagement, student participation in ATL-rich classrooms, and student wellbeing outcomes, attributable to the PYP. Supported by similar findings from the propensity-score matched analysis of PYP versus non-PYP schools, these findings hold the greatest evidence that the PYP may indeed support student wellbeing above and beyond other wellbeing activities undertaken in the school.

CHAPTER 1: INTRODUCTION

Schools are primarily seen as places where young people acquire academic skills. However, schools also play a vital role in promoting student wellbeing. Student wellbeing can be defined as "the ability to successfully, resiliently, and innovatively participate in the routines and activities" important in a school-context (Weisner, 1998, p.75), consisting of domains that include "physical, psychological, cognitive, social, and economic wellbeing" (Pollard & Lee, 2003, p.1). Education Departments in Australia operationalise student wellbeing as "a sustainable state of positive mood and attitude, resilience and satisfaction with self, relationships and experiences at school" (Australian Catholic University and Erebus International, 2008). There is also clear evidence that wellbeing has a significant impact on students' academic performance (Berger, Alcalay, Torretti & Milicic, 2011; Elias & Arnold, 2006). In essence, happy kids are better learners.

What is less well known is how specific school curriculums, such as the PYP, might contribute to students' wellbeing. Such curriculums may have additional benefits that, for example, develop pertinent knowledge, skills or attitudes in students that help them cope with their life inside and outside of school and enable them to develop behaviours that might be beneficial to their wellbeing longer term.

The PYP in context

The Primary Years Programme (PYP) is one of four programmes offered by the International Baccalaureate (IB) Organization. The PYP is a curriculum framework designed for use with students aged 3 to 12. It enables schools to focus on students' holistic development as an inquirer in both the classroom and non-classroom environment. The programme is organised through six transdisciplinary themes, which utilise knowledge and skills from six subject groups and lead towards global understanding and international mindedness. The PYP has a central emphasis on inquiry-based learning and transdisciplinary skills that are further expressed through student action at all stages of the programme, and that culminate in the Exhibition in the final year of the programme (IBO, 2012b).

As of 3 September 2019, there were 1,782 schools offering the PYP, in 109 different countries worldwide. At the time of the final, survey phase of this research (last quarter of 2019), IB programmes were implemented in 195 schools and campuses in Australia, including 135 schools and campuses offering the PYP.

Aims of this project

In March 2019, the Australian Council for Educational Research (ACER) was commissioned by the International Baccalaureate Organization (IBO) to examine the impact of the IB Primary Years Programme (PYP) on student wellbeing and other related social-emotional learning outcomes. The resulting *PYP and Wellbeing* project aims to provide a snapshot of student wellbeing in PYP schools in Australia and to explore the relationship between the PYP curriculum and student wellbeing. Framed within this overarching aim, the research was guided by the following questions.

- How do PYP students compare to non-IB students on measures of wellbeing and related outcomes?
- What are PYP students' levels of wellbeing and related outcomes, and how are these influenced by exposure to the PYP?
- To what extent is school climate in PYP schools associated with students' wellbeing and related outcomes?
- What programmatic elements of the PYP are associated with students' wellbeing and other related social emotional learning outcomes?

Approach

This undertaking involved a mixed-method multi-phase research process that viewed student wellbeing through a variety of lenses.

- A review of the literature on student and school-related wellbeing, and an analysis of PYP documentation to map alignment with the reviewed literature.
- A retrospective comparative analysis of PYP and non-PYP schools using an existing Australian student wellbeing database to determine whether the PYP was a differentiating factor.
- A survey of PYP schools across Australia to gauge the impact of the PYP on student wellbeing by assessing PYP activities and controlling for wellbeing activities in schools.

Literature review

We undertook a review of existing academic research on student wellbeing, both quantitative and qualitative, and focusing on the primary school sector. While general primary school wellbeing research was accessed, research specifically related to IB programmes was prioritised and a definition of wellbeing appropriate for the PYP context was identified. In addition, existing IB and PYP documents were analysed in order to identify key indicators of student wellbeing in PYP curriculum documentation and where these elements are encouraged in practice. Given that the latter stages of the research were to be conducted in Australian PYP schools, Australian Curriculum documents were also analysed to identify where student wellbeing may be afforded within this national curriculum. Chapter 2 presents the review and Appendix A shows the full results of the document analysis.

Analysis of existing data

We conducted a secondary analysis of a large national dataset to examine differences in outcomes in PYP schools compared to similar non-IB schools. The ACER Social-Emotional Wellbeing (SEWB) survey had sufficient numbers of PYP schools present in the large 2014-2017 dataset to warrant a comparative analysis. Propensity score matching was used to match students attending PYP schools with students who attend similar but non-IB schools. In addition to highlighting the difference in wellbeing outcomes between students at PYP and non-PYP schools, analyses suggested that it was possible to convert the learner profile attributes into measurable social-emotional skills – an emergent, critical element that contributed to the development of the PYP-specific wellbeing survey. Chapter 3 details the results of the analysis of existing data.

Online surveys

Two tailored surveys were developed for the study to understand how the PYP may promote and support student social-emotional skill development and wellbeing outcomes.

- A PYP teacher survey captured views of school-level implementation of wellbeing initiatives and classroom-level PYP activities within the PYP curriculum structure, as well as perceptions of school climate.
- A PYP student survey for Year 5 students to gauge current levels of student wellbeing, their social-emotional skills, and perceptions of their own school climate

The development of a measurement framework, presented in Table 1, underpinned the two surveys, guided by the literature review and informed by the analysis of existing data.

Table 1. Measurement framework

Level	Construct	Domains and sub-domains	Source
School	Demographic context	Index of Community Socio-Educational Advantage (ICSEA), sector, type, Years of PYP accreditation PSPE staffing	Administrative Teacher survey
	PYP implementation and engagement (PYP Index)	IB programme standards and practices, including IB-related PD, use of learner profile, PYP-specific practices (e.g. Programme of Inquiry, PSPE, PYP Exhibition)	Teacher survey
	Wellbeing programs	Wellbeing programs & initiatives	Teacher survey
Teacher & Classroom	Teacher background	Years of teaching experience (total and PYP-specific)	Teacher survey
	PYP pedagogy and practices	PYP Pedagogy, approaches to learning, PSPE curriculum, PYP collaborative practices	Teacher survey
	School climate	Staff culture, community, and collective influence	Teacher survey
	Classroom culture	Promoting a positive classroom culture	Teacher survey
Student	Background	Year level, Gender, Age	Student survey
	Social-emotional learning skills	IB learner profile attributes acted as sub-domains: Communicators, Open-minded, Caring, Reflective, Principled, Risk-takers, Balanced, Inquirers, Thinkers, Knowledgeable	Student survey
	Wellbeing outcome	Social, emotional, cognitive, behavioural	Student survey

In keeping with the focus of this study, students at the oldest extent of the PYP year-level range, Year 5, were identified as the main target group, although schools could elect to survey Year 4 or Year 6[1] students if Year 5 was unavailable. By doing so, this maximised the length of time students could potentially have spent in an IB programme context.

The surveys included, where possible, existing scales and items as well as new purpose-designed items, particularly regarding the assessment of PYP elements. Appendix B details the development and the steps taken for ethics approval and the survey administration process.

Following data cleaning and preparation in Excel and SPSS, descriptive statistics were generated for all survey items and, where appropriate, presented in bar-graph format. Exploratory factor analyses and item reliability analysis were undertaken to confirm and establish variables. In most cases variable

[1] If schools were running the PYP at Year 6, under Programme Flexibility options.

scores were derived by averaging the items in order to retain the metric. Qualitative data collected in open-text items from the teacher and student surveys were thematically analysed. A preliminary analysis of comments established an initial set of emergent themes, followed by review and revision of the themes by a second researcher. Chapter 4 presents the characteristics of participants and the survey results in relation to school-level inputs, teacher activities, and student outcomes.

Inferential statistics (in SPSS) and multi-level modelling (in HLM) were used to statistically test for significant relationships between derived variables, which included an index of PYP implementation quality. Chapter 5 presents these results. As an outcome of these investigations, a theory of change of the PYP programmatic elements deemed to foster student wellbeing and other related social-emotional learning outcomes was developed.

Accordingly, this report describes the processes and results of the current research project investigating the impact of the PYP on student wellbeing. It presents the findings emerging from the research progression phases of the literature review, the retrospective analysis of existing data, and the PYP teacher and student wellbeing surveys, by addressing the research questions. It concludes with discussion and considerations for the IB about the PYP curriculum framework and future research.

CHAPTER 2: LITERATURE REVIEW

This research sought to investigate IB Primary Years Programme (PYP) students' levels of wellbeing and related outcomes, including comparisons with non-IB students and with pertinent international benchmarks. Further to this descriptive and comparative data, the study also aimed to investigate any associations between participation in the PYP and wellbeing, and the potential influence of PYP framework elements and school climate on student wellbeing and related outcomes.

The requisite literature review therefore needed to define "wellbeing" and "related outcomes" for the purposes of this study and as relevant to primary school students. These definitions guided an analysis of PYP curriculum documentation to identify programme elements that were already aligned with the literature on primary student wellbeing.

The literature review also needed to consider a range of quantitative and qualitative wellbeing assessments: those that may have led to any benchmarks for student wellbeing, and those that could contribute to the development of the intended wellbeing survey for this research.

In addition, in order to illuminate the influence (if any) of PYP curriculum elements and resulting school climate on student wellbeing, the extant literature on the relationship between the PYP and school culture was also investigated.

The categories that organise the literature review are therefore:

- Definitions of wellbeing and related concepts, and a description of how elements of wellbeing appear in PYP documentation
- A review of quantitative studies that have measured wellbeing or related elements in the context of PYP schools
- A review of qualitative studies that have described and compared elements of wellbeing in the context of PYP schools
- A review of literature that documents perceived effects of the PYP on school culture

Definition of 'wellbeing'

In their systematic review of wellbeing research articles, Svane, Evans and Carter (2019) argue that definitions of wellbeing are problematic in that there are no agreed understandings of wellbeing. Even though 'wellbeing' is a popular construct in the field of education, definitions of wellbeing are still proposed from numerous non-educational standpoints and intervention contexts – medical, psychological, social, and so on – which makes reaching a consensus, or finding any consistency, difficult (Svane, Evans & Carter, 2019, p.10).

Even though wellbeing is often discussed and defined from these different disciplinary perspectives, there is general agreement that macro-domains of wellbeing – social, emotional, cognitive and physical – are interrelated, with many studies suggesting correlation. For example, Blyth and Borowski (2018), state that intrapersonal competencies (indicators of emotional wellbeing), interpersonal competencies (indicators of social wellbeing) and cognitive competencies (indicators of cognitive wellbeing) are important for success in school, work and life, and that these competencies integrate and contribute to success in other contexts (p.3). Durlak and colleagues (2011, p.417) and Cooker, Bailey, Stevenson and

Joseph (2016, p.11) support this notion, each citing a number of studies that show a correlation of social-emotional flourishing with stronger academic performance and social competence.

In addition to the numerous standpoints, contexts and domains from which wellbeing is viewed, there is some difficulty in delimiting the depth to which wellbeing is conceptualised and labelled. For example, some authors use terms like "mental health and wellbeing"[2] (Grose, 2018), others define mental health as just one contributor among many to overall wellbeing (Cassells, McNamara & Wicks, 2011) and others use mental and physical health-related terms interchangeably with wellbeing (Svane, Evans & Carter, 2019, p.2 cite a number of studies that interlink these terms). Other literature discusses wellbeing without including definitions: it assumes understanding or simply implies the literal concept of 'being well'.

Research by the Collaborative for Academic, Social, and Emotional Learning (CASEL) group is useful in providing a framework that organises a variety of concepts from the social and emotional wellbeing domain. They argue that social and emotional learning (SEL) can be defined and assessed through five core competencies of self-awareness, self-management, social awareness, relationship skills and responsible decision making, that are each considered in a variety of contexts (CASEL, 2019).

Interestingly, given that cognitive and physical ability have been the mainstay of the modern schooling system, there appears to be significantly less literature on cognitive and physical wellbeing, with much of the wellbeing literature focusing on social and emotional wellbeing.

For the purposes of this study, the literal understanding of wellbeing – being well – may be the most useful umbrella term. Underneath this term, the macro-concepts that support and relate to wellbeing can be defined and used to identify elements of wellbeing in schools. For example, overall wellbeing can be viewed as a combination of:

- Cognitive wellbeing, demonstrated through academic memory and executive functioning tasks (Luo & Waite, 2005),
- Social wellbeing, demonstrated through social awareness and pro-social behaviour towards others (Blyth & Borowski, 2018; Renshaw, Long & Cook, 2015),
- Emotional wellbeing, viewed through emotional competencies and coping skills (Bernard & Stephanou, 2018, pp.671-675), including an absence of mental illness (Svane, Evans & Carter, 2019, p.10), and
- Physical wellbeing, demonstrated through functional ability and physical health (Luo & Waite, 2005).

What is an IB education? (IBO, 2017b) refers to wellbeing in the educational context as a holistic attribute that encompasses a student's *social*, *emotional* and *physical* wellbeing in addition to their *cognitive* development. This understanding of wellbeing aligns with the definition used for this study.

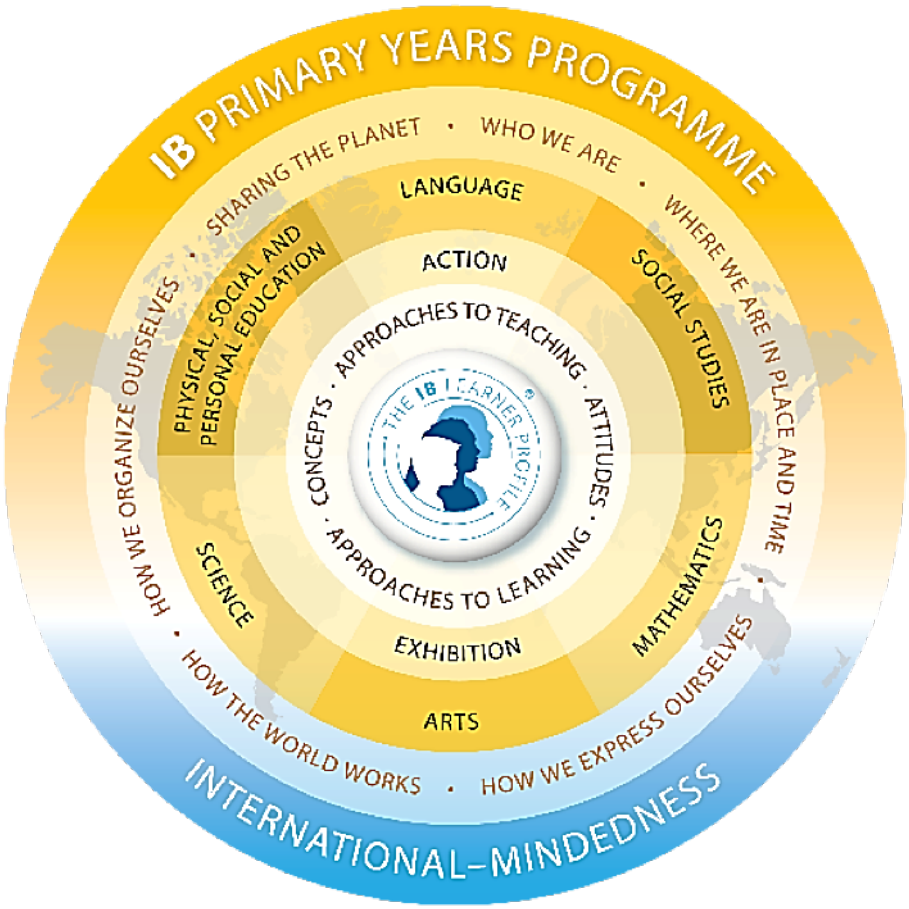
Wellbeing within existing PYP documentation

The Primary Years Programme (PYP) is a curriculum framework designed for use with students aged 3 to 12. It enables schools to focus on students' holistic development as an inquirer in both the classroom and non-classroom environment. The programme is organised through six transdisciplinary themes,

[2] Does the 'wellbeing' in "mental health and wellbeing" refer to wellbeing in general or mental wellbeing?

which utilise knowledge and skills from six subject groups and lead towards global understanding and international mindedness. The PYP has a central emphasis on inquiry-based learning and transdisciplinary skills that culminate in student action throughout the programme, and the Exhibition in the final year of the programme (IBO, 2012b). Figure 1 shows how each of these elements are displayed in the programme model.

Figure 1. The PYP framework



The IB provides a suite of documentation to PYP schools that includes programme implementation requirements and resources, as well as teacher support materials to assist schools in the practicalities of implementing the programme. In order to determine the extent to which student wellbeing is an existing concept or practice within the PYP, a systematic search of PYP documents was conducted. As the PYP was in a 'transition phase' at the time of the literature review, with a new suite of PYP theoretical and conceptual documents published in late 2018, schools were implementing the new requirements from 2019 onward, so relevant documents from both old and new versions were used.

Published documents that guide PYP curriculum implementation were searched, including:

- Relevant IB continuum (all-programme) documents, for example, *Programme standards and practices* (IBO, 2016),
- Programme-wide documents, for example, *Developing a transdisciplinary programme of inquiry* (IBO, 2012a) and *PYP: Learning and teaching* (IBO, 2018c),
- Subject-specific documents (for example, PYP scope and sequences), and
- Teacher support materials.

Published updates on ongoing or completed curriculum reviews were not included in the search as the IB's final decisions in these update documents are incorporated into final published documents. The terms and concepts included in the search were:

- Social,
- Emotional (and related term, "personal"),
- Physical,
- Cognitive (and related terms, "mental" and "intellectual"),
- Wellbeing (and related spellings "well-being" [IB style] and "wellbeing").
- Combinations of the above terms

Appendix A shows the full results of the search, including an indication of where wellbeing and related concepts are contained in PYP documentation.

The search results indicate that the PYP clearly emphasises elements of wellbeing in its curriculum documentation. The PYP is presented as a curriculum framework that encourages holistic development of the child and, as a consequence, refers to the social, emotional, physical and cognitive domains throughout its curriculum requirements. These references are evident in:

- IB continuum documentation such as *IB Programme standards and practices* (IBO, 2016) where personal and social education are mandated as the responsibility of all teachers (standard C3.1c),
- Primary Years Programme-wide documentation where elements of wellbeing are embedded in the transdisciplinary *programme of inquiry*, for example, *Who we are* and *Where we are in place and time* (IBO, 2009a, p.6; IBO, 2018c, p.11),
- Subject-specific documentation: the *Personal, social and physical education scope and sequence* (IBO, 2018e) is a key document that indicates requirements for encouraging student wellbeing, however, all subject scope and sequences (IBO, 2018a; IBO, 2018b; IBO, 2018d; IBO, 2018f; IBO, 2018g) describe opportunities for addressing wellbeing at a subject level,
- Each of the PYP teacher support materials give a detailed example of what a particular PYP curriculum element looks like in practice. For example, *approaches to learning* (IBO, 2019b) shows how one school organises the social and thinking (cognitive) skills within their curriculum, describing what students will address in the classroom, and highlighting how this learning links back to the IB learner profile.

In addition, IB programmes emphasise the importance of wellbeing at a continuum (all-programme) level. This is evident in the IB learner profile that is considered to be a personification of the IB mission statement and that permeates every programme model through to the subject level. The emphasis on elements of wellbeing in practice is particularly evident in the *approaches to learning (ATL)*, cross-curricular skills that are threaded through each programme. These skills specifically focus on thinking, research, communication, social and self-management skills, including numerous wellbeing-related sub-skills, and are a key requirement in every subject area. Through use of approaches to learning, schools explicitly support and assist students in developing social, emotional and cognitive wellbeing (for example, IBO, 2018c, pp.31-37).

The interrelationship between the IB learner profile attributes and the categories of the ATL are displayed in Table 2. These skill areas have been conceptually mapped to the well-known CASEL wellbeing framework (CASEL, 2019) to demonstrate the extent of commonality.

Table 2. Interrelationships between learner profile attributes, ATL categories and CASEL framework

IB approaches to learning (ATL) categories		Learner profile attributes										CASEL framework
		Inquirers	Knowledgeable	Thinkers	Communicator	Principled	Open-minded	Caring	Risk-takers	Balanced	Reflective	
Self-management skills	States of mind (mindfulness, perseverance, emotional management, self-motivation, resilience)	X				X	X		X		X	Self-awareness (know yourself)
	Organisation skills (managing time and tasks effectively)	X								X		Self-management (manage yourself)
Social skills	Developing social-emotional intelligence					X		X				Social awareness (understand others' perspectives, empathise)
	Developing positive interpersonal relationships and collaboration skills (using self-control, managing setbacks, supporting peers)				X		X	X		X		Relationship skills (communicate & listen well, cooperate, negotiate conflict, resist inappropriate social pressure, seek & offer help
Thinking skills	Critical thinking skills (analysing and evaluating issues and ideas)		X	X			X		X			Responsible decision making (make good choices in personal & social domains, based on ethics, safety and social norms)
	Reflection/metacognitive skills ((re)considering the process of learning)								X	X	X	
	Creative thinking skills (generating novel ideas and considering new perspectives)			X								Cognitive and academic skills not explicitly addressed in CASEL
	Transfer skills (using skills and knowledge in multiple contexts)		X	X					X		X	
Research skills	Information-literacy skills (formulating and planning, data gathering and recording, synthesising and interpreting, evaluating and communicating)	X		X								
	Media-literacy skills (interacting with media to use and create ideas and information)	X		X								
	Ethical use of media/information (understanding and applying social and ethical technology)			X		X		X				
Communication skills	Exchanging-information skills (listening, interpreting, speaking)				X							
	Literacy skills (reading, writing and using language to gather and communicate information)				X							
	ICT skills (using technology to gather, investigate and communicate information)				X							

Table 2 shows that the personal-social-emotional domains comprising the ATL, conceptually overlap with the learner profile attributes, and both are reflected in the personal-social-emotional categories in the CASEL framework. In other words, the ATL and IB learner profile attributes are forms of social-emotional skills – shaded to indicate the overlap. The more cognitively-aligned skills fall outside the CASEL framework and are not shaded. It can be seen in Table 2 how cognitive, social and emotional skills are encouraged within IB programmes, both in practice through the ATL and as outcomes through the IB learner profile attributes. It follows that explicit teaching and practice of ATL sub-skills in classrooms has the potential to contribute to student attainment of the IB learner profile attributes, which strongly reflect social-emotional skills.

A noticeable absence from the ATL and from other wellbeing frameworks (for example, the CASEL framework in Table 2), is reference to physical wellbeing. The IB learner profile attribute of *Balance* includes the concept of physical wellbeing and theoretical aspects of physical wellbeing may overlap with the ATL and CASEL descriptors, for example, physical self-management as a subset of emotional self-management. Overt and detailed reference to physical wellbeing however, only occurs at the subject level in the *Personal, social and physical education scope and sequence* (IBO, 2018e).

It is interesting to note the longevity of the elements that contribute to wellbeing in the PYP. The IB learner profile itself was developed directly from the PYP student profile (IBO, 2013, pp.27-28). Early versions of the PYP also included student 'attitudes' such as commitment, confidence, cooperation, creativity, curiosity, empathy, and respect, amongst other attributes, that would contribute to the wellbeing of the child (IBO, 2013, p.12). These attitudes have been recently "subsumed within the descriptors of the learner profile" (IBO, 2018, p.5) in order for the PYP to more-closely align with the other IB programmes. Similarly, the 'transdisciplinary skills', which included wellbeing elements like safety, healthy lifestyle and codes of behaviour, and which were a core requirement of the PYP for its first 20 years, have been recently included within ATL in the PYP, with little change to their content or intent. Perhaps it should be emphasised that the wellbeing elements now contained in the IB cross-programme, core-requirement learner profile attributes and ATL[3] matrices had a clear grounding in, and development throughout, the history of the PYP (IBO, 2013; IBO, 2009b; IBO, 2009a). This indicates that, despite its youth, the PYP has been a key influence in pedagogies for wellbeing within the IB.

Quantitative comparisons

This study seeks to understand how PYP students compare to non-IB students on measures of wellbeing and related outcomes, which could consider how PYP students' levels of wellbeing compare against pertinent international benchmarks. To begin to answer these questions, the initial review included a search on the quantitative research already conducted in this area. While research is sparse, there are some studies – Gough, Sharpley, Vander Pal and Griffiths (2014), Tan and Bibby (2011), and Campbell, Chittleborough, Jobling, Tytler and Doig (2014) – that are helpful in providing existing data and analyses.

Gough et al. (2014) conducted a mixed-methods investigation of the impact of the PYP on students in government schools in Victoria (Australia). The qualitative component of the study – a survey to elicit the impact of the PYP on school climate and culture – is detailed later in this chapter. The quantitative

[3] The ATL categories and sub-skills used in this research are those from the *PYP: Learning and teaching* guide (IBO, 2018c) as this contains the most recent and detailed version of the ATL sub-skills. The ATL contained in the Diploma Programme, Career-related Programme and Middle Years Programme documents (IBO, 2015b; IBO, 2015a; IBO, 2019a; IBO, 2017a) align with the new PYP skill categories but are not as detailed as they are from older stages of ATL development.

study provided an analysis of NAPLAN[4] results for the 13 PYP government schools in the state at that time.

Gough and colleagues found that PYP Year 3 student outcomes were significantly higher than both the Australian average and 'like'[5] schools in 2008, though this difference slowly narrowed over the next two years to 2010, when the IB outcomes were higher than the Australian average but only slightly higher than 'like' schools. PYP Year 5 student outcomes for the next two cohorts of students (Year 3 in 2009-2010; Year 5 in 2011-2012) were also higher than the Australian average but similar to outcomes of 'like' schools (Gough et al., 2014, pp. 39-40).

Campbell et al. (2014) aimed to evaluate PYP students' science literacy (an indicator of cognitive wellbeing) by administering the 2012 NAP-SL[6] test to PYP schools. The test was administered to PYP schools across Australia that had been PYP-authorised for at least three years, and that had not already participated in the NAP-SL test. Test results of the PYP students were then compared with the results of the 2012 NAP-SL cohort. In almost all test items (48/49), PYP students outperformed the national average results and also performed better on the advanced-level questions.

This research (Campbell et al., 2014), however, included a number of limitations that restrict the impact of its findings. The report confirms that sample sizes were relatively small with large standard deviations, that the samples were significantly skewed with regard to gender (74% male students), and that 'like school' comparisons were not possible, which could have a significant effect on findings.

Tan and Bibby (2011) examined the performance of PYP and IB Middle Years Programme (MYP) students on the ACER International Schools' Assessment[7] (ISA) and compared their performance with cohort-matched non-IB students. This comparison found that IB students performed better than students from non-IB schools at most grade levels. The project also assessed Year 9 and 10 ISA results against PISA[8] benchmarks, finding that IB MYP students were significantly above the mean. The extent to which the length of IB implementation might be associated with student performance was also evaluated. There was no strong evidence, however, to suggest that the length of time a school had offered the PYP made a difference to their ISA performance at Years 3-5.

A second phase of the study also included a Learning and Wellbeing Questionnaire that enabled a comparison of Years 5, 6, 8 & 9 students on general measures of 'perceptions, values, attitudes and dispositions' towards school (Tan & Bibby, 2011, p.54). Questionnaire results show that both IB and non-IB students reported high levels of engagement, challenge and connection. It was observed that, overall, the magnitude of differences between IB and non-IB students in attitude and values in relation to their school and teachers was not significant (p.66) though IB primary students had slightly higher agreements overall, in the range of 2-5% above their non-IB counterparts in all dimensions (p.65).

Tan and Bibby's review drew from two international assessments, the ISA and the PISA, the latter of which could be considered to provide an international benchmark. Given that the PISA is only

[4] NAPLAN (National Assessment Program – Literacy and Numeracy) is an annual test of capabilities in reading, writing and numeracy for all students in Australian schools in years 3, 5, 7 and 9. Years 3 and 5 align with PYP years 3 and 5; Years 7 and 9 align with MYP years 2 and 4.

[5] Gough and colleagues define 'like schools' as those serving students from statistically comparable backgrounds. The Index of Community Socio-Educational Advantage (https://docs.acara.edu.au/resources/About_ICSEA_2014.pdf) is commonly used for this purpose in the Australian context.

[6] NAP-SL (National Assessment Program – sample assessment for Science Literacy) is conducted every three years with year 6 (2003 – present) and year 10 (2018 – present) students in Australia. The test is Australia-wide but only uses a sample of students.

[7] The ISA is a literacy and numeracy assessment for year 3-10 students in international schools.

[8] The OECD's Programme for International Student Assessment (PISA), a worldwide test in reading, mathematics and science for 15 year olds, held every three years.

administered to 15-year olds, however, it cannot be used to construct a benchmark comparison for PYP students.

Dickson, Perry and Ledger (2018) review the academic literature on a number of studies that investigate wellbeing in IB programmes, however, all these studies focus on the Diploma Programme (DP). Many of the studies cited found similar themes of negative impact on student wellbeing caused by the significant Diploma Programme workload. Some studies, however, found most levels of wellbeing to be similar in DP and non-IB schools, apart from 'stress levels' that were higher in the DP, and directly attributable to the academic demands of the DP (Shaunessy, Suldo & Hardesty, 2008, in Dickson et al., 2018).

