
In-Progress Reflection No. 22 on
Current and Critical Issues in Curriculum, Learning and Assessment

Monitoring Progress towards SDG 4.1: Initial Analysis of National Assessment Frameworks for Reading



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Open Note of the IBE

The IBE has launched the series In-Progress Reflections on *Current and Critical Issues in Curriculum, Learning and Assessment* to open a communal space for a global conversation, collective production and discussion on those issues of high concern for Member States. It intends to support country efforts in mainstreaming challenging issues within the processes of curriculum renewal and development across different levels, settings and provisions of the education system.

Initially, the focus areas of the In-Progress Reflections series encompass, among others,: (i) Early Childhood Care and Education (ECCE) as a foundation of holistic child development and learning; (ii) Reading and writing in early grades to support the development of essential competencies; (iii) Youth Culture and competencies for Youth in the early 21st century (covering formal, non-formal and informal education); (iv) ICT curricula and inclusive pedagogy contributing to relevant and effective learning outcomes; (v) STEM (Science, Technology, Engineering and Mathematics) curricula to foster sustainable development; (vi) Curriculum for Global Citizenship Education (peace, human rights, sustainable development, values, ethics, multiculturalism, etc.); (vii) Assessment to enhance and support learning opportunities; and (viii) Inclusive education as an over guiding principle of education systems.

The series of reflections covers a wide array of knowledge products, among them: discussion papers, policy briefs, frameworks, guidelines, prototypes, resource packs, learning tools and multimedia resources. These materials are discussed, refined, used and disseminated engaging education and curriculum agencies / institutes, and in particular curriculum developers and specialists, development experts, policy makers, teacher trainers, supervisors, principals, teachers, researchers and other educational stakeholders. In addition, they serve as reference materials for the IBE menu of capacity-development training on curriculum, learning and quality education – namely masters, diplomas, certificates and workshops – to forge policy and technical dialogue involving a diversity of stakeholders and to support sustainable country fieldwork.

Through blogs and e-forums, we encourage the audience to actively interact and bring in diverse perspectives. Effectively, the online space for reflection allows us to stay connected, facilitates exchange between experts from different regions of the world, and truly fosters continuous reflection on the issues concerned. The blog is structured to gather diverse resources, which include tools and documents (as previously mentioned) under specific themes to provide a complex and rich set of materials targeted to the specific needs of Member States. The In-Progress Reflections will capture relevant visions, views and comments shared by the audience, and serve as a key resource to support Member States' efforts in mainstreaming relevant findings and effective practices in national policies, curriculum frameworks and developments and in professional practices.

Dr. Mmantsetsa Marope: Director, International Bureau of Education



Monitoring Progress towards SDG 4.1: Initial Analysis of National Assessment Frameworks for Reading

Abstract: A reinforced commitment from the UNESCO Institute for Statistics (UIS) and UNESCO International Bureau of Education (IBE-UNESCO) to making continued progress towards SDG 4.1 to *“ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes by 2030,”* has led to the analysis of national assessment frameworks (NAFs) in Reading. The findings in this report identify the mapping of content areas detailed in 73 NAFs from 25 Member States with a primary output of extracting cross-national trends whilst informing components of a UIS-developed Content Reference List and Coding Scheme for improvements. The underlying inquiry of this study is: What cross-national trends can be found in Reading based on the content assessed in NAFs? Understanding and seeking to answer this question form the basis of the analyses conducted in this study and will continue to allow for the mapping of Reading Assessments by national bodies or international agencies. The content areas mapped will ensure a more robust development of the Global Framework of Reference for Reading, while also respecting the individual characteristics of national curricula and assessment frameworks. It is, therefore, crucial to ensure comparability of this data and indicators, in order to understand and properly interpret the processes and outcomes of national assessment systems and policies.

Keywords: Assessment – Education 2030 – national assessment framework (NAF) - reading – SDG 4.1

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Reading Glossary

Alphabetic principle: the idea or understanding that letters of the alphabet represent specific sounds in speech.

Automaticity: the automatic processing of information as, for example, when a reader or writer does not need to pause to work out words as they read or write.

Blend: to join sounds together.

Comprehension: The ability to understand and draw meaning from spoken, written, and visual communications in all media.

Comprehension strategies: A variety of cognitive and systematic techniques that students use before, during and after listening, reading, and viewing to construct meaning from texts. Examples include: making connections to prior knowledge and experience and to familiar texts; visualizing to clarify or deepen understanding of a text; finding important ideas; questioning; summarizing information; inferring; analyzing and synthesizing; skimming text for information or detail; scanning text to determine the purpose of the text or type of material; adjusting reading speed according to the level of difficulty of the text or the kind of reading.

Content (speaking): refers to the meaning of language.

Decoding: process by which a sequence of letters is transformed into its phonological form.

Form (speaking): Refers to the rules, grammar and sounds of the language (phonetic and phonology) and the characteristics of its pronunciation, as well as the structure of words (morph syntax).

Grapheme: a written unit that represents one phoneme, e.g., f, th, o, ee.

Homonym: A word that has the same spelling as another word but a different meaning.

Homophone: A word that has the same sound as another word but a different meaning (e.g., seas and seize).

Implicit meaning: Ideas and concepts that are present but stated indirectly.

Inferring: Drawing meaning from or reaching a conclusion using reasoning and evidence from a text, based on what the author states and implies in the text and what the reader brings to the text from his or her prior knowledge and experience.

Metacognition: The process of thinking about one's own thought processes. Metacognitive skills include the ability to monitor one's own learning.

Onset: The consonant or consonants that occur before a vowel in a syllable (e.g., the g in gain, the fr in fright).

Phoneme: the smallest segment of sound in spoken language.

Phoneme–grapheme relationships: the relationships between spoken sound units and the written symbols that represent them.

Phonics: Instruction that teaches children the relationships between the letters (graphemes) of written language and the individual sounds (phonemes) of spoken language.

Phonological awareness: The ability to focus on and manipulate units of language, including phonemes and larger spoken units such as syllables and words. Phonological awareness activities can also involve rhymes, onsets, and rhymes.

Pragmatics: The study of how people choose what they say or write from the range of possibilities available in the language and the effect of those choices on listeners or readers. Pragmatics involves understanding how the context influences the way sentences convey information (e.g., the

speaker/author/producer's choice of text form, text features, use of conventions, and presentation style affect how the listener, reader, or viewer will understand the text).

Reading fluency: The ability to read with sufficient ease and accuracy to focus the reader's or listener's attention on the meaning and message of a text. Reading fluency involves not only the automatic identification of words but also qualities such as rhythm, intonation, and phrasing at the phrase, sentence, and text levels, as well as anticipation of what comes next in a text

Reading strategies: Approaches used before, during, and after reading to figure out unfamiliar words, determine meaning, and increase understanding of a text. Examples include comprehension strategies and word-solving strategies, including the use of cueing systems. Good readers use a combination of word-solving and comprehension strategies, while maintaining a focus on developing and deepening their understanding of a text.

Rhyme: The part of a syllable that contains the vowel and all that follows it (e.g., -one in bone and tone). A rhyme is smaller than a syllable but larger than a phoneme.

Segment: to separate sounds out.

Semantics: The meaning in language, including the meaning of words, phrases, and sentences, alone and in context.

Use (speaking): intentionality in the use of language. See also pragmatics.

Vocabulary: a set of words and other terms (including phrases or idioms that have a single meaning), e.g., activate, exercise book, and bury the hatchet are all vocabulary items (or lexical items).

Project Description

Goal 4: Ensure inclusive and equitable quality of education and promote lifelong learning opportunities for all;

Target 4.1: Ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes by 2030; and

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

The UNESCO Institute for Statistics (UIS) has the mandate to “work with partners to develop new indicators, statistical approaches and monitoring tools to better assess progress across the targets related to UNESCO’s mandate, working in coordination with the Education 2030 Steering Committee” (UIS, 2017). In particular, as the custodian agency for SDG 4.1.1, the UIS is coordinating the development of methodologies, indicators, and data reporting to achieve the objectives of these agendas. This implies, among others, finding ways to link different assessment results and to report them in a globally comparable way, in order to help Member States to measure progress towards their development goals and the education agendas.

The UNESCO International Bureau of Education (IBE-UNESCO), as UNESCO’s Centre of Excellence in curriculum, learning, assessment and related matters, supports Member States to enhance the effectiveness of student learning by promoting excellence in curriculum design, learning, teaching, and assessment processes. Its overarching aim is to strengthen the capacities of Member States to design, develop, implement and assess curricula that ensure the equity, quality, development-relevance, and resource efficiency of education and learning systems.

As part of UNESCO’s Education 2030 Framework for Action, the UIS and IBE-UNESCO have collaborated to analyse learning outcomes in Mathematics and Reading with the aim of developing global indicators for these two areas. Previous reports for Mathematics have led to the analysis of learning outcomes found in national assessment frameworks (NAFs), thus resulting in the development of a robust, Global Framework of Reference for Mathematics¹. To continue to provide a meaningful and consistent way of reporting against Indicator 4.1.1, further collaboration has led to the development of an initial, Global Framework of Reference for Reading². Utilizing this initial, Global Framework and its corresponding Content Reference List and Coding Scheme, a study was launched to map, analyse and identify learning outcomes in Member States’ national assessment frameworks (NAFs). To best understand what content areas in Reading countries are assessing, this study examined 73 NAFs from 25 Member States with the goal of identifying commonalities and disparities across content area coverage, and to provide detailed recommendations for future iterations of the Content Reference List and Coding Scheme as they support a more robust, and universally applicable, Global Framework of Reference for Reading.

¹ The Global Framework of Reference for Mathematics can be accessed here: <http://ibe-unesco.org/a-global-framework-for-mathematics/>.

² The Global Framework of Reference for Reading can be accessed here: <http://ibe-unesco.org/a-global-framework-for-reading/>.

Introduction

This study commenced with an analysis of 73 national assessment frameworks (NAFs) from 25 Member States and resulted in a report aimed to support the monitoring of learning outcomes for Sustainable Development Goal 4.1 and the Education 2030 agendas. Specifically, this report focuses on national, low-stakes assessments, conducted with the purpose of evaluating and improving the quality of education within Member States. For this purpose, NAFs in Literacy, were collected and coded, in order to produce cross-nationally comparable indicators, at the three points of measurement of SDG 4.1.1: in grades 2/3; at the end of primary; and at the end of lower secondary.

As a way of contributing to this objective, UIS and IBE-UNESCO have been aiming to describe the components that ensure a common framework that would enable international agencies, as well as national bodies, to monitor the learning of Reading at a global level, while also respecting the individual characteristics of NAFs. The underlying inquiry of this study is **What cross-national trends can be found in Reading based on the content assessed in NAFs?** The source for understanding and seeking to answer this question lied in the development of a Content Reference List and Coding Scheme that allowed, and will continue to allow, for the mapping of Literacy-Reading Assessment Frameworks.

This report presents the methodology and background knowledge of the development of the Coding Scheme and Content Reference Framework, while simultaneously explaining their uses. It then details the findings of the mapping process, after analysing NAFs in Literacy- Reading, from three languages: English, Spanish, and French. The analyses are conducted on a variety of these documents, all ranging from Lower Primary education (also referenced in SDG -Indicator 4.1.1 as ‘early grades’) to Lower Secondary education. It is important to note here that although many NAFs contain Writing as a significant component of their Literacy documents, this particular content area was beyond the scope of this project as agreed by Task Force 4.1. Therefore, only Reading components, as articulated in the sections below, are contained in these subsequent analyses.

The thorough analyses of NAFs conducted provide insight into commonalities and disparities on how NAFs are organized. Five separate analyses were conducted; overall and based on Member States’ income classification level, region of the world, language of the NAF, and education level. It is vital to state that Member States’ NAFs are oftentimes a significant piece of evidence, albeit not the only piece, that reflects the educational philosophies and approaches of a particular national body. Therefore, it is an assumption of this study that the presence or absence of specific objectives in an NAF are evidence of a Member States’ national approach to assessment.

This report is divided into five major sections: I) the methodology using a quantitative database; II) the Coding Scheme and Content Reference List, III) the findings of data analyses by domain and sub-domain levels with (1) overall analysis; (2) analysis by region; (3) analysis by income classification; (4) analysis by education level; and (5) analysis by language; IV) recommendations for expansion of analysis; and V) a conclusion with general observations for Literacy-Reading in monitoring progress towards SDG 4.1.

I. Database of National Assessment Frameworks: Methodology

1. Gathering National Assessment Frameworks

IBE-UNESCO began their work by collecting National Assessment Frameworks (NAFs) for the development of a comprehensive database of NAFs for Literacy - Reading from UNESCO Members, Associate Members of UNESCO, and administrative regions, countries, and provinces (hereinafter Member States). In addition to collecting NAFs, IBE-UNESCO included in the database reports and documents regarding national, low-stakes assessments or assessment policies of individual Member States that would enhance the understanding of UNESCO regarding assessment policies within Member States. These ultimately served as a reference for the project and, undoubtedly, will continue to be utilized for future analyses of the data. The documents eligible for selection in this study had to be nationally developed NAFs with specific standards, learning outcomes and objectives in Literacy – Reading on which students are assessed; as such, documents developed by external or international bodies were not considered for eligibility in this study (e.g. EGRA, TERCE). The specific focus of the study must be taken into consideration when looking at the number of NAFs and the amount of information collected from Member States. IBE-UNESCO tried to collect an even distribution of NAFs from as many regions, income classification levels, and education levels as possible, given the language limitations of only analysing NAFs produced in English, French or Spanish.

2. Collection of National Assessment Frameworks in Reading

IBE-UNESCO began their research by searching for information related to assessments from the 195 Members and the 10 Associate Members of UNESCO. In addition, information was requested, and has been collected, from the Hong Kong Special Administrative Region of the People’s Republic of China. Canada’s information has been collected from three of its provinces (Alberta, Ontario, and Quebec).

3. National Assessment Frameworks used for coding

Information on national assessment in Literacy - Reading was collected from 61 Member States (30% of 205 Member States).³ However, the NAFs of only 25 Member States (12% of 205 Member States) were used for mapping, coding, and analysis, due to time, language, and resource limitations. These NAFs vary in terms of year in which they were developed, the language in which they were written, and the grades they assess. It is important to note that the number of NAFs is larger than the number of Member States from which NAFs have been mapped, coded and analysed, as this is oftentimes the result of a Member State conducting national assessments in more than one grade levels. The following figures outline the distribution of the NAFs in Literacy-Reading that were mapped, coded, and analysed, by region, income classification, education level and language.

³ Please note that for the purposes of this project, and as expressed before, the Canadian provinces of Alberta, Ontario and Quebec are considered independent Member States, and will hereafter be referenced as such.

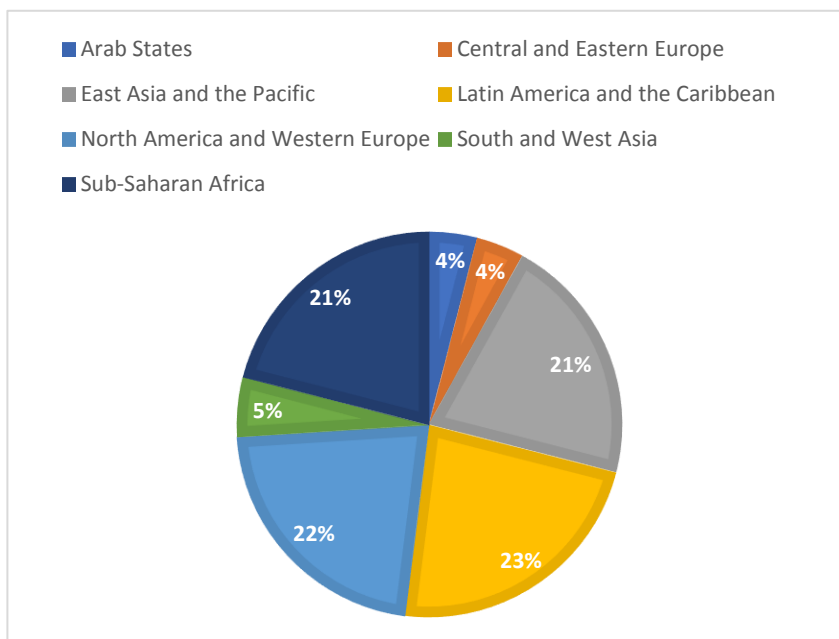


Figure 1: Total of NAFs used for coding by region

Figure 1 - By region, both the Arab States and Central and Eastern Europe had 3 out of 73 (4%) NAFs analysed for this study. 15 out of 73 (21%) NAFs analysed are from East Asia and the Pacific; 17 out of 73 (23%) are from Latin America and the Caribbean; 16 out of 73 (22%) are from North America and Western Europe; 4 out of 73 (5%) are from South and West Asia; and 15 out of 73 (21%) of the NAFs analysed for this study are from Sub-Saharan Africa.

Figure 2 - By income classification, the majority of NAFs, 39 out of 73 (53%), are from High Income-classified Member States. 18 out of 73 (25%), are from Low Middle Income-classified Member States; 10 out of 73 (14%) are from Upper Middle Income-classified Member States; and lastly, 6 out of 73 (8%) are from Low Income-classified Member States. This distribution, will be explored in detail in another section of the report; however, this majority may indicate that High Income-classified Member States have more resources, and therefore and increased ability to develop and provide robust NAFs.

