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UIS-PIRLS Framework Alignment: Methodology and Results

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This paper aims to explain the methodology, and present the results, of an alignment process between two educational standard frameworks:

- 1) the UNESCO Reading Global Framework and
- 2) the reading portion of the PISA 2015 Assessment and Analytical Framework

The purpose of this alignment is to determine the suitability of the PISA 2015 Assessment and Analytical Framework to serve as a global metric for SDG 4, Indicator 4.1.1.

4.1: By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.

4.1.1 Proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex.

Framework comparison

Beginning in 2001, the Progress in International Reading Literacy Study (PIRLS) assessment has been given to students in grade 4 every five years, being 2016 the last year in which it was applied. The content of the PIRLS assessment is based on the PIRLS 2016 Reading Framework. In the 2016 edition this framework, based on reading purposes and comprehension processes, provided the foundation for PIRLS assessment, PIRLS Literacy and ePIRLS.

PIRLS Literacy makes for a better measurement for the lower end of the scale, especially for those countries whose grade 4 students are still in the process of developing reading skills. On the other hand, ePIRLS, is designed with the aim of assessing online reading competencies, considering only the reading purpose of acquiring new information.

Reading literacy is defined by PIRLS as: "the ability to understand and use those written language forms required by society and/or valued by the individual. Readers can construct meaning from texts in a variety of forms. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment." (p.12)

Based on this conceptualization, PIRLS and PIRLS Literacy consider two purposes for reading: reading for pleasure and personal interest (literary experience) and reading to acquire and use new information. The assessments present a balanced amount of tasks for each purpose.

Given that most online reading is done with the aim of acquiring and using new information, ePIRLS will focus on this purpose for reading. The aim of adding this assessment was to evaluate reading performance by using other formats which include interconnected web pages that contain a high proportion of visual information such as pictures, graphs, maps, as well as dynamic elements such as videos, animations, links and pop-up windows.

While the literary experience is assessed through narrative texts, the assessment of the purpose of acquiring and using new information is done through texts with different formats, varying their content, organization and form. Therefore, young students may be reading

informational texts with different content: scientific, historical, geographical, or social, in a variety of organizational patterns.

In this framework, the PIRLS assessment considers for each of the two reading purposes, four comprehension processes: focus on and retrieve explicitly stated information, make straightforward inferences, interpret and integrate ideas and information, and evaluate and critique content and textual elements. Metacognitive processes and strategies transcend these comprehension processes, and are used by students to assess their level of comprehension and adjust their approach. Each comprehension process contains a number of components defined through abilities and skills that allows the student to show the comprehension level acquired.

Table 1 provides a summary of the four comprehension process and their components

Table 1. Comprehension processes and its components.

PROCESS	Reading Tasks PIRLS	Reading Tasks ePIRLS
Focus on and retrieve explicitly stated information,	Identifying information that is relevant to the specific goal of reading	Identifying the part of the web page that contains the information
	Looking for specific ideas	Identifying the explicitly stated information related to a specific reading goal
	Searching for definitions of words or phrases	Identifying specific information on a graphic
	Identifying the setting of a story (e.g., time and place)	
	Finding the topic sentence or main idea (when explicitly stated).	
Make Straightforward Inferences	Inferring that one event caused another event	Choosing among possible websites to identify the most appropriate, applicable, or useful one
	Concluding what is the main point made by a series of arguments	Filtering the content of a web page for relevance to the topic
	Identifying generalizations made in the text	Summarizing the main intent of a web page
	Describing the relationship between two characters	Describing the relationship between text and graphic(s)
		Inferring the potential usefulness of links

Interpret and Integrate Ideas and Information	Discerning the overall message or theme of a text	Comparing and contrasting information presented within and across websites
	Considering an alternative to actions of characters	Relating the information in one web page or site to information in another web page or site
	Comparing and contrasting text information	Generalizing from information presented within and across web pages or sites
	Inferring a story's mood or tone	Relating details from different web pages to an overall theme
	Interpreting a real-world application of text information.	Drawing conclusions from information presented in multiple websites
Evaluate and Critique Content and Textual Elements	Judging the completeness or clarity of information in the text	Critiquing the ease of finding information on a website
	Evaluating the likelihood that the events described could really happen	Evaluating how likely the information would be to change what people think
	Evaluating how likely an author's argument would be to change what people think and do	Describing the effect of the graphic elements on the website
	Judging how well the title of the text reflects the main theme	Determining the point of view or bias of the website
	Describing the effect of language features, such as metaphors or tone	Judging the credibility of the information on the website
	Determining an author's perspective on the central topic	

As stated previously, PIRLS is targeted specifically at grade 4 students. This differs with the UNESCO Global Framework for Reading (GF) as it was designed to consider students from the beginning of primary school up to the end of low secondary school, establishing the development of the reading competency for both educational cycles.

