

# RESEARCH SUMMARY

*Early years education in the Primary Years Programme:  
Implementation strategies and programme outcomes*



**Based on a research report prepared for the IB by:**

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## Background

While there is a growing body of evidence on the processes and outcomes of International Baccalaureate (IB) programmes, the early years stage (for children aged 3–6 years) of the Primary Years Programme (PYP) is a new area of research. This study investigated implementation strategies and outcomes in early years education in the PYP through a mixed-methods approach using both quantitative and qualitative data. Researchers from Deakin University evaluated processes and outcomes in four early years programmes, two in Singapore and two in Melbourne, Australia (see site descriptions in Table 1 below).

## Research design

The project used mixed methods within a “Mosaic” approach. The “Mosaic” approach (Clark, 2010) has been adopted as a way of capturing the varied perspectives of different stakeholders. Researchers collected rich qualitative data on programme processes and outcomes through classroom

observations and discussions with educators. Children’s perspectives on learning and activities within their programmes, as expressed through drawings and writing, were collected from the two Singapore sites. Interviews were conducted with educators, coordinators and parents to explore their perspectives on the programmes.

Quantitative data was also collected through assessments of children’s literacy (State of Victoria 2011a), developmental school readiness (de Lemos, Doig 1999) and learning skills (ACER 2013). The data was used for comparison of outcomes between sites and with larger population samples. The study also evaluated how each of the early years programmes aligned with relevant national curriculum frameworks.

## Findings

### Researcher observations

Three of the preschools (S1, A1 and A2) ran early years programmes that appeared to support the development of learner profile attributes through inquiry-led learning and play-based approaches.

Site	Singapore site (S1)	Singapore site (S2)	Australia site (A1)	Australia site (A2)
School type	International	International	Private	Private
Student body	Many students from expatriate families	Mainly local students with some expatriates	Predominately local students	Predominately local students
Campus site	Pre-school only site	Pre-school only site	Co-located with primary and secondary schools	Co-located primary and secondary schools
Number of students	13	14	17	23
Average age (years)	6.03	5.11	5.06	5.05

Table 1. Description of the four case study schools

Learning environments at these preschools were rich and stimulating, and integrated the outdoors and the natural world. One of the Singapore pre-schools (S2) had only recently moved to offering the early years stage of the PYP, and appeared to be still grappling with the complexities and demands of implementing inquiry-led and play-based approaches. Researcher observations and staff comments suggested that further professional development and support from the IB would better enable staff to fully implement PYP principles in their programme.

The following bullets summarize researcher observations.

- **Inquiry-based curriculum:** Researchers observed strong evidence of this pedagogical approach in the programmes of S1, A1 and A2, but less so in S2. At the S1, A1 and A2 sites, the daily routines included whole group, small group and individual discussions where concepts and issues were explored, and questions posed for the children to think about. These discussions were linked to projects and units of inquiry that children were working on.
- **Relationships:** In implementing their early years programmes, in three of the schools (S1, A1 and A2) there was an emphasis on collaborative group work, and of taking responsibility and showing care and respect for others. Relationships with families were also regarded as important, particularly at A1 and A2.
- **Reggio Emilia:** Staff at all four of the sites stated that they saw their programmes as aligned with the principles of the Reggio Emilia approach. The reflective, inquiry-based approach to teaching and learning that is the basis of the PYP was also perceived to be in line with the Reggio Emilia approach.
- **Learning environments:**
  - The arts: The researcher observations of S1, A1 and A2 indicated that children’s learning and expression through the arts was an important part of all three programmes. See across an example of encouraging artistic expression at A1.