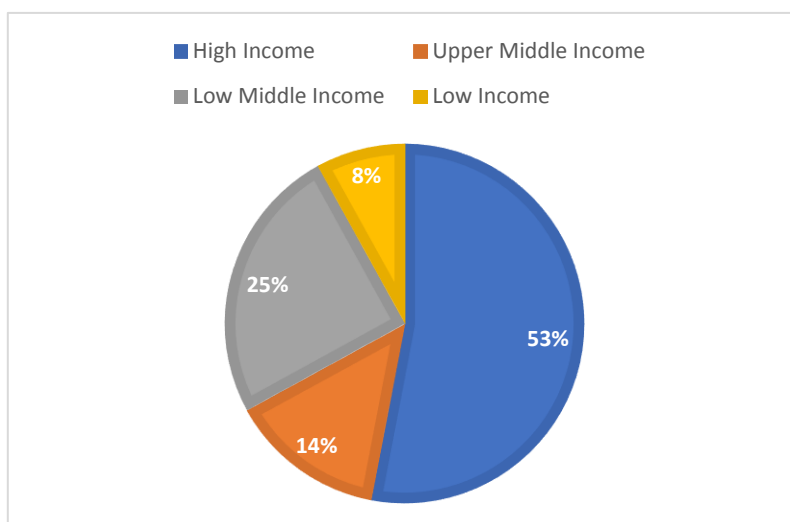


Figure 2: Total of NAFs by income classification

Figure 3 - By language classification, English-language NAFs are the vast majority, 48 out of 73 (66%), of NAFs coded and analysed in this study. Spanish-language NAFs represent 19 out of 73 (26%) NAFs coded and analysed; and French-language NAFs comprised 6 out of 73 (8%) of all NAFs.

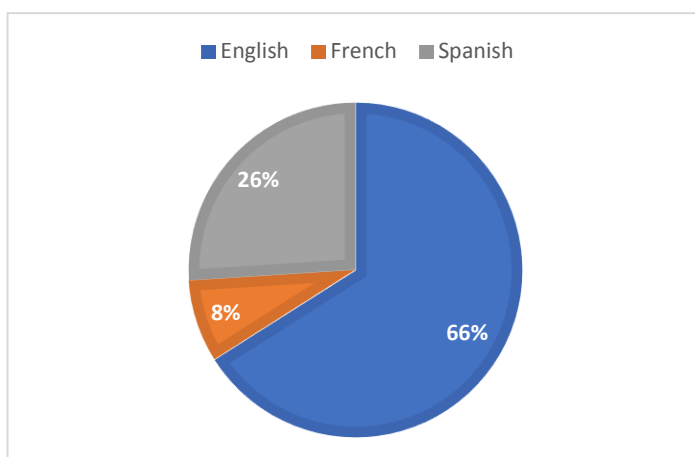


Figure 3: Total of NAFs by language

Figure 4 - By education levels, NAFs were classified into three levels (Lower Primary, Upper Primary and Lower Secondary) based on the Member States' categorization of grades. For example, if a Member State categorized grade 4 as Upper Primary in its NAF, this was respected and mapped to the Upper Primary education level, regardless if another Member State categorized grade 4 as Lower Primary. 23 out of 73 (32%) are mapped to the Lower Primary level; 31 out of 73 (42%) NAFs are mapped to the Upper Primary level; and 19 out of 73 (26%) are mapped as Lower Secondary – all respecting Member States' categorisation for their national grades, cycles or classes.

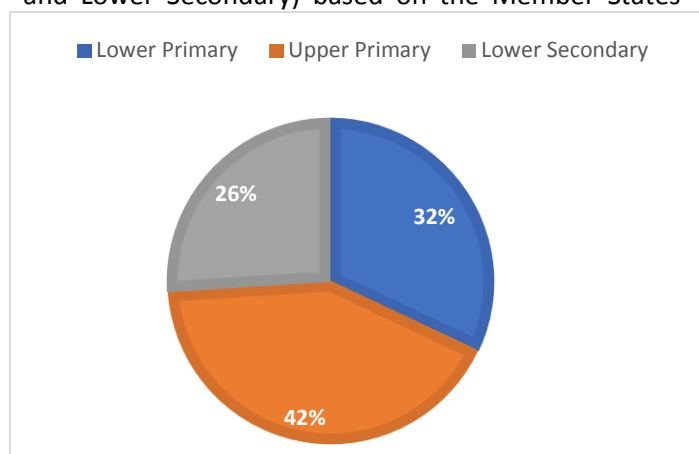


Figure 4: Total of NAFs by education level

II. Coding Scheme

1. Understanding the Coding Scheme

The development of the Coding Scheme that would be used for this analysis was assigned to a team of consultants appointed by UIS. These researchers and practitioners from the Departamento de Neurocognición and Departamento de Educación at the Universidad Católica del Uruguay undertook several hours of background research and laid the foundation for the development of a comprehensive Coding Scheme, taking into account the various mechanisms that uphold learning of reading in education systems around the globe. The researches put much time and thought into the organisation and labelling of such structures that would be used to encompass the purposes of many education systems around the globe, and they did not complete this task without numerous iterations and evidence supported through background research. Their background paper (Cuadro, Palombo and Ruiz, 2018) provides significant explanations as to why each of the below descriptions and structures are arranged and named what they are. An excerpt from the paper (Cuadro, Palombo and Ruiz, 2018, p. 8) states:

“Firstly, we [the Coding Scheme creators] defined and codified a set of domains and constructs that refer to processes, knowledge and skills involved in learning how to read. Secondly, we confronted that coding, by analysing differences and similarities with the study made of three national curricula for each of the language roots at three different stages of formal schooling. With this analysis, we revised the code, in such a way that it would allow for the inclusion of all of the competencies and contents presented in the curricula without losing the cognitive model behind it. The resulting framework allows mapping other diverse national curricula and national assessments related to reading.”

The initial structure of the Coding Scheme derived from a selected number of comprehensive curriculum frameworks of three language roots (English, French, and Spanish). The development team worked closely with UIS and IBE-UNESCO to test the Coding Scheme with subsequent Literacy-Reading NAFs in those three languages. Once these were mapped, necessary adjustments were made, expanding and reforming the structure in order to ensure that the majority of Literacy-Reading NAF objectives would eventually be represented by the content included within the Coding Scheme. At the same time, the mapping of such NAFs allowed for the observation and identification of similarities and differences among the content assessed among regions of the world, income classification levels, language of production of NAFs (again, English, French and Spanish), and education levels.

The Coding Scheme is broken down into four main levels of categorization for the placement of objectives of Member States’ Literacy –Reading NAFs, called *Domains*, *Sub-domains*, *Constructs*, and *Sub-constructs*. Each of these levels subsequently provides varying levels of detail in order to map NAF objectives. For example, the competencies listed on the Coding Scheme serve the purpose of organizing the domains, the levels of categorization most broad and general, but by which many NAFs are structured. It is important to note that because there is such a variety of NAFs collected for this study, it is impossible to include the terminology that would be used by all NAFs. Therefore, determinations were made in the mapping process that placed synonymous concepts and terms within the terminology of the Coding Scheme.

The remaining six sheets of the Coding Scheme are broken down by these three domains respectively: *Reading Competency*, *Linguistic Competency*, and *Metalinguistic Competency*. One sheet in the Excel database that forms the Coding Scheme is designated for each of these categories. Apart from explaining the domains themselves, each sheet provides information that further deconstructs the various levels of information that should be analysed. This includes sub-domains, constructs, and sub-constructs within each domain, following the structure of how objectives would eventually be mapped. For example, within the Reading Competency domain, the Coding Scheme breaks down the two sub-domains found within this umbrella domain: *Decoding* and *Reading Comprehension*. This was the first point of reference for the coders, who were tasked with mapping the NAF objectives onto a Quantitative and a Qualitative database. This first break-down of domains served as the foundation for mapping, allowing coders to initially find the sub-domain in which a particular objective from an NAF would best fit.

Next, each sub-domain on the Coding Scheme is then broken down into constructs and their descriptions: *Identify, Retrieve, Interpret, Reflect and Metacognition*, respectively, within the Reading Comprehension sub-domain. Remember that this sub-domain fits within the *Reading Competency* domain and serves as just one example for the organization of the elements of the Coding Scheme. These subsequent categories provided the second level of information in order for the coders to find the best fit for an objective and place it within the proper domain of the Quantitative Database. The domains and sub-domains of the Coding Scheme are presented in [Diagram 1](#).

Finally, in what is most evidently the most comprehensive portion of the Coding Scheme, each construct is further divided into sub-constructs with explicit descriptions of what should be included in an objective in order to be mapped properly. It is important to note again that these terms were not always explicitly found verbatim within a country's NAF. Therefore, discretion was used by the coders to understand synonymous terms and concepts, trying to remain true to the integrity of the NAF and capture the underlying meaning of an objective,

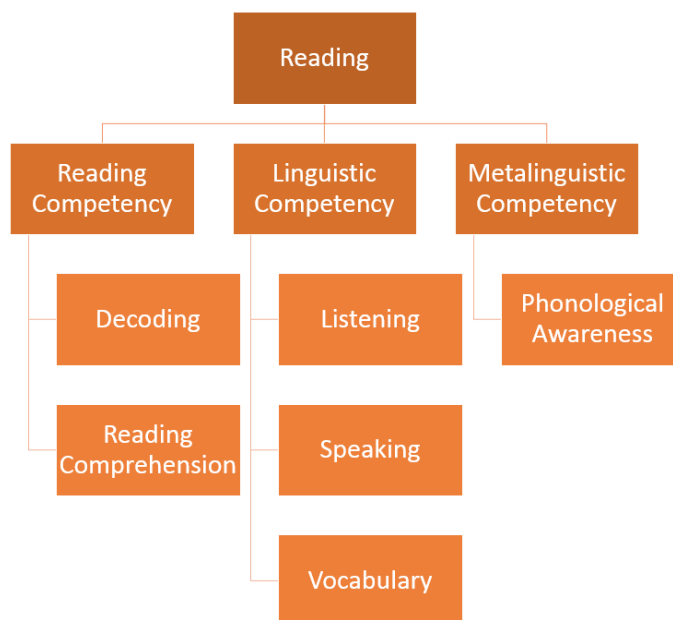


Diagram 1: Literacy-Reading Coding Scheme - Domains and sub-domains

when not explicitly stated on the Coding Scheme. Nevertheless, following the same example above, and further breaking down the Identify construct, for example, the sub-constructs contained in this category are as follows: *Different types of text; Parts of a text; Connectors, signs, symbols, time and space indicators; Parts of a sentence; Types of sentences; Abbreviations, contractions, compound words, etc.; Purpose for reading; and Others*. These categories and their descriptions in the Coding Scheme provided the final level of organisation for coders to properly map each NAF objective.

2. Mapping the content of NAFs

The content of the 73 NAFs for Reading –Literacy from 25 Member States was mapped in two different Excel databases, each serving different purposes.

Paired with the Coding Scheme, the Qualitative and Quantitative databases contain information that provide a detailed examination of Reading –Literacy NAFs from different regions of the world and specific Member States. Moreover, a *qualitative* database was developed, mapped using the Coding Scheme, to map individual objectives that were present in Member States' Reading –Literacy NAFs but were not and could not be mapped within the predetermined descriptions of the objectives from the Content Reference List and Coding Scheme. Such objectives were mapped as "*Others*" in the sub-constructs level onto the Quantitative database, and their descriptions – provided in NAFs - were included in the qualitative database. This was done in service of identifying objectives which Member States' NAFs included but were not yet part of the Content Reference List. The qualitative database served as a tool in the expansion and improvement of the Content Reference List and Coding Scheme - identifying instances of "*Others*" and including their descriptions will inform future iterations to encompass more robust and universally applicable content for Reading - Literacy.

III. Quantitative Database, Structure and Methodology

The quantitative database was used for mapping the content of Member States' NAFs for Reading – Literacy to the content of the Coding Scheme. As such, the database denotes the presence or absence of a certain domain, sub-domain, construct, or sub-construct using the value “0” to indicate absence and “1” to indicate presence.

The database consists of four sheets, labelled *Sub-constructs*, *Constructs*, *Sub-domains*, and *Domains*. Within each sheet, columns indicate country name, region, income classification level, language, grade level, education level relative to grade, and category name for that sheet (i.e. *domain* or *sub-domain*). Furthermore, rows are organized by the itemised name of each category level, such as *Reading Competency domain* or *Metalinguistic Competency domain*. The rows include the domains, sub-domains, constructs and sub-constructs of the Coding Scheme, along with the mapping of each NAF item, with values of “1” or “0”. Once mapped, the database was then analysed for instances of presence of assessment objectives for Reading–Literacy across five arrays of analyses. The layout of the database allowed the coders to anchor the mapping and data analyses of the information on the Coding Scheme's categories of domains, sub-domains, constructs and sub-constructs.

Understanding the ways in which to view the qualitative Database and the quantitative database, in light of the determinations made by the coders, can provide the reader with a more robust, and contextually accurate, understanding of the analyses provided below.

There are a few important areas to note when understanding the methodology and analysis provided in this section:

- 1) In the cases where it was possible, the coders followed strictly the layout of the coding scheme (domains, sub-domains, constructs, and sub-constructs), whilst safeguarding the integrity of the NAF's country-specific educational approaches and context-specific terminology. Due to the relative nature of each NAF authored by Member States in response to their respective context, a thorough examination of each framework was conducted before mapping and analysing items in the quantitative database. This preliminary exploration allowed for a more nuanced representation of each NAF as they pertain to each Member State's educational approaches and assessment standards. Furthermore, coders determined that synonymous terminology specific in a Member State's NAF would be mapped according to the Coding Scheme's terminology. An example of this would be in instances when a term such as, 'cognitive domain' was used in a NAF, the synonymous term *Metalinguistic Competency* (a domain in the Coding Scheme) was mapped. As no two Member States or frameworks are alike and creating a universally applicable with universally agreed-upon terms is quite challenging, this process was determined to be most appropriate and was consistently used throughout the mapping exercise of this study.
- 2) More importantly, perhaps, is the necessary understanding that whether or not a category, in this case domain and sub-domain, was considered present in any particular NAF, depended on whether or not subsequent categories were found in that NAF. For example, if a construct was considered “present” in an NAF, it means that at least one sub-construct was identified within that NAF. Furthermore, if at least one construct was included in the NAF of a particular Member State, then the corresponding sub-domain was considered “present”. This process of correspondence was consistent throughout but does provide a limitation of the mapping exercise that will be discussed in further detail in the remaining sections of this report.
- 3) NAF objectives were often so specific that they aligned directly with sub-constructs as defined in the Coding Scheme. When mapping these objectives as “present” within this sub-domain, the coders adhered thereafter strictly to the structure of the Coding Scheme and not that of the original NAF. For example, if a particular NAF included an objective such as *Segmenting*

sounds to understand spelling patterns and make meaning of words, within a wider category of *Vocabulary*, instead of *Phonological Awareness*, as indicated in the Coding Scheme, the NAF objective would be mapped into the *Phonological Awareness* sub-domain. Although the structure of the NAF in this case would therefore not remain intact, this was less important to the overall organization of specific objectives, which could be quantified and analysed by mapping all such objectives to the Coding Scheme. Following suit, therefore, if one sub-construct was marked as “present,” all sub-sequent categories (constructs, sub-domains, and domains) were also marked as “present,” regardless of how the NAF itself was structured.

- 4) Finally, following suit, if a domain is marked as “present,” and is therefore included in an NAF, it only means that at least one sub-domain is considered present on an NAF. This important determination was made by the coders to simplify the information gathered, while still providing enough of a distinction to illicit useful data. The information, specifically that of domain and sub-domain content areas, was analysed for quantity of objectives, not quality, and therefore does not necessarily represent rigor of assessment objectives or a way to standardize information across content areas. It is important, when interpreting the results of this analysis that sincere consideration is taken of this limitation.

The quantitative database, its structure, and the study’s methodology are fundamental to understand as it better situates the reader in viewing the analyses provided in the [Findings of the study](#). In the below section, data are provided by five sections of analyses 1) the total number of NAFs; 2) region of the world; 3) income classification; 4) education level and 5) language, all coded to the domain, sub-domain, and construct content areas in Content Reference List and Coding Scheme. Due to a large dataset and limitations of visual representations in graphs, sub-construct level analyses will be presented only upon need of closer investigations into disparities noticeable at the domain, sub-domain or construct levels.

IV. Findings of the Study

1. Analysis of NAFs: An overall analysis

It is important to first examine the overall distribution of data across all 73 NAFs, regardless of region, income classification level, education level or language. Due to the sample size of this study, all conclusions drawn in the following sections of this report will only consider the data we have collected, and thus, these conclusions cannot serve as generalizations for entire regions, income classification levels, languages, or grade levels. The conclusions drawn are based on the analyses conducted with the sample size collected and cannot be translated to wider generalisations outside the scope of this study.

Domain level

There are three different domain content areas on the Content Reference List: [Reading Competency](#), [Linguistic Competency](#) and [Metalinguistic Competency](#). The distribution of the 73 NAFs to the domain levels are shown below in *Figure 5*.

