Unveiling the Learning Crisis: Understanding the Reading Comprehension Challenges in Multilingual Contexts

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This study explores the underlying component reading skills that explain reading comprehension challenges faced by learners in multilingual settings who are instructed in a language in which they may or may not have oral language proficiency. Using data collected in the Philippines, Rwanda, and Kenya, we apply a two-step latent class analysis to first identify students with reading comprehension difficulties and then characterize their distinct skill profiles. In the Philippines, the profiles were primarily characterized by the specificity of skill deficits, such as challenges in decoding, oral language, or both. In contrast, in Rwanda and Kenya, the profiles were predominantly defined by the severity of the deficits, reflecting global difficulties across both decoding and oral language skills. These results underscore the importance of addressing both decoding and oral language skills to improve reading comprehension outcomes, particularly in settings where students are required to learn in languages they may not use at home.

Over the past 2 decades, assessments such as the Early Grade Reading Assessment (EGRA) and the Annual Status of Education Report have been widely adopted to aid policy makers and educators in the Global South in monitoring children's reading progress. The data derived from these assessments has

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unveiled a global learning crisis, exacerbated by the COVID-19 pandemic and associated school closures. As many as 70 percent of children in the Global South post-COVID-19 are expected to have difficulties with reading and comprehending a simple story by the age of 10 (World Bank, UNESCO, and UNICEF 2021). Accumulated evidence from EGRA across several contexts has demonstrated significant floor effects in reading comprehension tasks, with a substantial proportion of students receiving zero scores (Hoffman 2012; Zuilkowski et al. 2019; D'Agostino et al. 2024).

Although existing studies highlight the alarmingly low levels of reading comprehension among students, they provide limited insight into the underlying causes of poor comprehension (Hoffman 2012; Zuilkowski et al. 2019). Zero scores can result from multiple factors—including students' unfamiliarity with the assessment format, test anxiety, or lack of cultural relevance—yet one critical and often underexamined explanation is students' limited exposure to the language of instruction (LOI). In multilingual contexts, millions of children are learning to read in languages they do not speak or use at home or in their communities, and will also eventually be expected to learn to read in additional languages (World Bank, UNESCO, and UNICEF 2021). Because learning to read in any language is critically dependent on oral language skills, it is not surprising that these skills play an even more significant role in multilingual, second language (L2), or later language learners (August and Shanahan 2006; Jeon and Yamashita 2014; Van den Bosch et al. 2020; Raudszus et al. 2021). For multilingual learners, language comprehension is the first step to becoming fluent readers in that language. Unlike monolingual contexts where learners are likely to be taught in their own languages, in many low- and middle-income countries (LMICs), students are in multilingual contexts or in monolingual schools where their language is not the same as the school language and thus it cannot be assumed that they begin school with sufficient oral language proficiency to read with comprehension (Melby-Lervåg and Lervåg 2011; Babayiğit 2015).

The need to measure various facets of language to better understand reading comprehension is critical across multilingual settings. Yet most existing assessments in LMICs either do not measure language skills or fail to do so effectively (Soares et al. 2025). In addition, commonly used measures of reading comprehension, such as EGRA, have been criticized for being conditional upon reading speed (Dowd and Bartlett 2019) and for not effectively distinguishing students with lower ability levels (D'Agostino et al. 2025). These limitations may contribute to the ongoing poor literacy outcomes among learners in multilingual environments, as an insufficient grasp of their skill profiles hinders the development of policies and interventions tailored to their specific needs.

To address these gaps, this study builds on EGRA's core subtasks while incorporating a more comprehensive assessment of students' language abilities

through the Receptive and Expressive Language Module (RELM; Soares et al. 2025), as well as a new measure for reading comprehension that more effectively differentiates students' reading comprehension abilities (AIR 2022; PARAKH 2023; D'Agostino et al. 2025). By integrating these additional measures, this study not only captures a broader range of language skills and reading comprehension abilities but also enables a more precise classification of students based on their distinct skill profiles. This, in turn, allows for the identification of subgroups with varying comprehension difficulties—whether stemming from limited decoding skills, oral language difficulties, or both—thereby providing a stronger foundation that can inform multilingual education (MLE) and literacy policy development as well as the design of targeted interventions that address their specific learning needs.

In this study, we employ latent class analysis (LCA) to identify and characterize the skill profiles of subgroups of grade 4 low reading comprehenders in Rwanda, Kenya, and the Philippines, most of whom are instructed in a L2, with the goal of supporting targeted instructional efforts. Understanding the distinct instructional needs of these subgroups within the broader category of low reading comprehenders is essential for informing literacy and language instruction that meets the specific needs of struggling readers. Existing empirical research suggests that tailoring instruction to students' specific skill profiles can lead to improved literacy outcomes (Szadokierski et al. 2017; Burns et al. 2018). However, the lack of robust evidence detailing the skill profiles of learners in multilingual settings has limited our understanding of why reading comprehension rates remain low.