Qualitative research findings

Other research questions for this study ask to what extent student participation in the PYP is associated with student wellbeing and related social-emotional learning outcomes, and to determine if any PYP programmatic elements are associated with these wellbeing outcomes. To answer these questions, the literature review included a search on qualitative research that addressed these inquiries. While research in this area is also sparse, there are some studies – Stevenson, Joseph, Bailey, Cooker, Fox and Bowman (2016), and Cooker, Bailey, Stevenson and Joseph (2016) – that are helpful in describing the PYP programmatic elements that have been associated with wellbeing and related outcomes.

Stevenson et al. (2016), conducted a mixed methods study that aimed to understand the role of 'caring', one of the IB learner profile attributes, across the continuum of IB programmes. The study included a student survey to measure dimensions of caring and pro-social behaviour and the impact of the students' (IB) school on their behaviour. The survey data showed that IB students scored highly on the extent to which they demonstrated a range of pro-social behaviours linked to 'caring', including perspective taking and empathic concern. Scores were consistent across IB programmes, with some minor exceptions in the Diploma Programme, however, differences between schools involved were more notable than these between-programme exceptions.

This research (Stevenson et al., 2016) then explored school practices through in-depth case studies that included website analysis, focus groups with staff and students, and more-detailed interviews with staff in case-study schools. The researchers attempted to identify school practices that might account for caring behaviours at the six case-study schools. School practices identified included: the need to create a culture of caring that is integrated into daily school life; the importance of leadership and leaders that foster a caring culture; the need for leaders, teachers and students to model caring behaviour; the curation of a language of caring; and, ensuring that opportunities for caring action arose from the curriculum. Limitations of the project include that all schools involved were international schools, so results may not be generalizable to other contexts, and only IB schools were involved so a comparison to non-IB schools was not possible.

A challenge to the encouragement of *caring* practices is discussed further through an article by research team members Bailey and Cooker (2018), who found that in some cases there is a danger of the attribute of *caring* becoming a form of *noblesse oblige* in privileged schools. The authors posit that this may be because examples of the enactment of the learner profile are scarce.

A separate mixed-methods research project by Cooker, Bailey, Stevenson and Joseph (2016) investigated the extent to which social and emotional wellbeing is interpreted and integrated into IB schools. The study included a large-scale survey with follow-up focus groups and interviews in five IB schools. The researchers reported that school staff felt that IB programmes not only allowed them to

prioritise wellbeing, but that the IB also contributes to social-emotional wellbeing in a holistic manner through the programmatic elements of the learner profile, concept-based learning, approaches to learning and opportunities for action. A key finding was that "the vision and ethos of the IB programmes were more influential in supporting wellbeing in schools than [more-detailed curriculum] documents" (p.6) and that the learner profile was considered a key tool for providing language to help teachers and students engage with social-emotional wellbeing concepts (pp.6,42,56). All schools had used supplementary social-emotional wellbeing programs to complement the IB curriculum structures, indicating that while the IB was a blueprint for success, quality wellbeing-related practice also needed local input.

Influence of the IB on school culture and climate: The third research question for this project queries the extent to which school climate in PYP schools is associated with students' wellbeing and related outcomes. School climate has been found to have a key influence on student wellbeing (for example, Principals Australia Institute, 2014), and there is a significant amount of research on the influence of the PYP and IB programmes in general on school culture. Even though there is a scarcity of quantitative and qualitative research on wellbeing *per se* in PYP schools, the potential causational thread of 'IB programmes influence school climate, which influences student wellbeing' is a theory of change that can be tested.

Information on the influence of the IB programmes on school culture and climate has been organised into two categories for the purposes of this literature review: the influence of the IB curriculum, and the influence of the IB's requirements for teacher professional learning, collaboration and building a learning-community.

Influence of IB curriculum: Through analysis of data gathered from a combination of document analysis, in-school observation, interviews and surveys, Medwell, Cooker, Bailey and Winchip (2017) found a number of positive effects of the PYP exhibition[9] on students' critical thinking and other wellbeing skills and dispositions, such as incorporating others' perspectives and working collaboratively. Interviewees indicated that the exhibition particularly provided students with the opportunity to demonstrate the attributes of the learner profile, and to engage in conscious action. 'Action' was seen as an important component in developing international mindedness, even though this was seen as a difficult concept for students to grasp. One caveat noted by the research team, however, was that the extent to which learner profile attributes were developed was dependent on the choice of exhibition topic.

Stillisano, Waxman, Hostrup and Rollins (2010) reported that students in the PYP and MYP appeared to make relevant connections between what they were learning and real-life contexts. Carber and Reis (2004) describe how implementation of the PYP impacts overall school culture, encouraging, for example, respect for cultural diversity and stewardship of the planet. They note that these values may be enacted through the IB mission statement and a number of curriculum-specific requirements such as large projects and portfolio methods, an emphasis on student responsibility, self-reflection and learning how to learn, and growth-oriented professionalism for all school staff.

In investigating the IB programme factors associated with increased student achievement, Rose (2007) discovered that the IB programmes' emphasis on critical inquiry, student agency, and structural, pedagogical and ideological consistency were major themes that emerged. More-specific themes that

[9] The PYP exhibition is a culminating learning experience for students in the final year of the IB Primary Years Programme. Students "explore, document and share their understanding of an issue or opportunity of personal significance" (IBO, 2018h, p.40)

emerged included alignment of teachers' beliefs and IB instructive practices, coherence of practice within schools, and consistent IB teacher professional development (Rose, 2007, p.1).

Influence of the IB's requirements for professional development: In addition to their quantitative analysis of NAPLAN results in Victorian (Australia) government PYP schools, Gough and colleagues (2014) used a qualitative survey to elicit the impact of the PYP on school climate and culture. The survey responses showed a high level of agreement with the notion that implementation of the PYP contributes to not only student learning and academic achievement, but also to development of learner profile attributes, a positive school culture, and student connectedness to the school. The principals in the study also noted the influence of the PYP on approaches to teaching, particularly the benefits of spending increased time in collaborative planning, as well as teacher engagement and the benefit of teachers sharing a common pedagogical language and vision. Notwithstanding the small sample (74 teachers across five schools), the results suggest that there may be a link between PYP activities and wellbeing.

Savage and Drake (2016) emphasise the potential of transdisciplinary learning to encourage inquiry, student-centeredness and flexibility in the curriculum, and highlight the PYP as one of the very few examples of transdisciplinary curriculum in compulsory education. Their research investigated what PYP transdisciplinarity might look like in practice, and their findings show the influence of the PYP on school culture through the lens of the transdisciplinary curriculum. In order to achieve successful implementation of the programme, research participants reported the need for collaborative planning (including provision of time from the school, and PYP 'buy-in' from all staff), planning tools that supported the transdisciplinary nature of the curriculum, a timetable structure that supports transdisciplinary inquiry, and sufficient professional development provided for all school staff.

Jamal (2016, p.26) notes the various ways in which the IB as an organization encourages schools and teachers to "engage in 'creative professionalism'". She goes on to note, however, that there is some disconnect between IB philosophy – at the level of international mindedness and learner profile attributes – and professional guidance in the philosophy, and that this could benefit from further development.

The literature review by Dickson et al. (2018) includes a number of studies that document how IB teachers have changed their mindsets and practices to:

- become more student-centred, to take on inquiry-based and interdisciplinary learning methods and to adopt IB learner profile attributes themselves, as well as
- reduce emphasis on standardised testing and worksheets and increasing opportunities for creativity and action.

Lochmiller and colleagues (2016) also reported that teachers valued the ongoing professional support and development enabled by the PYP (such as classroom observations, team meetings, mentoring and coaching support) and reported that collaboration between teachers increased as a result of implementation of the PYP. This reflects Stillisano and colleagues' (2010) research, where teachers reported that, due to the implementation of the PYP, the amount of teacher collaboration had increased and the teachers had an enhanced professional vocabulary with which to share practice.

Dickson and colleagues note, however, that these findings have been countered by studies that suggest mindset and practice change may be more difficult for teachers from countries where student-centred teaching is uncommon (Martin, Tanyu & Perry, 2016; Dickson et al., 2018). Ledger (2016) adds to this caveat in describing how international schools may need to actively overcome the 'cultural bubble' in which they exist in order to encourage change.

Theory of change

Despite the relative scarcity of research on wellbeing in PYP schools *per se*, the emerging findings indicate a potential causational thread of 'IB programmes influence school climate, which may influence student wellbeing'. This research aimed to test this idea, and specifically, to establish a theory of change from a program logic model perspective.

A program logic approach tells the story of how a program, in this case the PYP, is proposed to work by making explicit the activities, resources, and intended outcomes of the program and to illustrate the change process underlying the program. Typically, a pipeline program logic model will feature Inputs, Activities, Outputs, Outcomes, and Impact, with some authors interchanging the order of the latter two (Kellogg Foundation, 2004; Centre for Epidemiology and Evidence, 2017; Rand Corporation, 2012).

A theory of change model has similar structural aspects of a program logic model but shows the 'big picture' with all possible pathways, and often includes internal and external factors. Moreover, it attempts to explain how and why an outcome might be achieved and the pre-conditions that are necessary to achieve it (Clark & Anderson, 2004).

In the PYP context, however, even though specified long-term outcomes include 'international-mindedness', learner profile attributes, and proficiency in approaches to learning (see Figure 1), student wellbeing is much less explicitly identified. Hence, confounding factors also need to be considered in the model that capture to what extent schools implementing the PYP are also engaged in other whole-school wellbeing activities. Accordingly, it is important to consolidate the PYP literature within a program logic model and establish a theory of change about how the PYP may, as a potential implicit benefit, also develop student social-emotional skills and improve wellbeing outcomes. The PYP theory of change model also sets the foundations for identifying and evaluating the critical components of the program and how they may directly relate to student wellbeing.

Particular aspects of the PYP curriculum that could lead towards student wellbeing include the following.

- In IB schools, students strive to develop the learner profile attributes of being inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced, and reflective. At the school level, the IB learner profile reflects the aims and values that become part of a school's culture and ethos. Development of the learner profile attributes at the school- and student-levels, including allowances for subsequent action should, in principle, promote whole-school and student wellbeing.
- The PYP focuses on helping students aged 3 to 12 years to develop as learners, both in the classroom and in the world outside, through six transdisciplinary themes[10]. Transdisciplinary learning helps students to focus on the guiding questions that centre a unit of inquiry, allowing them to see the broader purpose of acquiring knowledge and skills within the PYP curriculum. As argued by Savage and Drake (2016), this transdisciplinary nature of the PYP written curriculum may enhance school climate and student wellbeing.
- The PYP subject curriculum, particularly *Personal, social and physical education*, states that there is a direct link between wellbeing and a student's experience at school, and that the PYP curriculum therefore intentionally encompasses physical, social, emotional and cognitive wellbeing elements in the written, taught and assessed curriculum requirements.

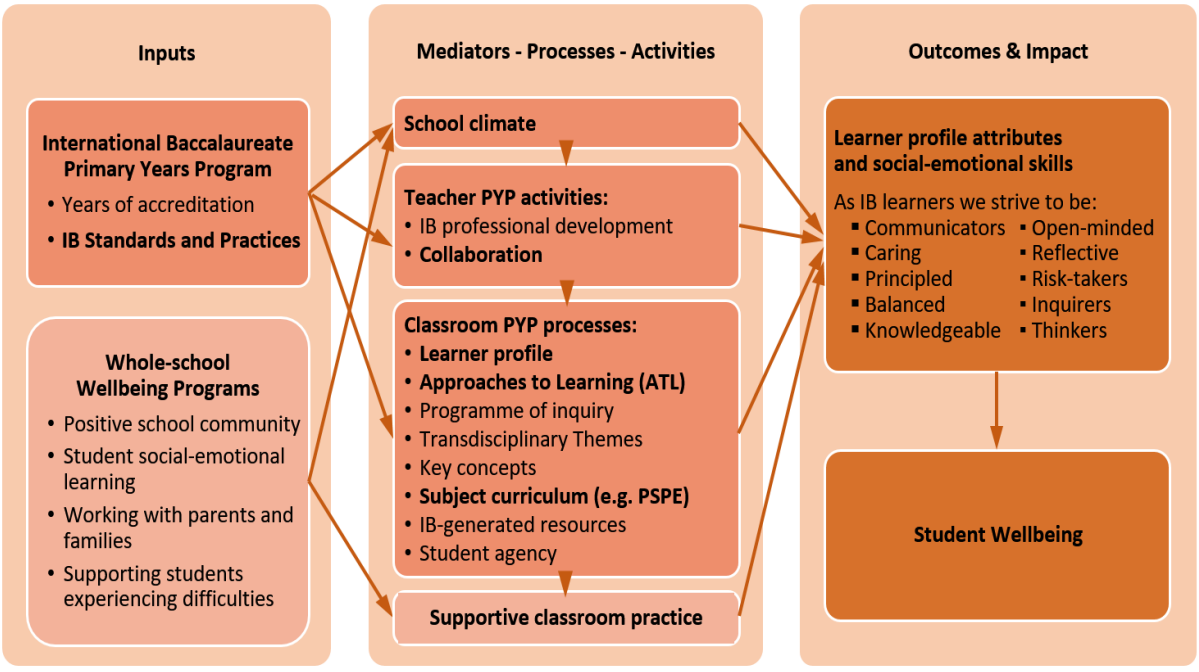
[10] The six transdisciplinary themes are: Who we are; Where we are in place and time; How we express ourselves; How the worlds works; How we organize ourselves; and Sharing the planet (IBO, 2018).

- "A culture of collaboration is required for the PYP to flourish within a school" (IBO, 2009a, p.28). This is enacted through both the collaborative planning required to enable the written curriculum and the ongoing collaboration required to provide teachers with an in-depth understanding of IB philosophy and practice.

These aspects of the PYP curriculum are documented in the research reviewed as having an influence on, or correlation with, student wellbeing in PYP schools, and were therefore included in ACER's theory of change, which in turn, informed the measurement framework and the survey of schools in the latter stages of the research, reported in Chapters 4 and 5.

Accordingly, Figure 2 presents the theory of change that hypothesises how the PYP might relate to whole-school wellbeing, and in-turn, influence student wellbeing outcomes. The elements shown in bold indicate keys areas for inclusion in the surveys. The model shows how the PYP encourages the acquisition of social-emotional skills reflected in the learner profile attributes and Approaches to Learning. The model reflects that schools may also be implementing whole-school wellbeing programs, in parallel to their PYP activities. Understanding the levels of activity in both the PYP and whole-school wellbeing programs and their differential influences on student social-emotional and wellbeing outcomes was a key consideration in this research.

Figure 2. The PYP theory of change logic model



Research in context

The literature review, to this point, has considered definitions of wellbeing, an audit of where wellbeing is mentioned within current PYP documents, and has considered the potential influence of the PYP on school culture and climate, from both curriculum and collaborative research perspectives. This research study, however, aimed to draw information from an analysis of existing student wellbeing data, and

analysis of new survey data, each of which were administered to Australian primary schools. It is therefore necessary to note the curriculum requirements for wellbeing that are present in all Australian schools, regardless of their IB status.

Australian Curriculum requirements

The Australian Curriculum is a national curriculum designed and managed by the Australian Curriculum, Assessment and Reporting Authority (ACARA). In Foundation through Year 10[11] levels it includes eight *Learning Areas*: English, Mathematics, Science, Humanities and Social Sciences, The Arts, Health and Physical Education, Languages, and Technologies; seven *General Capabilities*: Literacy, Numeracy, ICT Capability, Critical and Creative Thinking, Personal and Social Capability, Intercultural Understanding, and Ethical Understanding; and three *Cross-curriculum Priorities*: Sustainability, Asia and Australia's engagement with Asia, and Aboriginal and Torres Strait Islander Histories and Cultures (ACARA, 2019). On the surface, it can be seen that these structural requirements align neatly with IB requirements, given that the eight *Learning Areas* align with the subject groups of the IB's MYP and PYP, the *General Capabilities* have conceptual similarities with the IB's *approaches to learning* with some clear skill overlaps, and the *Cross-curriculum Priorities* can be implemented as transdisciplinary themes in the PYP or interdisciplinary themes in the MYP.

In Australia, however, implementation of curriculum is the responsibility of state and territory governments. Therefore, while all schools have access to the Australian Curriculum, the state or territory authority has control over the extent to which the curriculum is implemented in their schools, if at all. For example, while the Australian Curriculum does not make any recommendations regarding the compulsory nature of a subject, or total hours a subject should be taught, the state/territory authority generally does.

It is important to note that the two most populous states, New South Wales (NSW) and Victoria (Vic), do not use the Australian Curriculum but use their own curriculums developed by their respective authorities: the NSW Education Standards Authority (NESA) and the Victorian Curriculum and Assessment Authority (VCAA). While the finer details of these state-based curriculums vary, the macro-components of their curriculums (NESA, 2019; VCAA, 2019) remain similar to those of the Australian Curriculum and the IB's PYP and MYP. That is, both the NESA and VCAA curriculums provide a structure of eight subject areas that align with the Australian Curriculum and the IB's PYP and MYP, and cross-curricular themes that indirectly (NESA) or directly (VCAA) reflect those of the Australian Curriculum. The VCAA has also provided a cross-curricular skills requirement – *Capabilities* – that is similar to the Australian Curriculum *General Capabilities* and the IB ATL. Cross-curricular skills in the NSW curriculum, however, are less detailed: there is a significant number of considerations provided within the extra-curricular categories of *Learning across the curriculum, Learning for the future, Literacy and numeracy, Multicultural education, Preschool, Rural and distance education,* and *Career learning and vocational education and training*. These categories, however, largely contain optional enrichment content, some of which is age-dependent, rather than generalizable skills. Despite the lack of clear cross-curricular skills, the NSW curriculum does offer a *Student Wellbeing* resource to schools (NSW Government, 2015). Their framework is structured around "Connect, Succeed, Thrive" with an overarching concept of "Enable" to assist schools in providing an environment that helps students strengthen their "cognitive, physical, social, emotional and spiritual development" (NSW Government, 2015, p.2).

[11] In Australia, *Foundation* students (also known as *Reception*, *Kindergarten* or *Prep* in some states/schools) are those beginning school and turn at least 5 years of age by the second term of the school year. Year 10 students turn at least 15 years of age by the second term of the school year.

For this research, therefore, it is important to note that the Australian, NSW and Victorian curriculums all have a wellbeing component that is expected to be delivered in schools. Similar to the PYP document audit, wellbeing components are largely seen in the cross-curricular skills – the *General Capabilities* or equivalent – with significant emphasis on physical wellbeing in the subject-specific physical education subject. In addition to the NSW student wellbeing resource (NSW Government, 2015), development of skills for social-emotional wellbeing are particularly noted in the following areas presented in Table 3.

Table 3. Wellbeing components in Australian national and state curriculums

Cross-curricular skill category	Wellbeing emphasis
Australian Curriculum	
Critical and creative thinking	Cognitive wellbeing: development of skills across all learning areas such as inquiring, generating, reflecting, analysing, synthesising, evaluating
Personal and social capability	Social and emotional wellbeing: self-awareness, self-management, social awareness, social management
Ethical understanding	Social, emotional and cognitive wellbeing: development of skills across all learning areas such as understanding ethical concepts and issues, reasoning in decision making and actions, exploring values, rights and responsibilities
Intercultural understanding	Social and emotional wellbeing: development of skills across all learning areas such as recognising culture and developing respect, interacting and empathising with others, reflecting on intercultural experiences and taking responsibility
NSW Curriculum (Learning across the curriculum)	
Civics and citizenship	Social wellbeing: incorporates knowledge and skills such as rights and responsibilities of citizens, global citizenship and the influence of global events in Australia, skills for active citizenship, multiculturalism and diversity in Australian society, environment and sustainability, role of the media and democracy
Victorian Curriculum (Capabilities)	
Critical and creative thinking	Cognitive wellbeing: development of generalizable skills, such as understanding, managing and applying thinking processes, development of logical, strategic, flexible and adventurous thinking, evaluation of thinking and its processes
Ethical capability	Social, emotional and cognitive wellbeing: development of generalizable skills, such as analysis and evaluation of ethical issues, recognition of contestability, identification of bases of ethical principles and reasoning, managing ethical decision making and action, cultivation of open-mindedness and reasonableness
Intercultural capability	Social and emotional wellbeing: development of generalizable skills, such as ability to notice and show respect for cultural diversity, to reflect on how intercultural experiences influence attitudes, values and beliefs, and recognise the importance of acceptance and appreciation of cultural diversity for a cohesive community.
Personal and social capability	Social and emotional wellbeing: development of generalizable skills, such as recognising, understanding and evaluating the expression of emotions, being aware of personal qualities and factors that contribute to resilience, developing empathy for and understanding of others, understanding how relationships are developed, using interpersonal skills to establish and maintain relationships, working effectively in teams and developing strategies to manage challenging situations constructively.

Co-curricular opportunities

Even though the Australian and state curriculums described above have wellbeing components, only the NSW wellbeing resources (NSW Government, 2017) contain detailed guidance on teaching, learning and assessment in the domain of student wellbeing. Schools who do not use this resource still have access to a range of commercial, community- or government-developed resources to aid in their

affordance of wellbeing teaching and learning opportunities. These resources include programs such as: KidsMatter Primary and MindMatters (both under the umbrella of BeYou from 2018), School Wide Positive Behaviour, Positive Schools, Life Education, Health Promoting Schools, Child Protection, Positive Psychology, Restorative Practices, and Staff Wellbeing Toolkit. Schools might also develop their own wellbeing program to suit their particular needs.

Contextual summary

It is in this context that the research was conducted – with Australian PYP schools that were also implementing part or all of the Australian or state curriculum and that may also have been implementing additional wellbeing initiatives.

The chapters to come describe the analysis of existing student wellbeing data (Chapter 3) and the development, administration and analysis of new survey data to assess the wellbeing and related outcomes of students in PYP schools (Chapters 4–6). Data from these surveys come from students in Australian PYP schools. Given the contextual information described in this section, it must be noted that comparisons of data from PYP and non-IB schools are not comparisons between wellbeing program 'have' and 'have-nots'. Rather, they are comparisons of schools that are all strongly encouraged to have student wellbeing embedded throughout their curriculum.

CHAPTER 3. ANALYSIS OF EXISTING WELLBEING DATA

This chapter presents insights from the secondary analysis of a large national dataset in order to examine any differences in outcomes in PYP schools compared to similar non-IB schools.

In Australia, there is a strong population-level focus on the mental health and wellbeing of students, from early childhood through to school leaving (e.g. KidsMatter and MindMatters (now Be You), Australian Early Development Census; SEWB, Longitudinal Study of Australian Children, Longitudinal Study of Australian Youth). While there are general concerns about the numbers of students who manifest negative social-emotional characteristics including bullying, anxiety, depression, poor motivation, and under-achievement, there is also interest in ensuring that all students are thriving and experiencing a wide range of positive emotions and behaviours (e.g. love of learning, curiosity, engagement, wanting to make a difference).

These large national datasets potentially offer the opportunity for further exploration by posing the question*, do students in IB schools have different wellbeing outcomes compared to students in non-IB schools in Australia?*

In addition to the research evidence that emerged from the literature review (previous chapter), this chapter presents new analysis on a selection of national datasets that were available and had sufficient numbers of PYP schools present in the data to warrant a comparative analysis.

In order to undertake the comparative analysis of PYP vs non-IB schools, propensity score matching was used to match similar students who attend PYP schools with those who attend non-IB schools. This statistical technique minimises potential threats to internal validity and selection bias by using binary logistic regression (Austin, 2011). The regression models typically include school level factors (e.g. Jurisdiction: state/territory; sector: government, non-government; location: metro, non-metro) and student level factors (e.g. Grades 2-6; gender).

Social-Emotional Wellbeing survey

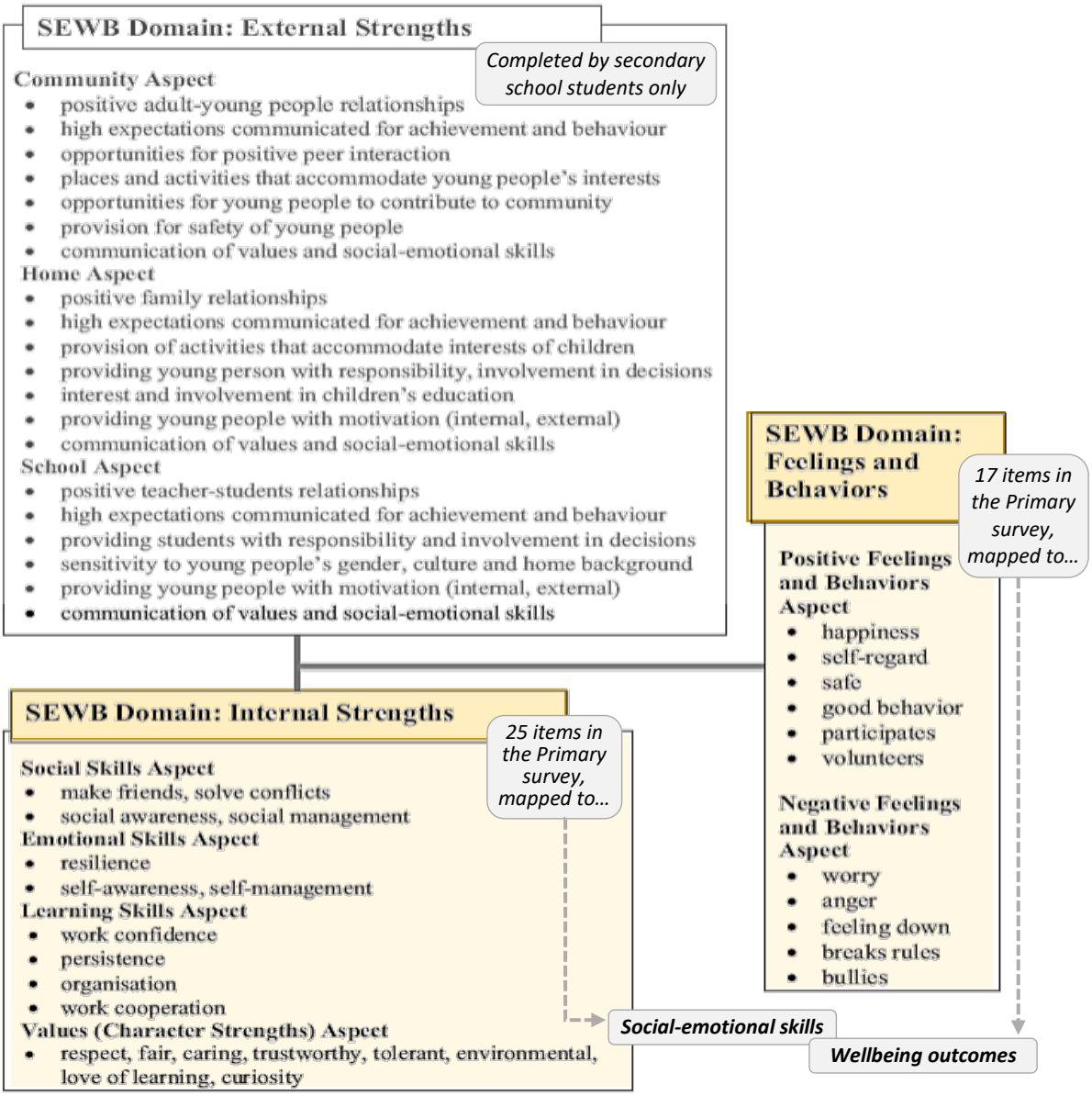
ACER's Social-Emotional Wellbeing (SEWB) survey is based on research that defines student wellbeing from an ecological perspective (e.g. Hamilton & Redmond, 2010) and the theoretical framework is consistent with models that investigate resilience (e.g. Durlak et al., 2011). Resilience in children and youth can, in part, be attributed to individual characteristics (e.g. good intellectual ability, positive temperament, high self-efficacy) and contextual characteristics (e.g. affectionate relationship with caregiver, effective parenting, connection with pro-social organisations, access to high quality schooling).

According to Bernard and Stephanou (2018), the survey is also consistent with the developmental assets model (e.g. Benson, 1997), which represents external assets (support, empowerment, boundaries and expectations, constructive use of time) and internal assets (commitment to learning, positive values, social competencies, positive identity) as building blocks of healthy development that help students grow up to be healthy, caring and responsible.

The Social-Emotional Wellbeing Survey was designed to provide schools with information on the student population (whole school, specific year levels, targeted groups) to inform school planning and improvement. Figure 3 presents the framework that underpins the original SEWB surveys. It describes

'external strengths' (community, home, school – only administered to secondary students) and 'internal strengths' (social skills, emotional skills, learning skills, values) that influence the wellbeing outcomes (feelings and behaviours) of students.

Figure 3. Ecological framework of three domains of young people's social-emotional wellbeing with annotated links to current study



(Source adapted from Bernard & Stephanou, 2018, p.664)

Bernard (2008) developed four surveys covering Kindergarten/Preparatory to Year 12 students: two student surveys, an early year's survey of students completed by their teacher, and an optional parallel teacher survey. For the purposes of this current project, the SEWB primary student data was used in the secondary analyses investigating the potential impact of PYP. Primary school-aged students answered each of the 42 survey items using a two-point Likert scale (disagree=0, agree=1), representing the strength of each indicator in the subjective experience of a young person. For the 14 negatively-worded items, scoring was reversed. Inheriting the method and measurement framework used by Bernard and Stephanou (2018) the raw scores under each subdomain (social, emotional, learning, values, positive, negative) were Rasch scaled to provide reliable continuums of social-emotional

wellbeing for young people in Grades 2 to 6. These scaled scores were provided (along with the raw data) for use in this current study to investigate the impact of PYP on student wellbeing outcomes.