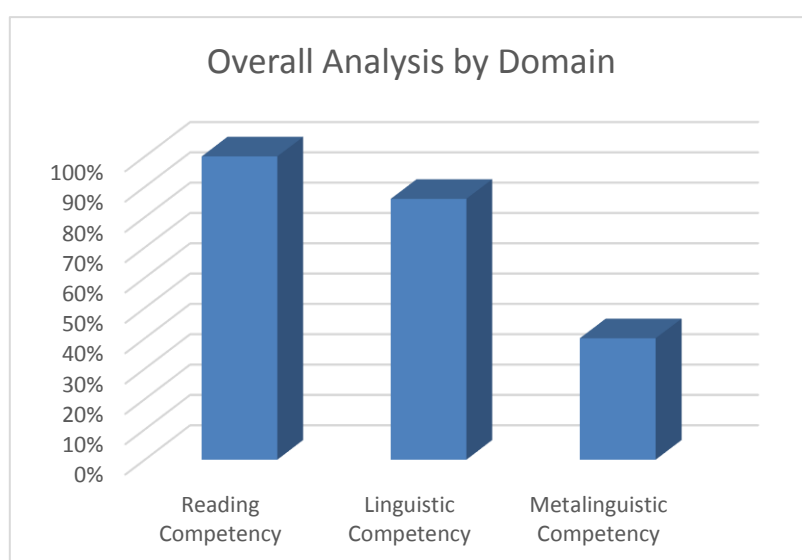


Figure 5: Overall analysis by domain

Overall, 73 out of 73 (100%) NAFs coded included *Reading Competency*, 63 out of 73 (86%) included *Linguistic Competency*, 29 out of 73 (40%) included *Metalinguistic Competency*. Although there is not significant variation among the percentages between *Reading and Linguistic Competency*, the percentage of NAFs that cover *Metalinguistic* is dramatically less.

A possible explanation could be that *Metalinguistic Competency*

encompasses phonological awareness which is a “fundamental variable for written language acquisition” (Cuadro, Palombo and Ruiz, 2018) highly present in lower education levels, and “is a skill that is gradually developed and its universal sequence goes from the largest to the smallest phonological units (Defior, 2014, as cited in Cuadro, Palombo and Ruiz, 2018). Fundamental in nature and purpose, it is not as frequently present in upper education levels, which comprise 68% of the total number of NAFs. Further explanations for this lower percentage will be brought to light and explored in subsequent analyses in the report.

Sub-domain level

There are six different sub-domain content areas on the Content Reference List, and each corresponds to a domain. *Decoding* and *Reading Comprehension* are found within the *Reading Competency* domain; *Listening*, *Speaking*, and *Vocabulary* are found within the *Linguistic Competency* domain, and *Phonological Awareness* is found within the *Metalinguistic Competency* domain. For the purposes of an initial explanation of the sub-domains, however, *Figure 6* below shows the breakdown, by percentages, of sub-domains present in the NAFs according to the Content Reference List.

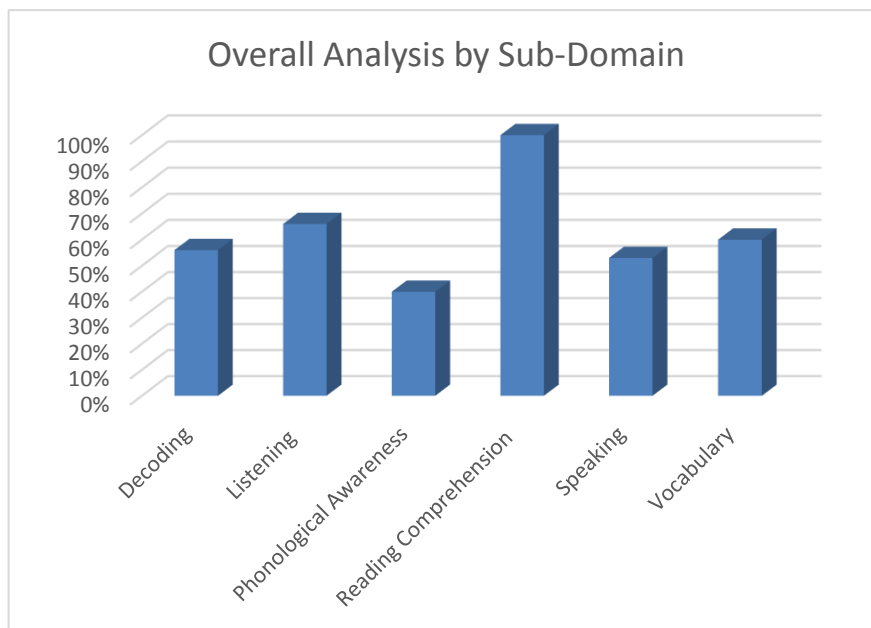


Figure 6: Overall analysis by sub-domain

Figure 6 above shows how many of the 73 NAFs contain the various sub-domains: 42 out of 73 NAFs (56%) include *Decoding*, 48 out of 73 (66%) include *Listening*, 29 out of 73 (40%) include *Phonological Awareness*, 73 out of 73 (100%) include *Reading Comprehension*, 39 out of 73 (53%) include *Speaking*, and 44 out of 73 (60%) include *Vocabulary*.

As *Phonological Awareness* corresponds to the *Metalinguistic Competency* domain, the same conclusions can be drawn about why such low percentages of NAFs include this sub-domain. Also visible is the 100% presence of the sub-domain *Reading Comprehension*, corresponding to the domain *Reading Competency*. Such a high percentage allows one to conclude that all Member States in this study assess reading comprehension across all education levels and furthermore, one may assume that this sub-domain would be present in many other Member States' NAFs across the globe, thus highlighting a global trend.

Construct level

There are 20 different construct content areas on the [Content Reference List](#), and each corresponds to a sub-domain and a domain. For the purposes of an initial explanation of the constructs, however, Figure 7 below shows the breakdown, by percent, of constructs present in the NAFs according to the Content Reference List.

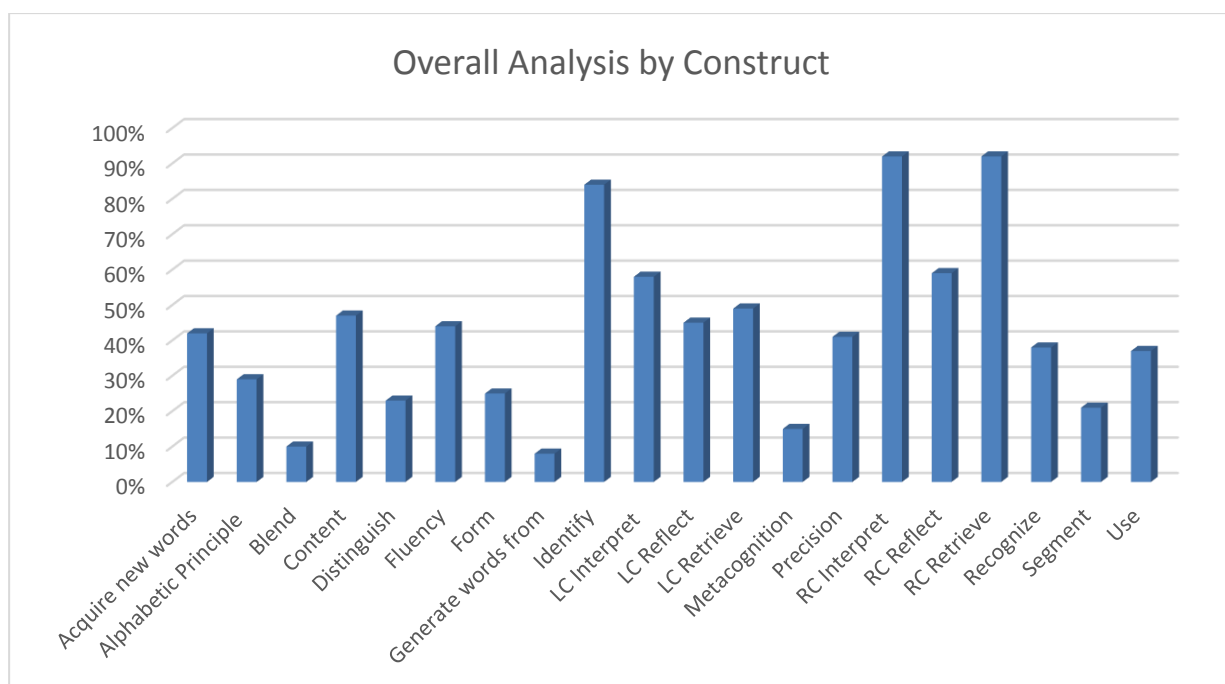


Figure 7: Overall analysis by construct

Figure 7 illustrates the overall analysis at the construct level, with a total of 20 constructs described in the Content Reference List. When viewing Figure 7, it must be noted that LC (*Linguistic Competency*) or RC (*Reading Competency*) in front of a construct name indicates the domain area to which the construct corresponds. This was included to differentiate similarly named constructs such as *Interpret* or *Reflect*. At the construct level, one may view how a larger domain and sub-domain area is broken into smaller pieces to identify exact disparities or similarities. As such, Figure 7 denotes the low presence of constructs within the domain of *Metalinguistic Competency* such as *Blend*, *Distinguish*, *Generate words from*, and *Segment*. Not within the *Metalinguistic Competency*, yet also low in presence, is the construct *Metacognition* – which corresponds to the domain *Reading Competency*. Given *Reading Competency*'s 100% presence in NAFs, the low percentage of 15% (11 out of 73 NAFs) in *Metacognition* is perplexing and further analysis at the sub-construct level is needed.

Due to a large dataset and limitations of visual representations in graphs, sub-construct level analyses will be presented only upon need of deep investigations into disparities noticeable at the domain, sub-domain or construct levels. Therefore, for the sub-construct *Metacognition*, further analyses are needed, and is therefore represented graphically below.

Nevertheless, following suit of the previous categories, all sub-constructs are linked to corresponding constructs, sub-domains, and domains; thus, the data from these larger categories, that will be visually represented in each analysis, are informed from the presence of an NAF objective at the sub-construct level.

Sub-construct level

There are 107 different sub-construct content areas on the Content Reference List, and each corresponds to a construct, sub-domain and domain. However, with limitations on visual representation in graphs, Figure 8 below captures the presence of sub-constructs in one construct - *Metacognition*.

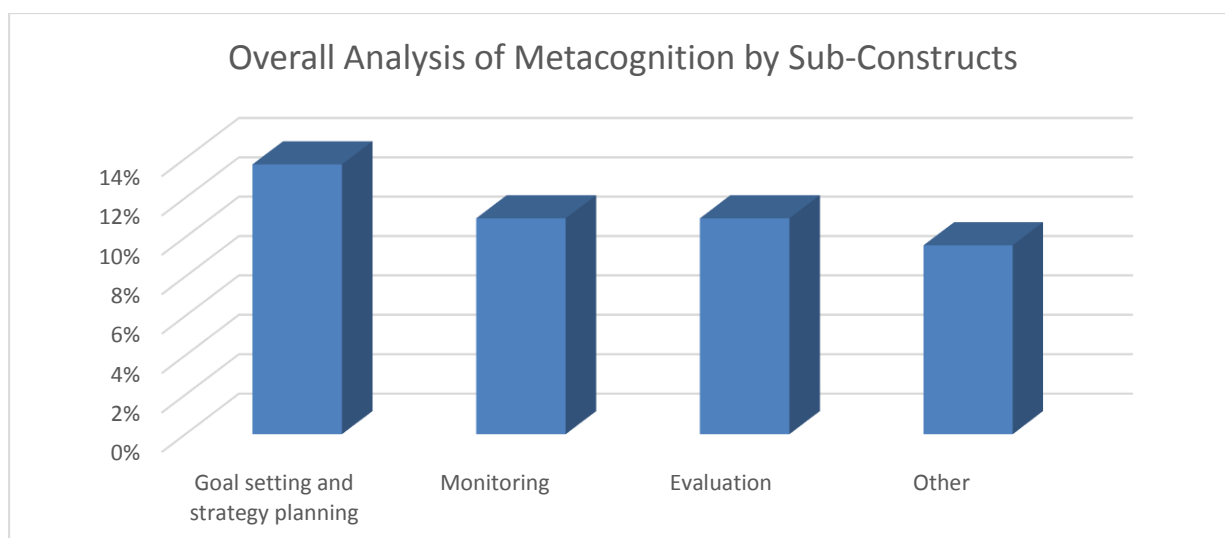


Figure 8: Overall analysis of Metacognition by sub-constructs

Only present in 15% of NAFs, the construct *Metacognition*, and its corresponding sub-constructs' percentages of presence are seen in [Figure 8](#). Corresponding to the domain Reading Competency, *Metacognition* includes Metacognitive strategies to monitor and regulate comprehension, as described by the authors of the Content Reference List – Reading (Cuadro, Palombo and Ruiz, 2018). It is already evident that there is a low presence of this domain among the NAFs mapped and analysed, but what is even more significant in this case is that all sub-constructs are similarly distributed in terms of representation within the domain. Most notably is the fact that the “Other” category, comprised of all objectives not adhering to specific descriptors on the Coding Scheme, is of similar stature within the domain, indicating that the entire construct of *Metacognition* needs significant expansion of descriptors. Doing so would inevitably provide a space for more NAF objectives to be mapped within specific sub-constructs on the coding scheme. Perhaps with this expansion and inclusion, *Metacognition*, and its moving parts, would be better understood.

2. Analysis of NAFs: A regional comparison

To develop a more nuanced understanding of the overview analysis of NAFs, results can be gathered when looking at a breakdown of the data by region of the world. For this part of the analysis, the 25 Member States were classified by their corresponding region of the world (see [Annex 1, Table 1.1](#)): two from Arab States; two from Central and Eastern Europe; five from East Asia and the Pacific; three from Latin America and the Caribbean; seven from North America and Western Europe; three from South and West Asia; and three from Sub-Saharan Africa. Due to the language limitations of this study, a selection of NAFs from Central Asia was not available and thus, this region is not included in this analysis.

Domain level

The information displayed in [Figure 9](#) below, shows a breakdown, by percent, of domains included in each of the seven regions. Most notable is the domain of *Reading Competency* which is included 100% in all regions. Additionally, the domain of *Linguistic Competency* is included 100% in four of the seven regions. Another striking illustration is the lower percentage of the domain *Metalinguistic Competency* in all regions and its absence in Latin America and the Caribbean altogether. All values are represented below.

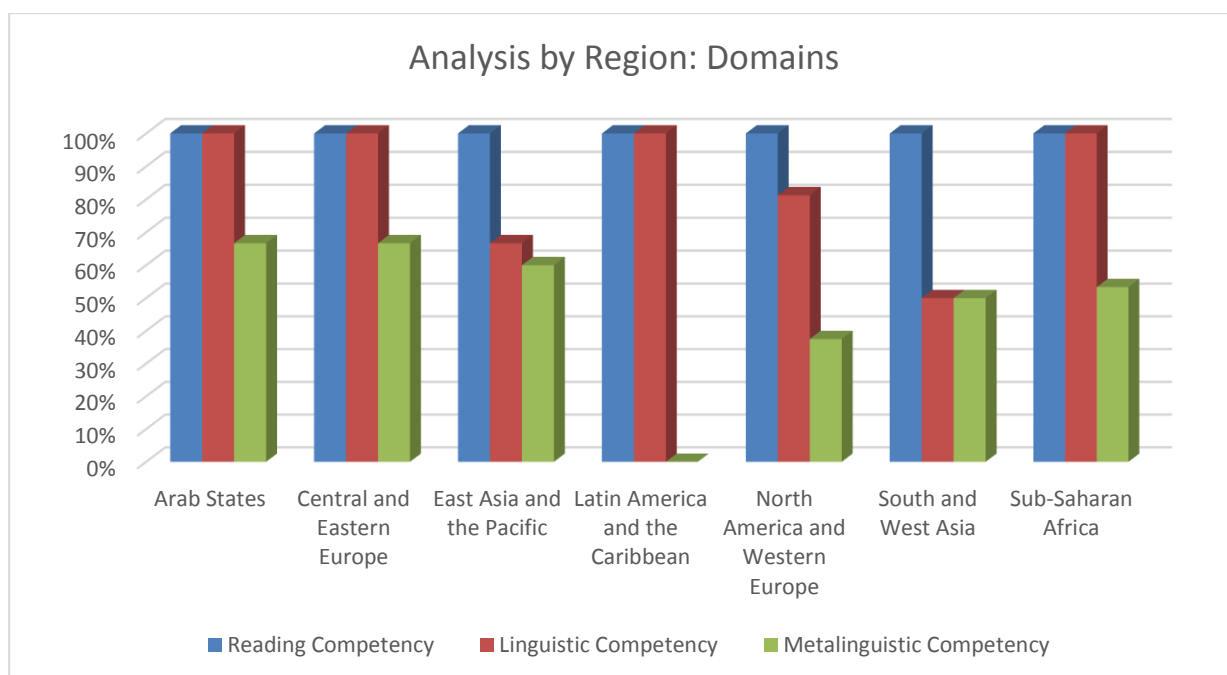


Figure 9: Analysis by region: Domains

Figure 9 illustrates the comparison, by domain level, of assessment content across regions. Interestingly, Latin America and the Caribbean’s exclusion of the domain *Metalinguistic Competency* is perplexing as its Member States’ NAFs included lower education levels to which this domain is explicitly aimed to encompass. Because these lower education levels focus on the fundamentals of language, such as phonological awareness, one would naturally assume that such objectives would be included in NAFs of such grade levels (namely, these lower primary grades in Latin America and the Caribbean). Further investigation at construct and sub-construct levels may shed light on this occurrence.