Some studies conducted in Western settings have employed latent class or profile analysis to identify subgroups within a sample of low reading comprehenders (Brasseur-Hock et al. 2011; Clemens et al. 2017; Capin et al. 2021). However, to the best of our knowledge, this is the first study to apply such methods to examine the reading profiles of students in LMICs and multilingual contexts who are instructed in languages in which they may have variable (if any) oral language proficiency, and who struggle with reading comprehension. These profiles are based on their performance in component reading skills outlined by the simple view of reading (SVR) framework (Gough and Tunmer 1986; Hoover and Gough 1990), more recently conceptualized as the cognitive foundations for reading acquisition (CFRA) (Hoover and Tunmer 2020). Such analyses could speak to the appropriateness of current instructional approaches and inform the design and implementation of policies and interventions that better respond to the learning needs of students by addressing the deficits identified within distinct latent profiles. It can also pave the way for similar analyses in other contexts, proposing a method that has not been commonly used in multilingual settings and aiding practitioners, researchers, and policy makers in identifying and better understanding student component skills profiles.

Multilingualism and Literacy Education in Kenya, Rwanda, and the Philippines

Kenya

Kenya is a multilingual country, home to 68 living languages, 61 of which are Indigenous (Eberhard et al. 2024). Kenya's 2010 Constitution designates Kiswahili as the national language and both Kiswahili and English as official languages, while also mandating the promotion and protection of Indigenous languages. Sociolinguistically, approximately 21 million people use Kiswahili and 44 million use English. However, only 115,000 speak Kiswahili as their first or dominant language (L1), and 54,000 are L1 English users.[1] Although Kiswahili serves as the language of wider communication, the vast majority of Kenyans have a local language other than Kiswahili as an L1 (Eberhard et al. 2024).

The design and implementation of Kenya's language-in-education policy, however, is opaque. The 2012 policy framework emphasized that the language of the catchment area (or mother tongue) should be used in early childhood education (ages 0–8), with Kiswahili to be employed in metropolitan areas (Department of Education 2012). This framework appeared to suggest an early-exit transitional model of multilingual education, but it is still far from the ideal concurrent bilingual model for 6+ years where local languages or Kiswahili (in urban areas) serve as the LOI until the fourth grade transition to English as the LOI.[2] Despite these official directives, the policy has largely gone unenforced in recent decades, with most schools opting to use English or Kiswahili as the LOI from grade one (Piper and Miksic 2011; Trudell and Piper 2014; Mose 2017).

In the early grades, the 2017 Basic Education Curriculum Framework, which emphasizes a competency-based curriculum (CBC), leaves the LOI largely unspecified. English is officially designated as the medium of instruction from grade 4, whereas Kiswahili continues as a required subject through lower secondary school. Other than very small pilots from nongovernmental organizations and emerging efforts related to L1 literacy through the CBC implementation,

[1] We use the term "L1" to refer to students' first or dominant language, sometimes called a home language or mother tongue, though it is possible for students to be bilingual with two or more languages spoken in the home or to be instructed in a lingua franca that is a familiar language, even if not a child's dominant language. For the sake of concision, we refer to L1s as local languages that are the dominant languages in communities for the vast majority of sampled students.

[2] Multilingual education models are often described as immersion/submersion (i.e., students learn only in the L2 from grade 1), concurrent bilingual or dual language (i.e., students learn in two languages [their L1 and L2] as LOIs for a sustained period), or transitional (i.e., students switch from L1 to L2 as LOIs over a set time period and typically at some point during primary school). Transitional or bilingual models can be designed as "early-exit" (3 or fewer years using L1s as an LOI) or "late-exit" (6+ years using L1s as an LOI, at least in part; Baker et al. 2016). There is growing evidence that, in terms of long-term achievement and attainment outcomes, students perform best in late-exit bilingual models followed by late-exit transitional models, then early-exit transitional models, and finally, students perform most poorly in L2 immersion/submersion models (Heugh 2011; Collier and Thomas 2017; Schroeder et al. 2021).

there are no efforts to develop teaching and learning materials (TLMs) or train teachers in Indigenous languages, primary factors limiting the use of these languages as LOIs (D'Agostino et al., forthcoming). Given the lack of clear guidance, lack of TLMs, and lack of support, teachers most often interpret the "language of the catchment area" policy as permitting code-switching or using L1s as supplementary languages in the early grades, with English and Kiswahili remaining the primary LOIs (Piper and Miksic 2011; Trudell and Piper 2014). As such, despite a de jure L1-based MLE early-exit model, Kenya's de facto policy is an L2 immersion policy for the vast majority of students with no or extremely limited L1 literacy instruction occurring in practice to date (D'Agostino et al., forthcoming).