*Photo 1. Blossoms as inspiration for children’s artwork at A1*

- **Child choice:** The learning environments at S1, A1 and A2, showed they were organized to give children choices, and a “sense of ownership” of the environment, aligning with the goals and values of the early years of the PYP (IBO 2013). Children at S2 did not appear to have the same opportunities for choice and decision-making as at the other three sites.
- **The natural world:** All four school sites had attractive outdoor spaces, and three of the programmes (S1, A1 and A2) made extensive use of their outdoor space through their planned teaching, as well as for children’s self-directed and free play, and exploration.
- **Play-based curriculum:** S1, A1 and A2 all demonstrated evidence of supporting children’s play, and of using play-based curriculum and play activity for teaching and learning purposes. Their learning environments were set up for play, and they provided time and resources for children to engage in both child-directed free play and integrated play activity in their units of inquiry.

### Measures of literacy

In employing the selected Early Literacy in English Tools (ELET) the research team was able to obtain

a gauge of the overall literacy skills of the students across the different sites and to see how these levels compared across sites and national settings. The diagnostic tools are designed to be used with students working towards AusVELS Foundation level. The AusVELS reflect a curriculum incorporating the national Australian curriculum within the existing curriculum framework developed for the Victorian Essential Learning Standards (VELS). These tools are divided into three tiers: 1. Foundation Level A (beginning, lower end of Foundation Level); 2. Foundation Level B (progressing, upper end of Foundation Level); 3. progressing towards AusVELS Level 1 (typically around ages 6–7). The AusVELS levels are illustrated in Table 2.

Nominal school level	AusVELS Level	Approximate Age (yrs)
Pre-school	Towards Foundation (A)	4–5
Prep	Foundation (B)	5–6
1	1	6–7

Table 2. AusVELS levels

An overall standing for each site was estimated based on the general performance of each group on the selected tools as well as researcher notes (see Table 3).

Broadly speaking, the literacy levels at all sites were fairly developed. Students from all sites operated at literacy levels at or better than what would typically be expected for their age groups. Pre-school students

from the Singapore sites, with the average student age of 6, were performing at Prep (5–6 years old, AusVELS Foundation B) or Year 1 (6–7 years old, AusVELS Level 1) levels. The pre-school students from the Australian sites with the average student age of 5.5 were performing at pre-school (4–5 years old, towards AusVELS Foundation A) or Prep (5–6 years old, AusVELS Foundation B) levels. The differences between the Singapore and Australian programmes are at least partly attributable to age differences, with Singapore students being on average 6 to 10 months older than the Australian students. Qualitative data, however, suggests that the greater emphasis on literacy in the Singapore programmes also played a role in these findings.

### Developmental school readiness

This section describes the quantitative tool used to evaluate cognitive development and children’s abilities to undertake a number of tasks reflective of school readiness. *Who am I?* (de Lemos, Doig 1999) is a developmental assessment instrument that asks children to: write their name; copy a picture of a circle, cross, square, triangle, and diamond; write some numerals, letters, words, a sentence; and finally, draw a picture of themselves. *Who am I?* assesses the underlying cognitive processes that underpin early literacy and numeracy. Responses to each item are scored from 0 to 4, with four being the highest possible ranking. *Who am I?* was administered to a total of seventy children across the four schools included in the study. A total raw score for each child was calculated by adding the item rank scores. The

Site	Concepts of print	Reading	Early writing	Overall standing	Expected standing (by age)
S1	Foundation A* (4–5 yrs)	Between Foundation B (5–6 yrs) and Level 1 (6–7 yrs)	Level 1 (6–7 yrs)	Between Foundation B (5–6 yrs) and Level 1 (6–7 yrs)	Foundation B (5–6 yrs)
S2	Level 1 (6–7 yrs)	Between Foundation B (5–6 yrs) and Level 1 (6–7 yrs)	Level 1 (6–7 yrs)	Level 1 (6–7 yrs)	Foundation B (5–6 yrs)
A1	Foundation A (4–5 yrs)	Foundation B (5–6 yrs)	Foundation B (5–6 yrs)	Between Foundation A (4–5 yrs) and Foundation B (5–6 yrs)	Foundation A (4–5 yrs) & Foundation B (5–6 yrs)
A2	Foundation A (4–5 yrs)	Foundation B (5–6 yrs)	Foundation A (4–5 yrs)	Between Foundation A (4–5 yrs) and Foundation B (5–6 yrs)	Foundation A (4–5 yrs) and Foundation B (5–6 yrs)