Furthermore, in all regions the disparity between *Linguistic Competency* and *Metalinguistic Competency* is greater than that of *Reading* and *Linguistic Competency*; five out of seven regions indicate such disparity, with Sub-Saharan Africa showing with the largest percentile of disparity at 47%. Founded upon phonological awareness – which is paramount to the ability to listen to sounds and decipher meaning from them and expand to all oral text and communications – *Metalinguistic Competency* is fundamental to the development of *Linguistic Competency*. Their percentile differences, however, appear to denote a possible disconnect between the fundamentals of language acquisition and the understanding of its developmental path. The two regions which are an exception to this large disparity are East Asia and the Pacific and South and West Asia—two regions where these two domains are equally included in NAFs.

Sub-domain level

Analysing these results at the sub-domain level allows for further investigation into the noted disparities and trends highlighted above. The information displayed in [Figure 10](#) below, shows a breakdown, by percent, of sub-domains covered in each of the seven regions.

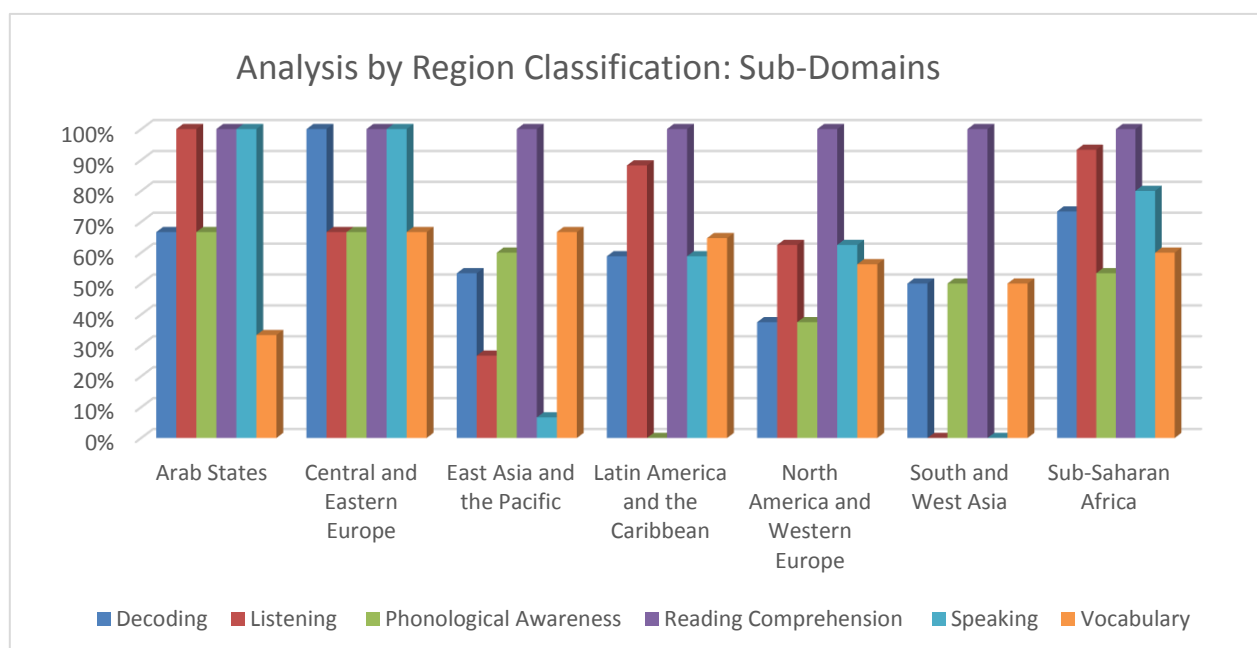


Figure 10: Analysis by region classification: Sub-Domains

The information illustrated in [Figure 10](#) offers a closer look at the sub-domains in each domain and each region's inclusion or exclusion of assessment content in each area. Particularly interesting are instances where regions of the world exclude or underrepresent sub-domains. But what is the cause of these exclusions and what are the effects? Mentioned above, Latin America and the Caribbean's absence of the domain *Metalinguistic Competency* is supported by its exclusion of the sub-domain *Phonological Awareness*, which is fundamental to this domain.

However, this particular sub-domain analysis has surfaced an exclusion of two sub-domains (*Listening* and *Speaking*) within the domain *Linguistic Competency* in the region of South and West Asia. To understand how *Linguistic Competency* was included 50% at the domain level analysis, but with two sub-domains excluded, one simply needs to view that the sub-domain *Vocabulary* represents the 50% inclusion. This suggests that South and West Asia solely included, and thus value, *Vocabulary* as the only necessary sub-domain to assess. This suggests that this region's Member States' NAFs have given no recognition to the importance of assessing any components within the *Listening* or *Speaking* sub-domains. Background research conducted into the development of the domain *Linguistic Competency* states that "Listening and Speaking are foundational to the acquisition and application of vocabulary and intricately linked" (Cuadro, Palombo and Ruiz, 2018). Further examination is needed to understand the 'why' and 'how' of South and West Asia's assessment of the broader *Linguistic Competency* in the absence of Listening and Speaking, as well as the low coverage of these two sub-domains in the East Asia and the Pacific.

Another advantage for a more nuanced understanding of the results at the sub-domain level is seen when comparing the seemingly identical statistical representation of domains in the Arab States and Central and Eastern Europe. At the sub-domain level analysis, the two regions differ in their distribution of assessment content, with the largest percentile difference in *Vocabulary*. Central and Eastern Europe includes this sub-domain in 67% of its NAFs (2 out of 3 NAFs), whilst the Arab States do so only

in 33% of theirs (1 out of 3 NAFs). Furthermore, the sub-domain *Decoding* is 100% (3 out of 3 NAFs) included in Central and Eastern Europe, whilst it is only covered in 67% of all NAFs (2 out of 3 NAFs) in the Arab States. These exact percentages are then reversed in the sub-domain *Listening*, where the Arab States include this at 100% of all NAFs (3 out of 3 NAFs) and Central and Eastern Europe at 67% (2 out of 3 NAFs). These two cases highlight the importance and value of multi-faceted levels of analyses.

Construct level

Figure 11 on the next page, shows a breakdown, by percent, of constructs covered in each of the seven regions.

It illustrates the plethora of 20 construct level content areas for each region of the world. Although visually complex to interpret at a glance, this section will elaborate on the findings mentioned above in the domain and sub-domain levels in order to best understand how regions of the world include and assess specific content areas. Reinforcing the analytical findings in the overview figures, the construct level analysis indicates a low to no percentile representation of the sub-domain *Metacognition*, except for in two regions, North America and Western Europe and East Asia and the Pacific. Within the domain of *Metalinguistic Competency*, all four constructs are of the lowest covered in NAFs across most regions, with the exception of Sub-Saharan Africa which represents all four constructs – *Distinguish*, *Segment*, *Blend* and *Generate words from*.

In sum, the data collected and analysed by region does, in fact, provide some interesting findings regarding content area domain inclusion, and thus region of the world does play a significant role in determining domain or sub-domain content areas of NAFs.

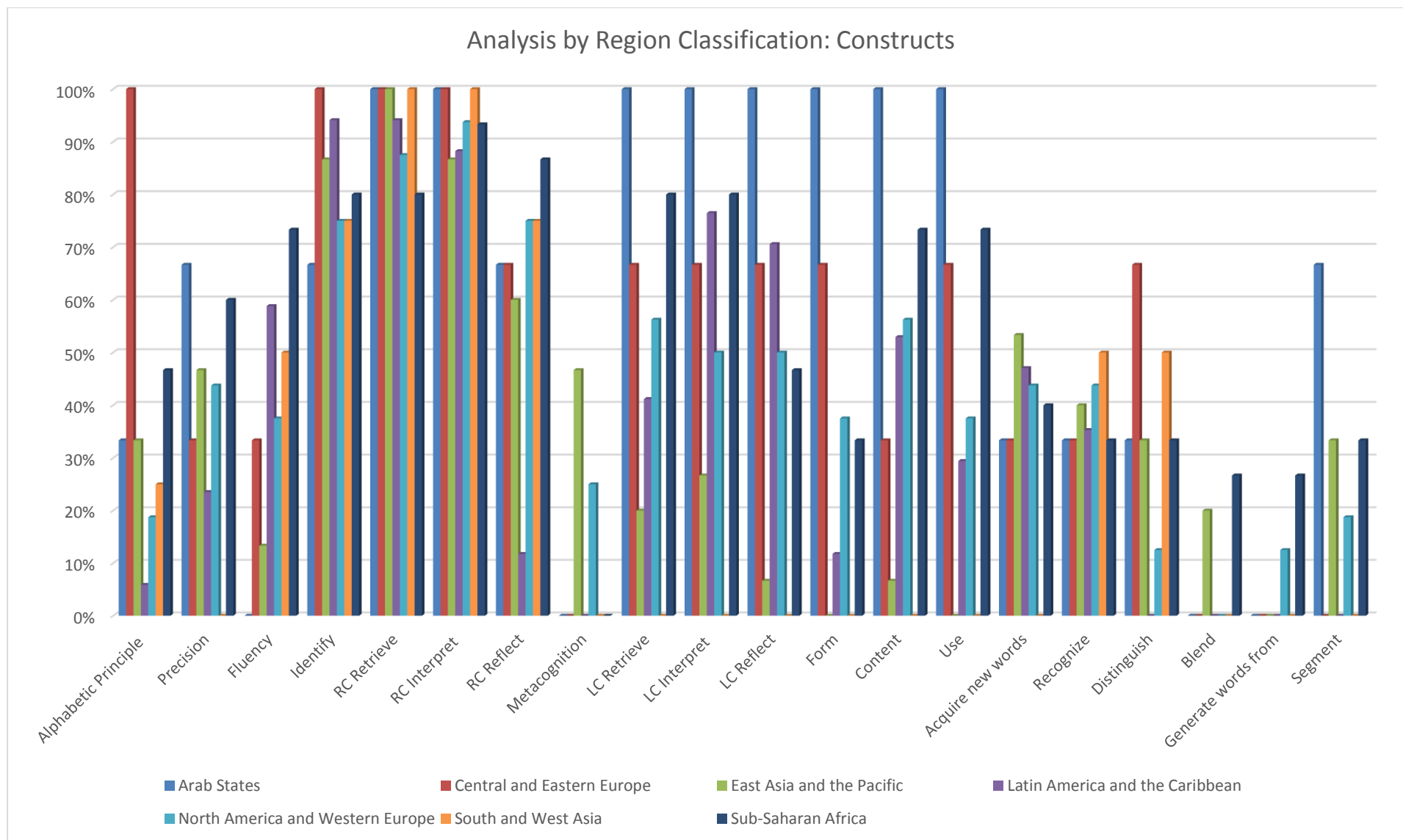


Figure 11: Analysis by region classification: Constructs

3. Analysis of NAFs: Income Classification

The classification of the Member States by income, in Low-Income, Lower-Middle-Income, Higher-Middle-Income, and High-Income countries (World Bank, 2017) was applied for the domain, sub-domain and construct levels analyses. In total, as seen in the Annex 1: Table 1.2, 25 UNESCO Member States, provinces, and administrative regions were analysed: thirteen in High-Income (HI), four in Upper-Middle-Income (UMI), six in Lower-Middle-Income (LMI), and two in Low-Income (LI). It must be noted that the majority of Member States in this study are classified as High-Income, and therefore, it is essential to keep this in mind during the interpretation of these findings. To best understand the distribution of NAFs from each income classification and its statistical significance, this section will reference the content area level and the quantity of NAFs- with its percentage, rather than the Member State itself. This is because several Member States that were analysed for this report included many frameworks (i.e. Australia has three frameworks and Seychelles has eight). By referencing the content with percentages, it ensures that there is fair representation when understanding the content areas described below.

Domain level

The information displayed in *Figure 12* below, shows a breakdown, by percent, of domains covered by Member States in each income classification. For example, the domain *Reading Competency* was 100% covered in all NAFs from all income classifications; and the domain *Linguistic Competency* was 100% covered in all NAFs from all income classifications; and the domain *Linguistic Competency* was absent in the NAFs from the NAFs classified as Upper Middle Income (UMI). These values are represented in *Figure 12* and their findings interpreted below.

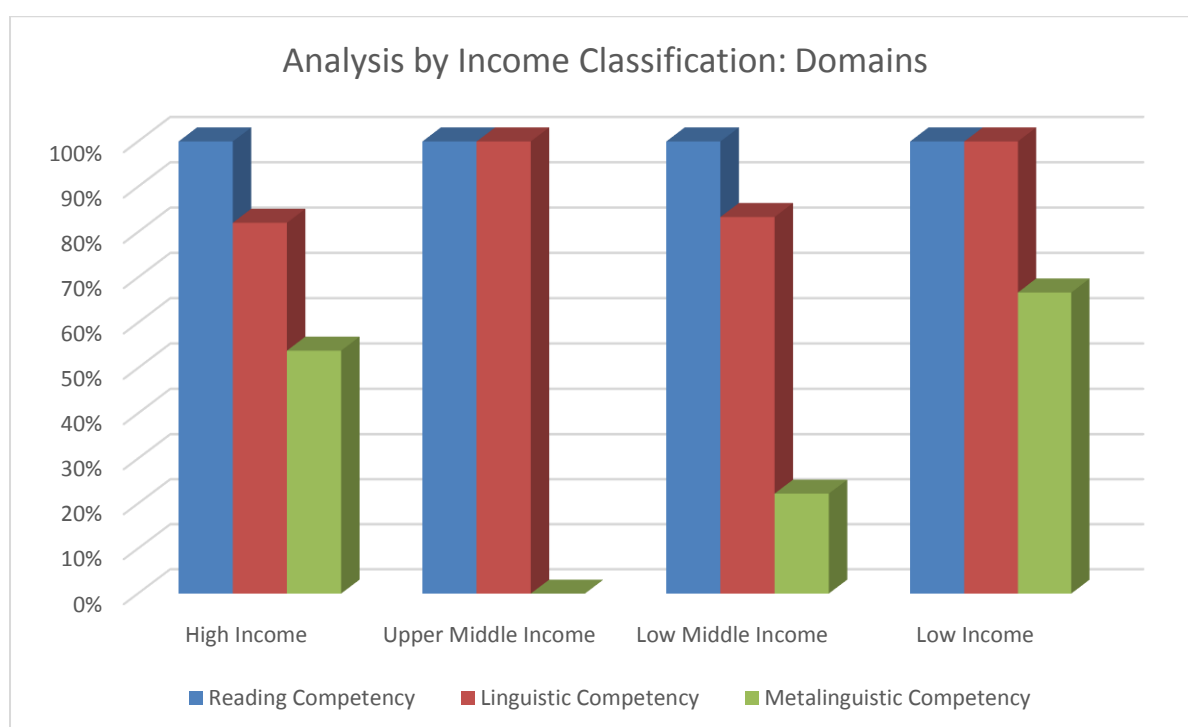


Figure 12: Analysis by income classification: Domain level

A commonality is found across all four income classifications in the two domains of *Reading Competency* and *Linguistic Competency*. This is not foreign to the aforementioned analyses, neither that of overall analysis or regional analysis. This commonality suggests that regardless of income classification, a large percentage of NAFs, from the 25 Member States in this study, value and include these two domain areas in support of their learners' reading development and acquisition.

In comparison to the two highly represented domain areas, the most striking data revolves around the low percentage of NAFs, in almost all income classifications, with the exception of Low Income, that cover the domain *Metalinguistic Competency*; this emerges as a trend across the various levels of analyses regardless of region or income classification. In the subsequent sections of this report, additional analyses by education level and language will confirm or contradict this emerging trend, but it is nevertheless important to take particular note of at this point.

Moreover, when examining the results from the Low Income classified NAFs, it is important to note that only two Member States' NAFs were included in this study, and thus the results are from only two nations – Gambia (2 NAFs) and Senegal (4 NAFs). Referring to [Figure 2 - Total of NAFs by Income Classification](#), one can see that out of the 73 NAFs included in this study only 6 (8%) came from Member States' classified as Low-Income. Therefore, as seen in [Figure 12](#), the domain *Metalinguistic Competency's* percentile representation at 67% (the highest of all income classifications) indicates a statistically strong coverage of the domain *Metalinguistic Competency* in the NAFs content. Further analyses by sub-domain and construct level can inform to exactly which areas comprise the 67% coverage.

