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Pacific Islands Literacy and Numeracy Assessment

The Pacific Islands Literacy and Numeracy Assessment (PILNA) measures the numeracy and literacy achievement of students at the end of Year 4 and Year 6.

Origins and context

PILNA was first administered in 2012 with the intent to provide a one-time snapshot of literacy and numeracy in the Pacific region. The Forum Education Ministers Meeting (FEdMM) requested a 2015 administration of PILNA based on the insights and findings from 2012. PILNA 2018 has continued to build the evidence base on student learning outcomes in the Pacific region. PILNA is administered by the Educational Quality and Assessment Programme (EQAP) of the Pacific Community (SPC) – and 15 Pacific Island countries[1]. EQAP is mandated to develop education quality in the Pacific, with a focus on: literacy and numeracy, assessment, curriculum development, qualifications accreditation and research. (Belisle, Cassity, Kacilala, Seniloli, & Taoi, 2016)

EQAP receives financial and logistical support from the Australian Department of Foreign Affairs and Trade (DFAT) and the New Zealand Aid Programme. The Australian Council for Educational Research (ACER) provides technical expertise and support through a long-term partnership with EQAP. Consensus decision making is applied in the development of PILNA, which involves considerable discussion and cooperation from regional and country participants (Belisle et al., 2016).

The Pacific Regional Benchmarks for Literacy and Numeracy developed in 2006 provided the foundations of PILNA cycles in 2012 and 2015. In 2016, the benchmarks were reviewed and revised given the number of countries that had revised their

primary curricula (EQAP, 2018), The 2016 Benchmarks encompass common learning outcomes in literacy and numeracy, and formed the basis of PILNA 2018, as well as future administrations of PILNA (EQAP, 2019).

In 2012, 14 countries participated in PILNA: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tuvalu and Vanuatu.

In the second cycle, taking place in 2015, 13 countries participated, with Nauru and Fiji not participating, but Tonga joining the assessment. In 2018, Nauru and Fiji resumed their participation, making this the broadest participation of 15 countries.
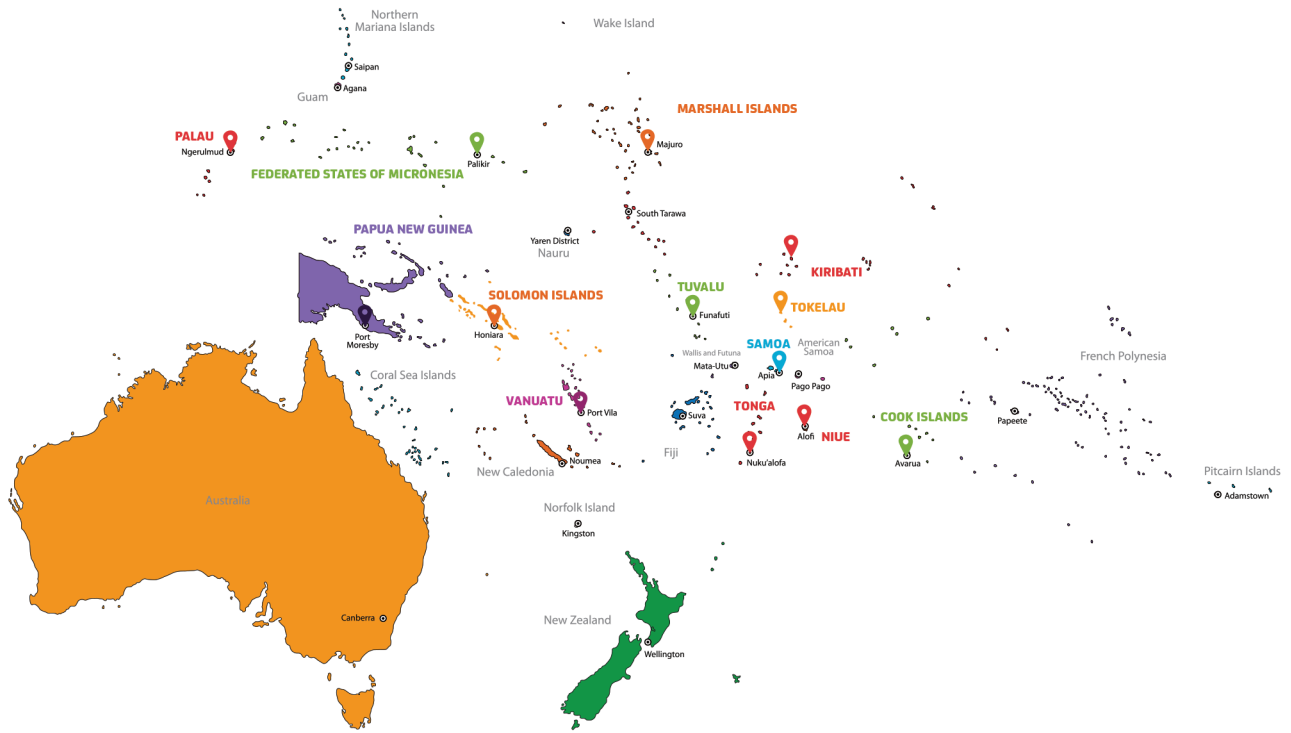
This map is taken from the Belisle et.el (Belisle et al., 2016), it represents the participants in PILNA 2015. Two additional countries participated in PILNA 2018, Fiji and Tongo, which are also visible on the map, but have not been highlighted.