The ACER Social-Emotional Wellbeing (SEWB) survey was particularly chosen for secondary data analysis as it has been administered across Australia (rather than state-based) and included a number of PYP schools along with non-IB schools.

Prior to undertaking the analysis, we established the theoretical possibility of a link between PYP activities and student wellbeing by inspecting the face-validity of the 25 SEWB *Internal Strengths* items assessing social, emotional, learning skills and values (see Figure 3 above). These items were mapped to the five IB approaches to Learning (ATL) skills and subskills (IBO, 2018c, p.29), presented in Table 4, and the 25 *Internal Strengths* to the 10 IB learner profile attributes, presented in Table 5.

Table 4. Conceptual alignment between the IB approaches to learning, the SEWB Internal Strengths skills and the CASEL Core SEL Competencies

IB approaches to learning categories and sub-skills	SEWB Internal Strengths framework	Core SEL Competencies (example SEL framework)
Communication skills • Exchanging-information skills (listening, interpreting, speaking) • Literacy skills (reading, writing and using language to gather and communicate information) • ICT skills (using technology to gather, investigate and communicate information)		**Relationship skills** • Communication • Social engagement • Relationship-building • Teamwork **Social awareness** • Perspective-taking • Empathy • Appreciating diversity • Respect for others **Self-awareness** • Identifying emotions • Accurate self-perception • Recognizing strengths • Self-confidence • Self-efficacy **Self-management** • Impulse control • Stress management • Self-discipline • Self-motivation • Goal-setting • Organizational skills **Responsible decision-making** • Identifying problems • Analyzing situations • Solving problems • Evaluating • Reflecting • Ethical responsibility
Self-management skills • Organization skills (managing time and tasks effectively) • States of mind (mindfulness, perseverance, emotional management, self-motivation, resilience)	**8 SEWB items** • 4 Emotional skills • 4 Learning skills	
Social skills • Developing positive interpersonal relationships and collaboration skills (using self-control, managing setbacks, supporting peers) • Developing social-emotional intelligence	**14 SEWB items** • 4 Emotional skills • 1 Learning skills • 5 Social skills • 4 Values	
Thinking skills • Critical-thinking skills (analysing and evaluating issues and ideas) • Creative-thinking skills (generating novel ideas and considering new perspectives) • Transfer skills (using skills and knowledge in multiple contexts) • Reflection/metacognitive skills ((re)considering the process of learning)	**3 SEWB items** • 1 Learning skills • 2 Values	
Research skills • Information-literacy skills (formulating and planning, data gathering and recording, synthesizing and interpreting, evaluating and communicating) • Media-literacy skills (interacting with media to use and create ideas and information) • Ethical use of media/information (understanding and applying social and ethical technology)		

(Source adapted from PYP *Learning and teaching*, IBO, 2018c, p.29)

As stated by the IBO, "*The aim of all IB programmes is to develop internationally minded people who, recognising their common humanity and shared guardianship of the planet, help to create a better and more peaceful world*". On face-value, Table 4 clearly suggests strong parallels between the ideals of the IB, their five interrelated ATL, and the widely-acknowledged core Social and Emotional Learning (SEL) competencies of self-awareness and management, social awareness, relationship skills, and responsible decision-making (e.g. CASEL, 2012; Durlak et al., 2011).

Moreover, to varying extents, the learner profile attributes in Table 5 also indicate strong parallels with social and emotional learning skills. In particular, the learner profiles of Balance (four items), Inquirers (five items) and Principled (six items) mapped most strongly when the 25 Internal Strengths items were conceptually aligned with the closest fitting learner profile. While the actual SEWB items are not presented here, Table 4 and Table 5 serve to introduce the conceptual areas addressed in the IB approaches to learning and the IB learner profile attributes, to give a preliminary appreciation that standard social-emotional skill items, such as those from the SEWB, do show strong accordance across most of the IB learner profile attributes.

Table 5. The IB learner profile attributes and preliminary coverage of 25 SEWB skill items

ATL	Learner profile. As IB learners we strive to be:	
RESEARCH - THINKING - SOCIAL - SELF-MANAGEMENT - COMMUNICATION	**Communicators** 2 SEWB items	We express ourselves confidently and creatively in more than one language and in many ways. We collaborate effectively, listening carefully to the perspectives of other individuals and groups.
	Caring 2 SEWB items	We show empathy, compassion and respect. We have a commitment to service, and we act to make a positive difference in the lives of others and in the world around us.
	Principled 6 SEWB items	We act with integrity and honesty, with a strong sense of fairness and justice, and with respect for the dignity and rights of people everywhere. We take responsibility for our actions and their consequences.
	Balanced 4 SEWB items	We understand the importance of balancing different aspects of our lives-intellectual, physical, and emotional-to achieve wellbeing for ourselves and others. We recognise our interdependence with other people and with the world in which we live.
	Risk-takers 3 SEWB items	We approach uncertainty with forethought and determination; we work independently and cooperatively to explore new ideas and innovative strategies. We are resourceful and resilient in the face of challenges and change.
	Open-minded 0 SEWB items	We critically appreciate our own cultures and personal histories, as well as the values and traditions of others. We seek and evaluate a range of points of view, and we are willing to grow from the experience.
	Reflective 3 SEWB items	We thoughtfully consider the world and our own ideas and experience. We work to understand our strengths and weaknesses in order to support our learning and personal development.
	Inquirers 5 SEWB items	We nurture our curiosity, developing skills for inquiry and research. We know how to learn independently and with others. We learn with enthusiasm and sustain our love of learning throughout life.
	Thinkers 0 SEWB items	We use critical and creative thinking skills to analyse and take responsible action on complex problems. We exercise initiative in making reasoned, ethical decisions.
	Knowledgeable 0 SEWB items	We develop and use conceptual understanding, exploring knowledge across a range of disciplines. We engage with issues and ideas that have local and global significance.

(Source: PYP *Learning and teaching*, IBO, 2018c, introductory pages)

The 17 *Feelings and Behaviours* items were not mapped to the learner profile as these were seen as an independent measure of overall student wellbeing. Accordingly, this preliminary investigation provides a theoretical basis and a testable model that students in PYP schools may be formally encouraged and supported to develop social-emotional learning skills towards improved wellbeing outcomes.

Propensity score matching

The initial ACER SEWB dataset contained 47,568 student cases in Grades 2 to 6, collected from schools across Australia during July 2013 to December 2017. Twelve PYP schools with 2141 students, were identified in the data but limited to the five largest states in Australia (New South Wales, Queensland, South Australia, Victoria, Western Australia). The IB schools tended to be more affluent: all of those in the sample had Index of Community Socio-Educational Advantage (ICSEA) scores above the median score of 1,000. ICSEA is a nationally derived measure that provides an indication of the socio-educational backgrounds of students based on several demographic characteristics (e.g. remoteness, SES, parents' educational background, indigenous background); it has nothing to do with the staff, school facilities or teaching programs at the school (ACARA, 2019). Since schools that were in other states and territories or below an ICSEA of 1,000 were not a good match for the IB schools, these schools were trimmed from the dataset to avoid their random selection during the matching process. Accordingly, the resulting data set that was used in the propensity score match contained similar schools with 2,141 PYP cases and 31,125 non-IB cases. The dataset was randomly sorted to further reduce any confounding factors.

While there is a lack of consensus in the applied literature as to which variables to include in the propensity score model (Austin, 2011), background and demographic covariates that are known to influence student wellbeing were considered. In order to achieve the best probabilistic match based on a theoretically sound propensity model, the covariates of student grade level, gender, and their school-level ICSEA score were included in the model. It is well-known that male and female attitudes about self, differ. For example, male students tend to be more confident, while female students tend to be more caring (Sax, 2016). We also know that attitudes towards learning and self tend to decline with grade level or age. In addition, the impact of socio-economic background on wellbeing is widely acknowledged. However, there was no theoretical expectation that being in a government or private school or being located in a particular state would influence wellbeing outcomes.

Accordingly, a tight match tolerance of 0.1 was assigned using the match criteria of grade, gender and ICSEA. A match tolerance value of 0 means no tolerance and an exact match on the specified criteria, while a value of 1 means complete tolerance, so that any control will be randomly assigned to any case as if no matching criteria was specified. The 0.1 tolerance that was set resulted in a 'fuzzy' match that took into consideration all covariates and avoided any 'unmatched' cases that might occur if there wasn't an exact match available.

The propensity score matching was undertaken in the statistics package SPSS 24 (IBM Corp., 2016) to create two matched comparison groups: students in IB schools (n=2,141) and a matched control group of students in non-IB schools (n=2,141). On gender, grade and ICSEA, there were 1,925 exact case matches and 216 'fuzzy' matches. This match also gave some level of representation across state, sector and location, as Table 6 shows.

As expected, the propensity-matched IB and non-IB groups gave similar representation across the demographic characteristics. On average, students were 9.37 years of age with a balanced representation of male and female students. Over half of the students who participated in the SEWB were in Years 3 or 4. Table 6 provides demographic information about both the PYP students (treatment

group) and non-IB students (control group). Noting that an 'exact' match approach was not possible without loss of data, and that some bias is evident in the distribution of ICSEA, interpretation of results should take this into consideration – that some effect may be due to socio-economic background or other factors not controlled for.

Table 6. Demographic characteristics of SEW study participants

Characteristic		Non-IB (control)	IB (treatment)	Overall
Used in propensity score matching				
Gender	Female	51.5%	49.6%	50.6%
	Male	48.5%	50.4%	49.4%
Grade	Year 2	21.4%	18.0%	19.7%
	Year 3	29.8%	24.1%	27.0%
	Year 4	30.0%	35.5%	32.7%
	Year 5	9.0%	12.2%	10.6%
	Year 6	9.8%	10.2%	10.0%
ICSEA	1000 to 1074	29.9%	18.5%	24.1%
	1075 to 1149	63.3%	63.6%	63.5%
	1150 and above	6.8%	17.9%	12.4%
Not used in propensity score matching				
Age	Mean age in years	9.34	9.40	9.37
State	NSW	5.4%	0.7%	3.0%
	QLD	9.1%	24.0%	16.5%
	SA	0.9%	7.0%	3.9%
	VIC	85.2%	62.5%	73.8%
	WA	0.3%	5.0%	2.6%
Sector	Government	70.0%	50.8%	60.4%
	Catholic or Independent	30.0%	49.2%	39.6%
Location	Metropolitan	78.0%	97.9%	88.0%
	Regional or Remote	22.0%	2.1%	12.0%

Internal strengths: Social-emotional skills and PYP

Research from the field of social-emotional learning indicates that self-awareness and self-management of social, emotional and learning skills contributes to optimum functioning (e.g. Durlak et al., 2011). Research also reveals that values (e.g. Lovat et al., 2010) including character strengths (e.g. Toner et al., 2012) are associated with a wide variety of SEW outcomes.

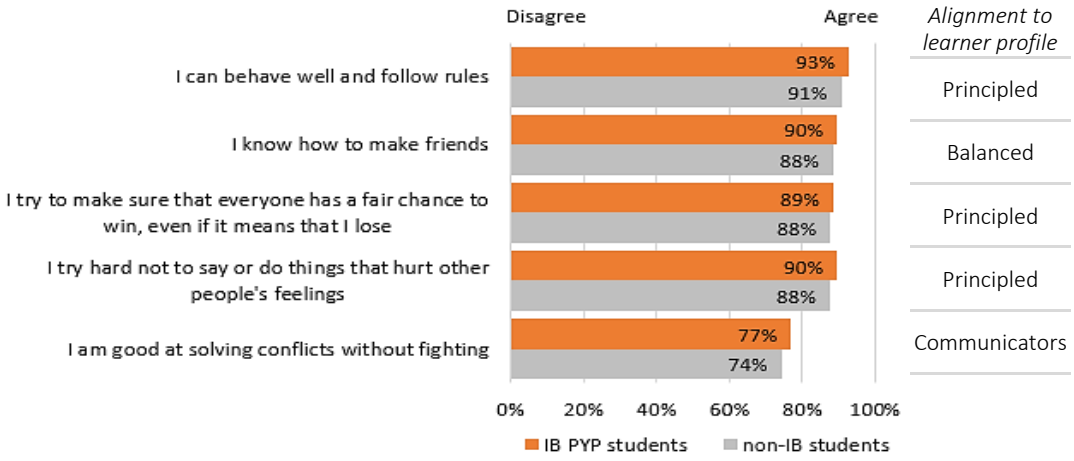
As Figure 3 above shows, the SEWB Primary survey consists of two parts. The first part, discussed here, contains 25 statements that measure social-emotional competencies, defined in terms of social skills (five items), emotional skills (eight items), learning skills (six items) and values (six items). This section presents descriptively the item raw-score percentage response from students in PYP schools compared to students in non-IB schools, while the following section presents results of inferential statistics. Within each sub-domain, items are arranged from most to least agreement on the response scale. The items were also assessed and assigned to the most conceptually similar learner profile attributes to inform the development of the student survey (see Chapter 4).

Social skills

This category, assessed by five items (Cronbach alpha reliability α=0.60), included perceptions of social competencies, such as friendship making, solving conflicts, understanding how people feel, and

willingness to follow rules. Figure 4 presents students' views about their social skills, grouped by school type. The majority of students believed that they *behaved well and followed rules*, but more so if they were from a PYP school (93%). More students in PYP schools (77%) than non-IB schools (74%) felt that they were *good at solving conflicts without fighting*. The general trend in the data suggests that students in PYP schools were more likely to have good social skills compared to students in non-IB schools. These items aligned to the learner profile attributes of *Principled, Balanced* and *Communicators*.

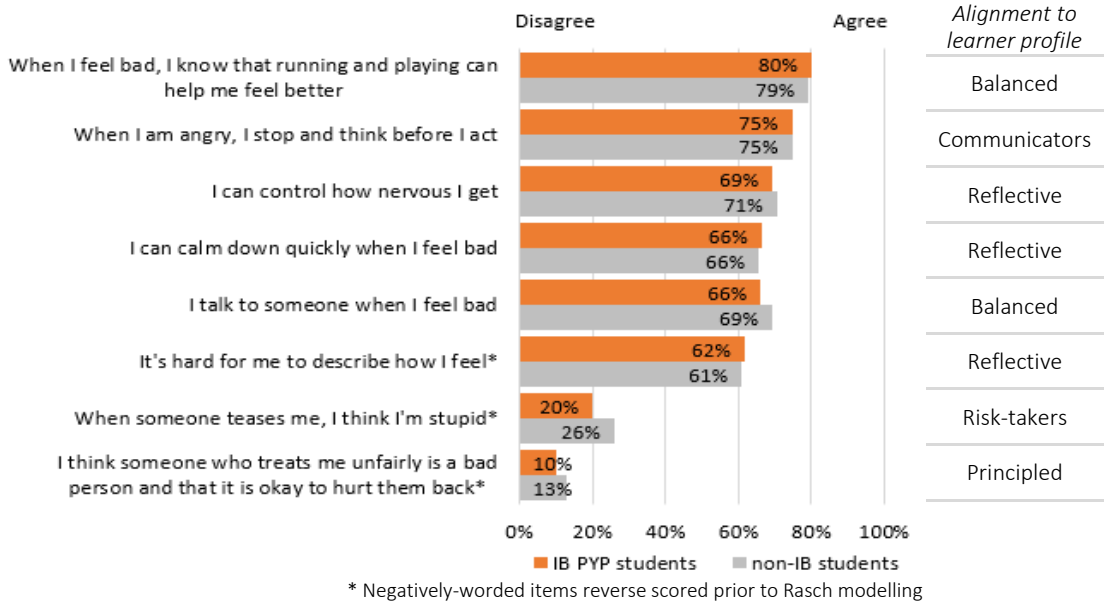
Figure 4. Students' views about their social skills



Emotional skills

This category, made up of eight items (α=0.67), included perceptions of emotional capabilities/coping skills (e.g. when upset, finding someone to talk with) and positive, rational attitudes around self-awareness (e.g. not putting yourself down when you do not understand something) and self-management (e.g. knowing how to control nerves). Figure 5 presents students' views about their emotional skills, grouped by school IB status. The items aligned across the attributes of *Balanced, Communicators, Reflective, Risk-takers,* and *Principled*.

Figure 5. Students' views about their emotional skills

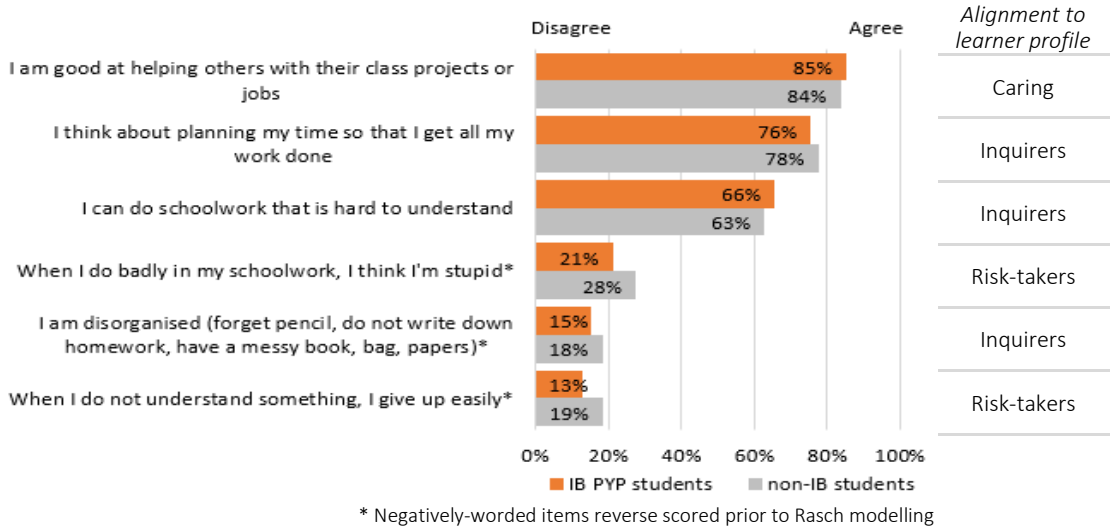


* Negatively-worded items reverse scored prior to Rasch modelling

Learning skills

This category involved six items (α=0.65) about perceptions of learning capabilities, such as work confidence (e.g. I am good at helping others), persistence (e.g. I don't give up), and organisation (e.g. planning time). As Figure 6 shows, there were similar proportions of PYP students compared to non-IB students agreeing to each item. For example, 85% of PYP students believed that *they were good at helping others with their class projects*, compared to 84% of non-PYP students. However, a general trend was evident that suggested that PYP students were more likely to agree about the positively worded learning skills (e.g. I can do schoolwork that is hard to understand) and less likely to agree to the negatively worded learning skills (e.g. When I do not understand something, I give up easily). These items were conceptually similar to the learner profile attributes of *Caring, Inquirers,* and *Risk-takers*.

Figure 6. Students' views about their learning skills



* Negatively-worded items reverse scored prior to Rasch modelling

Values (character strengths)

This category, assessed by six items (α=0.71), included perceptions of important social values, such as the character strengths of respect, caring, honesty, curiosity and good citizenship. Figure 7 presents students' views about their character strengths, grouped by school type.

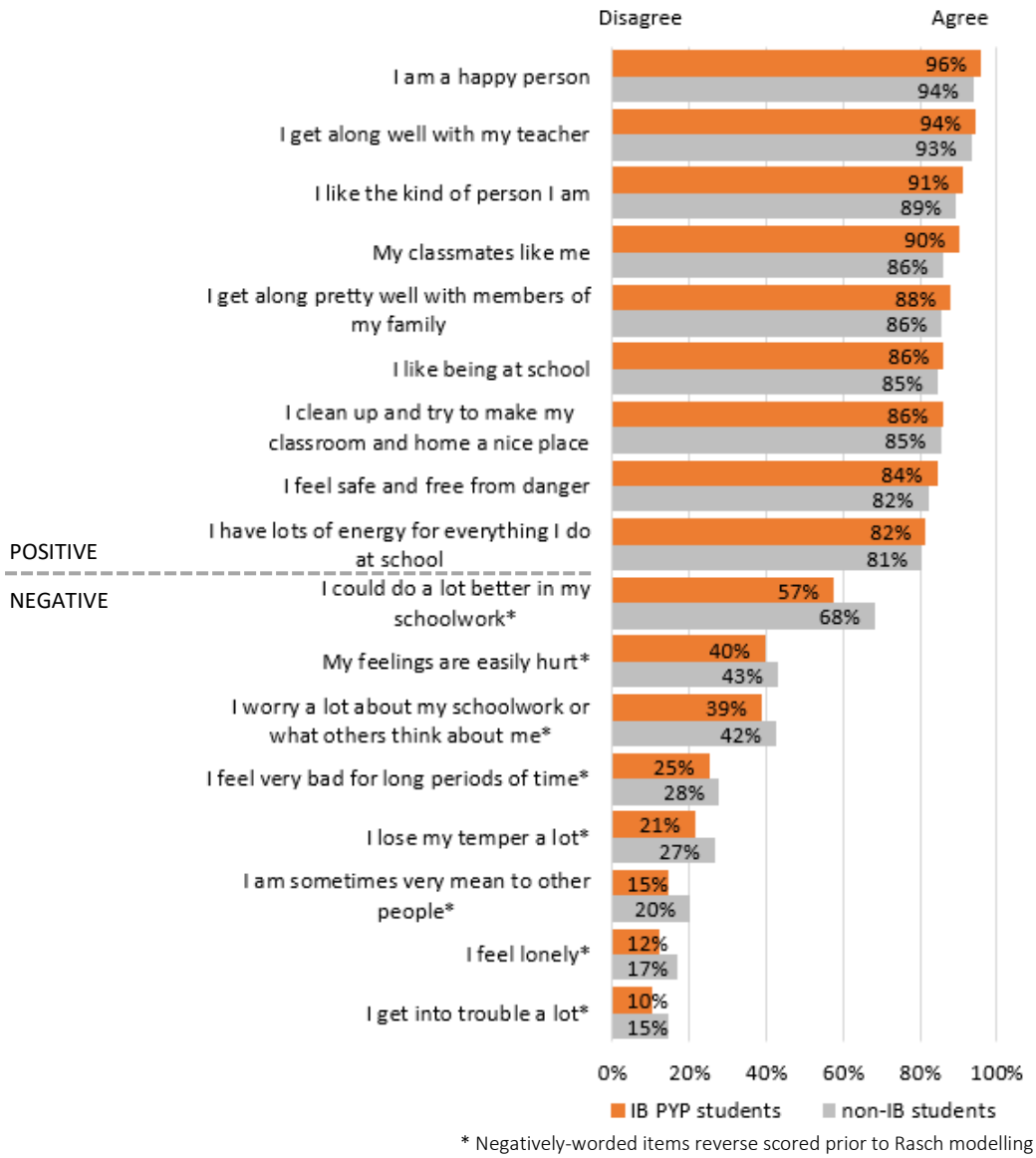
Figure 7. Students' views about their values (character strengths)

The majority of students believed that *it was important to treat all people with respect* (97% PYP; 96% non-IB) and *liked helping someone with a problem* (93% PYP; 91% non-IB). Again, there was a general trend that students in PYP schools were more likely to agree to having strong values, compared to students in non-IB schools. These items mapped to the learner profile attributes of *Principled, Balanced, Caring,* and *Inquirers*.

Wellbeing outcomes and PYP

Research indicates that an important aspect of the wellbeing of young people is the extent to which they experience both negative emotions and behaviours (e.g. stress, anger, rule-breaking behaviour) and positive emotions and behaviours (e.g. positive self-identity, happiness, getting along with others). The second part of the SEW survey, contains 17 statements (α=0.79) that measure positive (e.g. I am a happy person) and negative (e.g. I feel lonely) elements of students' overall wellbeing. Figure 8 presents the results, ordered from most to least agreement. The general trend across all items was that PYP students were more likely to respond positively to each feeling or behaviour, particularly with regard to the negative dimension, compared to students in non-IB schools.

Figure 8. Students' views about overall wellbeing: feelings and behaviours



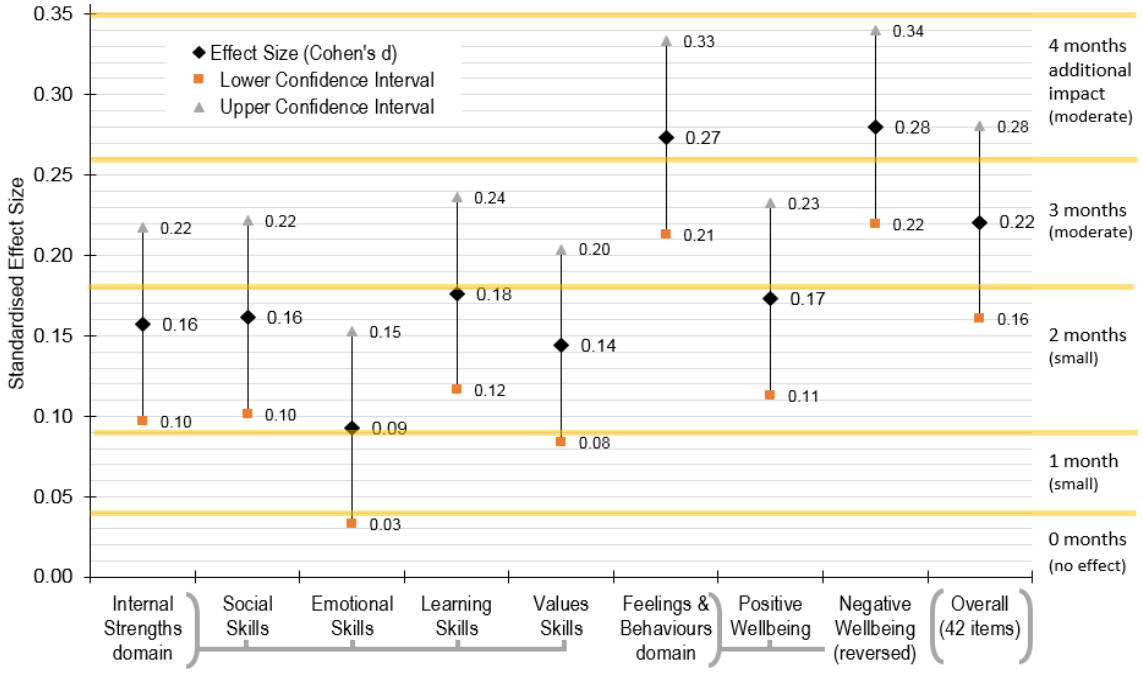
* Negatively-worded items reverse scored prior to Rasch modelling

Impact of PYP on student social-emotional wellbeing

Based on the Rasch scaled sores derived from the raw scores presented above (see Bernard & Stephanou (2018) for the full technical discussion), we used independent-samples t-tests and associated effect size (ES) to look for practically significant differences between students in PYP schools and students in non-IB schools. Significance was determined using a threshold of $p<0.05$ and by employing a Bonferroni correction to protect against type I error, resulting in a modified significance threshold of $p<0.0047$. All t-tests were statistically significant with a p-value<0.002 (so have not been individually stated with each ES). To aid interpretation of results in an educational context, effect sizes were interpreted in terms of *months of additional impact*, based on the recently revised metric used by the Education Endowment Fund and originally developed by Higgins et al. (2013).

Figure 9 presents the estimated magnitude of the effect on students' social-emotional skills and wellbeing outcomes associated with being in a PYP school, compared to students in non-IB schools, matched on year-level, gender and socio-economic background (ICSEA – mindful of the small bias). It suggests that being in a PYP setting had a small positive effect on social skills (ES=0.16), emotional skills (ES=0.09), learning skills (ES=0.18) and values (ES=0.14), equivalent to two months' additional development, when compared to students in non-IB schools.

Figure 9. Effect size estimates of students' social-emotional skills and wellbeing in PYP vs non-IB schools



Being in a PYP school was also associated with promoting wellbeing, shown by a small positive effect (ES=0.17) equivalent to two months' additional development, in comparison to the non-IB student cohort. The greatest impact, however, was associated with students' negative feelings and behaviours, showing a moderate effect on wellbeing (ES=0.28), equivalent to four months' impact in reduced negative feelings and behaviours, compared to non-IB students.

Overall, the analysis suggests that the PYP had a moderate impact on student social-emotional wellbeing (ES=0.22), equivalent to three months' additional development.

While the results presented in this chapter are promising, they should be interpreted with caution. These schools, both IB and non-IB, chose to assess the wellbeing of their students using the SEWB (making their data available for this secondary analysis). This self-selection potentially makes them different from other schools that have not used the SEWB. Schools that chose to implement the IB may also do other things well, such as supporting student wellbeing. Moreover, to undertake the SEWB suggests that improving the wellbeing of students was a school priority. Schools may also have been implementing other initiatives to promote student social-emotional learning skills – skills that closely align with the IB learner profile attributes. In fact, in the next chapter the social-emotional learning skills items are reframed in the context of the IB learner profile attributes.

Nevertheless, the preliminary analyses and discussion in this chapter provides some evidence that students in PYP schools may indeed be formally encouraged and supported to develop social-emotional learning skills, which may accord with the learner profile attributes, towards improved wellbeing outcomes.