Upper-middle-income and Low-middle-income Member States' NAFs had 0% and 22% coverage, respectively, of the domain *Metalinguistic Competency*. Possible explanations for these low percentages may be seen by the education levels included in the NAFs – the lower grades of which dominate *Metalinguistic Competency* coverage. Note that the majority of the NAFs in this study (53%) come from High-Income classified Member States. Perhaps with a greater number of Low-income and Upper-Middle-Income Member States' NAFs, the percentages will become more constant. In the meantime, however, this does point to the fact that a particular Member State's income level does not determine coverage of domains on NAFs. The following analyses at the sub-domain and construct levels shall confirm or oppose this statement.

Sub-domain level

The information displayed in [Figure 13](#) below, shows a breakdown, by percent, of sub-domains covered by each of the income classification levels.

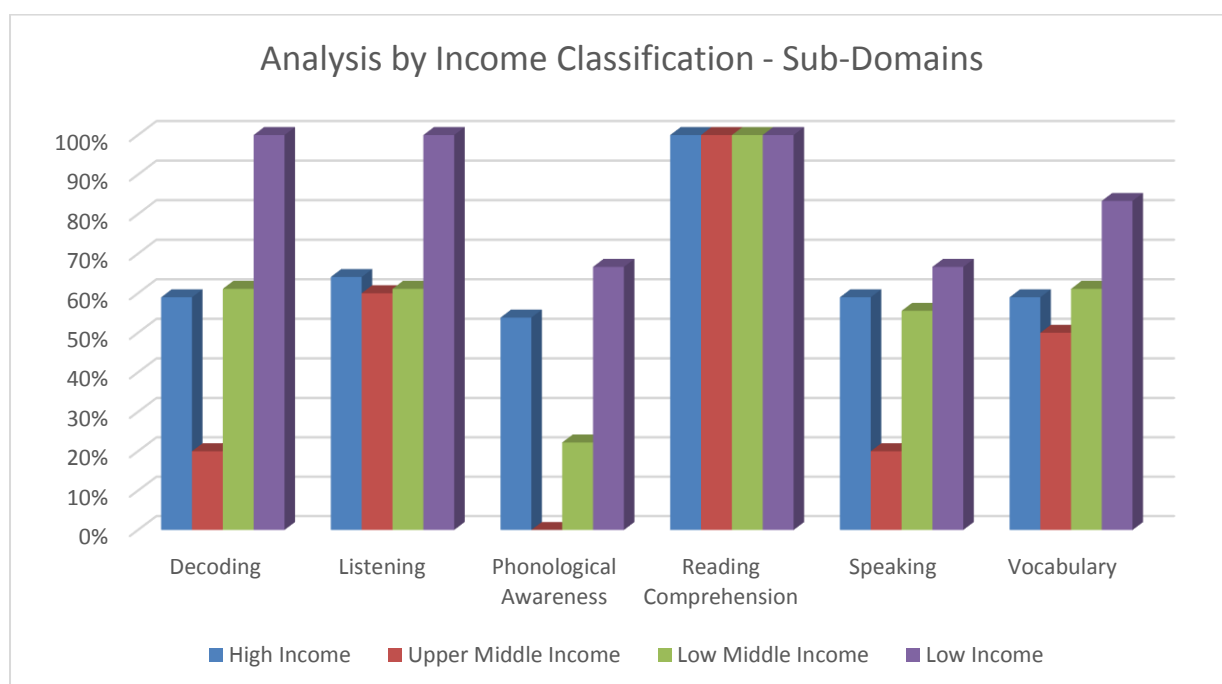


Figure 13: Analysis by income classification: Sub-Domains

Following suit with the domain-level classification above, low-income Member States' NAFs appear to include statistically higher across all six sub-domains. However, one must note that with only 8% of all NAFs classified as Low-Income, coming from 2 Member States, these values are skewed in favour of this classification. These figures do not necessarily represent higher inclusion of content areas, but rather, with only 6 out of 73 total NAFs, Low-Income Member States have less NAFs with which to determine an average percent of coverage. Of statistical significance in this analysis, is the percentage coverage of sub-domains in High-Income NAFs, which include 53% of all NAFs and from which its percentile representation in [Figure 13](#) is validated by the quantity of NAFs in this classification.

As such, across the High-Income classified NAFs, all sub-domains are included at higher than 50% representation, with *Phonological Awareness* at the lowest in this classification at 54% coverage. What this suggests is that even with a high percentage of NAFs from which averages may be a statistical disadvantage, High-Income NAFs appear to include a solid array of inclusion across the sub-domains expressed in robust frameworks.

An expected commonality, seen in [Figure 13](#), is the 100% presence of the sub-domain *Reading Comprehension* in all income classifications. This is supported by above analyses and further confirmed that regardless of income, all Member States place a significant value on the inclusion of comprehension in learners' literacy – reading development.

Construct level

The findings from the domain and sub-domain level analyses merit deeper investigation and thus, the construct level analysis, seen in [Figure 14](#), shows a breakdown, by percent, of constructs present by each of the income classification levels.

Again, it is important to note that the high percentage of Low-Income classified sub-domain areas should not be misinterpreted in comparison to other income classifications' percentages. Albeit valid and relatively high given the small number of NAFs classified as Low-Income, there is no statistical significance within the array of NAFs from other income classifications. In short, for both Gambia and Senegal, the high percentage of coverage is significant and well-noted; however, it does not signify that Member States classified as low-income on the whole are better at representing content areas in their NAFs necessarily.

In the construct area *Metacognition* – “the process of thinking about one's own thought processes. Metacognitive skills include the ability to monitor one's own learning” (Cuadro, Palombo and Ruiz, 2018), the only two income classifications which have any coverage are High-Income with 26% of their NAFs (10 out of 39 NAFs) and Low-Middle-Income with a marginal 6% of their NAFs (1 out of 18 NAFs). Reasons why the other two income classification groups' NAFs excluded *Metacognition* is not clear from the viewpoint of this study. However, both low percentages indicate a need for expansion of understanding around the importance this construct plays in the acquisition of reading. Moreover, it is necessary to observe how and if Member States are deeming it necessary to include in their NAFs.

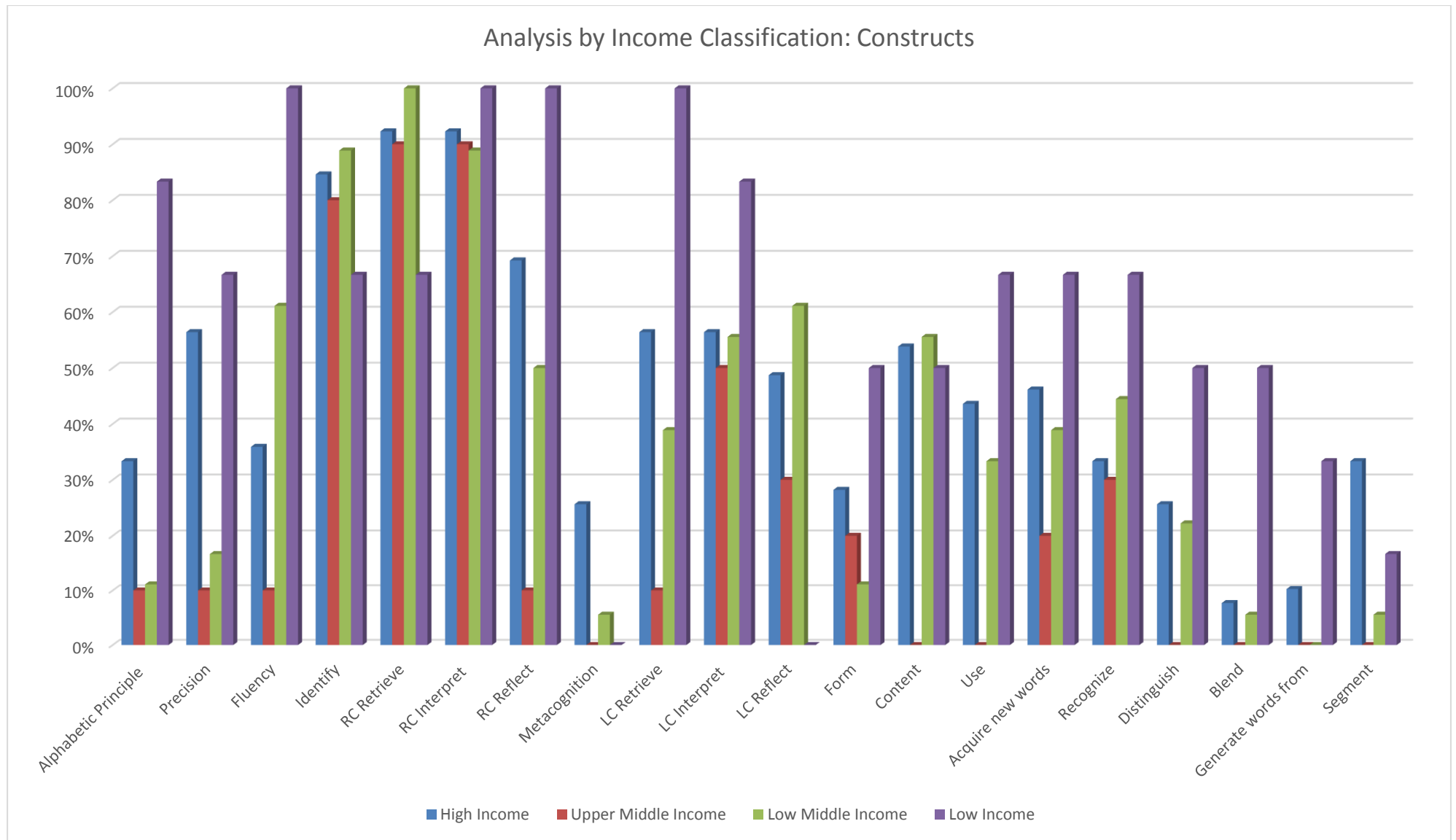


Figure 14: Analysis by income classification: Constructs

4. Analysis of NAFs: Education Level

In order to produce cross-nationally comparable indicators at the three points of measurement in SDG 4, Target 4.1 (early grades, end of primary, and end of lower secondary education), the classification of NAFs by education level was conducted before analysis. In total, as seen in [Annex 1, Table 1.3](#), the 73 NAFs from 25 UNESCO Member States were classified according to the grade level indicated in each framework. This classification by education level was guided by the three points of measurement in Target 4.1 and the Member States' classification of each grade level. For example, if a Member States' NAF stated that grade 4 was part of Lower Primary and not Upper Primary, then this was respected and its content areas were classified in Lower Primary. The aforementioned analyses have offered substantial findings in what and how Member States are assessing content areas in Reading; moreover, this section will provide additional findings extracted from the data when analysed by education level.

Domain level

The information displayed in [Figure 15](#) below, shows a breakdown, by percent, of domains covered by each of the education levels.

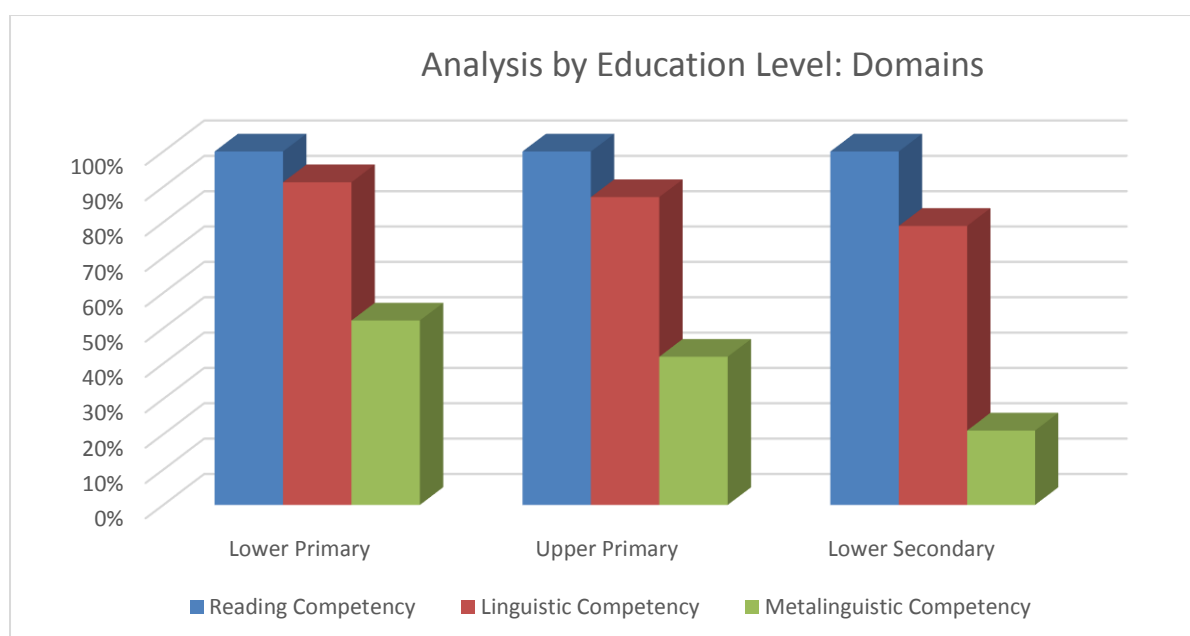


Figure 15: Analysis by education level: Domains

Before beginning an interpretation of the findings in [Figure 15](#), it is important to remember the overall distribution of total NAFs by each education level as seen in [Figure 3](#) of the report. To recap, 23 out of a total of 73 NAFs (32%) were classified as Lower Primary; 31 out of 73 (42%) as Upper Primary; and 19 out of 73 (26%) as Lower Secondary. To best understand the statistical significance of each education level and its inclusion or exclusion of domains, sub-domains and constructs, one must keep in mind these distribution percentages.

[Figure 15](#) illustrates a commonality seen in previous analyses in the domain of Reading Competency – with a 100% presence in all NAFs in all three education levels. Another domain which is highly present in NAFs from all three education levels is *Linguistic Competency*, with the highest presence (91%, 21 out of 23 NAFs) in Lower Primary, slightly less in Upper Primary with 87% (27 out of 31 NAFs), and present in 79% (15 out of 19 NAFs) of Lower Secondary NAFs. A reasonable explanation for this gradual reduction of presence of the *Linguistic Competency* domain is that the natural sequence to the development of reading acquisition is reliant of the

Metalinguistic Competency and *Reading Competency* as rudimentary. As such, pre-requisites in the lower grades tend to pave the path for more abstract and cognitively difficulty abilities present in *Reading Competency* in particular.

Sub-domain level

The information displayed in *Figure 16* below, shows a breakdown, by percent, of sub-domains covered by each of the education levels.

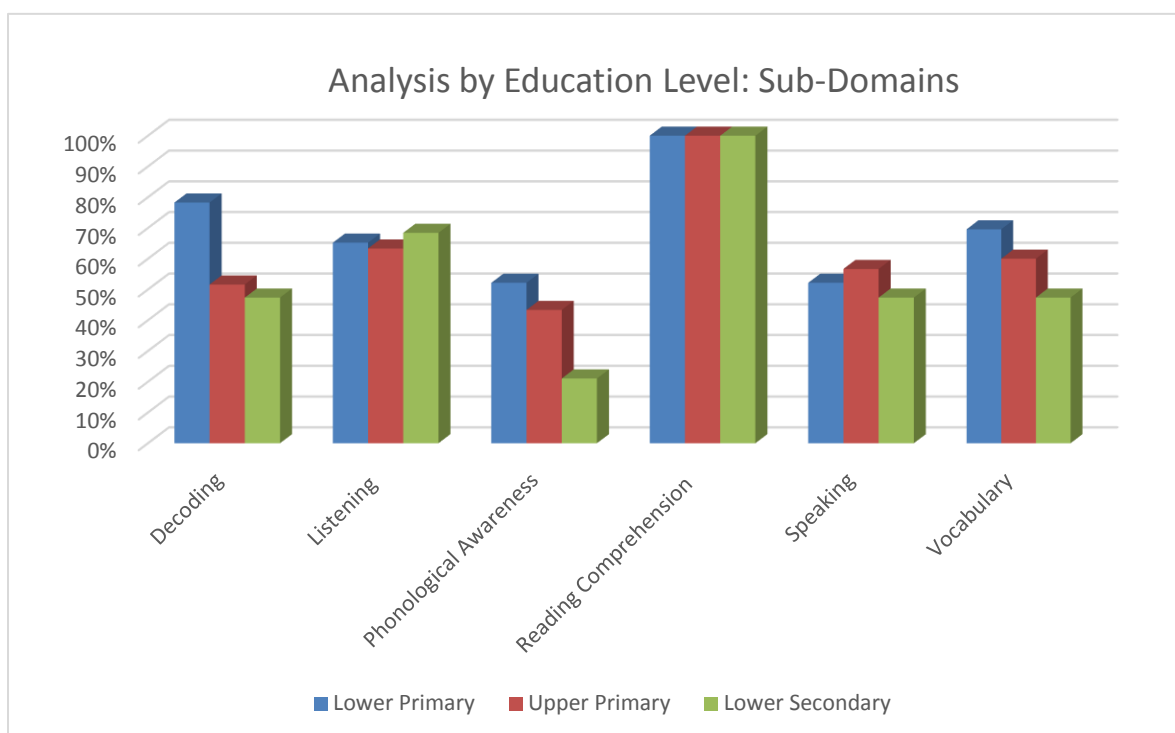


Figure 16: Analysis by education level: Sub-Domains

Figure 16 displays the six sub-domains and their coverage in each of the three education levels. Not surprisingly is the 100% presence of the sub-domain *Reading Comprehension* in all three levels. A common thread has been woven throughout this report, and now ultimately confirmed, in this domain and sub-domain area regardless of classification scheme.