Purpose

The overall purpose of PILNA is to support the improvement of education outcomes of students in the Pacific Island countries. It does this by generating cognitive and contextual data to monitor learning outcome, as well as facilitating ongoing collaborative efforts (EQAP, 2019).

PILNA also supports participating countries to achieve Sustainable Development Goals. Specifically, SDG 4.1, which aims to have 'all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes' (EQAP, 2019).

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[1] PILNA was initially developed through a partnership between the United National Educational, Scientific and Cultural Organization (UNESCO) and the Secretariat for the Pacific Board of Educational Assessment (SPBEA), now known as EQAP.

ACER

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Measurement objectives

Learning domains

The following definitions of literacy and numeracy underpin the assessment domains:

Literacy: "The knowledge and skills necessary to empower a person to communicate through any form of language in their society and the wider world, with respect to all aspects of everyday life." (EQAP, 2019, p.1)

Numeracy: "The knowledge and skills necessary to empower a person to be able to use mathematical processes, as well as the language of mathematics, for a variety of purposes, with respect to everyday life." (EQAP, 2019, p.1)

The 2006 Pacific Regional Benchmarks for Literacy and Numeracy were used as the basis for developing the 2012 and 2015 cycles of PILNA. The Benchmarks encompass literacy and numeracy learning outcomes, and outline the knowledge, skills, understanding, values and capacities that Pacific students should to effectively participate in society. The Benchmarks were derived from the curriculum skill components and learning outcomes that were common across the national curricula in the participating countries. After a number of countries made revisions to their curricula, it became

necessary to review the benchmarks; the 2016 Pacific Regional Benchmarks resulted, which formed the basis of the 2018 PILNA assessment domains, which can be observed in Table 1. (EQAP, 2019, pp.86-87)

Contextual information

For the first time in 2018, PILNA collected background and contextual information. This information can provide insight about student achievement results, and thereby inform education reforms. The purpose of gathering contextual data is not to infer causation, but rather, to identify associations between background factors and assessment results a deeper understanding of the those results can be obtained. (EQAP, 2019)

The background and contextual information is framed according to five topic areas:

1. early learning experiences,

2. teacher qualifications and professional knowledge,

3. school and classroom contexts,

4. home contexts, and

5. language of instruction. (EQAP, 2019)

This contextual information is collected through three questionnaires to the following stakeholders: students, teachers and head teachers or principals.

Table 1: Assessment domains for PILNA 2018

	Year 4	Year 6
Literacy		
Reading	Understand and engage with a variety of texts with some complexity of ideas and a less predictable structure.	Use comprehension strategies to interpret and evaluate a variety of texts of increasing complexity in content and structure.
Writing	Present ideas and information using mostly simple sentences and paragraphs to create a range of texts.	Use a variety of writing conventions to present ideas and information on a wide range of topics and text types.
Listening	Use listening strategies to understand and respond to aural/spoken texts of some complexity from a variety of settings, experiences and learning contexts.	Use listening strategies to understand, evaluate and respond to a wide variety of aural/spoken texts of increasing complexity in content and structure.
Speaking	Use language structures of some complexity to convey ideas and experiences in a variety of contexts.	Use more complex language structures to effectively communicate ideas and experiences in a variety of contexts.
Numeracy		
Numbers	Recognise, represent and compare quantities Use place value to show an understanding of the number system Interpret number sequences using simple rules to solve problems. Understand equivalence between fractions.	Demonstrate understanding of numbers and their magnitude, properties and relationships. Interpret relationships and properties of number sequences and fractions expressed in different forms.
Operations	Use various representation and demonstrate mathematical skills to solve problems involving arithmetic operations.	Demonstrate mathematical skills in linking various arithmetic operations to solve problems set in a range of familiar situations.
Measurement & geometry	Develop awareness of different measurable quantities, units of measure and conversion between them, and measurement tools. Show spatial and geometric skills by measuring and calculating with physical attributes of common objects and events, and by comparing and working with properties of shapes and figures.	Develop and use patterns and rules to facilitate calculation with measurable quantities Work with properties of geometric figures and objects.
Data	Collect, organise, represent and interpret data in various ways.	Collect and represent data in tables and graphs Interpret and analyse results. Recognise and use mathematical language related to common and familiar chance events.

Target population and sampling methodology

PILNA assesses students at the end of approximately 4 and 6 years of formal schooling, counting from the first year of International Standard Classification of Education (ISCED) Level 1 (EQAP, 2019).