CHAPTER 4. SURVEY RESULTS

This study set out to understand how the PYP may promote and support student social-emotional skill development and wellbeing outcomes. In order to examine this relationship, two purpose-designed surveys for teachers and students in PYP schools were developed (see Appendix B), guided by the conceptual logic model (see Figure 2 above) and the measurement framework (see Table 1 above). This chapter describes the results of the surveys by considering the PYP and wellbeing-related inputs into schools, the PYP activities by teachers and practices in classrooms, and the PYP social-emotional skills and wellbeing outcomes of students.

About PYP schools in Australia

The IB website resource (www.ibo.org), *Find an IB World School,* provided the tool through which PYP schools were selected for this study. This resource not only provides information on authorised IB schools by region, country, state, programme and sector (among other filters), but also provides information on each individual school as relevant to their IB status, such as when their programme(s) was authorised. In Australia, at the time of the study in 2019, there were 129 schools authorised to deliver the PYP (see Appendix B).

In Australia, school demographic characteristics are readily available through publicly available data, such as the *My School* website (myschool.edu.au). Along with details about school sector (government or non-government), type (primary or combined), and state/territory, it includes the Index of Community Socio-Economic Advantage (ICSEA) – a scale developed by the Australian Curriculum, Assessment and Reporting Authority (ACARA) to support comparisons between similar schools. The ICSEA value refers to the level of a school's educational advantage, based upon factors such as parents' occupations and education and the school's geographical location. The 129 PYP schools in Australia all have ICSEA scores at or above the national median of 1,000, limiting the generalizability of findings to wealthier SES communities.

This formed our target sample of schools, invited to participate in the study. In total, 56 PYP schools participated in the study, with completed surveys received from 114 teachers and 1,639 students. Table 7 presents an overview of the schools and compares the characteristics to non-participating schools.

To measure the potential non-response bias, the characteristics of participating schools (n=56) were compared to those of the non-participating (n=73) schools and tested using the Pearson Chi-Square statistic. The bias is the difference between the respective estimates for the participating and non-participating schools. Table 7 shows that although there was some bias across the various characteristics, the Chi-Squared statistic was not significant on any characteristic. Nevertheless, across the representative sample of participating schools, there was a small amount of over-representation of Independent schools (8%), somewhat above average ICSEA schools (10%), and recently authorised IB schools (9%), but not to the extent of statistical significance.

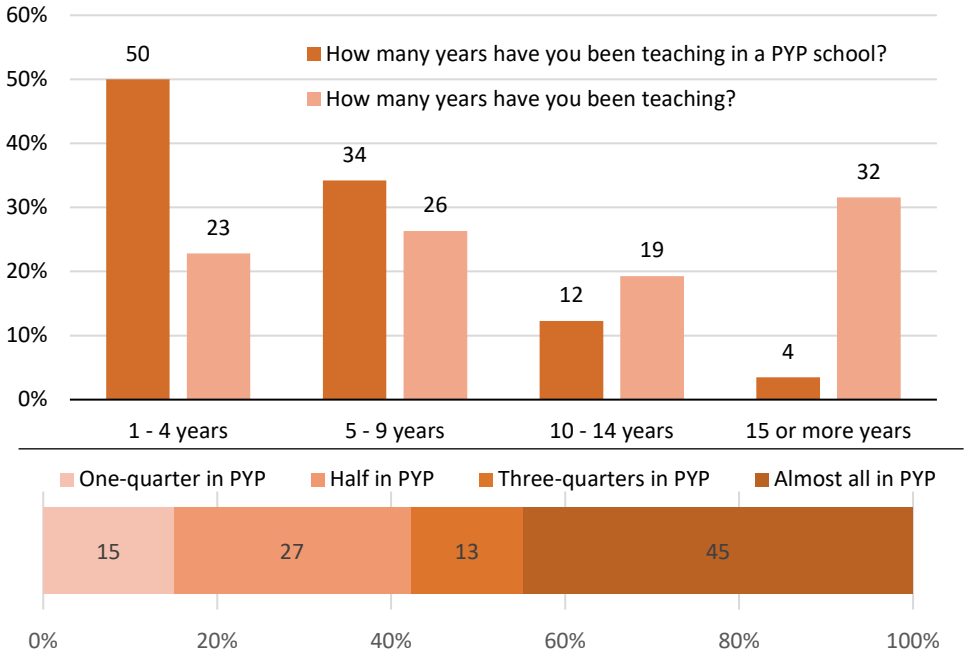
Table 7. Characteristics of participating compared to non-participating PYP schools in Australia

School Characteristics		Particip. (n)	Non-particip. (n)	Particip. %	Non-particip. %	Bias %	Chi-square p-value
Total	**n=129 schools**	**56**	**73**	**43.4**	**56.6**		
State or Territory	ACT	5	3	8.9	4.1	4.8	0.661
	NSW	8	10	14.3	13.7	0.6	
	NT	1	0	1.8	0.0	1.8	
	Qld	4	8	7.1	11.0	-3.8	
	SA	14	15	25.0	20.5	4.5	
	TAS	0	2	0.0	2.7	-2.7	
	VIC	22	32	39.3	43.8	-4.5	
	WA	2	3	3.6	4.1	-0.5	
Type	Primary	26	35	46.4	47.9	-1.5	0.864
	Combined (K-12)	30	38	53.6	52.1	1.5	
Sector	Government	18	28	32.1	38.4	-6.2	0.625
	Independent	36	41	64.3	56.2	8.1	
	Catholic	2	4	3.6	5.5	-1.9	
Socioeconomic and educational background of school (ICSEA value)	1050 or less (average)	6	12	10.7	16.4	-5.7	0.521
	1051-1100 (somewhat high)	17	15	30.4	20.5	9.8	
	1101-1150 (moderately high)	21	27	37.5	37.0	0.5	
	1151 or more (very high)	12	19	21.4	26.0	-4.6	
IB Authorisation Year	New (2018-19: 1 year or less)	4	6	7.1	8.2	-1.1	0.731
	Recent (2014-17: 2-5 years)	18	17	32.1	23.3	8.9	
	Mid (2009-13: 6-10 years)	19	29	33.9	39.7	-5.8	
	Long (1998-2008: 11-21 years)	15	21	26.8	28.8	-2.0	

About the participants

While a third of participating PYP teachers (n=114) were highly experienced with *15 years or more teaching* (32%), only 4% of these had this level of experience in PYP schools. Half the teachers that participated (50%) had between *one and four years teaching experience* in a PYP school. Figure 10 also shows the proportional difference in years of teaching experience overall, and years in a PYP school. It suggests that 45% of teachers had spent the *majority or all of their teaching career in their PYP school*, while 27% of teachers had spent approximately *half their career in their current PYP school*. These results suggest a relatively young, dynamic teacher workforce in IB primary schools in Australia.

Figure 10. Teacher experience (n=114)

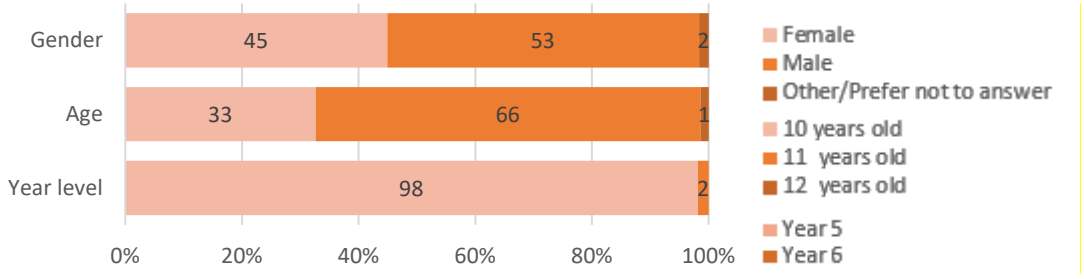


Given the focus of this study on student wellbeing, teachers were asked an additional question about teaching Personal, Social and Physical Education (PSPE). PSPE is a unique subject in the PYP with a strong wellbeing focus, where all teachers are expected to teach the *personal and social education* component, while the *physical education* (PE) component might be taught as a separate subject. This was confirmed by only 3% of teachers reporting that they taught PE, rather than by a specialist teacher (the case in 97% of schools).

Regarding students, it is widely known that attitudes towards school and social-emotional views about self, are influenced by gender and age. For example, girls tend to have lower self-esteem than boys and younger students tend to like school more than older students. Three standard questions included in the student survey ask about gender, age and year level to confirm students were similar in chronological age and generally at the end of their PYP journey (Year 5), as well as allowing the opportunity to report survey results by gender.

Reaching the student target population in this study was achieved, with 98% of the 1,639 students being in Year 5, and with 99% 10 or 11 years of age. As Figure 11 shows, participants were 53% boys and 45% girls, with 2% identifying as other or preferred not to answer.

Figure 11. Student gender, age and Year level (n=1,639)



This representative sample of PYP schools in Australia, along with the target Year 5 student cohort and their teachers, provides the basis of the comprehensive results presented in this chapter. Accordingly, this chapter presents the descriptive results of each of the elements captured in the surveys. It also brings together the derived indicators to highlight some of the simple correlational relationships as the first step towards understanding the inter-related impacts of the inputs, activities, and outcomes on student wellbeing, explored in Chapter 5.

IB standards and practices: the PYP index

In order to examine to what extent the PYP was having impact on student outcomes, it was necessary to develop a measure that could capture the complexity of activities as an indicator of how well a school was implementing the PYP – namely, a PYP index. This index approach has been successfully used elsewhere when examining the differential impact due to program implementation quality and acknowledges that some schools will be more effective and have greater impact from implementing a program than others (Dix, Slee, Lawson & Keeves, 2012).

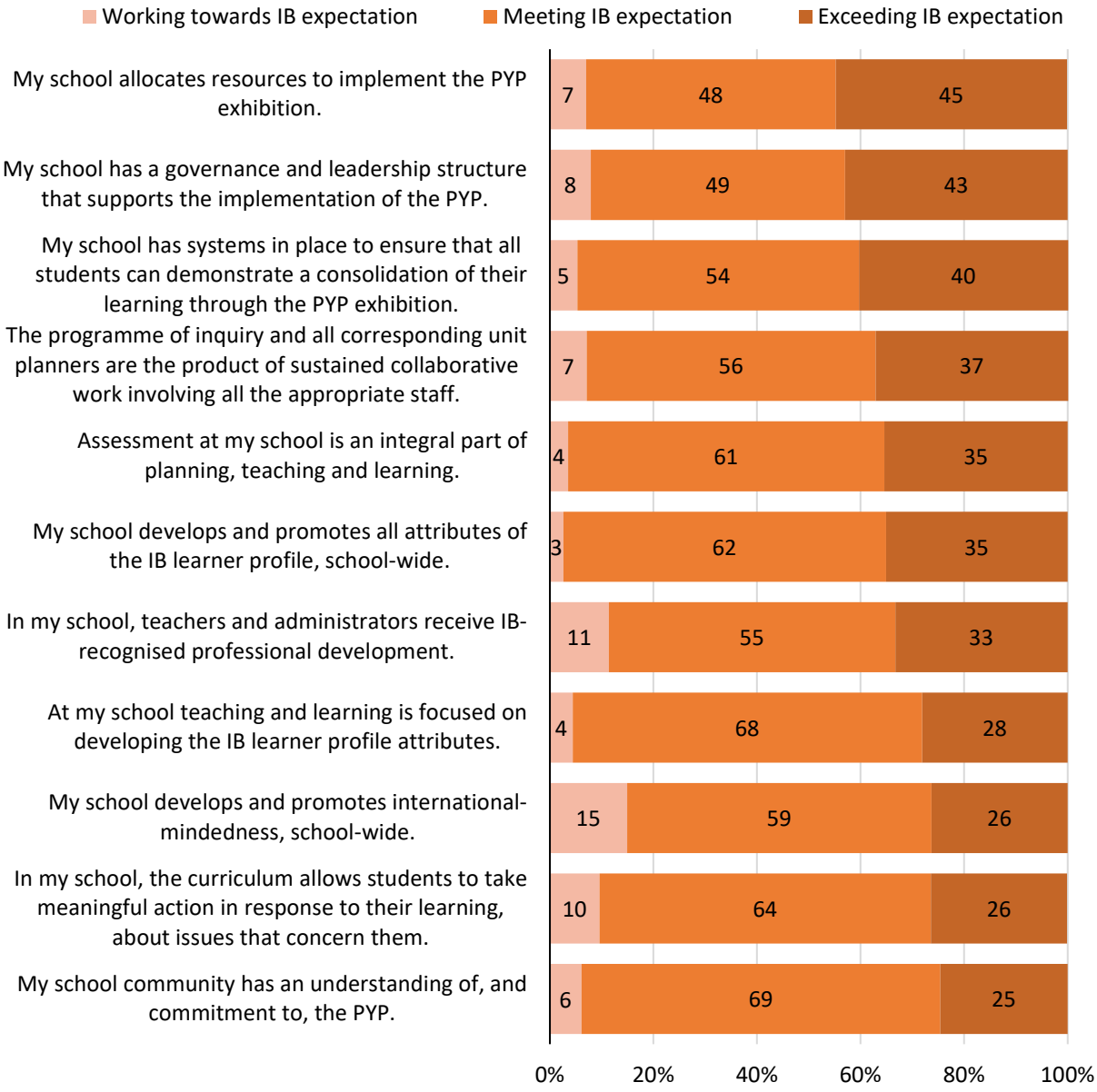
Accordingly, to provide insight into the nature of PYP implementation and engagement, teachers were asked explicitly about the extent to which they considered their school implemented the PYP, based on the *IB programme standards and practices* (IBO, 2016). The standards and practices were used, since these are the benchmarks to which IB schools are already held accountable and with which teachers are already familiar. Eleven items were developed for their relevance to the PYP Wellbeing project, as well as providing a holistic view of programme implementation. Figure 12 presents the results to 11 PYP standards and practices, in response to the general question: *Which stage of the PYP journey do you think your school is at with these Standards?*

Almost half the teachers (45%) reported that their school exceeded IB expectation in *allocating resources to implement the PYP exhibition*, with two-in-five schools *having systems in place to support students in the PYP exhibition* (40%). A third of schools were exceeding expectation regarding *assessment being an integral part of planning, teaching and learning* (35%). A quarter of teachers believed that their school exceeds expectations in *developing and promoting international-mindedness* (26%).

The promotion of global-mindedness and respecting cultural differences, a key focus in the PYP, were evident in students' comments.

> *We can constantly learn how to do maths and English as well as learning about the world, the environment and issues of global importance. (Male student, Age 11)*
>
> *I feel that I have a stronger connection and a better understanding to the outside world. (Male student, Age 11)*
>
> *I like my school because I learn a lot about the environment which I love. (Male student, Age 11)*
>
> *I like it because there are a lot of people to be friends with and are all different in some way. (Female student, Age 11)*
>
> *It makes me feel included because we learn about making others feel included and we respect each other's differences. (Male student, Age 11)*

Figure 12. Teachers' views about implementing the IB standards and practices in school



These items were averaged to form the PYP Index (α=0.887). A low score on the PYP Index suggests low engagement, while a high score on the index indicates high engagement. The overall extent of a school's implementation of IB programme standards and practices – its PYP Index – was independent of the number of years as an authorised PYP schools (r=0.17, p=0.08).

Whole-school wellbeing programs

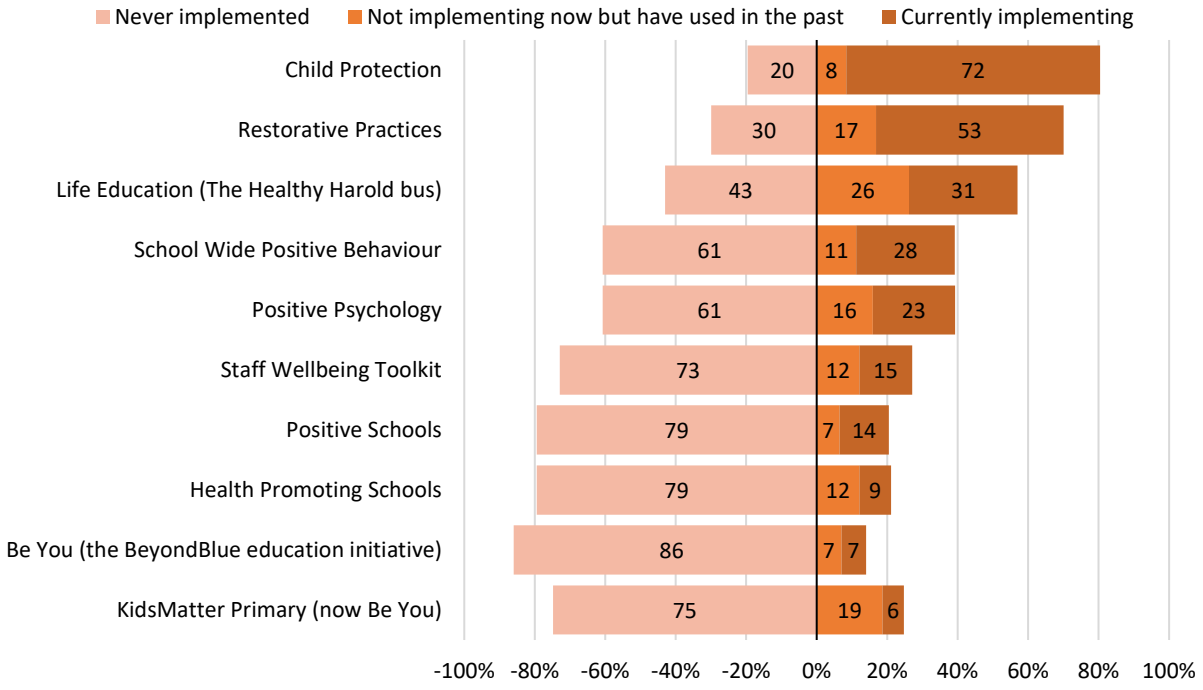
Improving the capacity of schools to enhance students' academic achievement and wellbeing has been a central focus of governments in Australia for the last two decades (Graetz et al., 2008). As discussed in the review of literature, schools are widely recognised as critical sites for the prevention and early identification of mental health problems in students, as well as the promotion of wellbeing (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011; Taylor, Oberle, Durlak & Weissberg, 2017). Building whole-school capacity to promote the social and emotional skills that underpin wellbeing stands to benefit all students, not just those at risk for poor mental health (Frydenberg, Martin & Collie, 2017; WHO, 2004).

As well as PYP-related activities, it is highly likely that schools were implementing parallel programs that directly promote student wellbeing. Evidence of these activities were captured in students' comments, such as "*We learn different feelings that help with knowing all our emotions*" (Female student, Age 10).

Accordingly, it was important to also capture the wellbeing activity in schools, in order to estimate to what extent student social-emotional learning skills and wellbeing outcomes were attributable to the PYP or other specific wellbeing activities.

Teachers were asked to identify which whole-school wellbeing programs or frameworks had been previously or currently implemented at their school. The ten main frameworks and programs available in Australia that participants could select one or more of, are presented in Figure 13.

Figure 13. Whole-school wellbeing frameworks/program implemented in PYP schools

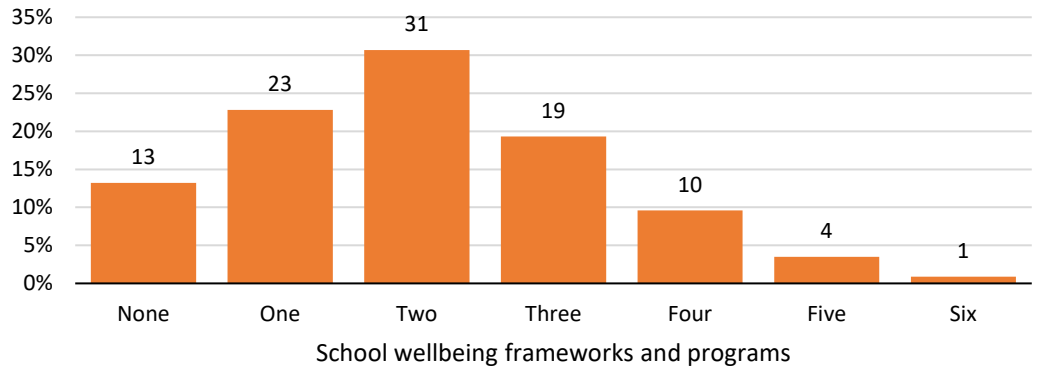


Three-quarters of schools were implementing *Child Protection* (72%) and just over half were in the process of implementing *Restorative Practices* (53%). Very few schools appeared to be implementing Australia's current national mental health education initiative, *Be You* (7%).

Moreover, around 13% of teachers reported not being aware of any school-wide wellbeing programs, while one teacher reported that their school was in the process of implementing six programs or frameworks. As Figure 14 shows, the majority of schools (54%) were currently implementing one or two programs.

Responses were scored (0- Never implemented, 1- Not implementing now but have used in the past, and 2- Currently implementing) and a school wellbeing programs score, ranging from 0 to 20, was derived for each school. A small relationship (r=0.26, p=0.008) was found with the PYP Index, suggesting that schools that exceeded IB expectation were also more likely to be implementing whole-school wellbeing programs.

Figure 14. Number of whole-school wellbeing frameworks and programmes



PYP pedagogy and practices

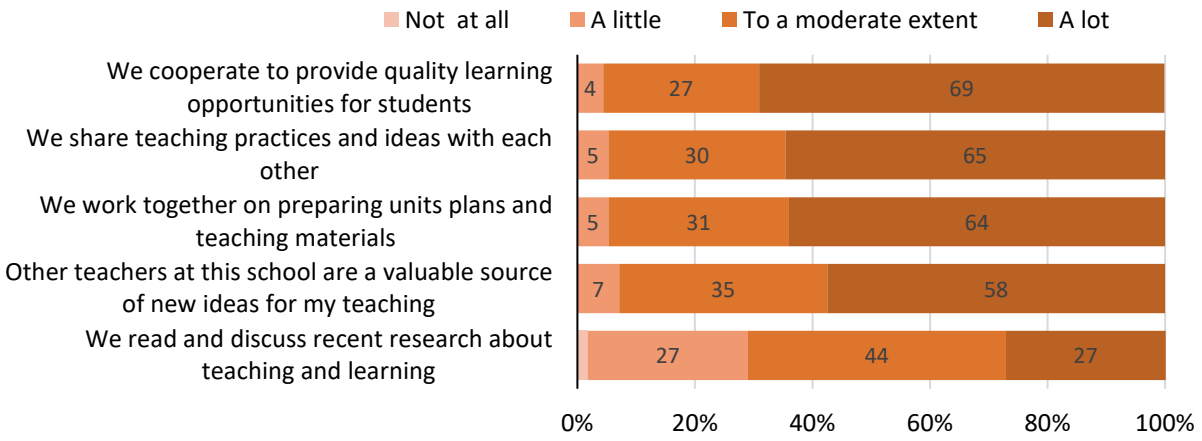
Beyond the school-level IB programme standards and practices, it was also important to gain a deeper understanding of how teachers were engaging with and delivering key elements of the PYP in their school and classrooms.

Teacher collaboration

Students benefit when teachers collaborate and share ideas and expertise as a normal part of professional work. By doing so, teachers keep up with developments in their field of teaching and bring that knowledge into their shared planning (Judd, 2017).

Teachers responded to five items about their collaborative practices, based on items from the Professional Learning Community Questionnaire (ACER, 2016). The results are presented in Figure 15. Two-thirds of teachers reported that they cooperate and work together 'a lot' to provide *quality learning opportunities for students* (69%), *prepare unit plans and teaching materials* (64%), and *share ideas* (65%). While over half strongly felt that *other teachers were a valuable source of new teaching ideas* (58%), one-quarter *read and discussed recent research about teaching and learning* (27%).

Figure 15. Teacher collaboration

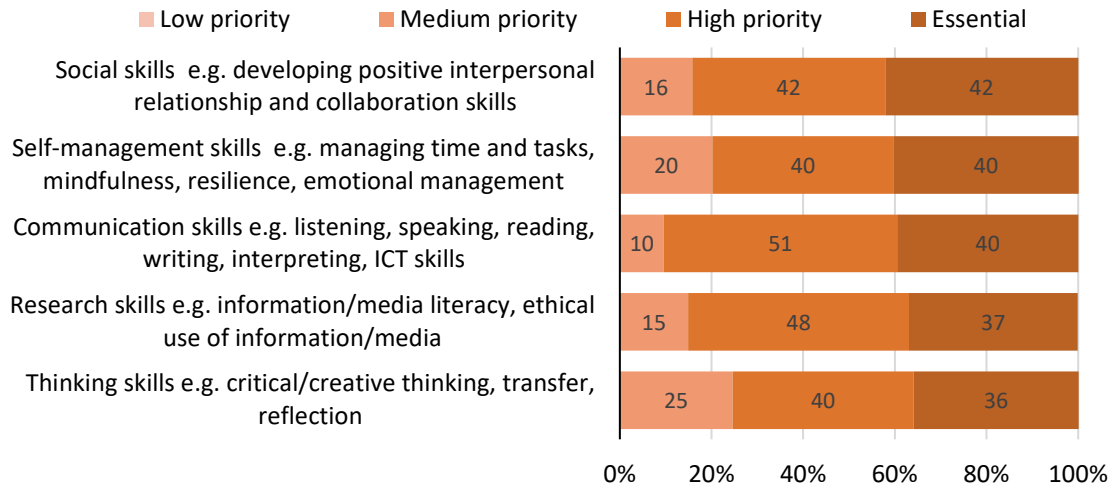


A measure of teacher collaboration was derived by averaging the items (α=0.85) and a moderate relationship was found with the PYP Index (r=0.45, p<0.01). This supports the notion, found in other research that increased time in collaborative planning is an element that may contribute to enhanced professional practice in the PYP (Gough et al., 2014; Lochmiller et al., 2016; Stillisano et al., 2010).

Approaches to learning

Beyond the standard expectation of the PYP, the extent to which teachers gave priority to embedding the five approaches to learning (ATL) domains was also investigated as an indication of PYP activity. Figure 16 suggests that around 40% of teachers viewed the five areas of *social skills, self-management, research skills, communication skills* and *thinking skills* as essential. No teachers rated low priority.

Figure 16. Approaches to learning priorities in the classroom



An indicator of ATL priorities was derived by averaging the five domains (α=0.90) and was found to be associated with the number of years of being an authorised PYP school (r=0.32, p<0.01). Classroom ATL prioritisation was also associated with the school's level of PYP engagement (r=0.36, p<0.01) but not engagement in whole-school wellbeing programs (r=0.12, p=0.11). There was a positive relationship with teacher collaboration (r=0.37, p<0.01).

Personal, Social and Physical Education (PSPE)

PSPE is a subject in the PYP with a strong wellbeing focus. All teachers are expected to teach the *personal and social education* component, while the *physical education* (PE) component is taught as a separate subject, as is the case in 97% of schools. Teachers were asked if PSPE was a priority in their classroom and how useful it was for teaching students about health and wellbeing. For around half the teachers, PSPE was considered to be of *medium priority in their classroom* (40%) and *moderately useful for teaching students about health and wellbeing topics (e.g. diet and nutrition, sleep, personal hygiene, exercise, online behaviour)* (51%). This more moderate, less certain response to the PSPE was reflected in the following teachers' comments.

> *I think PSPE is embedded in our POI but PYP does not give a specific wellbeing programs to use. I think my school could better use PYP to do this. (Teacher)*

> *I feel I need more understanding and teaching about what the PYP offers, besides the LP attributes. I am not really aware of the PSPE for example. We have now begun to focus on the trans skills which has been excellent. (Teacher)*

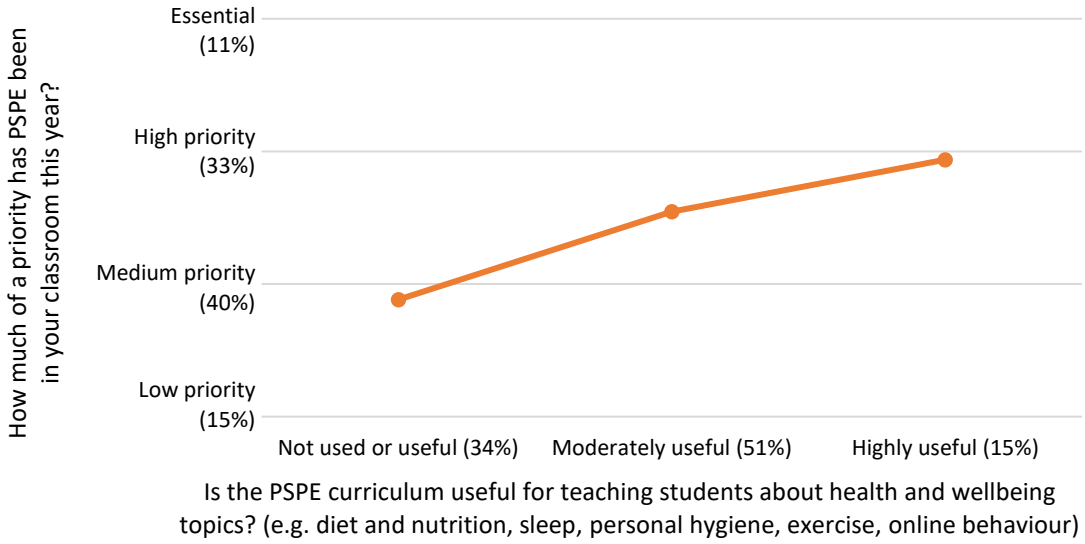
> *Until today, I didn't realise that the PYP had a PSPE curriculum (since I don't teach PE and our wellbeing program is separate from our Units of Inquiry). I feel that the inquiry learning culture supports student wellbeing, through the learner profiles and student agency, but I wasn't aware that student wellbeing was of concern to the IB. (Teacher)*

I haven't accessed the PSPE curriculum, however through our Who we are central idea, we inquiry further into how interconnected factors impact wellbeing (sleep, health, puberty, nutrition, social, emotional and spiritual). (Teacher)

Not sure what they're teaching in PSPE. I have only seen PE being done. (Teacher)

Moreover, Figure 17 shows the relationship between PSPE priority in the classroom and its perceived usefulness in teaching students about health and wellbeing. Teachers who viewed it as highly useful, tended to give it high priority.