One noticeable and naturally explained presence (78%, 18 out of 23 NAFs) is that of *Decoding* in the Lower Primary NAFs. As a fundamental skill to reading development, it is stipulated that this finding would occur. In the area of expected findings, there is that of low percentage of the sub-domain *Phonological Awareness* in Lower Secondary education level at 21% coverage (4 out of 19 NAFs). Again, as *Phonological Awareness* is a base sub-domain upon which more complex thinking and application of reading acquisition is developed, it is reasonable to see its lesser inclusion in the Lower Secondary NAFs.

Most salient of findings in *Figure 16* is the surprisingly higher than hypothesised coverage of *Decoding* in the Lower Secondary NAFs with 47% (9 out of 19 NAFs) coverage in this sub-domain. Further analyses at the construct, and possibly sub-construct levels, are needed to tease out the distribution and coverage for this 47% presence. It is duly noted that Lower Secondary NAFs represent only 26% of the total number of NAFs (19 out 73 NAFs) in this study; nonetheless, this percentage level is perplexing and warrants further investigation.

Interestingly enough, at the sub-domain level, it is not yet clear how the education levels interact with one another on the transition - scope and sequence - between content areas assessed in Reading throughout a learner's academic career. Such clarification will be sought after in the construct and sub-construct level analyses to best understand how education levels value and include content areas in their NAFs.

Construct level

The information displayed in *Figure 17* on the next page, shows a breakdown, by percent, of constructs present by each of the education levels.

At an overview, *Figure 17* denotes the findings by education level at the domain and sub-domain levels; however, this section will seek to interpret specific findings in order to best understand the constructs comprised therein.

At the construct level, one salient finding at the education level is the increased presence and coverage of abstract and complex (i.e. higher-level thinking) skills in reading acquisition in higher grades – Upper Primary and Lower Secondary. When the sub-domain *Reading Comprehension* is broken down into constructs, it is developmentally appropriate to denote a higher presence of *Identify* and *Retrieve* in Lower Primary level NAFs and higher-level skills such as *Interpret* and *Reflect* more often in Upper Primary and Lower Secondary NAFs, as seen in *Figure 17*. This finding confirms the importance and value of construct and, oftentimes, sub-construct level analyses to break apart the components within larger content areas. Such a finding indicates an accurate sequencing of content areas in Member States' NAFs.

Referring to a finding in the sub-domain analysis, *Figure 17* informs the perplexing 47% coverage of *Decoding* in the Lower Secondary NAFs. Examining *Figure 17*, one can see the constructs corresponding to *Decoding* as the following: *Alphabetic Principle* (11% of Lower Secondary NAFs); *Precision* (21% of Lower Secondary NAFs); and *Fluency* (37% of Lower Secondary NAFs). Albeit seemingly low percentages and perhaps not a salient finding, a further investigation into the 37% of *Fluency* and 21% of *Precision* coverage in the Lower Secondary NAFs is found below at the sub-construct level.

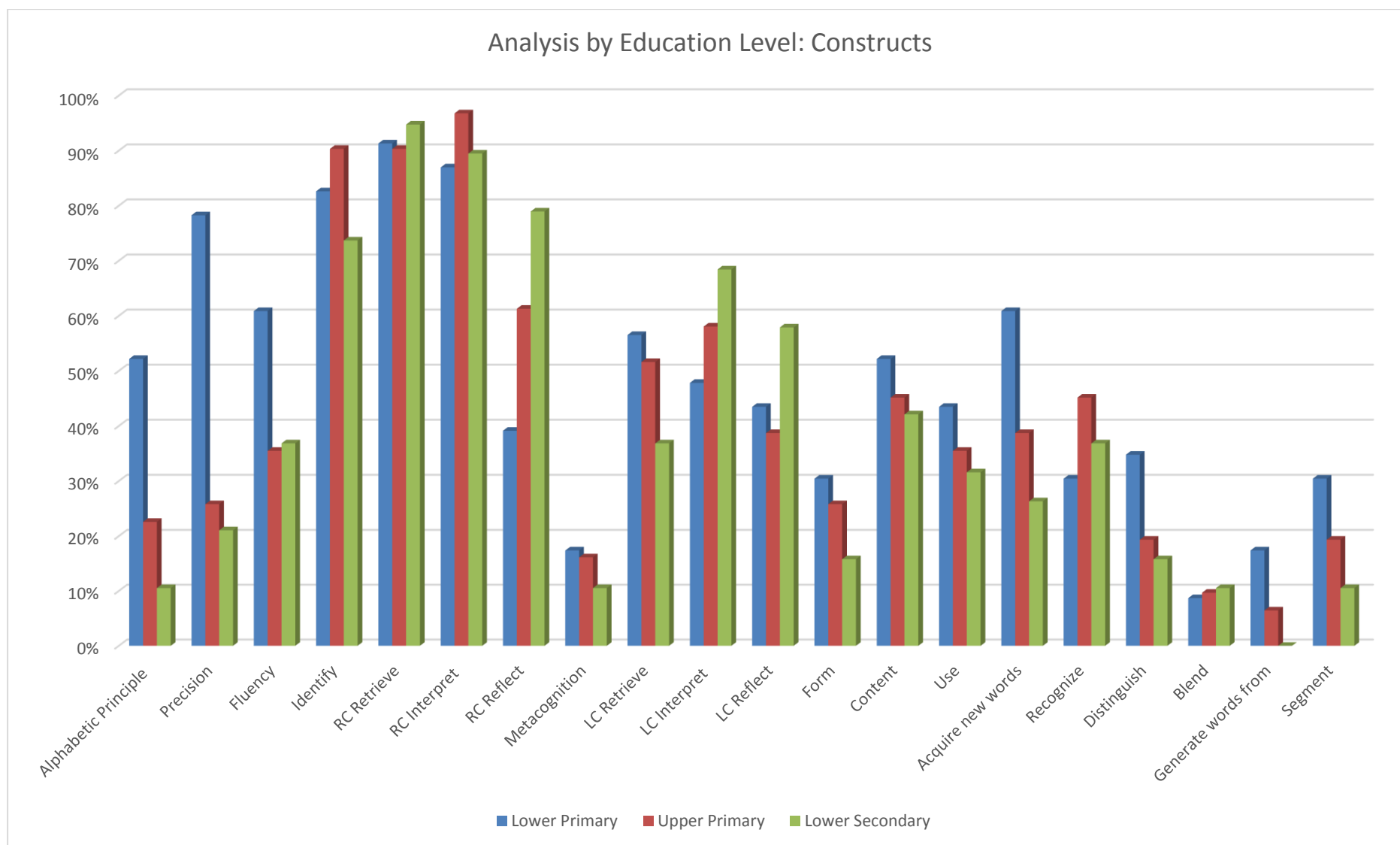


Figure 17: Analysis by education level: Constructs

Sub-construct level

The information displayed in *Figure 18* below, shows a breakdown, by percent, of sub-constructs in the construct areas – Fluency and Precision covered by Lower Secondary classified NAFs.

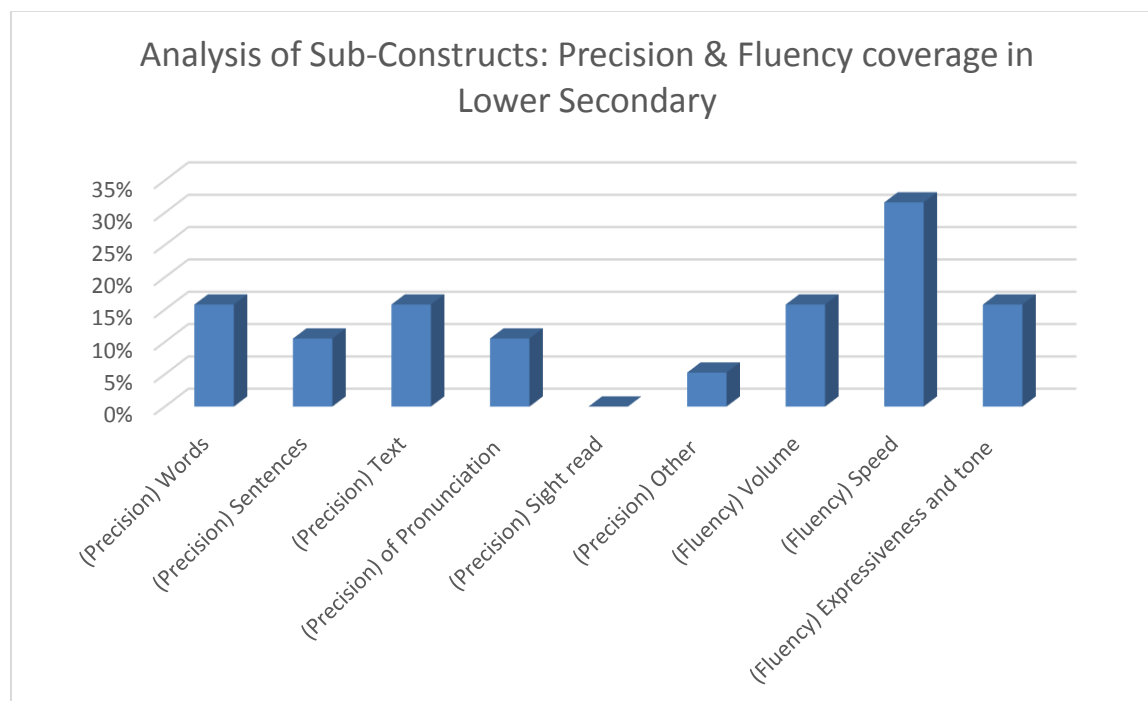


Figure 18: Analysis of sub-constructs: Precision & Fluency coverage in Lower Secondary

Figure 18 aims to take a closer look into the presence of the *Decoding* construct level content area in Lower Secondary NAFs in order to identify which sub-constructs are most present in this area and their significance. This analysis denotes which sub-constructs correspond to the construct (*Precision*) and which correspond to (*Fluency*) as labelled on the horizontal axis of *Figure 18*.

Within the construct *Precision*, it can be seen that two sub-constructs, Words and Text, are displayed at the highest and equal level of coverage 16%, 3 out of 19 among Lower Secondary NAFs. According to the Content Reference List, these two sub-constructs are described as follows:

“Correctly uttering the phonological representation of a word when reading it; distinguish between very similarly written words while reading (example: bare and bar). These activities can also be done with digital tools or support.”; “Text: read a text correctly (by sounding out words in a precise manner). These activities can also be done with digital tools or support.”

These descriptions appear to seem misplaced in the context of Lower Secondary NAF content areas, however, without supporting documents or resources from authors of such NAFs, the exact justification(s) for this occurrence is determined to be outside the scope of this study at this time.

Within the construct *Fluency*, it can be noted that all three sub-constructs, *Volume* (16%, 3 out of 19 NAFs), *Speed* (32%, 6 out of 19 NAFs) and *Expressiveness and Tone* (16%, 3 out of 19 NAFs) are covered among Lower Secondary NAFs. The description of the 32% coverage of *Speed*, according to the Content Reference List is to: “Keep a constant pace of reading; adjust the pace of reading according to what is requested (slower, faster); adjust the pace of reading to improve precision; adjust the pace of reading to improve comprehension (of the reader, of the audience). These activities can also be done with digital tools or support.”

Particularly fascinating is when this finding is cross-analysed by Member States and region in order to determine which countries are including *Speed*, *Volume* and *Expressiveness* and *Tone of Fluency* in their Lower Secondary NAFs. The findings of these are shown below in three figures, one for each sub-construct.

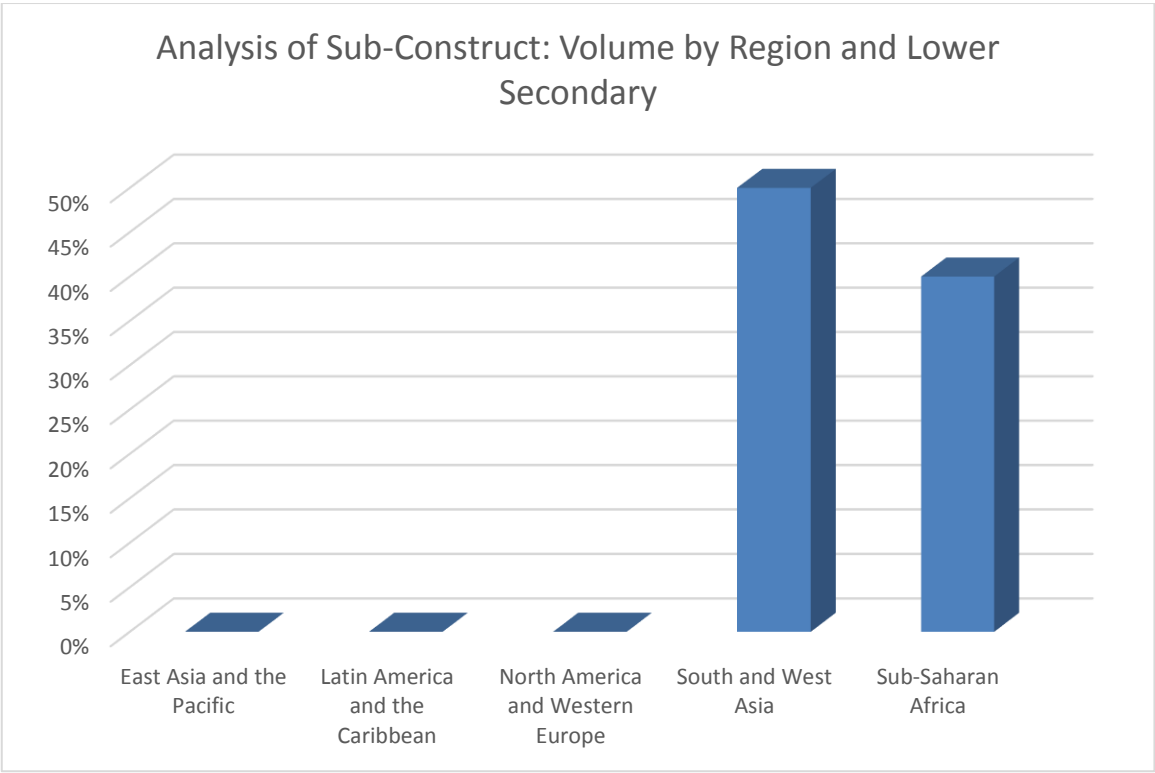


Figure 19: Analysis of sub-construct: Volume by Region and Lower Secondary

Figure 19 displays clearly which two regions of the world (South and West Asia and Sub-Saharan Africa) have included the sub-construct *Volume* in their Lower Secondary NAFs. These findings are particularly interesting in two ways. Firstly, this may illustrate a regional, context-specific need and justification for why these two regions included this sub-construct in their NAFs whilst the other regions did not. Secondly, it allows Member States within each of these two regions to take into consideration this finding and perhaps revisit their understanding of content areas in Reading development at a national level.

Figure 20, below, illustrates the two regions of the world (Latin American and the Caribbean and Sub-Saharan Africa) that cover the sub-construct of *Speed* in their Lower Secondary NAFs.

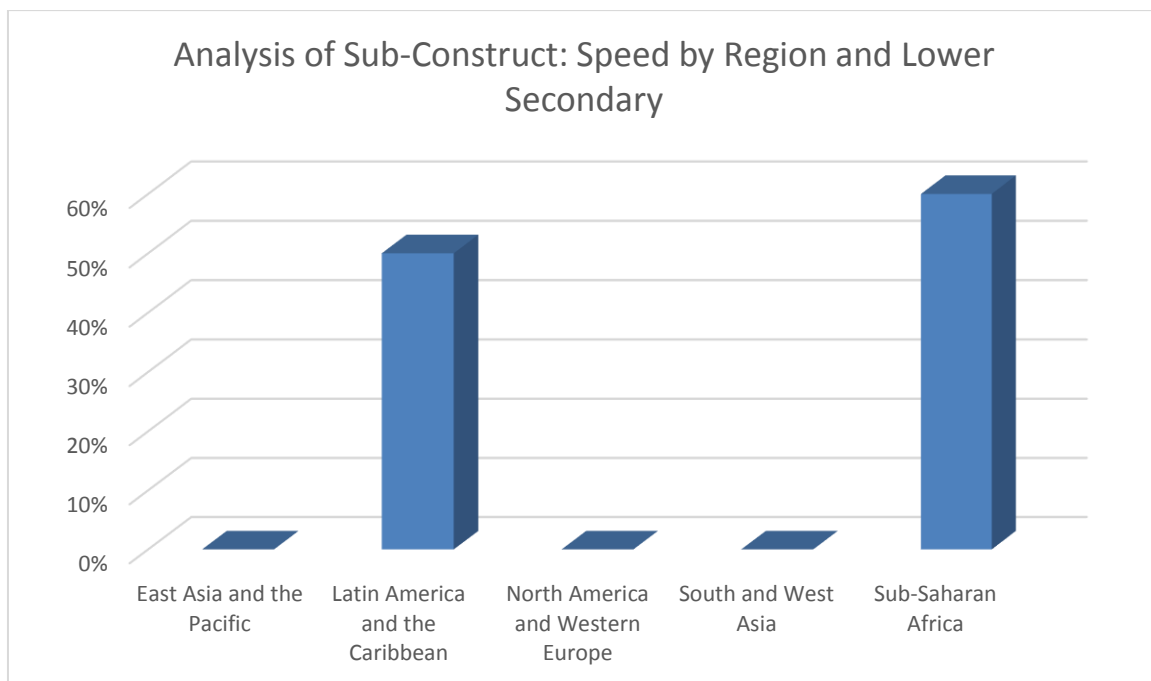


Figure 20: Analysis of sub-construct: Speed by Region and Lower Secondary

Based on the definition of Speed in the Content Reference List, this sub-construct is related to a learner's ability to "keep a constant pace of reading; adjust the pace of reading according to what is requested (slower, faster); adjust the pace of reading to improve precision; adjust the pace of reading to improve comprehension (of the reader, of the audience)" (Cuadro, Palombo and Ruiz, 2018,).