A two stage sampling methodology was applied, where first a sample of schools is drawn from each country, and then a sample of students is drawn from each schools. The number of schools to be included in each sampled country in PILNA 2018 was 120, which was increased from 93 in the previous cycle. This meant that 10 of the participating countries conducted a census, whilst the larger five countries were a sample. Twenty-five students in each of the relevant years levels from the sampled schools are chosen to participate in the assessment. (EQAP, 2019)

The PILNA response rate is benchmarked at more than 85% of sampled schools. If the response rate is below 85%, a pre-determined, systematic use of substitute schools is implemented. Each sampled school has two substitute schools assigned to it. The student response rate is also benchmarked at more than 85% of all sampled students across responding schools, including the response rate from substitute schools. (EQAP, 2019)

Assessment administration

PILNA is a paper based assessment. It is jointly administered by three key personnel types: the national coordinators, school coordinators and test supervisors. Collectively, they are responsible for collecting valid and reliable data. The roles and responsibilities of these personnel are described in the PILNA Implementation Manual (PIM).

The National Coordinator coordinates the PILNA processes in the country. They work in close in collaboration with a sampling officer for certain activities, the school coordinator and EQAP.

The School Coordinator is responsible for the efficient and effective preparation of PILNA administration at the school level. They are usually the head teacher/principal of the school.

The Test Supervisor ensures that PILNA tests are conducted and administered properly in the test room during the test sessions over two days. They are usually a teacher of the grade that the assessment is being conducted in. (EQAP, 2018)

Reporting and dissemination

Decisions about reporting and dissemination are made collaboratively. Participating countries have committed to sharing the results with each other, so that they can all derive lessons, especially in regards to apparently effective practice and policy. (Belisle et al., 2016)

Three kinds of reports of PILNA reports are produced: a regional report, a small islands states report, and 15 individual country reports. The regional report combines data from all participating countries. The Small Islands States report contains results for the five small island states as a whole, which are: Cook Islands, Niue, Palau, Tokelau and Tuvalu. The individual country reports present the results of each participating country.

All three kinds of reports contain a similar structure. After an overview of the methods is presented, the results for numeracy and then literacy are detailed. This includes results relating to participation, overall performance and the 'strands' or sub-scales. For example, with numeracy, the strands are: numbers, operations, measurement and geometry, as well as chance and data. The results are also disaggregated by gender. The reports also present trends across the PILNA cycles. However, countries are not compared against each other.

In analysing the data and presenting the results, the 2018 reports apply a proficiency scale describing Level 0 through to Level 8. A reference point is used to demarcate an expected level of literacy and numeracy at each performance level. Proficiency scores are aligned to proficiency descriptions, which indicate the minimum standard of achievement for students. The reports present the distribution of students across proficiency levels and the mean scores for the overall learning domain. Hence, the reports provide countries with information about how their students have performed in relation to the expected level. (EQAP, 2019)

Following the results chapters, student attitudes and contexts are presented, with the relationship to learning outcomes explored. This includes participation in early childhood education, care giver involvement in student's educations and resources available at home.

Subsequently, characteristics of teachers, teacher practices and the classroom environment are explored. This is then accompanied by findings related to characteristics of school leaders and the institutional environment.

Finally, the reports provide recommendations, particularly regarding what to focus on in improving numeracy and literacy outcomes.

The reports are disseminated to the relevant educational stakeholders. These can be categorised as either: policy-makers, educators or the broader community. Policy-makers include: ministers, advisors, senior public servants and administrators. Educators include: teachers, school coordinators and principals. The 'broader community' is particularly

related to parents, whose access to the findings was seen as important in maintaining transparency (Belisle et al., 2016).

Influence

With a focus on making the results available at the ministry level, the communications plan of PILNA was designed to support system-wide reforms to improve education quality. The results of PILNA 2018 were promoted via the official launch in July 2019. In each country a ministerial brief with the key findings and recommendations was produced. Furthermore, EQAP officers met with heads of education ministries, including the CEO and directors, to discuss results and strategies. In participating in PILNA, each country has committed to using the findings to implement policy interventions (Belisle et al., 2016)

PILNA was used to inform the review of the Literacy and Numeracy Regional Benchmarks in 2016. These benchmarks were then revised, and formed the basis of PILNA 2018, so the PILNA can be used to monitor education progress amongst participating countries.

Policy interventions are accompanied by an expectation that school leaders, with teachers, use the findings to implement school reforms, such as related to pedagogy, that are consistent with national policy. To this end, training workshops were held with teachers, which assisted them in using PILNA as a tool to assist their classroom practices.

The ACER Global Education Monitoring Centre supports the monitoring of educational outcomes worldwide, holding the view that the systematic and strategic collection of data on educational outcomes, and factors related to those outcomes, can inform policy aimed at improving educational progress for all learners.

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