Figure 17. Relationship between PSPE priority and usefulness in the classroom



An indicator of PSPE priorities was derived by averaging the two items (α=0.60) and was found to be associated to a small extent with whole-school PYP engagement (r=0.20, p=0.03). This suggests that the PSPE was given somewhat greater priority and was considered to be more useful in schools that were more engaged in PYP implementation.

Teachers' comments about the PYP and wellbeing

Teachers were asked to elaborate on whether they felt the PYP supports the development of student wellbeing. The insightful comments provided by 85 teachers (see Table 8) were thematically analysed into six emergent themes, presented by percentage in Figure 18.

Figure 18. Teachers' views about whether PYP supports development of student wellbeing (n=85)

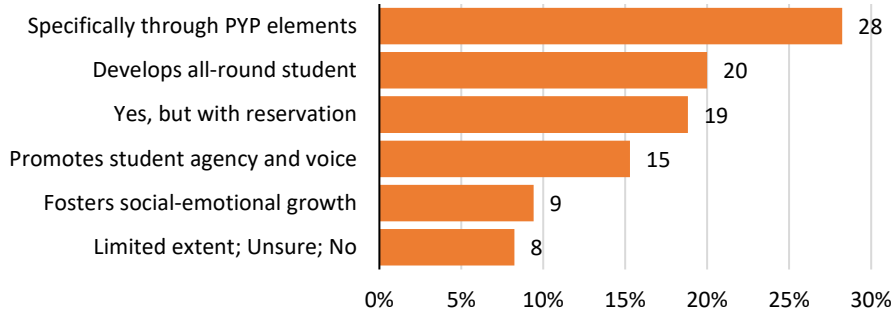


Table 8. Do you think the PYP also supports the development of student wellbeing?

Themes	Exemplar comments from teachers
Yes – Specifically through PYP elements (28%)	• *Definitely through the LP Trans Skills ATLs that are embedded within teaching & learning* • *Yes. The Learner Profile helps the students to recognise the different personal qualities that can help them manage their own wellbeing* • *Referring to the Learner Profiles attributes and approaches to learning helps to promote student wellbeing*
Develops all-round student (20%)	• *Definitely, as it's about developing the whole child within the context of being part of a global community.* • *It allows them to refer to the Learner Profile and look at the range of attributes they can show to become more globally minded rather than just looking at academics.* • *Yes. I believe that the PYP is a framework that is designed to develop and educate the whole person in a way that enables them to feel valued and confident in their ability to make a difference in this world*
Yes, but with reservations (19%)	• *As a whole it does. This would be further supported if all members of our community were more aware of all aspects of the PYP* • *It is hard to focus on this all the time with the constant pressure from outside requirements such as extra curricula activities, Australian curriculum, time constraints* • *Not as much as it could. Having to focus more on attributes has made us not use the attitudes as much which I think linked better with student wellbeing.*
Promotes student agency and voice (15%)	• *Yes, whole child focus and agency to help them be independent and capable learners. More focus on how they fit as part of a global community and their responsibility to be actively involved and take action.* • *Reflection, agency, purpose, communication are all huge in PYP and vital for wellbeing so they match perfectly.* • *Yes as it allows for some ownership of where the students want to head with their learning. The PYP also allows for more Agency making learning more relevant and meaningful to the students. When this occurs it promotes wellbeing and connects them more to their likeminded peers whilst also making learning relevant.*
Social-emotional growth (9%)	• *Yes it allows for a balance of social emotional and academic growth* • *Yes, the emphasis on social-emotional learning in the process of school-based learning*
Limited extent; Unsure; No (8%)	• *No I think the PYP leaves students confused about learning. It is far too open-ended and the layers of concepts, goals creates an environment of disconnect with the real world* • *To a limited extent, ie caring. Unsure.*

School and classroom climate

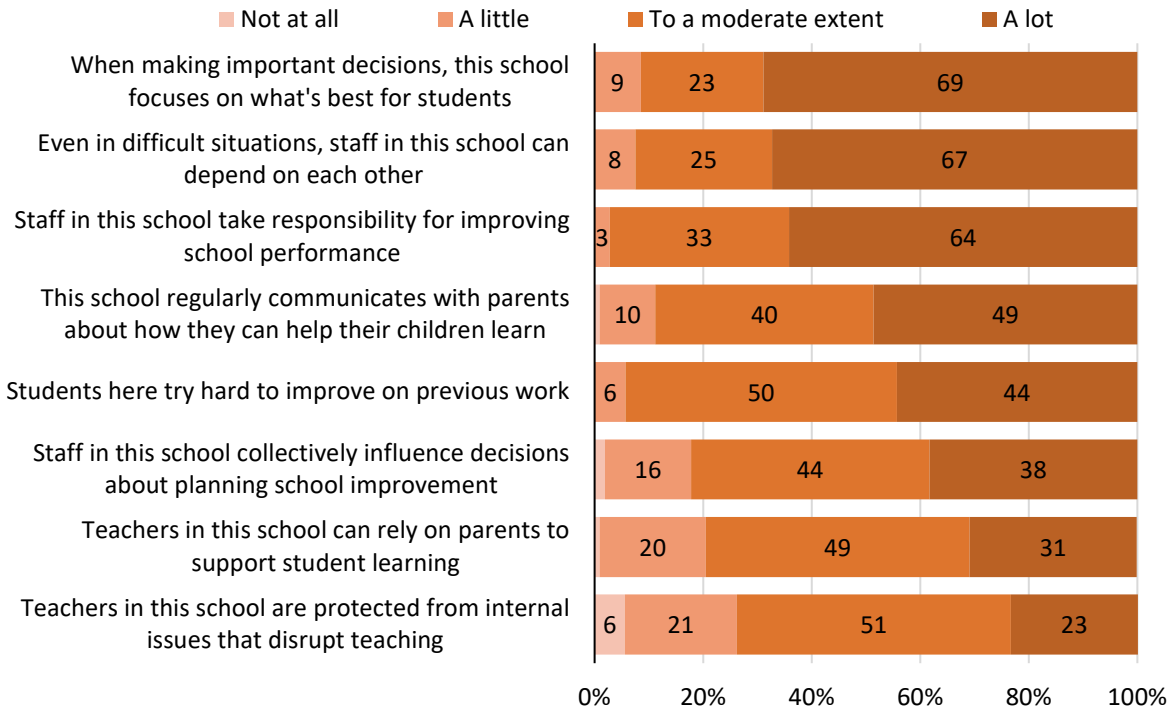
Capturing teachers' perception of school and classroom climate was an important part of this study. Klein, Cornell and Konold (2012) emphasise the importance of a number of classroom attributes that support and enhance students' cognitive and motivational development. These include clear, well-structured classroom management, supportive, student-oriented classroom climate, and cognitive activation with challenging content.

School climate

Although Wang and Degol (2016) report that there is no universally accepted definition of school climate, the literature describes it as a multidimensional concept that is generally conceived as consisting of teaching and learning, relationships, safety, and physical environment (Cohen, McCabe, Michelli & Pickeral, 2009). Research has found links between social and academic risk factors associated with students' perceived school climate (Way, Reddy & Rhodes, 2007). For the purposes of this study

we have drawn items from a number of school staff surveys that are widely used by education departments in Australia to assess school culture and climate from the teachers' perspective. Eight items (α=0.836), presented in Figure 19, aligned to the multidimensional concepts of collective responsibility and focus on student learning, trust and support, community involvement and collaboration.

Figure 19. Teachers' views about school climate

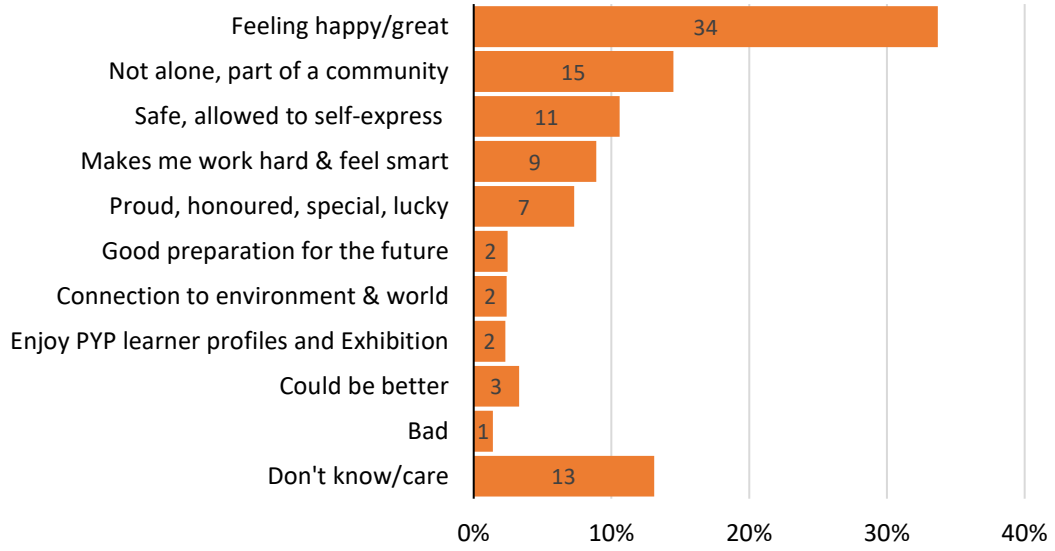


Two-thirds of teachers reported that there was a lot of *collective focus on student learning* (69%) and *staff trust amongst colleagues* (67%). Most teachers reported that there was moderate to a lot of *parent and community involvement* (89%) at their school. Half the teachers felt that there was only moderate academic emphasis regarding *students trying hard to improve on previous work* (50%). Over a third of teachers reported that in terms of teacher collaboration, *staff collectively influenced decisions about planning school improvement* (38%) 'a lot'. Far fewer believed that *teachers could rely on parents to support student learning* (31%) or felt *shielded from internal issues that disrupt teaching* (23%).

Teachers' overall views about school climate moderately correlated with most measures, suggesting that individual PYP elements were contributing to overall school climate. Teachers who held highly positive views about the collective involvement of staff and the focus on supportive school improvement, were more likely to also report that staff worked collaboratively ($r=0.57$, $p<0.01$), prioritised the ATL in their classroom ($r=0.39$, $p<0.01$), worked in schools that exceeded IB standards ($r=0.56$, $p<0.01$) and implemented whole-school wellbeing programs ($r=0.32$, $p<0.01$).

Students were asked directly about how being at a PYP school made them feel, noting that it is unlikely that students would be able to objectively separate 'PYP' and 'school'. Over 1,400 student comments were received and thematically analysed into 11 emergent concepts, shown by frequency of response in Figure 20.

Figure 20. Students' views about how being at a PYP school makes them feel (n=1,461)



Students' responses presented in Table 9 about attending a school involved with the PYP were overwhelmingly positive. The majority of students reported that they were happy, felt safe and supported, and were motivated to work harder, while also feeling smarter. It was also clear that students recognized and valued the commitment to the environment, and to learning about cultures, as well as global challenges. A small number of students explicitly mentioned IB learner profile attributes and the PYP Exhibition.

Not all feedback was positive, however, with 4% of students remarking that they did not enjoy the PYP, and that it could be improved. Their comments highlighted that PYP schools are not immune to bullying, and that expectations set by the PYP can present additional burdens experienced more intensely by a small group of students.

The emerging themes demonstrate a high degree of student awareness with regard to the purpose of various facets of the PYP. Responses also indicate that students felt safer, smarter, more confident, and supported at their school, particularly when compared to previous non-IB schools. Overall, students' responses suggest that attending a PYP school had a positive impact on their wellbeing.

Table 9. Students' views about how being at a PYP school makes them feel

Themes	Exemplar comments from students
Feeling happy about the way they learn (34%)	• *I feel happy and I feel like I have tried hard I am really excited to go to the MYP programme I am happy with the PYP programme* • *I enjoy it a lot and think it's great!* • *I feel that it's a different way of learning things and that's a good way to learn*
Part of a community, supported by friends, teachers (15%)	• *Like I am a wanted student at the school and people care about me* • *It makes me feel like I am a speck in the universe and I am not alone* • *Happy because I know I can trust everyone and everyone is caring and supporting at this school we are also treated equally and fairly.*
Safe/comfortable, allowed to self-express (11%)	• *It makes me feel good because I feel that I am in a safe and fun environment* • *I am not forced to do a specific topic and makes me have my own choice!* • *It makes me feel like I can express my emotions more. Very happy*

Themes	Exemplar comments from students
Makes me work harder, and feel smarter, better (9%)	• *It stretches my brain and makes me think about different cultures and other things.* • *It makes me feel challenged and helps me learn about things that sometimes I didn't even know existed. It's also a very friendly and safe way to learn.* • *It makes me feel smart. It also makes me feel like I get a very good education*
Proud, lucky, privileged (7%)	• *I feel grateful because other schools don't get IB PYP. Proud and encouraged* • *It makes me feel that I am very lucky to be well educated* • *I think it is good and it is a privilege to be part of this programme. I feel special*
Good preparation for the future (3%)	• *I feel that this being in a PYP school really gets me ready for real my future.* • *I feel happy because we have more chance getting in a university and get a job.* • *That my learning is kind of based on the attributes of pyp and that is a good thing because those are skills we need in life*
Connections to the outside world (2%)	• *More involved with real issues and real things that are going around in the world.* • *It makes me feel aware of the world around me.*
Enjoying learner profiles and/or the Exhibition (2%)	• *The IB PYP profiles help everyone make good choices on how to treat each other* • *I like being at an IB PYP school because we learn about how to use our learner profiles during learning or even outside the school* • *It is more fun being at an IB school because we get to do different inquiries and exhibition and our school cares more about the environment*
Could be better (4%)	• *Some of the teachers do not help me in learning and could try better to help me* • *Mixed emotions. It makes me get stressed a little* • *I have noticed that some people are not treating anyone fairly even though our school is trying to tell everyone to be fair to each other* • *Do not like it at all. Annoyed and nervous and stressed* • *confused I mean I really don't enjoy pyp sessions*
Don't know/care (13%)	• *I have never been at a different school so I can't really answer that!* • *It makes me feel like I'm in an average school it doesn't make me feel different* • *I don't care*

Classroom culture

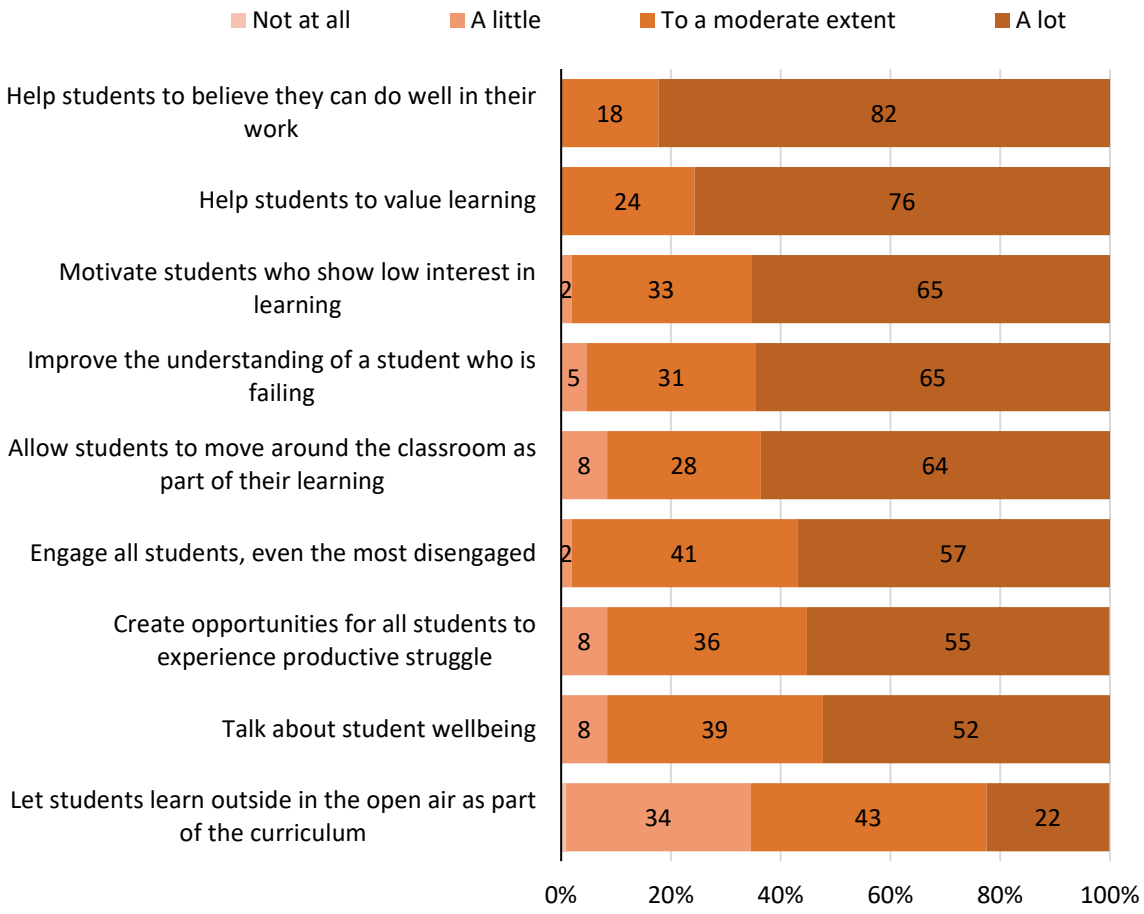
Classrooms high in teacher self-efficacy have teachers who are not only highly aware of and responsive to students' academic, social, and emotional needs but are also effective at helping students solve problems. When teachers are sensitive and responsive toward both their academic and social and emotional needs, students are more successful academically (Jennings & Greenberg, 2009; Ainley & Carstens, 2018). Nine items (α=0.815) assessed classroom teaching practices related to supporting student learning and a positive classroom climate.

As Figure 21 shows, teachers were highly positive about their capacity[12] to *help students to believe they can do well in their work* 'a lot', with 82% reporting so. Three-quarters of teachers could, to a great extent, *help students to value learning* (76%). Two-thirds of teachers *motivated students* (65%) and *supported students falling behind* (65%), while over half greatly felt that they could *engage the most disengaged student* (57%).

[12] The survey question asked, "To what extent do you do the following in the classroom?" Note that this is not asking about a teacher's personal capacity but whether it is actually done in the context of their current classroom.

Most teachers also felt highly able to promote a positive climate in their context. Over half the teachers, to a great extent, reported that they talked about *student wellbeing* (52%). The freedom for students to *move around the classroom* (64%), *learn outside* (22%), and to develop growth mindset through *productive struggle* (55%) were also encouraged by many teachers.

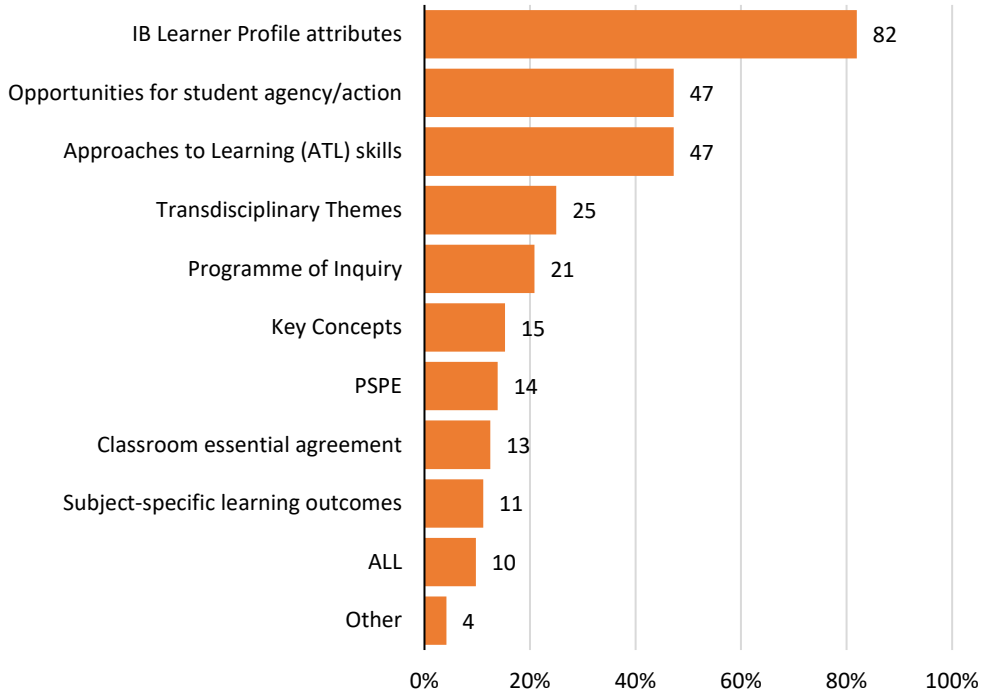
Figure 21. Teachers' ratings about the extent they do the following in the classroom



These insights into the classroom culture set by the teacher were related to teachers' perceptions about school climate ($r=0.48$, $p<0.01$), as was prioritisation of ATL in the classroom ($r=0.48$, $p<0.01$). There was a weaker association with the school's IB standards and practices ($r=0.23$, $p<0.05$) and no association with using whole-school wellbeing programs ($r=0.11$, $p=0.26$). This suggests that teachers with high self-efficacy regarding promoting classroom culture, were more likely to be in high implementing PYP schools.

Teachers were also asked about which PYP curriculum elements were most helpful in developing a positive classroom culture. Figure 22 presents the results of the thematic analysis based on 72 teacher comments. The majority of responding teachers reported that the *IB learner profile attributes* (82%) were most helpful in developing a positive classroom culture, followed by *student agency* (47%) and *approaches to learning* (47%). Many teachers (13%) also mentioned how they used the *Classroom Essential Agreement* to support the implementation of PYP elements, and 10% of teachers said that *all the elements* were useful.

Figure 22. Which, if any, of the following PYP curriculum elements have you found most helpful in developing a positive classroom culture? (n=72)



Teachers also provided justification for their choices about how the PYP elements supported classroom culture. A selection of exemplar comments is presented in Table 10.

Table 10. How PYP curriculum elements are helpful in developing a positive classroom culture

Themes	Exemplar comments from teachers
IB learner profile attributes (82%)	• *We base our classroom 'Essential Agreement' around the Learner Profile Attributes. This is created by the kids, and sets up their own expectations for their learning environment. This ownership enhances the positive learning, emotional, and social outcomes.* • *The Learner Profile because teachers and students make links often. We developed our own definitions for the attributes and are really proud when we show them.* • *IB learner profile attributes as they apply to so many areas of everyday life.* • *IB Learner Profile attributes, as they assist in developing the 'whole' child, not just academically, and encourage students to be active and global citizens*
Approaches to learning (ATL) skills (47%)	• *ATL - we have focussed on self-management and emotional self-regulation this year.* • *ATL skills, helps them to realise what they should be focusing on for themselves during different tasks. IB attributes to reinforce how we should be behaving and acting.* • *ATLs are taking a greater focus now for goal setting and identifying areas that are valuable in each of our learnings towards become global learners and citizens.*
Opportunities for student agency/action (47%)	• *I have found the increase use of student self-regulation and agency as a great way to build resilience and independence in the classroom. The ATL and attributes are a great way to build classroom culture.* • *The opportunities for student agency is the most helpful, since the students feel empowered to develop their learning and it keep them focused.* • *Opportunities for student agency/action also allows students to develop a sense of belonging in our community and help them feel important and valued.*

Themes	Exemplar comments from teachers
Transdisciplinary Themes (25%)	• *IB Learner Profile Attributes and Transdisciplinary Themes. Students engage more deeply when they can connect all areas of learning.* • *ATLs, profiles, transdisciplinary themes and student agency/action as supports growth and independent learners.* • *Transdisciplinary nature of units allows lots of curriculum to be covered and all curriculum to be achievable across the year.*
Programme of Inquiry (21%)	• *Programme of Inquiry which relates to the 10-year olds world and connecting to current events.*
Key Concepts (15%)	• *Learner Profile, Key concepts, ATL*
PSPE (14%)	• *PSPE - work on well-being and ways to improve well-being*
Classroom essential agreement (13%)	• *The students create class essential agreements reflective of the learner profile at the start of each school year - this is the fundamental step in developing classroom culture. The other aspects of the PYP are developed through units of inquiry and are part of the learning culture of the classroom.* • *Through the development of our classroom essential agreements the IB Learner Profiles were most helpful in developing a positive classroom culture.*
Subject-specific learning (11%)	• *All curriculum elements, including the subject-specific learning outcomes, are extremely helpful in creating/developing a positive classroom culture.*
ALL (10%)	• *All of the above. We teach this well and allow for strong student agency and action in all that we do, incorporating the Learner Profile Attributes, ATL's etc as stipulated above. By giving our students the right tools through a nurtured approach, we empower them to shine throughout all areas of their schooling.* • *All of these elements are essential.*

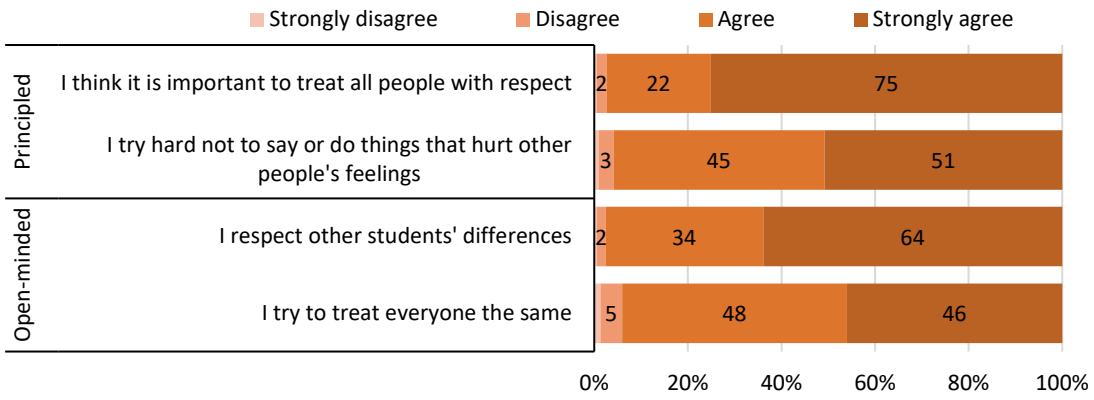
Students' social-emotional learning skills

Building on from the investigation in Chapter 3, students' social, emotional and learning skills were assessed by students responding to 20 items that were inspired by the SEWB *Internal Strengths* domain and sourced from elsewhere, structured to map and reflect the IB's 10 learner profile attributes (two items per attribute). Factor analysis of the 20 items (aligned to the 10 learner profile attributes) resulted in the emergence of three domain that were described as Social skills (α=0.74; see Figure 23), Emotional skills (α=0.72; see Figure 24), and Learning skills (α=0.76; see Figure 25), grouped by attribute.

Students' social skills were reflected in the learner profile attributes of Principled and Open-minded, as shown in Figure 23. Most students strongly agreed that it was important to *treat all people with respect* (75%), were mindful of *others' feelings* (51%), *respected others' differences* (64%) and *tried to treat everyone the same* (46%). Students reported that:

> *I quite like being at an IB school because you learn to be respectful to everyone and you learn to put more thought into what you say and do. (Male student, Age 11)*
>
> *It makes me feel good because we are taught to respect and care for other students. (Male student, Age 10)*
>
> *I treat students fairly and they respect and treat me fairly. (Male student, Age 11)*
>
> *It makes me feel happy to be in this school because I feel like everyone accepts who I am and I am treated very fairly. (Female student, Age 10)*

Figure 23. Students' social skills

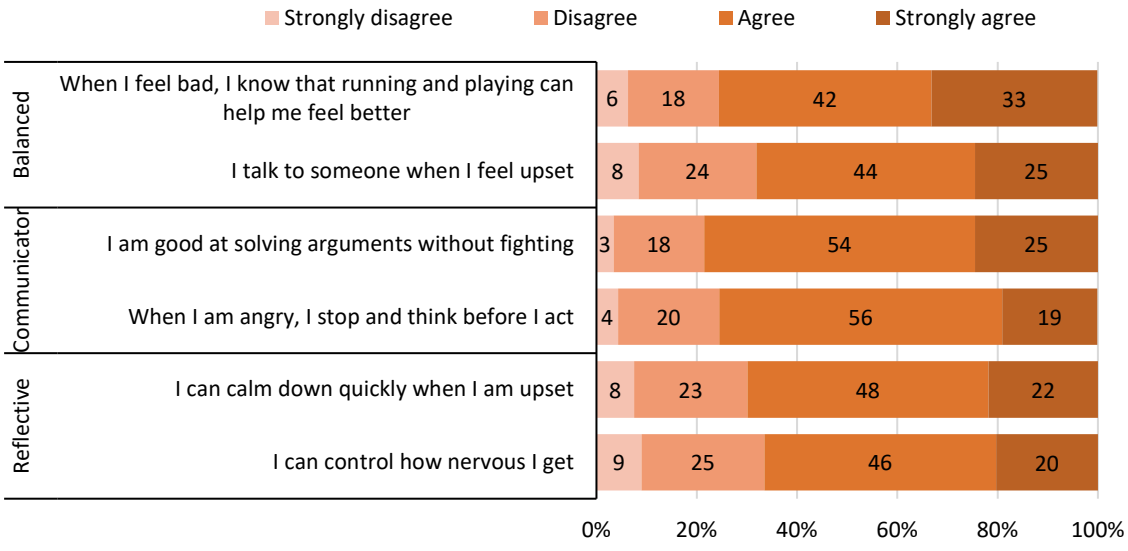


Students' emotional skills were reflected in three of the learner profile attributes: Balanced, Communicator, and Reflective. It should be noted that although there is significant conceptual overlap of the items for Communicators with the social and learning skill domains, the individual items for Communicators were more strongly correlated with the emotional skills domain. Figure 24 shows that student responses were relatively less positive regarding these skills, compared to social and learning skills.