This presence may be connected to a regional and national emphasis on possible reading exercises or presentations of a competitive nature, where the teacher measures the reader's words per minute and students' needed development of such a skill. An example of this is seen in Honduras' NAFs from all grades, "Leer textos fluidamente de forma correcta a un promedio de x-y* palabras por minuto." (*read texts fluently and correctly with an average of x-y* words per minute*). However, authors of these NAFs would need to be consulted before such an assumption was confirmed.

Figure 21 displays the coverage of the sub-construct *Expressiveness and Tone* in Lower Secondary NAFs present in two regions of the world (Latin America and the Caribbean and Sub-Saharan Africa), but with a much higher percentage of occurrence in Sub-Saharan Africa.

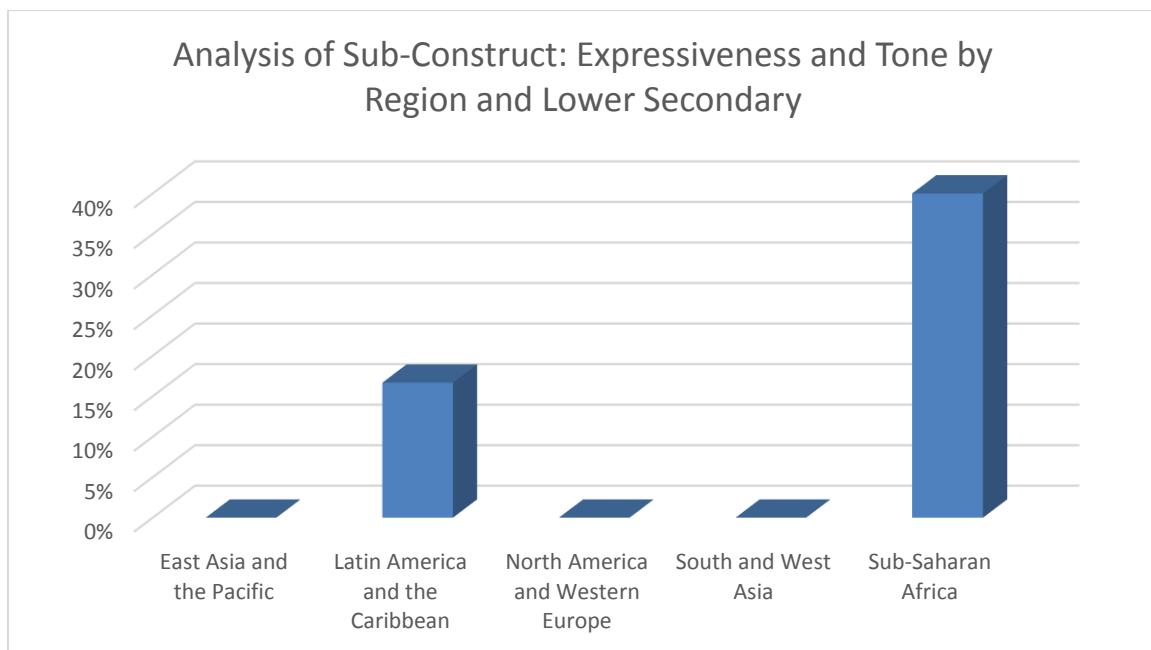


Figure 21: Analysis of sub-construct: Expressiveness and Tone by Region and Lower Secondary

Possible explanations for these inclusions would rely on direct input from the NAF authors to provide exact justifications for such inclusion; nonetheless, an understanding of this sub-construct in the regional context and historical significance of story-telling skills may explain why this sub-construct is included in these regions in Lower Secondary and not in other regions at this education level.

Since educational philosophies and approaches are informed by socio-cultural considerations and influenced by a nation's history, it may be explained by both regions' rich history of oral traditions (storytelling), resulting in a socio-educational emphasis on the need for the development of expression and tone in oral communication in response to multilingualistic national history (Abdi, 2007). This obviously translates into how to teach reading and writing, students' 'initiation into written culture' and which learning objectives are therefore included in national education frameworks. (IBE-UNESCO, 2017).

Analysis of NAFs: Language

Domain level

The information displayed in [Figure 22](#) below, shows a breakdown, by percent, of domain areas by language.

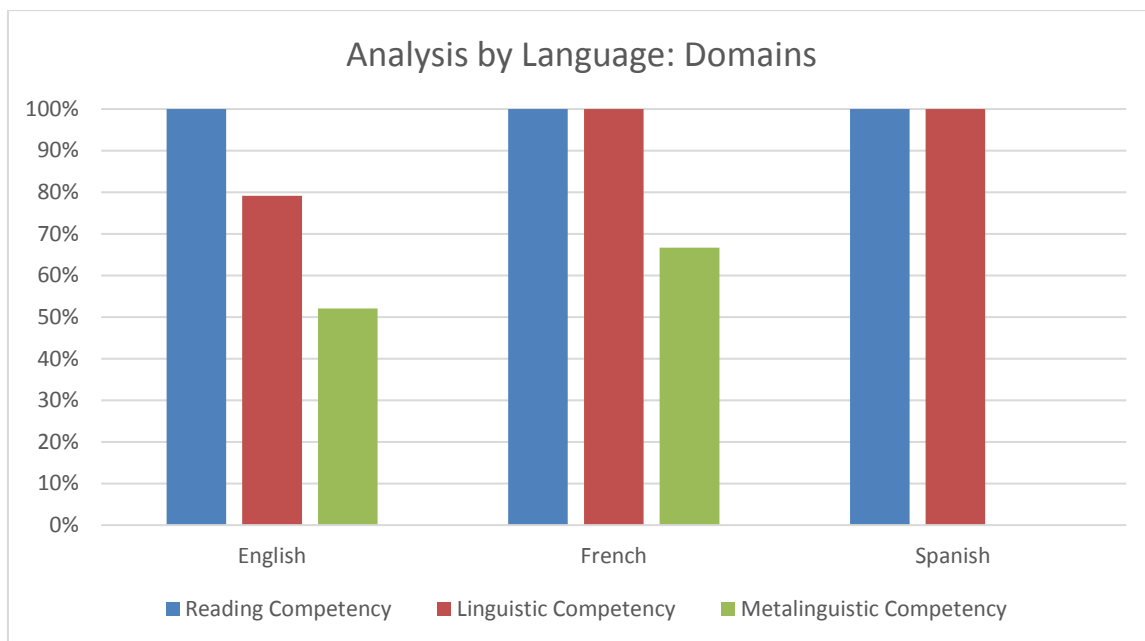


Figure 22: Analysis by languages: Domains

Figure 22 provides the findings of the domain content areas covered by each language in this study. It is important to note that 66% of the NAFs (48 out of 73 NAFs) in this study were English-language NAFs, 8% (6 out of 73 NAFs) were French-language NAFs, and 26% (19 out of 73 NAFs) were Spanish-language NAFs. This is paramount to consider when interpreting the findings of this analysis and even though the data may be visually significant in each Figure, one must remember the percentile distribution of NAFs by language in this study.

Reiterating a commonality in these findings, the domain *Reading Competency* is 100% present in all three languages. Within the English-language NAFs, which comprised the vast majority of the NAFs in this study, the domains covered are *Reading Competency* (100%, 48 out of 48 NAFs), *Listening Competency* (79%, 38 out of 48 NAFs), and *Metalinguistic Competency* (52%, 25 out of 48 NAFs).

Within French-language NAFs (8%, 6 out of 73 NAFs in this study), the domains covered are *Reading Competency* (100%, 6 out of 6 NAFs), *Listening Competency* (100%, 6 out of 6 NAFs) and *Metalinguistic Competency* (67%, 4 out of 6 NAFs). These values represent a rather high coverage of the three domain content areas in the French-language NAFs, of which the sample size available and selected for this study was much smaller in comparison to the other languages.

Within Spanish-language NAFs (26%, 19 out of 73 NAFs), the domains present are *Reading Competency* (100%, 19 out of 19 NAFs), *Listening Competency* (100%, 19 out of 19 NAFs), and *Metalinguistic Competency* was absent with a total percentage of 0% (0 out of 19 NAFs). Reasons for this exclusion in Spanish-language NAFs will require deeper investigation, as initial explanations based on education level (lower grades mapping higher in this domain) are not substantiated. Peru, Mexico and Honduras all included NAFs for lower grades in their Spanish-language NAF sample.

Further analyses at the sub-domain and construct levels will provide additional findings and determine if an analysis by language has, or appears to have, a significance on the presence or absence of content areas in Member States' NAFs for Literacy-Reading.

Sub-domain level

The information displayed in *Figure 23* below, shows a breakdown, by percent, of sub-domain areas by language.

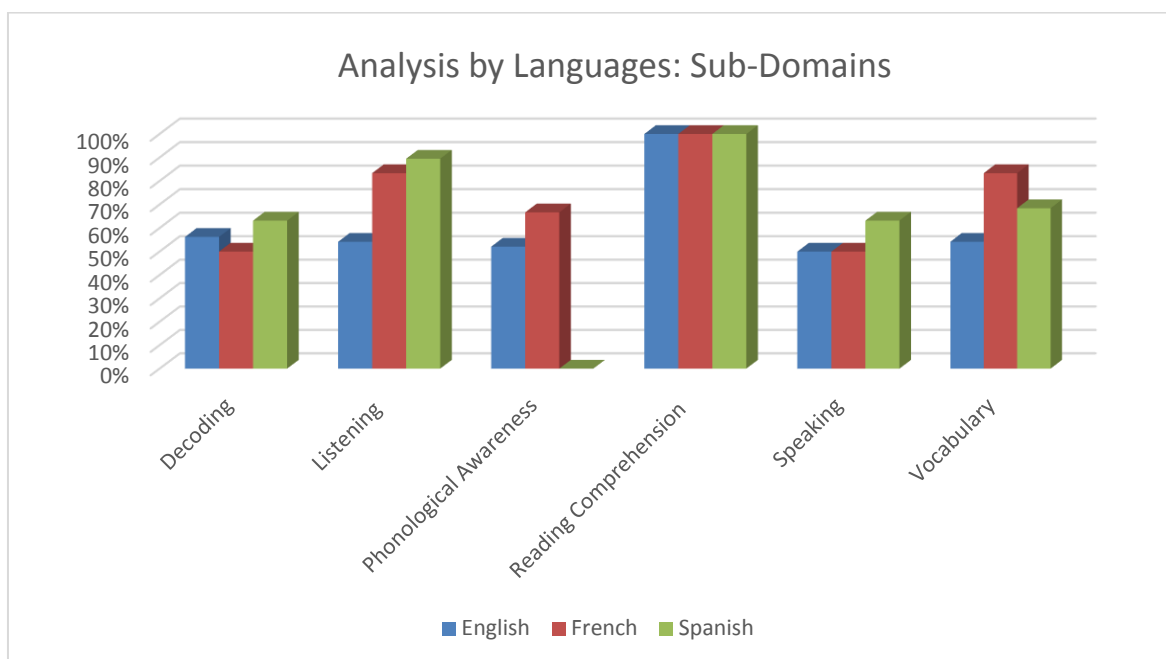


Figure 23: Analysis by languages: Sub-Domains

Figure 23 illustrates the six sub-domains and their presence in each language NAF. Pertinent to the data interpretation is the knowledge that 66% of all NAFs in this study were English-language, and therefore, French and Spanish-language coverage must be viewed and understood within this limitation before making assumptions on the visual representation indicated in *Figure 23*.

Most salient of findings is the absence of the sub-domain Phonological Awareness in the Spanish-language NAFs, even though three Member States' NAFs included the Lower Primary education level, which are developmentally appropriate and target a fundamental variable such as *Phonological Awareness* in a learner's reading and language acquisition. Drawing upon an excerpt from one of the Spanish-language NAFs, "Interpretar el significado del juego de palabras empleado en un chiste" (*interpret the meaning of word play occurring in a joke*) (Mexico, 2013 ENLACE Tercer Grado), it is noticeable that fundamental skills in reading development are mostly categorized as *Decoding*, *Speaking* or "Others" in Spanish-language NAFs, according to the descriptions in the Content Reference List. Perhaps with an expansion of the Content Reference List – in the *Phonological Awareness* sub-domain and *Metalinguistic Competency*, Spanish-language NAFs may be better positioned to be mapped across the array of these content areas; or perhaps, Member States who authored such NAFs shall consider these findings and determine further elaborations within their NAFs.

In sum, English-language NAFs appear to be rather equally distributed across the sub-domains and thus, it can be determined that aside from the Spanish-language NAFs' limitations within the domain *Metalinguistic Competency*, analyses by language classification do not play a noteworthy role in the coverage of content areas in Member States' NAFs. Other analyses, such as those detailed in above sections of this report, have extracted more outstanding findings.

V. Expansion of Analysis

Apart from a general understanding of the strengths and weaknesses that should be taken into account when developing a coding manual, there are at least two other levels of analysis that should be accounted for in order to provide Member States with the necessary tools to map their own NAFs.

First, considering the progressive nature of NAFs and national assessment systems and policies in general, an analysis should be carried out indicating the presence and absence of domains and sub-domains by grade level. This moves beyond the education levels and takes a more in-depth look at the objectives and content areas assessed at each grade. It would be beneficial to then compare this to the way a Member State organizes its education levels. Doing so will not only provide a deeper understanding of the content areas being taught at smaller intervals but will also allow for more accurate comparison between and among Member States.

Second, as mentioned in the methodology of mapping documents, a decision was made to map objectives of an NAF within the wider umbrella of constructs, sub-domains, and domains. For example, as long as an objective or learning outcome found in an NAF matched the sub-construct Different types of text and could then be marked as present for that sub-construct, all subsequent levels of categorization were automatically marked as present as well. In this instance, it would mean that Identify construct, Reading Comprehension sub-domain and Reading Competency domain would also be marked as present. While this method does allow for the same level of analysis to be completed on each NAF, regardless of how many levels of categorization the NAF itself explicitly indicates, there are still limitations to this process. As such, it would perhaps be useful to include a standard metric by which to mark subsequent levels as present.

Furthermore, there are several NAFs (such as, France, Ireland, New Zealand) that follow a competency-based approach when articulating the overarching and broader abilities they hope students acquire throughout the various levels of schooling. This approach is significantly different from a content-based approach, for example, which seeks to address the specific points of knowledge and skill a student would obtain at each education level. For example, Member States that seek to instil competencies in students, focus heavily on learners' interaction with the world through the context of reading, highlighting ways in which those same learners grow to share an appreciation of books and print media, ways in which they learn to choose books on topics that interest them, and, oftentimes, ways in which they use those same books as a springboard to further understand the world around them. A competency-based approach is typically cross-curricular, focusing on how reading relates to and encompasses different subject-based areas. This contrasts steadily with a content-based approach, which highlights points of knowledge and skills to be obtained. It is common for such NAFs to include objectives related to reading a variety of books in multiple genres, building a reading portfolio, and identifying different types of texts.

Both of these approaches are found within the NAFs included in this report, and both are important to understanding the educational philosophies that countries abide by. This coding scheme, therefore, should be expanded to include facets of a competency-based approach. Doing so, will allow those countries to find their specific NAF objectives within the Coding Scheme and utilize it to the greatest extent possible. Including only content-based objectives within the framework of the Coding Scheme, excludes a portion of countries and reduces the data that could potentially be collected from the full sample of Member States included in this report. More importantly, including both approaches will promote adoption of this tool by more Member States, thus promoting autonomy in the mapping process within individual national bodies.

Conclusion

Monitoring of learning outcomes in the Sustainable Development Goals and the Education 2030 agendas is among the main areas of focus of both UIS and IBE-UNESCO. The collaborative project towards mapping the content of National Assessment Frameworks (NAFs) for Target 4.1 for Literacy- Reading, in order to produce cross-nationally comparable indicators, is an initial attempt towards this goal.

Taking into consideration the fact that analyses included in this report contained the majority of data derived from English-language frameworks, and predominately High-Income classified Member States, it is imperative that any presentation of the information collected contains a genuine understanding of this limitation, although it may be a reflection of a reoccurring issue of critical mass.