Table 3. Overall literacy levels (by research site and tool)

total score was also transformed, through a Rasch model analysis (Rasch 1960), to provide interval data for statistical analysis.

of academic skills is not usually an appropriate component of pre-school programmes.

### Teacher assessment of children's learning skills

This section deals with children's development of skills that underpin successful learning. Teacher perceptions of children's learning capabilities, such as work confidence, persistence, organization and work cooperation were assessed through the "Learning Skills" measure, which is part of the *Social-Emotional Wellbeing Survey (SEW)*, an online tool developed by the Australian Council for Educational Research (ACER 2013).

Findings suggest that children in both the Australian and Singapore early years programmes were significantly more likely than a large sample of schools to be assessed as having high levels of learning skills. This is particularly interesting in light of the fact that students from these four programmes were generally younger than the targeted age range of the early years version of the SEW.

Comparing the Singapore and Australian sites, the composite Australian programme performance was better than that of the composite Singapore programme. The findings indicate that, particularly for the very young children at A1 and A2, a strong play-based and inquiry-led programme within a PYP framework appears to support the development of children's learning skills.

### Teacher and PYP coordinator perspectives

Educators and coordinators at all sites valued inquiry-based learning as a basis for their early years programmes. Educators at three of the pre-schools were articulate and reflective about their early years programmes, valuing inquiry-led and play-based learning, and confident that they were supporting learner profile attributes and preparing children for entry to school. Teachers at one of the Singapore pre-schools (S2) expressed some uncertainties about implementing the programme in practice. Coordinators, with one exception, held similar views.

Educators described some challenges in their programmes. These included perceived tensions between meeting PYP requirements around implementing units of inquiry, and a desire to be responsive to children's emerging or changing interests. One educator also raised the issue of having to meet multiple demands with regard to

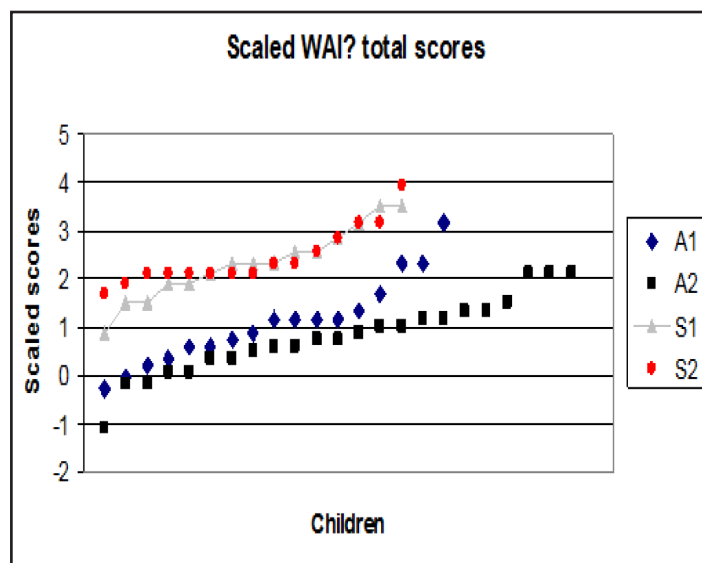


Figure 1. Scaled total scores on *Who am I?*

The overall performance for all children is shown in Figure 1, based on the Rasch scaled total scores. It is interesting to note that the children in the two Singapore programmes have a very similar pattern of response to the *Who am I?* items, whereas the Australian children are more varied in their responses.