A third of students strongly agreed that *running and playing can help them feel better* (33%) while only one in four strongly agreed they *talk to someone when they feel upset* (25%) and that they are *good at solving arguments without fighting* (25%). Only one in five students strongly agreed that they *stop and think before they act when angry* (19%), and that they could *calm down quickly when upset* (22%), or *control how nervous they get* (20%). Students stated:

> *When I feel upset I can talk to my teacher friends or a social worker/counselor (Female, Age 10)*
>
> *Sometimes arguments do occur between students and are not solved entirely (Female, Age 11)*
>
> *Sometimes when my teacher tries to help me she makes me nervous. (Female student, Age 10)*
>
> *We got to learn about art and we did a big exhibition about learning how to draw learning about how art is made and what it can do to calm you down. (Male student, Age 11)*

Figure 24. Students' emotional skills



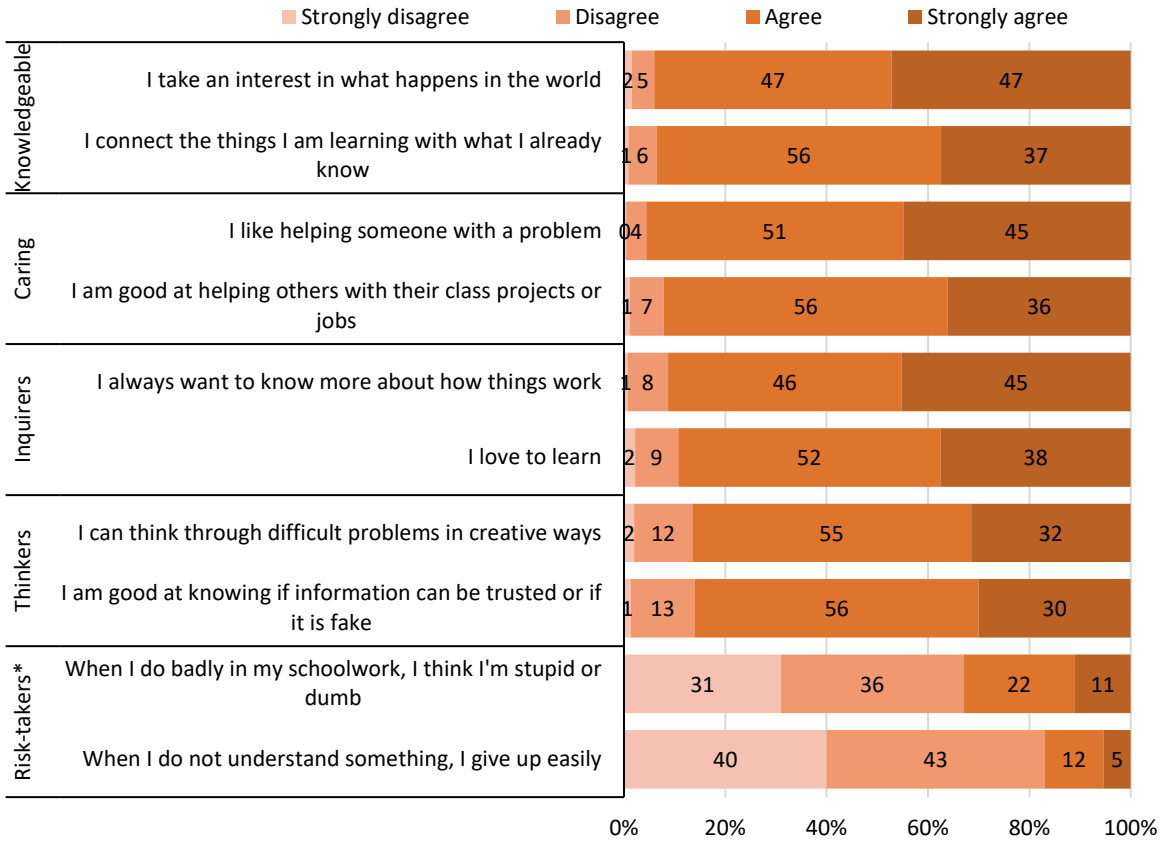
Students' learning skills were captured through 10 items relating to the five learner profile attributes of Knowledgeable, Caring, Inquirers, Thinkers, and Risk-takers (see Figure 25). Almost half the students strongly agreed that they *take an interest in the world* (47%), *know how things work* (45%), and *like helping others* (45%). It should be noted that although there is significant conceptual overlap of 'enjoy helping others' with the social skills domain, the individual items for Caring were more strongly linked with the learning skills domain. Students made supporting remarks such as:

> *It makes me feel like I am at home, I like how we learn about other things that are happening around the world. (Male student, Age 11)*

> *The summatives we do in LPPs are really fun because you're learning and also with your friends collaborating which is good and you to get to work with new people although some people are hard to manage. (Male student, Age 11)*

> *It makes me feel like I get along with everyone else because the activities we do are teamwork activities which helps us a lot. (Female student, Age 10)*

Figure 25. Students' learning skills



* The negatively worded items associated with Risk-taker were reverse coded before scaling

Over a third of students strongly agreed they *love to learn* (38%) and *make connections between things they learn and what they already know* (37%). A third of students also strongly agreed that they were *creative problem solvers* (32%) and *did not give up easily* (40%). Just under a third of students were confident *they knew if information could be trusted* (30%). In their words:

> *I love it, it is so fun but can sometimes be very challenging and I personally like that, it is awesome. (Female student, Age 10)*

It makes me feel more inventive to learn and discover. (Female student, Age 10)

Teachers will explain information again in a different way if you don't understand the way they explained before. ('Other' student, age not supplied)

The following teachers' comments about the PYP further suggest that there are links between student wellbeing and elements of the PYP, such as the approaches to learning pedagogy and the learner profile attributes.

I believe PYP supports the development of student wellbeing through the delivery of lessons, units of inquiry, the approaches to learning, discussing and encouraging learner profile attributes in daily classroom lessons/tasks/activities, transdisciplinary themes - 'Who we are', 'how we express ourselves', how we organise ourselves' - I believe that each theme taught has many opportunities (and I consistently focus on student wellbeing within lessons and all classroom/school activities). Student agency and voice foster and support the development of student wellbeing and this can be demonstrated through the action that students take/develop through the Inquiry Cycle. (Teacher)

We regularly discuss wellbeing utilising the learner profiles, attitudes and key concepts as a tool for reflection. However, our classroom essential agreements ensure that wellbeing is at the forefront of our thinking and commonly referred to as a reference for understanding how others may be feeling. (Teacher)

I think the PYP focuses on the skills and attributes that a child needs to be a successful member of society who can make their own contributions. Having these skills and attributes at the forefront helps students become more aware of them and how they can benefit from further development. The terminology is great too. It provides rich discussions and breaking down what it actually means to be a Communicator or Caring etc. (Teacher)

An overall measure of students' social-emotional-learning skills (α=0.857), aggregated to the classroom level, was found to be positively related to the PYP index (r=0.25, p<0.05), school climate (r=0.34, p<0.01), approaches to learning (r=0.27, p<0.01) and classroom culture (r=0.39, p<0.01). This suggests that schools highly engaged in implementing the PYP were more likely to have students who reflected the attributes of the learner profile.

Student wellbeing outcomes

Examining the relationship between participation in the PYP and students' wellbeing was one of the main goals of this study. Accordingly, students' wellbeing was captured in 9 items common in many wellbeing surveys that regarded person-centred and school-centred wellbeing (e.g. Goodman, 1997; Bernard et al., 2007; Lietz et al., 2015; Kern et al., 2016; Goodsell et al., 2017; Vic DET, 2018). A derived variable of student wellbeing was based on the average scores across the nine items (α=0.81) and ranged in score from 1 to 4. Figure 26 presents students' views about their wellbeing, ordered from most to least agreement.

Over half the students strongly agreed that they got along well with family (58%) and teachers (53%), while one-third of students really *liked being at school* (32%) and very much felt *liked by their classmates* (31%). Half the students strongly agreed they *liked the kind of person they are* (52%) with just under half really feeling they were *a happy person* (47%) and that they were *safe and free from danger* (40%), and *belonged* (49%). Students reflected in their comments, similar sentiments.

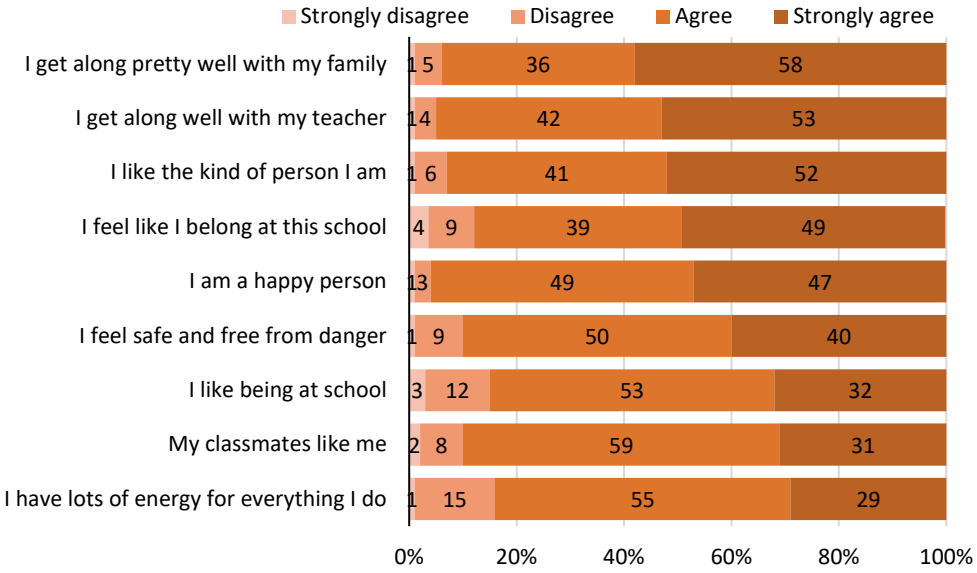
It makes me feel special in a way and I really think I belong here. (Female student, Age 10)

It makes me feel great being kind because I feel that I am helping people with what they need and that I have loving teachers who help me a lot! (Female student, Age 9)

It makes me feel safe and happy that I have a community where I can make friends and learn new things and take on difficult challenges. (Male student, Age 10)

It makes me feel happy because I know that I am learning things that are worth learning so I can make myself a better person because I am learning new things every day in school. (Female student, Age 11)

Figure 26. Students' wellbeing

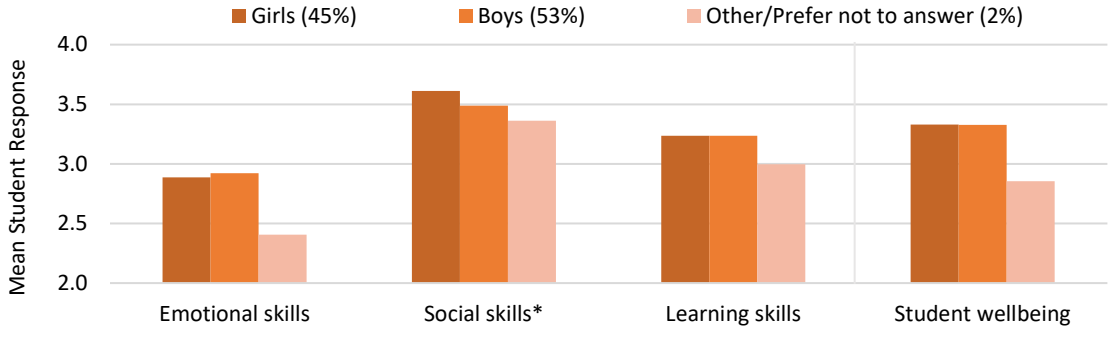


One in three students really felt that they *have lots of energy for everything they do* (29%), reflected in the following comment.

I'm full of energy every morning to get to school and learn something new. (Female, Age 10)

Gender differences in student social-emotional-learning skills and wellbeing outcomes was assessed and the results are presented in Figure 27. No withstanding the very small number of students who preferred not to answer, there were no significant differences between boys' and girls' emotional skills (t=-1.31, p=0.19), learning skills (t=-0.05, p=0.96) or overall wellbeing (t=0.22, p=0.83). There was a significant difference between girls' and boys' social skills (t=5.58, p<0.01). Similar to findings elsewhere, these results suggest that girls in Year 5 tend to report stronger social skills than boys, but are similar with regard to emotional skills, learning skills and overall student wellbeing.

Figure 27. Gender differences in student social-emotional-learning skills and wellbeing outcomes



* Difference between boys and girls is statistically significant (p<0.05)

As reported throughout this chapter, simple Pearson correlations between the school, teacher and student outcomes were undertaken to gain initial insights into possible relationships. The correlations are summarised in Table 11, with stronger relationship reflected by darker shading. For example, students' views about their wellbeing were highly correlated with their social-emotional-learning skills (r=0.87, p<0.01). Students who strongly agreed to having skills aligned to the 10 learner profiles attributes, were more likely to report positive wellbeing.

Table 11. Pearson correlations (r) and significance (p) between teacher and student variables (bold indicates significance, student results aggregated to teacher)

			School level			Teacher & classroom level				Student level	
	n	Correlation	PYP INDEX	Wellbeing programs	School climate	Teacher collaboration	Approaches to learning	PSPE	Classroom culture	Student SEL skills	Student wellbeing
Years as an IB school	114	r	0.168	0.062	0.137	0.015	**0.317**	-0.022	0.114	0.143	0.138
		p	0.075	0.525	0.147	0.876	0.001	0.812	0.242	0.161	0.178
PYP INDEX IB standards and practices	114	r		**0.256**	**0.557**	**0.452**	**0.363**	**0.203**	**0.234**	**0.249**	**0.238**
		p		0.008	0.000	0.000	0.000	0.031	0.015	0.014	0.019
Wellbeing programs	107	r			**0.321**	**0.312**	0.157	0.015	0.109	0.102	0.125
		p			0.001	0.001	0.107	0.876	0.264	0.323	0.224
School climate	114	r				**0.565**	**0.394**	0.071	**0.479**	**0.339**	**0.318**
		p				0.000	0.000	0.456	0.000	0.001	0.002
Teacher collaboration	114	r					**0.371**	0.177	**0.413**	0.139	**0.216**
		p					0.000	0.059	0.000	0.173	0.034
Approaches to learning	114	r						0.095	**0.478**	**0.267**	**0.333**
		p						0.312	0.000	0.008	0.001
PSPE	114	r							**0.194**	0.048	0.156
		p							0.046	0.642	0.127
Classroom culture	107	r								**0.391**	**0.369**
		p								0.000	0.000
Student SEL skills	97	r									**0.867**
		p									0.000

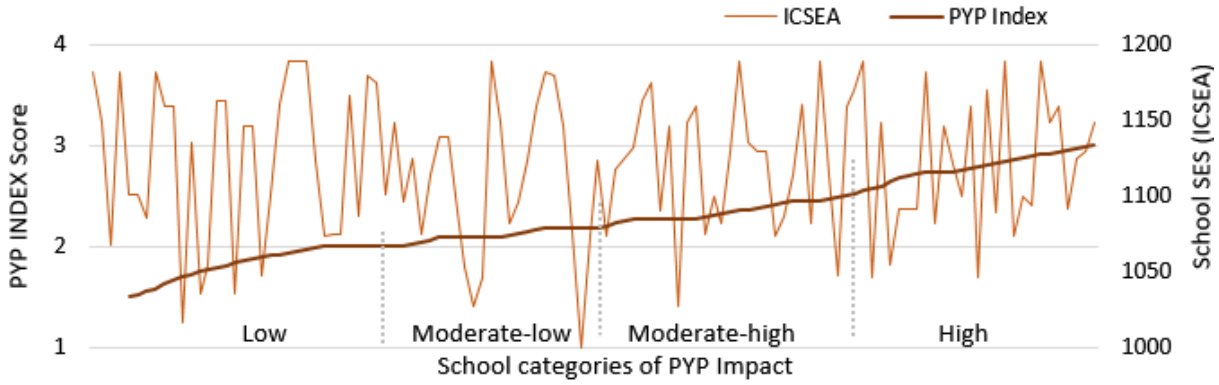
This completes the presentation of descriptive results from the teacher and student surveys. It paints a rich picture of life in PYP schools and gives clear insights that suggest there may be links between PYP-related activities and student wellbeing. The next chapter takes these building-blocks and models the variables by bringing together the school-level, teacher-level and student-level variables to investigate statistically significant evidence of relationships, towards addressing the research questions.

CHAPTER 5. EVIDENCE OF IMPACT

The overarching aim of this study was to ascertain to what extent the PYP might also support the development of student wellbeing and related social-emotional outcomes. The previous chapter provided preliminary empirical and anecdotal evidence of relationships between PYP implementation quality, teacher activities and student outcomes. This is further explored in this chapter by comparing the differences in activities and outcomes depending on the extent to which the school has implemented the IB programme standards and practices. Rather than comparing PYP with non-IB schools, as was done in Chapter 3, this approach considers only PYP schools. However, it recognises that schools are complex places and that implementation has occurred to varying extents along a continuum of low implementation (e.g. a school very new to the IB), through to a high implementing school. The IB standards and practices scale developed in this study was used as the PYP Index – a measure of the extent to which schools are engaged in PYP implementation.

For the purpose of illustration, schools were categorised by quartile into low, moderate-low, moderate-high and high PYP implementation schools. Figure 28 shows that each school quartile was similar with regard to socio-economic background (ICSEA) and there was an increasing trend in the average years being an IB school, with low to high PYP Index schools.

Figure 28. PYP implementation quality independent of SES

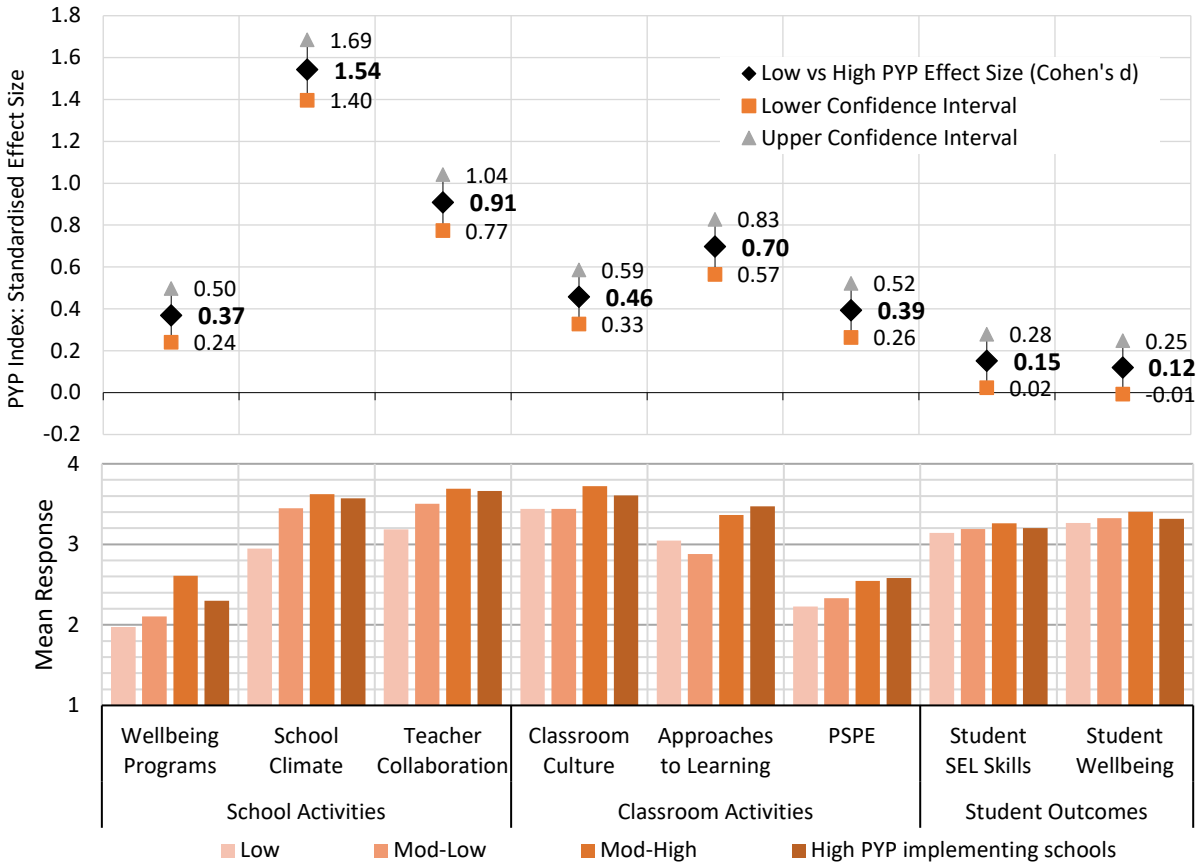


	ICSEA	Years PYP	ICSEA	Years PYP	ICSEA	Years PYP	ICSEA	Years PYP
N	35	35	22	22	30	30	27	27
Mean	1,124	6.97	1,117	7.09	1,122	8.33	1,120	8.63
SD	52.11	4.03	51.11	5.29	41.15	4.20	44.44	3.81

Potential impact of the PYP

Teacher and student factors were grouped on the basis of being in low to high PYP Index schools. Figure 29 presents the trends, along with the effect size difference between low and high PYP Index schools. It suggests that high PYP Index schools achieved greater impact on student outcomes compared to low PYP Index schools. It also presents the profiles of activities in schools, which tends to increase with PYP implementation quality.

Figure 29. PYP impact on teacher and student outcomes in low to high PYP implementation schools



In addition, it was hypothesised that inputs from school-wide implementation of wellbeing programs that were running in parallel to the implementation of the PYP (see Figure 29), would co-influence school-, classroom- and student-level outcomes. Because wellbeing programs were being used alongside and as part of the PYP, it is difficult to separate the specific contribution of each input on teacher and student outcomes. Accordingly, the effect-sizes reported in this section are potentially due to the combined PYP Index and Wellbeing Program inputs and caution should be taken to not completely attribute the impact to the PYP alone.

In terms of school climate, the impact on teachers' views associated with being in a high PYP implementation school was a large effect compared to teachers in low PYP Index schools (ES=1.54). Similarly, there was a large effect associated with impact of the PYP on teacher collaboration (ES=0.91). This suggests that teachers in schools highly focused on implementing the PYP were more likely as a staff to collectively focus on student learning, working collaboratively, having trust amongst colleagues, and having an involved parent community at their school.

The PYP has many programmatic elements, as presented in the logic model in Chapter 2, which this study has attempted to capture. These included promoting a positive classroom culture through the approaches to learning and the PSPE. Figure 29 indicates that classrooms in high PYP implementing schools compared to low PYP schools, had a more positive classroom culture (ES=0.46), gave greater priority to embedding the five approaches to learning (ATL) domains (ES=0.70), along with teaching Personal, Social and Physical Education (PSPE) (ES=0.39).

Figure 29 also presents student social-emotional-learning (SEL) skills, reflecting the IB learner profile attributes, and student wellbeing outcomes in low to high PYP implementing schools. It suggests that

the impact of the PYP had smaller effect on student's SEL skills (ES=0.15) and wellbeing outcomes (ES=0.12). Moreover, the profile mirrors that of school engagement in wellbeing programs and it may be a combination of both PYP and wellbeing program inputs that impact student SEL and wellbeing outcomes.

Impact attributable to the PYP

While basic correlations and t-test effect sizes have been used to assess the relationships between factors, those approaches have not taken into consideration the nested nature of students within classrooms within schools, nor the co-influences of multiple factors on outcomes. Accordingly, hierarchical linear modelling was used to examine the combined system of factors that affect student wellbeing. Factors at the school-level (e.g. time as a PYP school) may influence factors at the teacher classroom-level (e.g. student exposure to the IB learner profile attributes), which in turn may influence outcomes at the student-level (e.g. SEL skills and their overall wellbeing), both directly and indirectly.

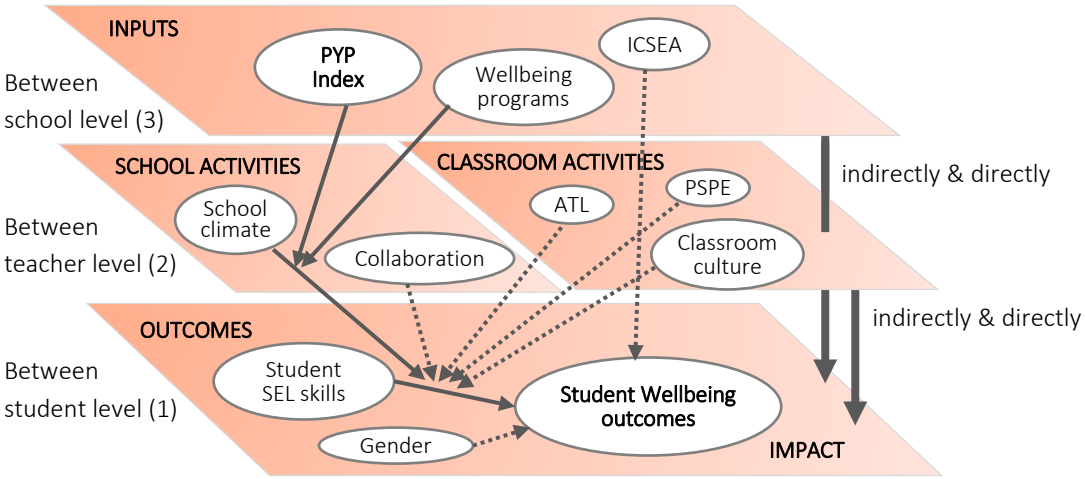
The hierarchical model in Figure 30 illustrates some of the complexity within a school environment and takes into account the effect of students nested within schools, and schools nested within systems. For the purposes of this research, there were two elements within this hierarchy that needed to be controlled for, namely, the effect of socio-economic status of school communities and the extent to which a school was also implementing whole-school wellbeing programs.

Schools' use of various wellbeing programs was used as an index of whole-school wellbeing promotion, while schools' self-reports on the IB programme standards and practices was used as an index of PYP implementation quality. Schools might be highly engaged in one, the other or both, so it was important to control for the effect of whole-school wellbeing program engagement in order to consider the attributable impact of the PYP on student wellbeing. Accordingly, the measurement framework (Table 1 above) included school, teacher and student level indicators of PYP activities, whole-school wellbeing programs, school and classroom climate, as well as student social-emotional learning (SEL) skills and wellbeing outcomes. This is in addition to controlling for confounding factors such as socio-economic status (ICSEA). Once accounted for, the remaining variance found in student wellbeing could then be attributed to the contribution of activities in the PYP Index.

The three-level hierarchical linear model[13] (using HLM6) presented in Figure 30 involved 1,595 students (Level 1) and their teachers in 97 classrooms (Level 2), across 45 schools (Level 3). School ICSEA was controlled for as a direct predictor of student wellbeing, as was student social-emotional-learning skills and gender, at Level 1. School-wide teacher activities and classroom activities were independently tested at Level 2 as indirect predictors of student wellbeing, operating through student SEL skills. The school-level inputs measured by the PYP Index and Wellbeing Programs were included at Level 3. Successive models were built to test each of the Level 2 factors individually in order to identify the most significant paths through which the PYP Index provided indirect influence on student wellbeing, moderated through each of the Level 2 factors and student SEL skills.

[13] Note, the HLM6 program requires that there is no missing data at levels 2 and 3 in the model.

Figure 30. Hierarchical model of influence



The paths of influence, shown as solid lines in Figure 30, represent the final model of fixed effects presented in Table 12. The dotted lines represent tested models that were not significant. Controlling for wellbeing programs, the main indirect impact of the PYP on student wellbeing, was moderated through school climate (γ_{210}=0.015, p=0.02) and students' SEL skills (γ_{200}=0.815, p<0.01). The other factors of school culture, collaboration, ATL, PSPE, student gender and ICSEA were not significant (p<0.05). Interestingly, the model suggests that there is an inverse relationship between implementing PYP and wellbeing programs, such that greater student wellbeing outcomes might be achieved in schools that are highly engaged in the PYP, but place low priority in implementing wellbeing programs and initiatives. It seems, more is less.