The results outlined from the significant analyses conducted in this study shed light on the main inquiry of the study as defined in the introduction of this paper: **What cross-national trends can be found in Literacy – Reading based on the content assessed in NAFs?**

Ultimately, trends in national assessments were determined across the four main levels of analyses: region of the world, income classification level, education level, and language of NAF. However, it was noted that the most salient of trends only occur across three levels of analyses: regional comparison, income classification, and education level.

References

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- IBE-UNESCO. 2017. *Teaching and Learning to Read in a Multilingual Context: Ways forward for three sub-Saharan African countries (Burkina Faso, Niger, Senegal)*. (Accessed on March 2018). <http://unesdoc.unesco.org/images/0024/002475/247533e.pdf>.
- UNESCO Institute for Statistics (UIS). 2017. 2 nd Meeting of Cross-national Assessments (CNA): Linking and Comparability. 21-22 September 2017, Hamburg, Germany. [http://uis.openplus.ca/gaml/files/meeting4/Concept note for meeting-CNA-Sept-CN.pdf](http://uis.openplus.ca/gaml/files/meeting4/Concept_note_for_meeting-CNA-Sept-CN.pdf) (Accessed June 2017.)

Annex 1: National Assessment Frameworks

Table 1.1 Member States' NAFs coded per region

Arab States (2)		Central and Eastern Europe (2)		Central Asia (0)		North America and Western Europe (7)		Sub Saharan Africa (4)		Latin America and the Caribbean (3)		East Asia and the Pacific (5)		South and West Asia (2)	
Country	N A F S	Country	N A F S	Country	N A F S	Country	N A F S	Country	N A F S	Country	N A F S	Country	N A F S	Country	N A F S
Egypt	1	Bosnia and Herzegovina	1			Alberta (Canada)	1	Gambia	4	Honduras	9	Australia	3	India	2
Qatar	2	Estonia	2			Ontario (Canada)	2	Mauritius	1	Mexico	7	Cambodia	2	Pakistan	2
						Quebec (Canada)	4	Senegal	2	Peru	1	Hong Kong SAR, China	2		
						England	2	Seychelles	8			Micronesia	2		
						France	3					New Zealand	6		
						Ireland	2								
						Spain	2								

Table 1.2 Member States' NAFs coded per income classification

Low-Income (2)		Lower-Middle-Income (6)		Upper-Middle-Income (4)		High-Income (13)	
Country	NAFs	Country	NAFs	Country	NAFs	Country	NAFs
Gambia	4	Cambodia	3	Bosnia and Herzegovina	1	Alberta (Canada)	1
Senegal	2	Egypt	1	Mauritius	8	Australia	3
		Honduras	9	Mexico	7	Ontario (Canada)	2
		India	2	Peru	1	Quebec (Canada)	4
		Micronesia	2			England	2
		Pakistan	2			Estonia	2
						France	3
						Ireland	2
						Hong Kong SAR - China	2
						New Zealand	8
						Seychelles	8
						Spain	2
						Qatar	2

Table 1.3 General Overview of Member States' NAFs coded

Income classification:

High Income (HI)
Upper Middle Income (UMI)
Low Middle Income (LMI)
Low Income (LI)

Language:

English (ENG)
French (FR)
Spanish (SPA)

Education Level:

Lower Primary (LP)
Upper Primary (UP)
Lower Secondary (LS)

Country	Region	Income	Language	Grades	Education Level
Canada-Ontario	North America and Western Europe	HI	ENG	3	LP
Canada-Ontario	North America and Western Europe	HI	ENG	6	UP
Canada-Alberta	North America and Western Europe	HI	ENG	6	UP
Canada-Quebec	North America and Western Europe	HI	ENG	2	LP
Canada-Quebec	North America and Western Europe	HI	ENG	4	UP
Canada-Quebec	North America and Western Europe	HI	ENG	6	UP
Canada-Quebec	North America and Western Europe	HI	ENG	8	LS
England	North America and Western Europe	HI	ENG	2	LP
England	North America and Western Europe	HI	ENG	6	UP
France	North America and Western Europe	HI	FR	2	LP
France	North America and Western Europe	HI	FR	5	UP
France	North America and Western Europe	HI	FR	8	LS
Spain	North America and Western Europe	HI	SPA	3	LP
Spain	North America and Western Europe	HI	SPA	6	UP
Ireland	North America and Western Europe	HI	ENG	2	LP
Ireland	North America and Western Europe	HI	ENG	6	UP
Mauritius	Sub-Saharan Africa	UMI	FR	9	LS
Senegal	Sub-Saharan Africa	LI	FR	2	LP
Senegal	Sub-Saharan Africa	LI	FR	4	UP
Seychelles	Sub-Saharan Africa	HI	ENG	1	LP
Seychelles	Sub-Saharan Africa	HI	ENG	2	LP
Seychelles	Sub-Saharan Africa	HI	ENG	3	LP
Seychelles	Sub-Saharan Africa	HI	ENG	4	UP
Seychelles	Sub-Saharan Africa	HI	ENG	5	UP
Seychelles	Sub-Saharan Africa	HI	ENG	6	UP

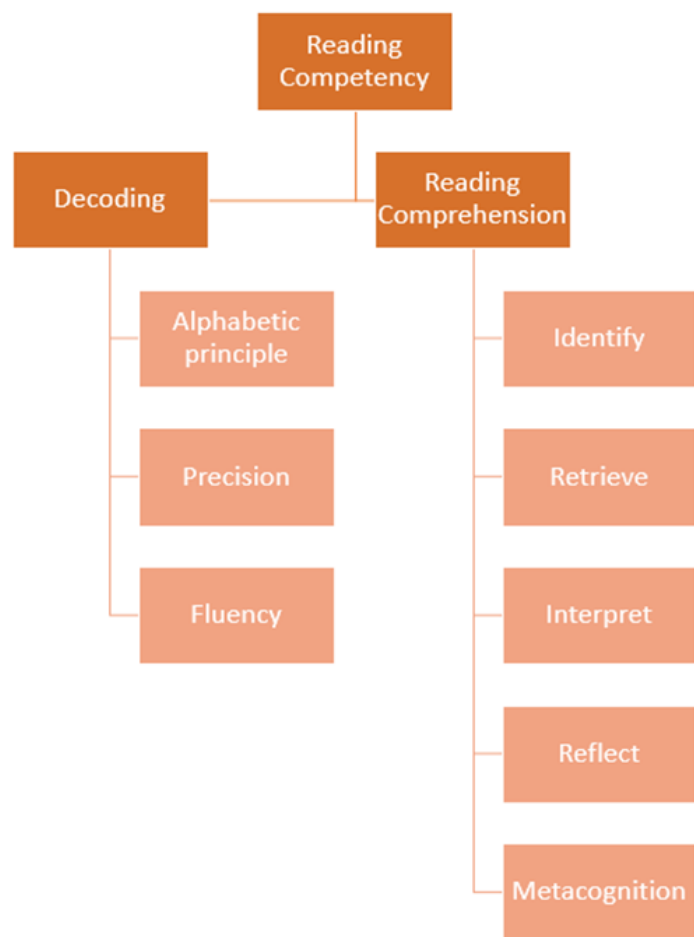
Seychelles	Sub-Saharan Africa	HI	ENG	7	LS
Seychelles	Sub-Saharan Africa	HI	ENG	8	LS
Gambia	Sub-Saharan Africa	LI	ENG	3	LP
Gambia	Sub-Saharan Africa	LI	ENG	5	UP
Gambia	Sub-Saharan Africa	LI	ENG	7	LS
Gambia	Sub-Saharan Africa	LI	ENG	8	LS
India	South and West Asia	LMI	ENG	5	UP
India	South and West Asia	LMI	ENG	8	LS
Pakistan	South and West Asia	LMI	ENG	4	UP
Pakistan	South and West Asia	LMI	ENG	8	LS
Australia	East Asia and the Pacific	HI	ENG	3	LP
Australia	East Asia and the Pacific	HI	ENG	5	UP
Australia	East Asia and the Pacific	HI	ENG	7	LS
Cambodia	East Asia and the Pacific	LMI	ENG	6	UP
Cambodia	East Asia and the Pacific	LMI	ENG	8	LS
Hong Kong	East Asia and the Pacific	HI	ENG	3	LP
Hong Kong	East Asia and the Pacific	HI	ENG	6	UP
Micronesia	East Asia and the Pacific	LMI	ENG	6	UP
Micronesia	East Asia and the Pacific	LMI	ENG	8	LS
New Zealand	East Asia and the Pacific	HI	ENG	1	LP
New Zealand	East Asia and the Pacific	HI	ENG	2	LP
New Zealand	East Asia and the Pacific	HI	ENG	3	LP
New Zealand	East Asia and the Pacific	HI	ENG	4	UP
New Zealand	East Asia and the Pacific	HI	ENG	6	UP
New Zealand	East Asia and the Pacific	HI	ENG	8	LS
Bosnia and Herzegovina	Central and Eastern Europe	UMI	ENG	4	UP
Estonia	Central and Eastern Europe	HI	ENG	3	LP
Estonia	Central and Eastern Europe	HI	ENG	6	UP
Egypt	Arab States	LMI	ENG	4	UP
Qatar	Arab States	HI	ENG	3	LP
Qatar	Arab States	HI	ENG	6	UP
Mexico	Latin America and the Caribbean	UMI	SPA	3	LP
Mexico	Latin America and the Caribbean	UMI	SPA	4	UP
Mexico	Latin America and the Caribbean	UMI	SPA	5	UP
Mexico	Latin America and the Caribbean	UMI	SPA	6	UP

Mexico	Latin America and the Caribbean	UMI	SPA	7	LS
Mexico	Latin America and the Caribbean	UMI	SPA	8	LS
Mexico	Latin America and the Caribbean	UMI	SPA	9	LS
Peru	Latin America and the Caribbean	UMI	SPA	2	LP
Honduras	Latin America and the Caribbean	LMI	SPA	1	LP
Honduras	Latin America and the Caribbean	LMI	SPA	2	LP
Honduras	Latin America and the Caribbean	LMI	SPA	3	LP
Honduras	Latin America and the Caribbean	LMI	SPA	4	UP
Honduras	Latin America and the Caribbean	LMI	SPA	5	UP
Honduras	Latin America and the Caribbean	LMI	SPA	6	UP
Honduras	Latin America and the Caribbean	LMI	SPA	7	LS
Honduras	Latin America and the Caribbean	LMI	SPA	8	LS
Honduras	Latin America and the Caribbean	LMI	SPA	9	LS

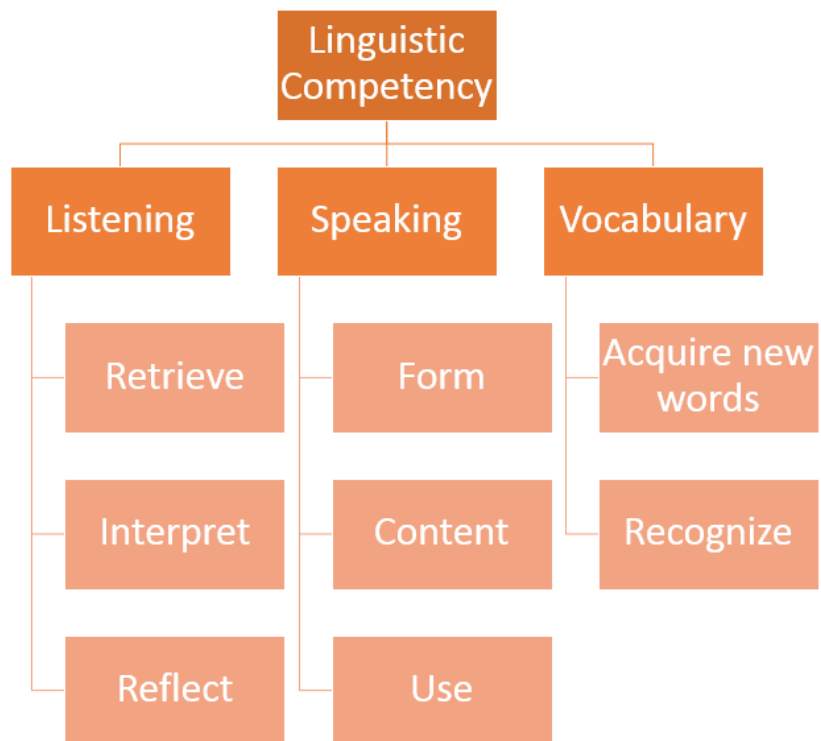
Annex 2: Coding Scheme – Domains and Sub-Domains



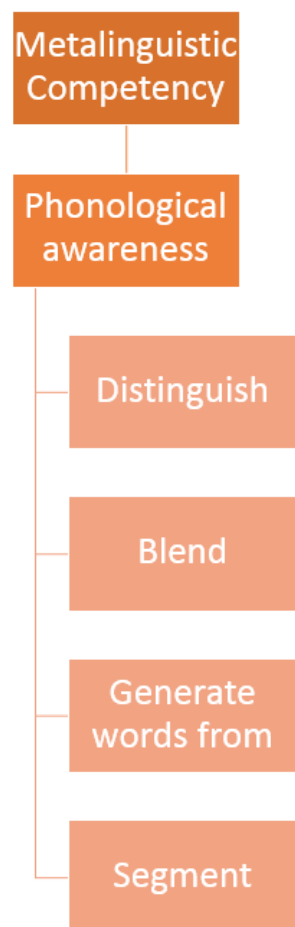
ANNEX 3: Coding Scheme – *Reading Competency* domain



Annex 4: Coding Scheme – *Linguistic Competency* domain



Annex 5: Coding Scheme – *Metalinguistic Competency* domain



Annex 6: Coding Scheme - Content Descriptors Sheet

READING COMPETENCY		Decoding, reading comprehension
Decoding	Alphabetic principle (grapheme-phoneme and diagraph-phoneme correspondence, upper and lower case correspondence, recognize the alphabetical order in dictionaries or encyclopaedias); Precision (words, sentences, texts, pronunciation, sight read/direct recognition); Fluency (volume, speed, expressiveness and tone)	
Reading comprehension	Identify (different types of texts, parts of a text, connections/signs/symbols/time/space indicator, parts and types of a sentence, abbreviations/contractions/compound words, purpose for reading); Retrieve (meaning of words, adjacent meaning of a word in a sentence, synonyms of paraphrased terms in a text, information, meaning of a text); Interpret (make inferences, generate conclusions make generalizations, identify evidence for an interpretation in a text, summarize main ideas, apply information from a text to a new context, compare and contrast information, types of texts, figurative language, paratextual information, anticipate the content of a text); Reflect (give an opinion, give reasons for an opinion, generate questions from a text, generate explanations for the information in the text based on personal experiences, assess information from someone else's perspective, about the author, changes made to a text, make critical assessments, combine ideas from different sources to create an opinion or judgment); Metacognition (goal setting and strategy planning, monitoring, evaluation)	
LINGUISTIC COMPETENCY		Listening, speaking, vocabulary
Listening	Retrieve (information, meaning of words, meaning of a text/conversation/discourse); Interpret (make inferences, generate conclusions, summarize main ideas, non-verbal language, communicative intentions); Reflect (opinion, purpose of different communicative situations)	
Speaking	Form (pronunciation, syntax); Content (amount and variety of vocabulary, coherence); Use (prosody, pragmatics)	
Vocabulary	Acquire new words (by context, through images and research); Recognize (relationships between words, elements that make up a word, linguistic varieties, everyday expressions from the area or from originary languages, word-formation, semantic categories)	
METALINGUISTIC COMPETENCY		Phonological awareness
Phonological awareness	Distinguish (onset and rhyme, words, syllables, phonemes); Blend (words, syllables, phonemes); Generate words from (rhymes, syllables, phonemes); Segment (in syllables, in phonemes, spelling)	

Annex 7: Coding Scheme - Competency Definitions

Reading competency

Includes two domains: decoding and comprehension. Decoding refers to the ability to associate the orthographic form of a word with its phonological form, where the orthographic form is given by the sequence of the graphemes. Reading comprehension is the ultimate goal of reading, as it is the process by which we retrieve information from a written text, we interpret it and even reflect upon it. Retrieving, interpreting and reflecting constitute different levels of depth in which we can interact with a text to build meaning.

Linguistic competency

Includes three different domains: listening, speaking, and vocabulary. It refers to the ability of retrieving and interpreting verbal information at the word, sentence and oral text levels. In order to include both receptive and productive skills we have created the listening and speaking domains, to differentiate both aspects. The vocabulary domain appears because it is one of the variables that shows a stronger association with linguistic comprehension (Compton, Gilbert, Jenkins, Fuchs, Cho & Bouton, 2012), having its explicit instruction an incidence on reading comprehension (Kamil, Borman, Dole, Kral, Salinger & Torgesen, 2008).

Metalinguistic competency

As it has been stated before, the metalinguistic and linguistic abilities are associated with reading but are not specific to written language as they respond to language in general. Phonological awareness is understood as the ability to reflect on and manipulate the sounds of speech (words, syllables, intra-syllabic units, and phonemes) and it is considered as one of the most powerful predictors of reading acquisition (Ducan et al., 2013), as its development is necessary to master the alphabetic code (Villarón, 2008).