Moreover, the GF domains are three: reading competency, linguistic competency and metalinguistic competency. These competencies are defined by six sub domains, which correspond to the processes involved in each of them. The sub domains are divided into 21 constructs with 90 sub constructs that define the contents and skills involved.

Table 2 shows the GF's structure including domains, sub domains and constructs.

Table 2. Global Framework for Reading—domains, sub domains and constructs

Competencies	Sub domains	Constructs
Reading	Decoding	Alphabetic principle
		Precision
		Fluency
	Comprehension	Identify
		Retrieve
		Interpret
		Reflect
		Metacognition
	Motivation and disposition	
Linguistic	Listening	Retrieve
		Interpret
		Reflect
	Speaking	Form
		Content
		Use
	Vocabulary	Acquire new words
		Recognize
	Metalinguistic	Phonological awareness
Blend		
Generate words from		
Segment		

Methodology for framework alignment

Firstly, the level on both frameworks at which the comparison was going to be made was established. Considering the level required for making effective comparisons, the reference was chosen at the most specific and granular level from each framework. In the case of the GF it was the sub constructs, and for PIRLS was the level of skills and abilities for each process.

Given that the GF has a more exhaustive description for each of the constructs, this is the one that was considered to establish the comparison. The alignment process between the sub constructs from the GF with PIRLS, establishes that the skills defined by PIRLS include more than one of the GF's sub constructs.

Based on this, the aim was to compare each of the skills defined in PIRLS to the GF considering the descriptors that are involved in those skills. Therefore, establishing the level of overlap between both frameworks regarding the cognitive processes involved. Both frameworks are considered as aligned when the skills and sub constructs being compared include the same cognitive process or very similar ones. Given that the GF is more specific, a one to one correspondence is not possible, thus any skill from the PIRLS will include more than one sub construct defined by the GF.

Finally, it is important to consider that PIRLS's aim, both in its traditional (PIRLS and PIRLS Literacy) and digital version (ePIRLS) is to assess the purposes and processes involved in reading comprehension. Therefore the level of alignment will be studied regarding the reading comprehension sub domain from the GF.

The characteristics of the assessment proposed by ePIRLS integrate traditional comprehension skills with the skills required for digital literacy. Even though the GF includes digital formats, it bases its structure in printed text formats. As it does not include the characteristic skills required to search and access web pages. Therefore, the criteria used for this alignment was to consider the skill in itself, in the understanding that this can be displayed in a traditional reading context as well as in online searches.

Summary of alignment results

The results from the alignment process will firstly be explained for the traditional PIRLS and then for ePIRLS.

The results from the alignment assessment show that a total of 11 sub constructs (22%) from the GF's Reading comprehension sub domain align with one or more abilities and skills from PIRLS. Moreover, ePIRLS also shows a total of 11 sub constructs (22%) that align with the GF. The alignment is found in the sub constructs related to the cognitive processes involved in reading comprehension (identify, retrieve, interpret, reflect), assuming as achieved decoding as well as the linguistic and metalinguistic competencies. There were no tasks or processes found in PIRLS, or ePIRLS that referred to the motivation and disposition nor the metacognition construct. This may be explained by the difficulty it could represent to include these for this type of assessment.

Even though the alignment percentage is the same for both formats, the distribution of the sub constructs differs. The highest alignment level for ePIRLS is given by the interpret and reflect constructs, which concentrated 9 of the 11 sub constructs. The two remaining ones go one for identify and one for retrieve. However, the alignment for PIRLS is more distributed among constructs, 3 for retrieve, 5 for interpret and 3 for reflect, but does not consider identify.

Table 3 Summary of alignment results by Global Framework domain.

Global Framework Domain	Global Framework Sub-domain	Global Framework Construct	PIRLS Reading Tasks Alignments/Total Number of Sub constructs	ePIRLS Reading tasks Alignments/Total Number of Sub constructs
Reading competency	Reading Comprehension	Identify	0/7	1/7
		Retrieve	3/5	1/5
		Interpret	5/11	5/11

		Reflect	3/10	4/10
		Metacognition	0/3	0/3
		Motivation and disposition	0/3	0/3

Conclusions

The results from the alignment process between the GF and PIRLS and e PIRLS shows that the abilities and skills defined by both can be found in the GF. Corresponding all of these to sub constructs belonging to the reading comprehension sub domain. As stated before, this is expected given that the PIRLS assessment is designed for grade 4 students, while the GF covers from grade 2 to grade 9.

The fact that this assessment is designed for this grade, restricts its possibility of considering other processes, skills and contents that are suitable to be assessed in other educational levels, mainly in the first ones.

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