Table 12. Final estimations of the three-level HLM model for student wellbeing outcomes

	Full Model Estimates				Trimmed Model Estimates			
Fixed effects	**Coefficient**	**Std Error**	**T-ratio**	**P-value**	**Coefficient**	**Std Error**	**T-ratio**	**P-value**
WELLBEING γ_{000}	0.694	0.077	8.988	0.000	0.719	0.075	9.586	0.000
ICSEA γ_{001}	0.000	0.000	-0.161	0.873				
GENDER γ_{100}	0.023	0.016	1.432	0.159				
SELSKILL γ_{200}	0.812	0.022	36.414	0.000	0.815	0.023	36.013	0.000
SCHCLIMATE γ_{210}	0.009	0.007	1.342	0.183	0.015	0.006	2.432	0.020
PYPINDEX γ_{211}	0.057	0.023	2.518	0.014	0.051	0.018	2.894	0.006
WBPROGRAM γ_{212}	-0.009	0.002	-3.717	0.001	-0.007	0.003	-2.237	0.031
CLASSCULTURE γ_{220}	0.010	0.007	1.429	0.160				
COLLABORATION γ_{230}	0.001	0.005	0.159	0.875				
ATL γ_{240}	0.001	0.004	0.313	0.756				
PSPE γ_{250}	0.004	0.003	1.141	0.261				

Full model:

$$\text{WELLBEING} = \gamma_{000} + \gamma_{001}*\textbf{\textit{ICSEA}} + \gamma_{100}*\text{Q2GENDER} + \gamma_{200}*\text{SELSKILL} + \gamma_{210}*\textbf{SCHCLIMA}*\text{SELSKILL} + \gamma_{211}*\textbf{SCHCLIMA}*\textbf{\textit{PYPINDEX}}*\text{SELSKILL} + \gamma_{212}*\textbf{SCHCLIMA}*\textbf{\textit{WBPROGRA}}*\text{SELSKILL} + \gamma_{220}*\textbf{CLASSCUL}*\text{SELSKILL} + \gamma_{230}*\textbf{COLLABOR}*\text{SELSKILL} + \gamma_{240}*\textbf{ATL}*\text{SELSKILL} + \gamma_{250}*\textbf{PSPE}*\text{SELSKILL} + r_0 + r_1*\text{Q2GENDER} + r_2*\text{SELSKILL}$$

Trimmed model:

$$\text{WELLBEING} = \gamma_{000} + \gamma_{100}*\text{SELSKILL} + \gamma_{110}*\textbf{SCHCLIMA}*\text{SELSKILL} + \gamma_{111}*\textbf{SCHCLIMA}*\textbf{\textit{PYPINDEX}}*\text{SELSKILL} + \gamma_{112}*\textbf{SCHCLIMA}*\textbf{\textit{WBPROGRA}}*\text{SELSKILL} + e$$

CHAPTER 6. DISCUSSION AND CONCLUSION

Findings

The research questions for this study prompted investigations into PYP students' levels of wellbeing, comparisons with students in non-PYP schools, and inquiries into whether there was a relationship between wellbeing, the programmatic elements required in the PYP, and the resultant PYP school climate. The analyses presented in the previous chapters culminate in the findings presented in this chapter, by addressing each of the following research questions underpinning the study.

How do PYP students compare to non-IB students on measures of wellbeing and related outcomes?

The analysis of existing wellbeing data presented in Chapter 3 suggested that being in a PYP setting had a small positive effect on social skills, emotional skills, learning skills and values, equivalent to two months' additional development, when compared to matched students in non-IB schools. Being in a PYP school was also associated with promoting wellbeing, equivalent to two months' additional development, in comparison to the non-IB student cohort. Moreover, the greatest impact of being in a PYP school was associated with a decrease in students' negative feelings and behaviours, showing an equivalent of four months' impact in reduced negative feelings and behaviours, compared to non-IB students. Overall, the retrospective analysis suggests that the PYP has a moderate impact on student social-emotional wellbeing, equivalent to three months' additional development.

What are PYP students' levels of wellbeing and related outcomes, and how are these influenced by exposure to the PYP?

The data collected from the PYP student wellbeing survey confirms that the PYP has a positive impact on student wellbeing. Data was analysed through the conceptualisation of the *PYP Index*, as a measure of IB standards and practices. It suggests that high PYP Index schools supported students' wellbeing and related outcomes more effectively than low PYP Index schools, mainly by having a positive school climate. It should be noted however, that whole-school wellbeing programs were also found to contribute to student social-emotional-learning skills and wellbeing outcomes, but to a lesser extent (see Table 12).

Chapter 5 presented the estimated magnitude of the effect on students' social-emotional-learning skills and wellbeing outcomes associated with being in a high PYP Index school, compared to students in low PYP Index schools. These results are similar to those presented in Chapter 3 comparing PYP with non-PYP schools, and strengthen the evidence that the PYP curriculum may support and promote student wellbeing.

Examining the relationship between exposure to the PYP and students' wellbeing was one of the goals of this study. As part of participating in the PYP, students experienced classroom cultures rich in approaches to learning teaching practices as well as the PSPE. It was shown that high implementing PYP schools were more likely to have positive classroom cultures, embedded approaches to learning, and prioritised teaching of PSPE. While there were small correlations between student wellbeing and both classroom culture and approaches to learning, but not PSPE, the direct effects of these were not statistically significant when tested in the hierarchical model. However, at the school-level, the IB standards and practices more broadly were found to significantly influence student wellbeing and

associated outcomes due to the positive school culture established through the PYP. Accordingly, students in high implementing PYP schools were more challenged in their thinking and spent more time learning about skills to manage emotions and how to make friends.

To what extent is school climate in PYP schools associated with students' wellbeing and related outcomes?

The multi-level modelling provided clear, statistically significant evidence that the IB programme standards and practices (PYP Index) had the greatest impact on nurturing a school climate that supported student social-emotional-learning and wellbeing outcomes. Teachers in high implementing PYP schools were more likely to experience a positive school climate and be confident in supporting wellbeing in the classroom. This in turn supports student wellbeing outcomes to a small extent and the development of social, emotional and learning skills. It appears, therefore, that school climate can be associated with student wellbeing outcomes, enabled through school-wide practices that meet or exceed IB standards and practices. Moreover, the correlation analyses (Table 11) showed significant relationships between a positive school climate and important elements of the PYP such as teacher collaboration and embedding approaches to learning to promote a supportive classroom culture. This in-turn may influence the social-emotional and wellbeing outcomes of students, such that students in high PYP implementing schools were more likely to have developed social-emotional-learning skills and improved wellbeing outcomes.

What programmatic elements of the PYP are associated with students' wellbeing and other related social emotional learning outcomes?

The model and analyses shown in Chapter 5 indicates that PYP programmatic elements as assessed in the IB standards and practices (e.g. teacher professional development, developing the learner profile attributes, promoting student voice and agency), are associated with students' wellbeing and other social emotional learning outcomes, with some reservations.

Teacher collaboration, a central element of the PYP, was somewhat associated with student wellbeing outcomes (see Table 11) and these collaborative activities were more likely to occur in schools with a higher PYP Index (see Figure 29). There was also a small association with student wellbeing of prioritising approaches to learning and, to a lesser extent, PSPE. However, these were not found to be significant influences in the HLM model (Table 12).

Considerations

This study presented, through multiple approaches, an investigation into the extent to which the PYP might also support and promote student wellbeing. The undertaking was not an evaluation of the programme and, as such, recommendations for programme improvement are not appropriate. However, insights about the PYP emerged, offered here for consideration.

- We found strong conceptual alignment between the IB learner profile attributes, the IB approaches to learning skill categories, and the widely regarded CASEL Core Social-emotional learning (SEL) Competencies of Relationship skills, Self-management, Social awareness, Self-awareness and Responsible decision-making. There is opportunity to make explicit in PYP documentation the clear links to social-emotional learning skills and the subsequent opportunity to assist students in the development of their wellbeing.
- Of all the elements of the PYP examined, the PSPE was reported as the component least understood by teachers surveyed. Given that almost all schools have a specialist PE teacher, it is likely that the

classroom teacher assumes that the PS component is also done by the PE teacher. Nevertheless, teachers who viewed personal and social education as highly useful, tended to give it high priority in the classroom. There is opportunity to clarify the PSPE and perhaps more-explicitly separate the PS component to encourage a core wellbeing focus in the PYP classroom.

Conclusion

In its attempt to assess the potential impact of the PYP on student wellbeing and associated outcomes, this study

- identified the theoretical context in which the study was positioned, and the existing opportunities for development of student wellbeing through the PYP,
- provided a retrospective comparison of PYP and non-PYP students on measures of wellbeing, and,
- investigated whether PYP programmatic elements were associated with student wellbeing.

Current PYP curriculum documents indicate that there are clear opportunities for students to develop their own skills and practices for wellbeing through participation in the PYP. Most notable in the documentation is the positioning of the learner profile attributes as a set of aspirational student outcomes, and the approaches to learning that offer consistent practical opportunities for students to engage in improving their social and emotional understanding and abilities across the curriculum.

The retrospective analysis of existing student data compared wellbeing outcomes for students from PYP and non-PYP schools. This analysis of data suggests that the PYP has a moderate impact on student social-emotional wellbeing, equivalent to three months' additional development.

Data from the teacher and student surveys, administered in late 2019, was analysed through conceptualisation of the *PYP Index*, a measure of adherence to IB programme standards and practices. This analysis suggests that high PYP Index schools supported students' wellbeing and related outcomes more effectively than low PYP Index schools, mainly by having a positive school climate. It should be noted however, that whole-school wellbeing programs were also found to contribute to student social-emotional-learning skills and wellbeing outcomes, but to a lesser extent.

Overall, it was found that high-implementing PYP schools consistently show a more positive school climate, higher levels of teacher engagement, student social-emotional learning skills and wellbeing outcomes. This holds the greatest evidence of impact that the PYP may indeed support student wellbeing above and beyond other wellbeing activities undertaken in the school.

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APPENDIX A: SEARCH RESULTS OF WELLBEING TERMS AND CONCEPTS WITHIN PYP DOCUMENTATION

A comprehensive search of PYP and related, relevant documentation included a search for the terms or concepts of: *social, emotional* (and related term *'personal'*), *physical, cognitive* (and related terms '*mental'* and '*intellectual'*), and *wellbeing* (including related spellings '*well-being'* [IB style] and '*well being'*), as well as combinations of these terms.

Entries with * are repeated in multiple documents.

Document	Types of wellbeing evident in documentation Search terms have been underlined
IB continuum documentation	
All IB documents	*All IB documents (including documents in this table) contain the IB learner profile (LP) in the introductory pages. o The LP attribute of *Balanced* states that, "[students] understand the importance of intellectual, physical and emotional balance to achieve personal well-being for themselves and others." o The LP attributes of *Open-minded* and *Reflective* allude to the personal domain where students will "… critically appreciate our own cultures and personal histories, as well as the values and traditions of others" (open-minded), and will "… work to understand our strengths and weaknesses in order to support our learning and personal development" (reflective). o IB documents from 2006 to 2013[14] include that students "… have a personal commitment to service …", though this reference to "personal" has been removed from documents from 2014 onward.
PYP, MYP, DP & CP: Programme standards and practices (2014, updated 2016)	(Requirements for the Primary Years Programme) Standard C3.1.c: The school ensures that personal and social education is the responsibility of all teachers.
PYP, MYP, DP & CP: Programme standards and practices (March, 2019)	**"Student support 3: The school fosters the social, emotional, and physical well-being of its students and teachers. (0202-03)** **Student support 3.1:** The school identifies and allocates spaces and resources to support the social, emotional, and physical well-being of its students and teachers. (0202-03-0100) **Student support 3.2:** The school demonstrates in its systems, processes and policies attention to the social, emotional, and physical well-being of its students and teachers. (0202-03-0200) **Student support 3.3:** The pedagogical leadership team and teachers support students' social, emotional and physical well-being. (0202-03-0300)" (p.8) **Under "Creating Positive School Cultures":** School culture refers to the written and unwritten rules that define how a school functions. It also encompasses personal and collective well-being, the effective utilization of physical and human resources, and the extent to which a school acknowledges and celebrates diversity. (p. 10) **Under "Approaches to teaching":** PYP 1: Teachers use flexible grouping of students to maximize learning, ensure student well-being, and provide a variety of opportunities for collaboration. (0403-04-0311) (p.17) **"Well-being"** Well-being is a state of harmonious **balance**: a contented equilibrium that individuals establish within themselves, as well as between themselves and their social and physical environments. Well-being is widely regarded as connected to realizing one's personal potential, coping with the normal stresses of life, working productively, and contributing meaningfully. Well-being refers generally to having a good quality of life in conditions that make it possible to be satisfied and experience pleasant emotions (including happiness and optimism).

[14] The "Student Profile" in PYP (formerly the International Schools Curriculum Project, or ISCP) documents from 1997 – 2006 also include this wording.

Document	Types of wellbeing evident in documentation Search terms have been underlined
	In all the IB's broad and balanced curriculum frameworks, students explore the human experience as individuals and as part of societies, personal and cultural expression through literature and the arts, and the contributions made by mathematics, science and technology toward the well-being of thriving people and communities. The curriculum frameworks also include physical activity and community involvement to achieve balance and to promote well-being in both individuals and their surroundings." (in Appendices, p.20) … The school fosters the social, emotional and physical well-being of its students and teachers. (p.21)
Primary Years Programme-wide documentation	
The PYP as a model of transdisciplinary learning (2010)	*"Through acknowledging and aiming to meet the diverse needs of the student—physical, social, intellectual, aesthetic, cultural—IB World Schools implementing the Primary Years Programme (PYP) ensure that the learning is **engaging**, **relevant**, **challenging** and **significant**." (p.1) (Citing the New Basics Project from Queensland), "…[t]he project acknowledged Newmann's (1996) definition of authentic pedagogy as consisting of "higher-order thinking, depth of knowledge and understanding, substantive conversation, and connectedness to the real world", and his findings that "authentic pedagogy—specifically intellectual engagement and connectedness—enhance student achievement on both conventional measures (standardised achievement tests) and alternative measures (moderated teacher assessment of student work)." In an attempt to build a curriculum that requires decisions on what knowledge and skills to include from "a potentially infinite range", rich tasks were identified, those that are "intellectually demanding, relevant, credible to the community and futures orientated", tasks that are described in the PYP as **engaging**, **challenging**, **relevant** and **significant**." (pp. 3-4) Reference to transdisciplinary skills: social, communication, thinking, research and self-management (p.12) "… personal and social education, as defined in the *Personal, social and physical education scope and sequence* (2009) document is the responsibility of all PYP teachers" (p.15) "Theorists such as Vygotsky (1978) and Piaget (1928) highlighted the importance of interaction between the learning that is taking place in the social, affective and cognitive domains. The PYP supports the belief that students' learning and their attempts to understand the world around them are essentially social acts of communication and collaboration. The PYP perspective shows a commitment to learning where all students are equally valued and supported to the fullest extent possible, but where one student's learning is not at the expense of another. Both Fischer (2009) and Immordino-Yang (2007) are clear about the significance of the emotional context on motivation to learn and even on establishing neurological learning pathways." (p.16)
Developing a transdisciplinary programme of inquiry (2012)	*Transdisciplinary themes of: ○ *Who we are* is "An inquiry into the nature of … personal, physical, mental, social and spiritual health; human relationships including families, friends, communities and cultures; rights and responsibilities; what it means to be human" ○ *Where we are in place and time* is "An inquiry into orientation in place and time; personal histories; … the relationships between and the interconnectedness of individuals and civilisations, from local and global perspectives" (p. 2) Reference to *Personal, social and physical education* (PSPE) scope and sequence (p. 8) Multiple programme of inquiry examples (pp. 20-22, 24, 26) include the concept of personal, physical, mental, social and spiritual well-being.
General regulations: Primary Years Programme (2014)	No reference to wellbeing or related terms. *Article 4: Equal opportunities statement* states that, "No student will be excluded by the IB Organization on the grounds of … [list of characteristics] … or any other personal characteristic as prohibited by law" (p.2)
History of the Primary Years Programme (2013)	"Cross-curricular skill areas" were included in the early development of the PYP. These were not specifically labelled as "wellbeing", however, they were clear precursors to notions of wellbeing and included: social skills, research and thinking [cognitive] skills, and self-management [social, emotional and cognitive] skills (pp.11-12).

Document	Types of wellbeing evident in documentation Search terms have been underlined
	**Attributes that lead towards wellbeing were included as Attitudes[15]: appreciation, commitment, respect, integrity, tolerance, curiosity, empathy, enthusiasm, independence, confidence, cooperation, creativity (p.12). "The Steering Committee decided to form a committee responsible for health, to include physical education, personal and social education … the subject area was eventually renamed "personal, social and physical education" (PSPE)" (p.19) This is re-emphasised later, noting the decision to assign personal and social education as the responsibility of all teachers (p.22) Original "student profile" (precursor to the LP) included specific reference to "…the importance of physical and mental balance and personal well-being" (p.28), as well as a number of other attribute descriptors that could be interpreted as contributing to wellbeing.
The PYP: a basis for practice (2009)	"Each [IB] programme promotes the education of the whole person, emphasizing intellectual, emotional, social and physical growth, involving the traditions of learning in languages, humanities, sciences, mathematics and the arts." (p.1) "…students make connections and contributions, and deepen their understanding through the perspective of their personal and cultural experiences…" There is also reference to the transdisciplinary skills: social, communication, thinking , research and self-management (p.9) *"…the kind of student we hope will graduate from a PYP school, the kind of student who, in the struggle to establish a personal set of values, will be laying the foundation upon which international-mindedness will develop and flourish" (p.11) *"Through acknowledging and struggling to meet the diverse needs of the student—physical, social, intellectual, aesthetic, cultural—PYP schools ensure that the learning is **engaging**, **relevant**, **challenging** and **significant**." (p.12) "The PYP focuses on the heart as well as the mind and addresses social, physical, emotional and cultural needs in addition to those considered to be more academic." (p.17)
Making the PYP happen: A curriculum framework for international primary education (2007, updated 2009)	Acknowledgement of " … the diverse needs of students – physical, social, intellectual, aesthetic, cultural … " (p.5) This theme is emphasised throughout the document in encouraging development of the whole child and a balance of these attributes in learning (pp. 6-7, 10, 25-26, 29 *"…the kind of student we hope will graduate from a PYP school, the kind of student who, in the struggle to establish a personal set of values, will be laying the foundation upon which international-mindedness will develop and flourish" (p.2) *Transdisciplinary themes of: o *Who we are* is "An inquiry into the nature of … personal, physical, mental, social and spiritual health; human relationships including families, friends, communities and cultures; rights and responsibilities; what it means to be human" o *Where we are in place and time* is "An inquiry into orientation in place and time; personal histories; … the relationships between and the interconnectedness of individuals and civilisations, from local and global perspectives" (p. 12) "Within their learning throughout the programme, students acquire and apply a set of transdisciplinary skills[16]: social skills, communication skills, thinking skills, research skills and self-management skills … " (p.21) These skills are then elaborated in detail (pp. 21-23) and include wellbeing elements like safety, healthy lifestyle and codes of behaviour (p.23). ** … personal attitudes[17] … contribute to the well-being of the individual and of the group …" "What attitudes does the PYP suggest that schools should encourage? … Appreciation, Commitment, Confidence, Cooperation, Creativity, Curiosity, Empathy, Enthusiasm, Independence, Integrity, Respect, Tolerance … " (p.24). "The action component of the PYP can involve service in the widest sense of the word: service to fellow students, and to the larger community, both in and outside the school. Through such service, students are able to grow both personally and socially, developing skills such as cooperation, problem

[15] Note that "attitudes" are now "subsumed within the descriptors of the learner profile and are no longer a separate element" (Transition guide, 2018, p. 5)

[16] These are now incorporated under *approaches to learning*, to align with the other IB programmes.

[17] Note that "attitudes" are now "subsumed within the descriptors of the learner profile and are no longer a separate element" (Transition guide, 2018, p. 5)

Document	Types of wellbeing evident in documentation Search terms have been underlined
	solving, conflict resolution, and creative and critical thinking. Moreover, these actions are ways in which the students exhibit their commitment to the attributes of the learner profile …" (p.26) "Students are actively engaged in planning and assessing their own learning. They are supportive of each other and learning to establish their personal set of beliefs and values. They recognize both their right to an education and their role in achieving that. They are empowered to do their best, for themselves, and in order to contribute to the learning and well-being of others." (p.42) "Personal and social education is the responsibility of all PYP teachers" (p.67) "In the PYP, personal, social and physical education (PSPE) is concerned with the individual's well-being through the promotion and development of concepts, knowledge, attitudes and skills that contribute to this well-being. Well-being is intrinsically linked to all aspects of a student's experience at school and beyond. It encompasses physical, emotional, cognitive, spiritual and social health and development, and contributes to an understanding of self, to developing and maintaining relationships with others, and to participation in an active, healthy lifestyle … [lifelong learners] are able to reflect on themselves, their experiences, and the process of learning in order to support personal growth and their ongoing commitment to personal, social and physical well-being" (p.112) PSPE and how it promotes physical, intellectual, emotional and social development, and encourages choices that lead to long-term healthy living (p.113) In the PYP, there will be opportunities for the development of personal, social and physical well-being through the relevant, realistic context of the units of inquiry as well as through teaching and learning experiences in other areas of the curriculum. … The role of inquiry in PSPE is important as students engage in building understandings that contribute to their well-being and their success as lifelong learners." (p.113) "It is therefore imperative that all teachers in a PYP school are familiar with the area of PSPE and understand their role in the development of each student's well-being." (p.114) "PSPE provides the models, processes and vocabulary for handling social and personal issues, and ensuring health and well-being. … Owing to the fact that well-being can be intrinsically linked to all aspects of a student's experience at school and beyond, PSPE should be included throughout the curriculum, wherever applicable, and in particular through opportunities found in units of the programme of inquiry. … In the [PSPE] scope and sequence (2009), the development of overall well-being is defined through three common strands that have relevance to all teachers: identity, active living and interactions." (p.116) Part of 'active living' is students' "rights and responsibilities … to ourselves and others to promote well-being" p.117 "[PSPE] provides opportunities for students to reflect on the development of his/her own personal, social and physical well-being …" (p.117, exemplified on p.120) Included in key concept exemplars, pp. 119-120 PSPE strand of Identity specifically identifies learner progression on a continuum of identifying and learning to regulate their own emotions to interact and manage relationships with others, and contribute to their own personal wellbeing (pp.122-123) Capacity of the arts to encourage students to take "intellectual risks" (p.125)
Making the PYP happen: Pedagogical leadership in a PYP school (2007, updated 2009)	"The school may well be a significant contributor to the well-being of the family and can provide a much appreciated community, particularly for families on the move." (p.11) No other references (though this is a supporting/supplementary document to the above *Making the PYP happen*)
Self-study questionnaire: PYP (2015, updated 2018)	Requirement C3.1.c The school ensures that personal and social education is the responsibility of all teachers (p.39)
Transition guide: PYP from principles into practice (2018)	Under *Learning Environments*, schools are encouraged to "… create flexible, inviting and intentional learning spaces that support agency, inquiry, physical and emotional well-being" (p. 9)
PYP: Learning and teaching (2018)	The PYP aims to foster physical, social, intellectual, aesthetic, and cultural capacities of students through a transdisciplinary approach (p.1)

Document	Types of wellbeing evident in documentation Search terms have been underlined
	Personal and social significance of transdisciplinary themes is important (pp.4, 7, 9, 43, 51) as well as the "emotional relations between them and the object of knowing …" (Bostan 2015, p.490, in this volume, p.9). … students are better served when we support knowledge as a socially constructed process rather than an end goal, fixed and universal (Dewey 1991; Vars 1991; Beane 1997, in this volume, p.8) Under The Learning Community, there is indication that new documentation includes, "… an increased focus and guidance on inclusion and well-being to foster positive and trusting relationships, self-efficacy and agency across the school community" (p.8) *Transdisciplinary themes of: o *Who we are* is "An inquiry into the nature of … personal, physical, mental, social and spiritual health; human relationships including families, friends, communities and cultures; rights and responsibilities; what it means to be human" o *Where we are in place and time* is "An inquiry into orientation in place and time; personal histories; … the relationships between, and the interconnectedness of, individuals and civilisations from local and global perspectives" (pp. 11, 57) "Unlike subject-specific knowledge, [key] concepts provide the language and the mental structure to foster ways of knowing and thinking across different subjects." (p.13) "… [within transdisciplinarity] … the role of the teachers—both specialists and generalists—is to provide students with the necessary understandings, tools and ways of knowing from subjects to explore the opportunities and challenges of each transdisciplinary theme. Beyond supporting the inquiry process, thinking as a generalist or classroom teacher can strengthen teacher–student interactions, leading to student engagement and well-being not achievable through the specialization model of teaching (Fryer 2016). (p.18) The lines of inquiry should "enhance the **possibilities for personal and collective integration of subject knowledge** in order to arrive at shared conceptual understandings of the central idea…" (p.18) Through its commitment to transdisciplinary learning, students learn to appreciate knowledge, conceptual understandings, skills and personal attributes as a connected whole. They can reflect on the significance of their learning to take meaningful action in their community and beyond. Through this process of learning in the PYP, students become competent learners who have the cognitive, affective and social tools to engage in lifelong learning in a self-directed manner. (p.21) [Under *What is the evidence of the effectiveness of integrated curriculum approaches?]* "…Dewey advocated inquiry-based learning based on lived experiences and social justice." … Student engagement benefits include intellectual curiosity and a higher degree of social and teacher-student interaction (p.25) "The IB's ATL aim to support student agency and the development of cognitive and metacognitive skills and dispositions so that students view learning as something that they "do for themselves in a proactive way, rather than as a covert event that happens to them in reaction to teaching" (Zimmerman 2000: 65). Together, these ATL help students think, research, communicate, socialize and manage themselves effectively." (p.27) By combining ATL and the attributes of the learner profile, PYP students become self-regulated learners. Self-regulated learners are agents of their own learning. They know how to: o set learning goals o ask open-ended questions o generate motivation and perseverance o reflect on achievement o try out different learning processes o self-assess as they learn o adjust their learning processes where necessary (Zimmerman and Schunk 2001; de Bruin et al. 2012; Wolters 2011, in this volume, p.28) ATL thinking skills include a range of cognitive skills; … Social skills explicitly includes, "Developing positive interpersonal relationships and collaboration skills (using self-control, managing setbacks, supporting peers), and, [d]eveloping social-emotional intelligence"; … Self-management skills include [developing] "States of mind (mindfulness, perseverance, emotional management, self-motivation, resilience)"; also mentions that the PYP is a "social-constructivist environment" (p.29) ATL are described in detail to show the skills that should be taught that enhance cognitive (thinking/research), social (communication/social) and personal/emotional (self-management) skills (pp. 31-37)

Document	Types of wellbeing evident in documentation Search terms have been underlined
	"Guided inquiry scaffolds students' cognitive processing, supporting them to gradually learn and construct more complex understandings (Hmelo-Silver, Duncan, Chinn 2007)." (p.41) Benefits of a concept-driven curriculum include that "students co-construct beliefs and mental models about how the world works based on their experiences and prior learning." (p.48) [Under *Supporting self-regulated learning*] … To develop students' assessment capability, teachers: o are mindful of the well-being of students to ensure self-assessment promotes a positive sense of agency and self-efficacy … (p.73) [Under *Measuring learning*] … When standardized achievement tests are used, administrators and teachers are encouraged to carefully consider: o how to minimize the impact of testing on student well-being … (p.75) Through assessment, students will develop "the metacognitive skills to reflect on their learning and plan next steps" (p.70) Further references to the skill of metacognition and reflection throughout this section (pp. 77, 80). "The three assessment practices—for learning, of learning and as learning—serve different purposes. Of these practices, assessments for learning and of learning strongly align with the centrality of the PYP inquiry process and can support students' cognitive, social emotional and behavioural development" (Harlen, Johnson 2014). (p.80) Language development and learning "… is integral to exploring and sustaining cognitive and personal development and cultural identity". (p. 84) In addition, multilingualism has cognitive benefits relating to: o attention and focus o problem-solving thinking skills o thinking about language. (Kessler, Quinn 1980; Zelasko, Antunez 2000) (p.84) Students who are multilingual have an improved capacity to think, talk and reflect on how languages work, which is why PYP students learn at least one additional language from the age of seven. Through learning additional languages, students become cognitively more flexible, creative and better at problem-solving. Students who see and hear their own languages within the learning environment, and who are encouraged to actively make links to their prior linguistic experiences, connect more quickly to the community and their own learning (Cummins 2000). (p.85) … "The continued development of home and family languages is crucial for cognitive growth and in nourishing cultural identity." (p.86) Conceptual notion of language as an intellectual structure (p.90) Importance of students connecting personally to their learning – this personal connection between students and the curriculum is an ongoing theme throughout the document (pp. 4, 9, 12, 16, 18, 21, 30, 31, 40, 43, 51, 53, 57, 58, 70, 84, 88, 91, 92, 94)
PYP: The learner (2018)	Importance of personalising learning, or allowing students to connect their social, emotional, physical and intellectual domains to the curriculum is a theme throughout (pp. 3, 6, 7, 9, 10, 13, 30-32) [Under Strategies to foster self-efficacy] "To foster self-efficacy, teachers strive to: o model behaviour and language use, considering implicit and explicit messages to students o offer opportunities for reinforcement and mastery o give timely, specific and well-considered feedback on learning o create a learning environment where students can set their own learning goals and success criteria, and monitor and adjust their learning against them o give students the chance to provide feedback to each other o build in time for reflection to enhance students' awareness about the success of their efforts and ways to improve in the future o carefully group and regroup students in different ways—ability grouping, social grouping, self-chosen grouping—to foster students' perceptions of intelligence and ability as fluid o encourage students to monitor their own emotional and physical well-being so they can be more sensitive participants within the learning community." (p.4) "Supporting children cognitively, socially, emotionally and physically requires that all members of the learning community value these early years in their own right, as a time in which play is the primary driver for inquiry. Through play, young children develop approaches to learning and connect with key domains of their development", including cognitive, social/communicative and relational abilities (p.6, reemphasised on p.9)

<table>
<tr><th>Document</th><th>Types of wellbeing evident in documentation Search terms have been underlined</th></tr>
<tr><td></td><td>"Central ideas related to "Who we are" support young children to learn about identity, relationships, well-being and what it means to be part of a community." (p.6)

"Teachers also support children in developing social-emotional competence because this connects to children's emotional well-being and their ability to adapt in new environments and to form successful relationships throughout life" (p.7)

[Under Relationships] "Encouraging and nurturing positive relationships between home, family and school provides a strong basis for learning, behaviour, health and well-being" (p.10)

[Under States of mind] Students will learn how to "Take responsibility for own well-being" (p.19)

"The attributes of the learner profile represent a broad range of human capacities and responsibilities that encompass intellectual, personal, emotional and social growth. The development and demonstration of these attributes are foundational to students becoming internationally minded, active and caring community members who respect themselves, others and the world around them." (p. 22) Pages 23-27 then elaborate on examples of how this might look in practice with respect to the personal, social, physical and intellectual domains.