The raw score ranges were compared with the *Who am I?* norm sample (de Lemos, Doig 1999), which is based on the responses of 4,000 Australian children in a range of pre-school settings. Generally, children in both countries performed at levels commensurate with, or better than, expected for their age compared with the *Who am I?* Australian normative sample. This indicates that, in general, these children were benefiting from their pre-school education over and above the general Australian normative population. However, these results were not spread evenly over the children in the four programmes, with children from the Australian programmes performing well, but not as highly as those in the Singapore programmes.

Qualitative data shows that S1 and S2 included a stronger focus on numeracy and literacy in their programmes, which may have contributed to stronger outcomes on *Who am I?* Educators at A1 and A2, on the other hand, did not see it as part of their role to teach formal academic skills to children, and such instruction was not observed in their programmes. This is in line with the typical view of early childhood educators in Australia that the formal teaching



requirements of the PYP and local curriculum and quality frameworks.

### **Children's perspectives**

Educators in each programme asked the children to express what they liked about their programme. Both S1 and S2 provided children's responses to these questions in the form of drawings and writing. The nature of the children's responses about their perspectives on their early years programme differed quite markedly between the two programmes. Children at S1, in describing what they liked about their programme, focused on learning activities within the programme, such as their graduation and exhibition. At S2, the favourite activity was play, particularly outdoor playtime with their friends. This was a notable finding as S2 differed from the other three sites in that the programme placed little emphasis on play or play-based curriculum.

Lastly, the responses from the children at S1 indicate that the programme is supporting the children's acquisition of learner profile attributes. Children's responses reflected an awareness of their own learning and their own development toward the learner profile attributes.

### **Family perspectives**

Overall, parents were very positive about the early years programmes that their children attended. They particularly appreciated the individualized approaches of the programmes, and described how their own children had benefited from these approaches. They generally expressed trust that the programmes would prepare their children for school and meet academic expectations. Nevertheless, there were some parental concerns around the capacity of inquiry and play-based approaches to develop children's formal academic skills in literacy and numeracy. This issue was of particular concern in Singapore where children are expected to have some basic academic skills by the time they enter the formal schooling system. In contrast to parental concerns about child academic skills, the findings of the study provide evidence that these early years programmes are equipping children with the basic learning skills essential to their future academic success.

Parents highlighted the importance for them of the relationships and engagement between families and schools, although the nature of these relationships

differed between the Australian and Singapore sites. The importance of family involvement was most strongly articulated by the Australian families, particularly those whose children attended the programme at A2.

### **Early years programmes and national frameworks**

There is an expectation in both Singapore and Australia that early childhood educators will align their programmes with national learning and quality frameworks. For the Australian sites, the most relevant framework is the state-based Victorian Early Years Learning and Development Framework (VEYLDF) (State of Victoria 2011b). In Singapore, the national framework is called Nurturing early learners: A framework for a kindergarten curriculum in Singapore (NEL) (Republic of Singapore 2012).

The study found that three of the sites (S1, A1 and A2) demonstrated evidence of strong alignment with relevant national curriculum frameworks in Victoria and Singapore. Researcher observations and educator interviews indicated that the early years programme at S2 was not fully aligned with all aspects of the Singapore framework, particularly with regard to principles of play-based and inquiry-led learning and appropriate organization of the learning environment.

### **Recommendations**

Based on the findings of the study, the researchers offered the following recommendations.

- Ensure that staff working in new early years programmes in particular receive sufficient professional development and support in transitioning to the PYP, and in meeting IB and local framework requirements.
- Continue working with staff and early childhood education experts to develop and clarify the PYP early years stage principles and practices. This should include consideration of local contexts and requirements.
- Investigate ways of minimizing avoidable doubling up of administrative and reporting requirements in regard to the PYP and local regulations and frameworks.
- Look at ways of supporting early years staff in addressing parent concerns around early academic skills and school readiness. This could include the

commissioning of research and dissemination of findings.

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