Examples of personal, social, physical engagement, and engagement that encourages wellbeing through action (pp. 29-32, 35, 46)

One of the purposes of the PYP exhibition is "to support the well-being of students by celebrating their transition to the next stages of their education" (p.41) Within preparation for the exhibition, the classroom teacher will ensure "individual … well-being by considering student interests, needs and prior knowledge" (p.43), and the learning community "encourages and supports the well-being of students and teachers throughout the process of the exhibition" (p.44).</td></tr>
<tr><td>PYP: The learning community (2018)</td><td>Definition of a learning community:

"The learning community recognizes that education is a social endeavour benefiting all its members individually and collectively. An inclusive learning community:
o lives peacefully together by engaging with different ways of knowing and being
o prioritizes people and their relationships
o assumes shared responsibility for learning, health and well-being.

Everyone in the learning community has agency, see themselves as contributors to its strength and success, and take action to affect change." (p.1)

Section on Prioritizing people and their relationships – detail on how partnerships and collaborative understanding, skills and action can contribute to wellbeing. (p.2)

"Teachers value students for who they are—their personal and cultural identities, home and family languages, and their prior experiences and learning. The interactions between teachers and students, in particular, have a subjective and relational quality because the curriculum and associated learning engagements are a lived experience (Giles 2011)" (p.2)

"Students establish relationships with their peers. Through peer relationships, they develop and practise many of the skills they will use throughout their lives. They support each other by providing feedback. They learn how to interact socially, build and maintain friendships, learn collaboratively and take collective action." (p.3)

Section on Sharing responsibility for learning, health and well-being (pp.4-6):

"A commitment to health and well-being (pp.5-6)

Health and well-being are fundamental to quality relationships and effective interactions with others. Members of the learning community sustain school cultures by demonstrating the learner profile attribute of caring. They have a commitment to physical, social and emotional well-being, look for ways to build safe and healthy environments, and nurture resilient and optimistic learners.

Every school offering the PYP is unique and influenced by its location, culture and demographics. Therefore, every school community will address health and well-being differently. The learning community may consider the elements outlined in figure LC01.

Figure LC01: School-wide approach to promoting health and well-being
<table>
<tr><td>Develop a shared understanding of health and wellbeing among all the learning community</td><td>Promote the importance of agency – voice, choice and ownership</td></tr>
<tr><td>Support everyone to flourish as learners</td><td>Develop resilience within the learning community to embrace challenges and change</td></tr>
</table></td></tr>
</table>

Document	Types of wellbeing evident in documentation Search terms have been underlined

Promote a safe and caring culture throughout the community, including online	Ensure strategies are in place to support transitions from class-to-class and school-to-school
Develop safe learning spaces that contribute to a sense of physical, social and emotional well-being	Engage staff in professional learning that promotes health and well-being for everyone
Offer a well-planned and consistent physical and health education programme	Develop the community's understanding of the causes and prevention of ill health and ways to nurture positive mental health and well-being
Promote physical activity both within and outside the school	Early identification of and intervention for students experiencing social, emotional, behavioural and psychological barriers to learning
Support students' participation in extra-curricular and community-based activities	Recognize the need for strong nurturing relationships

The attributes of the learner profile support the learning community in exploring and expressing different aspects of health and well-being for everyone. Working together, members of the PYP community are supportive, not competitive; reflect a broad spectrum of society, not an elite cohort; are integrated, not stratified; and inspire lifelong learning to build a better and more peaceful world." (pp.5-6)

"Social interactions and collaboration are both developmentally important for young learners (Piaget 1928; Vygotsky 1978) and for transdisciplinary learning, where openness to other perspectives supports meaning-making (Augsburg 2014)." (p.7)

This section goes on to describe a number of grouping strategies, including for the purposes of social and emotional development. (p.8)

Section dedicated to helping schools develop a culture of international-mindedness, including extra-curricular activities, celebrating diversity, building relationships in the school community, and the role of the student in each of these domains with an emphasis on social and emotional skills. (pp.11-17)

"PYP schools actively encourage language learning, both for its communication and cognitive benefits and for its direct links to international-mindedness. Language itself is valued by the community as a window into culture—through learning and understanding how a language works, learners gain insight into their own and other cultures, as well as ways of thinking. … The IB encourages multilingualism as a means to supporting students' self-awareness, perceptions, abilities and actions that are necessary for developing positive interpersonal relationships as well as affirming cultural identity. Encouraging students to speak their home and family languages, and to learn an additional language, demonstrates commitment to international-mindedness. It sends the message to the learning community that language is crucial to deepening understanding of one's own and others' cultures, and alternative and multiple perspectives" (p.14)

"… music and sport involvements are intensely personal, involve a significant degree of student agency and, therefore, are important in developing the attributes of the learner profile and international-mindedness" (p.15)

Importance of having a shared educational purpose, which can, in turn, support wellbeing in the school community (p.20)

Section on collaborative planning processes – this encourages social and emotional skills and wellbeing in teachers, helping to shape the school culture. (pp. 31-37)

Section on creating learning environments – this particularly focuses on schools creating environments where students' safety, social and emotional well-being are priorities and the importance of play in acquiring social, cognitive and physical skills. (pp.38-44)

"PYP learning spaces affect and reflect values and beliefs about learning. They play a role in shaping the culture of the learning community by facilitating certain ways of acting and interacting. They support a constructivist and social-constructivist (Vygotsky 1978) approach to learning and teaching. They are multifunctional, emphasizing personalization of learning, promoting independence and engagement" (p.39)

Emphasis on "understanding and applying social and ethical technology use" (p.51) – students learning to be socially responsible in the technological domain (p.51, 58, 60)

Potential for design thinking to encourage metacognitive skills (p.55)

Document	Types of wellbeing evident in documentation Search terms have been underlined
Subject-specific documentation	
Arts scope and sequence (2009, updated 2018)	The arts scope and sequence notes the strong link with Personal, Social and Physical Education (PSPE) scope and sequence (see PSPE section below). Strong themes of: o Student personal connection with the various forms of the arts (pp.2-4) and the potential for students to "engage in a personal artistic journey" (p.8) o Understand arts in their social contexts and potential for emotional communication (pp.2-3) o Understand the physicality of art and to become physically aware and confident (p.20) o Empowering students to take intellectual risks (p.1)
Language scope and sequence (2009, updated 2018)	Importance of language as a central tool/vehicle and intellectual framework to enable societal understanding and communication, and personal expression and reflection (pp. 1, 4, 7, 9, 12, 14-18, 20, 21, 23, 24) Notes that the "development of home and family languages is crucial for cognitive development" (p.1) Effective language teaching and learning is a social act, and aims to encourage inquisitiveness and a confidence about creating new social interactions (p. 2)
Mathematics scope and sequence (2009, upd. 2018)	Mathematical understanding is encouraged through personal experience and connection so as to enable a constructivist learning environment (p.1)
Personal, Social and Physical Education scope and sequence (2009, updated 2018)	"A curriculum designed to equip students for the challenging world of the twenty-first century needs to ensure that students develop as people who take increasing responsibility for their own physical wellbeing, their own learning, their own relationships with others and their role in the local, national and global community. *Victorian Essential Learning Standards*, Victorian Curriculum and Assessment Authority, Victoria, Australia (2008)" (p.1) "In the PYP, personal, social and physical education (PSPE) is concerned with the individual's well-being through the promotion and development of concepts, knowledge, attitudes and skills that contribute to this well-being. Well-being is intrinsically linked to all aspects of a student's experience at school and beyond. It encompasses physical, emotional, cognitive, spiritual and social health and development, and contributes to an understanding of self, to developing and maintaining relationships with others, and to participation in an active, healthy lifestyle." (p.1) "PSPE is integral to learning and teaching in the PYP and is embodied in the IB learner profile that permeates the programme and represents the qualities of internationally minded students and effective lifelong learners. As lifelong learners we strive to make sense of our lives and the world around us by constructing meaning, exploring concepts and revising understandings. Lifelong learners adopt a positive attitude to learning, develop and apply strategies for critical and creative thinking, engage in inquiry, make connections, and apply new learning and skills in different contexts. In order to become successful learners, it is necessary for students to feel empowered by their learning, to value and take responsibility for their learning, to demonstrate resilience and to develop independence. Such learners are able to reflect on themselves, their experiences, and the process of learning in order to support personal growth and their ongoing commitment to personal, social and physical well-being. The development of a student's well-being can be implicitly and explicitly addressed through all areas of the PYP curriculum. Therefore, every teacher has a responsibility to support each student's personal, social and physical development through all learning engagements both within and outside the programme of inquiry." (p.1) The introduction to PSPE goes on to explain how the elements of the subject are transdisciplinary, integrated, and permeate through all avenues of students' everyday lives and that of their community. The starting point for PSPE should be the students' experience, and this should flow through their engagement with cognitive, physical and social-emotional learning experiences. Every teacher is a PSPE teacher, the subject needs to be planned and delivered collaboratively, and not left solely to the Physical Education (or any other individual) teacher to drive. Teachers need to make explicit connections between PSPE and the programme of inquiry to help students identify embedded concepts, both transdisciplinary and subject-specific, and to ensure their own role in the development of student wellbeing (pp.1-3). "Physical education in a PYP school should be more than just student participation in sports and games. Its purpose should be to develop a combination of transferrable skills promoting physical, intellectual, emotional and social development; to encourage present and future choices that

Document	Types of wellbeing evident in documentation Search terms have been underlined
	contribute to long-term healthy living; and to understand the cultural significance of physical activities for individuals and communities. Therefore, in the PYP, there should be specific opportunities for learning about movement and through movement in a range of contexts. Students of all abilities are challenged to improve their movement skills, but they are also supported and encouraged to enjoy physical activity and see it as part of a healthy and active lifestyle with connections to other areas of the curriculum and community." (p.2) Personal and social education activities should take place throughout the school and involve different perspectives, parental involvement and students taking action (p.4) "PSPE provides the models, processes and vocabulary for handling social and personal issues, and ensuring health and well-being. Students are prepared to address moral issues in their lives and act upon a set of positive values such as appreciation, empathy and respect. They should be given guidance to help develop positive attitudes and behaviours in order to meet challenges, make healthy lifestyle choices, and serve as responsible, respectful members of society. This guidance should be specific, explicit and continuous, and should take place in a non-threatening environment. … Owing to the fact that well-being can be intrinsically linked to all aspects of a student's experience at school and beyond, PSPE should be included throughout the curriculum, wherever applicable, and in particular through opportunities found in units of the programme of inquiry. … The development of overall well-being is defined through three common strands that have relevance to all teachers: **identity**, **active living** and **interactions**. These strands are concept-driven and have been designed to interact with each other, working together to support the overall development of students" (p.5). The three strands are then elaborated further on pp.5-10, including detail on how the concept-based curriculum encourages each element of wellbeing, and clearly show the depth of learning expected in the social, emotional and physical domains. Learning continuums on pp.11-20 describe what achievement of each of the strands – identity, active living and interactions – and how these strands contribute to overall wellbeing might look like at each stage of a child's development through the years of the PYP. The *Personal, social and physical education scope and sequence* is a key document that details how social, emotional, physical and cognitive wellbeing should be encouraged in the PYP.
Science scope and sequence (2008, updated 2018)	Some example units that describe the personal connection that students can experience or act upon within the science curriculum (pp. 16, 21, 30, 33), including personal wellbeing (p.16) and social and ethical issues (p.27)
Social Studies scope and sequence (2008, updated 2018)	Emphasis on understanding of the self and others through social studies (p.1), asking questions of personal significance and sharing instances of individual and community orientation in place and time (p.8) Some example units describe the personal and community connections that students can experience or act upon within the social studies curriculum (pp. 12, 14, 17, 21-46), including personal identity (pp.21, 29), human communities (pp.23, 35), and self-reflection (pp. 24, 35, 46)

Document	Types of wellbeing evident in documentation Search terms have been underlined
Teacher support materials (TSMs)	*As TSMs are exemplar materials, many documents do not specifically refer to wellbeing terms or concepts, even though this is a potential outcome of PYP elements such as student agency, transdisciplinarity, inquiry and reflection. TSMs are organised below as per the PYP TSM page in the Programme Resource Centre, and many of them are examples from individual schools.*
The Learner	
SOLO taxonomy	This document provides a definition of Biggs and Collis' (1982) SOLO taxonomy and explains how the taxonomy could be put to use in a PYP classroom, including as a scaffold for learning progressions. There are no explicit references to wellbeing or related outcomes.
Supporting student agency (2018)	This document provides examples from one school of how encouraging student agency enables students to experience a sense of ownership over their own learning. Student agency is shown through a variety of perspectives and classroom-based examples (e.g.: students purposefully planning their learning goals). While student agency is a potential contributor to positive wellbeing, there are no explicit references to wellbeing or related outcomes in this document.

Document	Types of wellbeing evident in documentation Search terms have been underlined
Transdisciplinary learning through agency	This document provides an example of how one school facilitates learning engagement through student interest and how this can lead to transdisciplinary inquiry. There are no explicit references to wellbeing or related outcomes in this document.
Inquiry in the early years	This exemplar document emphasises the importance of the social context and respectful relationships in young children's play, learning and development, as well as their need to be emotionally and intellectually nurtured.
Reflecting on our exhibition journey	This document provides an example of how students can show metacognitive thinking and use reflection to show progress in their exhibition journey ("where am I and where do I need to go?"). One student example shows reflection on a student's social and self-management (emotional) skills.
Learning and teaching	
Flexibility in the programme of inquiry	This document exemplifies how one school approaches flexibility in designing and implementing their programme of inquiry to make it most responsive to student needs. While responding to student needs is a potential contributor to student wellbeing, there are no explicit references to wellbeing and related outcomes in this document.
An exploration of symbol-sound relationship	This document demonstrates one school's unit of inquiry based upon the relationship between symbols and sounds. There are no explicit references to wellbeing and related outcomes in this document.
Approaches to learning (2019)	This document shows examples of how one school has organised some skills and sub-skills of approaches to learning (ATL). The ATL particularly focus on holistic student wellbeing, organised under *Social skills, Thinking skills, Self-management skills, Research skills* and *Communication skills* – this document gives examples of particularly Social and Thinking skills and how these might also be aligned with elements of the learner profile.
Developing a programme of inquiry (2018)	This document gives examples of how two schools have developed particular aspects of their *programme of inquiry*. One school particularly notes the importance of curriculum structure in ensuring that the curriculum is spiralled to introduce new concepts while supporting and reinforcing those already learned. They emphasise the need for a student-centred curriculum and touch upon the integrated nature of a holistic curriculum.
Inquiry in a primary setting	This TSM demonstrates one teacher's journey with inquiry- and concept-based learning, with examples of inquiry in action. There is emphasis on how inquiry learning is personalised and can lead to authentic action. While elements of student wellbeing are not explicitly referenced, there are a number of themes and concepts that connect to student wellbeing.
Co-constructing central ideas with students (2018)	This document gives an example of how one school has supported student agency through their co-construction of a central idea with students. The school explains that this type of pedagogy, "… underscores the values of independent lifelong learning in the PYP through the students taking control of the direction of their learning. Developing central ideas with students is important because it gives them full ownership, it provides teachers with a link to the students' prior knowledge, and it is a student-driven platform from which students can launch their inquiries." (p.2)
PYP planners	This TSM provides multiple links to unit of inquiry planner templates that contain explanatory text. While there are no explicit references to student wellbeing or related outcomes, there are multiple prompts to utilise the IB learner profile attributes and approaches to learning that do contain specific reference to student wellbeing and skills for wellbeing.
Reviewing a language policy	This document demonstrates one school's journey through the revision of their language policy. There are no explicit references to wellbeing and related outcomes in this document.
Translanguaging	This TSM explains how translanguaging is a way for students to meet their communicative and social needs and is a method for promoting cognitive growth. While elements of student wellbeing are not explicitly referenced further, there are a number of themes and concepts that connect to student wellbeing.
How multilingual is my school – A self-audit tool	This document provides an exemplar self-audit tool for schools to assess the extent to which their school is multilingual. While elements of student wellbeing are not explicitly referenced, there are a number of themes and concepts that connect to student wellbeing.

Document	Types of wellbeing evident in documentation Search terms have been underlined
Developing a culture of questions	This TSM demonstrates how one school interprets and implements a culture of inquiry and questioning within their school. While elements of student wellbeing are not explicitly referenced, there are a number of themes and concepts that connect to student wellbeing.
Explicitly teaching thinking skills (2018)	This document gives an example activity through which one school helps students develop thinking skills. Thinking skills are one of the five categories in approaches to learning (ATL). The activity provides example questions that can be embedded across a variety of contexts to support the development of thinking skills.
Co-constructing central ideas with students	This example shows how teachers and students in one school work together to write meaningful central ideas. There are some references to personalisation of the curriculum. While elements of student wellbeing are not explicitly referenced further, there are a number of themes and concepts that connect to student wellbeing.
Student language agreements	This TSM shows examples of how one school develops common understandings and language practices in their school. While elements of student wellbeing are not explicitly referenced, there are a number of themes and concepts that connect to student wellbeing, particularly those of encouraging students' multilingual identities and use of multiple languages in the classroom.
Flexible times and time frames	Similar to the *Flexibility in the programme of inquiry* TSM, this TSM exemplifies how schools might approach flexibility in designing and implementing their programme of inquiry to make it most responsive to student needs. Some of the examples presented are units of inquiry that relate to student wellbeing.
Technology and the design of learning spaces in the library	This TSM exemplifies how one school has considered library space and resources, and how these can be used to support learning. While elements of student wellbeing are not explicitly referenced, there are a number of themes and concepts that connect to student wellbeing.
Student language portraits	This document exemplifies how schools may facilitate the creations of student language portraits. The importance of languages for social interaction, personalising learning and supporting student wellbeing is stated. No further elements of student wellbeing are explicitly referenced but there are a number of further themes and concepts that connect to student wellbeing.
Pathways of development for learning	This TSM provides a snapshot of how one school's policies for relationships, play language and expression are implemented in the classroom. Development of social and communicative skills are emphasised in the context of students building positive relationships with each other.
Multiliteracies	This TSM explains and exemplifies the terms *multiliteracy* and *multimodality* in the context of the PYP classroom. Student wellbeing is not explicitly referenced but there a themes and concepts within the examples that connect to wellbeing.
Creating a culture of collaborative planning	This document explains one school's efforts to ensure sufficient time for collaborative planning, and to embed collaboration in the culture of the school. While elements of student wellbeing are not explicitly referenced, there are a number of themes and concepts that connect to student wellbeing.
PYP exhibition journal	This TSM provides a link to a PYP exhibition journal template. While there are no explicit references to student wellbeing or related outcomes, there are prompts to utilise the IB learner profile attributes and approaches to learning that do contain specific reference to student wellbeing and skills for wellbeing.
The learning community	
Reflections of PYP leaders (2019)	This document provides comments from five PYP school leaders that address how leadership can have an impact on a range of elements – goals, values and beliefs, learning and teaching, wellbeing – within a school community.
Purposeful technology integration and implementation (2018)	This document provides examples of how one school integrates technology into the PYP curriculum and the classroom. While all examples reflect the integration of ATL sub-skills leading towards learner profile attributes, one example particularly exemplifies how students are engaged in practising social and ethical protocols in an online environment. (p.6)

Document	Types of wellbeing evident in documentation Search terms have been underlined
Designing learning environments in the early years	This TSM provides examples of key considerations for the design of learning spaces. Emphasis is given to spaces that promote independence, social interaction, relationship building, engagement and inquiry (p.3).
Designing learning environments in a primary setting	This TSM provides ideas for schools to consider when designing and using learning spaces. Amongst other wellbeing-related elements, specific attention is paid to spaces that "promote a sense of community and well-being" (p.2) and spaces that promote "physical and emotional well-being" (p.3).

APPENDIX B: SURVEY DESIGN AND ADMINISTRATION

Target population

The two surveys were designed for Year 5 teachers and their students in schools implementing the PYP. In Australia, Year 6[18] is the last year of primary school before students transition into middle school (in an F-12[19] setting) or secondary school. Year 5 was targeted as the most convenient group, allowing for schools to choose to include the year above or the year below if Year 5 was unavailable. This achieved an optimal length of potential exposure that students could experience in an IB programme context, assuming the majority of students had been at the same school since their foundation year.

Schools were asked to invite at least two Year 5 classes (where possible) to complete the online surveys. Class sizes in Australia typically average 25 students. Based on administrative records from the 129 PYP schools, with two teachers and their classes from each school, the anticipated number of participants was up to 258 teachers and 6450 students.

Mindful of this target population, an initial step in survey design, undertaken during the review of literature, was to build an item bank by sourcing age-appropriate and relevant scales and their items from validated and reliable instruments. The student survey aimed to gauge levels of student wellbeing and their skills related to wellbeing, as well as students' perceptions of their school environment. The teacher survey aimed to gauge teachers' perceptions of their classroom climate, as well as teachers' perceptions of whole-school wellbeing promotion and approaches to learning with regard to the PYP curriculum and practices.

Developing the surveys

Subsequent to the literature review, secondary analysis of data, collation of potential survey items and draft measurement framework, a short list of possible measures for the new teacher and student PYP Wellbeing surveys were refined for stakeholder review and input, and cognitive testing. Pre-existing validated scales and items were used wherever possible. Some sourced items were modified following cognitive testing and in order to achieve uniformity and flow across the survey. Some new items were developed in order to address specific elements of the PYP and the research questions under investigation. Representatives from the IBO and ACER held a number of meetings via Skype and email between July and September 2019 to review and modify both the teacher and student surveys. These representatives included the ACER project team and the IB Research Manager assigned to this project as well as two PYP curriculum managers.

Meetings focused on the content of the survey item banks, with the view to ensure that data would be collected to address the IB's research questions. The survey items that were developed for the teacher survey were a prime focus for the meetings, as these were not available from existing, validated surveys and therefore needed to be newly created and tailored to the IB's needs. The final lists of domains and indicators are detailed in the measurement framework (see Table 1, main report).

[18] South Australia is the only remaining exception to this: Year 6 will be the uppermost year of primary school from the 2022 school year.

[19] "Foundation" is used here for convenience and is aligned with the Australian Curriculum terminology. Note that the states and territories use different terminology for the first year of school (~5 year olds), including Foundation, Kindergarten, Prep (Preparatory) and Reception.

Testing the surveys

Cognitive testing of the draft survey items was undertaken to observe how the draft items would be understood, processed and responded to by a small sample of students and teachers (Willis, 2005). Cognitive testing of the draft student survey was held in early September 2019 with a group of students who were representative of the survey target population (seven students aged eight to 12 years of age; mean age 10.3 years; all currently attending schools in Australia, of which five attend IB schools and two attend a non-IB school). The students used a paper-based version of the draft survey. The draft teacher survey was further tested in-house with staff who had recent IB and non-IB classroom teaching experience, using the online version of the draft survey. The volunteers were timed as they completed the survey in order to gauge the average response time. General debriefing questions were planned for after survey completion and students were also encouraged to ask questions or comment on difficulties as they progressed through the survey. The following observations were made.

Comprehension and response time: Students were generally positive about the survey design, stating that the language used was easy to read and understand, notwithstanding the particular items noted further below. Four students indicated that they would prefer to have a neutral response option, for example, "yes and no", "sometimes agree and sometimes disagree", "it depends" or "do not care". The survey design team considered this feedback carefully, however, it was decided to maintain the four-option response scale to encourage a definitive response, while remaining mindful of the complexity inherent in including or omitting a neutral or 'don't-know' option, as summarised by Lietz (2010, pp.258, 261). Students took between four and 12 minutes to complete the survey. The two students who took longer than ten minutes to complete both felt they were moving slowly but indicated that this was intentional, in order to think through their answers in more detail. Students showed no fatigue.

Comments on specific items: In the Wellbeing outcomes section, "My classmates like me": three students commented that it was difficult to know whether general classmates liked them or not. This item was kept, however, as it is an indicator of personal wellbeing, rather than a representation of fact. The Social-emotional learning skills section prompted a number of comments about the vocabulary used. The concepts of 'feel bad' and 'solving conflicts' were unclear. Three students commented that the term "stupid" could be rude or inappropriate. The term 'value' was unclear for some in the item "I value other students' differences". The term 'fake news' was also unclear in the item "I am good at working out if something is 'fake news'". In reference to the item "When I feel bad, I know that running and playing can help me feel better", one student noted that when she feels bad, this did not make her feel better. One student noted in response to "I try to treat everyone the same", that she treats people differently depending on their circumstance.

Modifications made: It should be noted that all the items in the student survey came from well-established reliable and valid scales. Nevertheless, in consultation with the volunteer students, the following modifications were made.

Draft version	Final version
"Feel bad"	"Feel upset"
"Conflicts"	"Arguments/disagreements"
"Stupid"	"Stupid or dumb"
"Value"	"Respect"
"Fake news"	"I am good at knowing if information can be trusted or if it is fake"

Ethics

Prior to survey administration, ethics applications were submitted to nine relevant authorities to gain permission to approach school principals in the first instance. Initial approval for the project was received from the ACER Ethics Committee (Ref: 336, 27 Feb 2019), followed by ethics approval from the four state government departments of education and four Catholic Archdioceses that had PYP schools within their jurisdictions (see Table 13). Permission to conduct research in Australian independent schools is the responsibility of the school principal and does not need to go through an independent schools' authority.

Table 13. Ethics approval jurisdictions

Authority	Reference	Approval date
Australian Capital Territory Gov. Education Directorate	RES-1926	16-Aug-19
Queensland Government Department of Education	Project title	23-Sep-19
South Australian Department for Education	2019-0028	2-Aug-19
Victorian Department of Education and Training	2019-004122	11-Sep-19
Catholic Education, Archdiocese of Canberra-Goulburn	Project title	8-Aug-19
Catholic Education Melbourne (Archdiocese of Melbourne)	924	2-Aug-19
Catholic Education South Australia (Arch. of Adelaide)	201928	5-Aug-19
Catholic Education Western Australia (Arch. of Perth)	RP2019/28	12-Aug-19

Survey administration

ACER used the Australian PeoplePulse platform for survey administration and live reporting. ACER staff adhered to and complied with the Australian Information Privacy Act 1988 in accordance with the Australian Government Department of Education and Training privacy requirements for data stored and used in Australia.

At the time of survey administration, there were 129 PYP schools[20] in Australia. This formed the target sample for the survey group. Within this sample, Year 5 classes were identified and the teachers and students invited to participate in the surveys. The surveys were written in English and used plain age-appropriate language suitable for all teachers and students in Year 5.

The teacher and student surveys were administered online during late Term 3 (September) and throughout Term 4 (October to early December) 2019. The teacher and student surveys were administered online via generic links (untracked) provided in the school invitation. Participating teachers were encouraged to complete their survey and have their students in Years 5 complete the anonymous student survey. Survey administration was online and could be accessed through mainstream mobile-friendly mediums, such as tablets and smart phones, as well as computer access. The student survey was anonymous and only the personal details of school, Year-level, age and gender were collected.

The initial invitation to participate was sent to 129 school principals based on being listed as an authorised PYP school on the IB website: www.ibo.org. Consent was received from 54%, allowing their teachers and students to complete the surveys. Sixteen schools formally declined to participate. Typical reasons for declining included that the school was too busy (for example, curriculum commitments, staff restructure, already involved in other research), staff were on leave, or, the school only offered the

[20] In September 2019, IB information (www.ibo.org/programmes/find-an-ib-school/) indicated 135 sites, while ACARA indicated 129 schools, as schools across multiple campuses are treated as one school.

PYP up to Year 4. Some schools that agreed to participate, were ultimately unable to, due to Term 4 end-of-year priorities.

The IBO was given secure online access to the live overview reports during survey administration to monitor response-rates and view preliminary summarised results. Participating schools were also given secure online access to the results of their student surveys so that they could be aware of their students' (anonymous) responses. School filters were locked so that schools could only view their own students.