Rwanda

Rwanda's language context is distinctive compared with other linguistically diverse African nations, as 99 percent of its population speaks Kinyarwanda as their first language (L1). The constitution recognizes Kinyarwanda, English, French (GoR 2015), and Kiswahili (GoR 2017) as official languages, with Kinyarwanda being the sole national language. Historically, Rwanda was a member of La Francophonie, reflecting its colonial past under Belgium and its use of French in education. However, following the 1994 genocide, an Anglophone government (Rwanda Patriotic Front; RPF) came to power and declared English an official language in 1996, alongside Kinyarwanda and French. In 2002 only a small fraction of Rwandans were fluent in French (3.9 percent), English (1.9 percent), or Kiswahili (3 percent) (NISR 2002).

Rwanda's language-in-education policy has undergone numerous changes in recent decades, with two distinctive patterns emerging: (1) a frequent vacillation between L1-based transitional multilingual education models and L2 immersion models and (2) the gradual shift from French to English as the key L2 in the system.

Following a set of policy shifts between transitional models and L2 immersion models that embraced choice between French and English as L2 LOIs, Rwanda made a decisive shift to English as the L2 in 2008 with the rapid introduction of an L2 immersion policy (Pearson 2014). In 2011, Kinyarwanda was reinstated as the LOI for grades 1–3, a decision also reflected in the CBC framework, which designated Kinyarwanda as the LOI in early primary grades, with a transition to English at grade 4 (REB 2015).

The most recent policy shift occurred in 2019 (which remains—for now—the policy), when the government switched back to English as the LOI from grade 1, whereas Kinyarwanda, French, and Kiswahili are taught as subjects. The policy dictates that teaching should be conducted in English from the first grade, with Kinyarwanda remaining a mandatory subject throughout primary education, including its use for the teaching of reading in early grades.

Despite substantial efforts to produce and distribute English TLMs and investments in English teacher education, English language proficiency remains very limited among teachers and students, particularly in rural areas and among lower socioeconomic groups. These proficiency gaps and Rwanda's persistence in maintaining its L2 immersion policy are widely regarded as posing significant challenges to the system and likely impeding education outcomes in Rwanda for large segments of the population (Pearson 2014; Williams 2017; Crawford and Marin 2021).

Philippines

The linguistic landscape of the Philippines is a reflection of its complex geography and colonial history. With more than 7,000 islands, the archipelago hosts more than 180 languages, shaped by centuries of colonization. Spanish colonizers introduced Spanish as the language of religion and education in the sixteenth century, and American colonizers introduced English in the twentieth century as the official language for instruction and administration.

The LOI became English at the turn of the twentieth century, and it shifted with the 1937 Constitution, which designated Filipino as the national language and made its teaching obligatory in schools. Although efforts beginning in the 1950s and continuing with the 1987 Constitution emphasized use of local languages, the predominant form of education throughout this period was bilingual L2 immersion in Filipino and English (Gonzalez and Villacorta 2001; Monje et al. 2019).

A significant shift occurred in 2009 with the introduction of the Mother Tongue-Based Multilingual Education (MTB-MLE) policy. This policy mandated the use of the mother tongue as the primary LOI for the first 4 years of basic education (McEachern 2013). English and Filipino were to be introduced as subjects in the first grade, with a gradual transition from fourth through sixth grade. By seventh grade (lower secondary), English and Filipino would become the primary LOIs.

The rapid nationwide implementation of the MTB-MLE, however, faced substantial challenges due to the Philippines' linguistic diversity, lack of orthographic development, and capacity constraints within the Department of Education. These challenges led to widespread implementation issues, ultimately eroding support for the policy (Metila et al. 2016; Monje et al. 2021). One of the most critical gaps was the scarcity of adequate TLMs in L1s, which required stable and codified orthographies that did not exist for most local languages. Beyond orthographic development, logistic challenges with printing and distribution were persistent. Evaluations revealed that only 9 percent of sampled schools met the basic conditions necessary for effective implementation of MTB-MLE (Monje et al. 2021). Inadequate teacher training, particularly in the matching of teachers to linguistic contexts, further compounded these issues (Burton 2013; Metila et al. 2016).

Persistent challenges in the implementation of MTB-MLE, coupled with growing political opposition, led to set of bills that passed through the House and Senate in the Philippines in 2023 (House Bill No. 6717 and Senate Bill No. 2457), which formally discontinued the use of the mother tongue as the medium of instruction from kindergarten to grade 3, though granting exceptions to schools based on a set of conditions and an approval process. A consolidated bill is currently in process. At the time of data collection for this study in February 2024, the Philippines was still using an early-exit L1-based MLE model, with LOI shifts occurring in grade 4, though it has subsequently moved to a predominantly L2 immersion model from grade 2.

Theoretical Underpinnings

The development of reading comprehension has long been viewed as a componential process (Joshi et al. 2012; Joshi and Aaron 2000). The SVR (Hoover and Gough 1990)—more recently conceptualized as the cognitive foundations for reading acquisition (Hoover and Tunmer 2020)—is one of the most influential componential theories of reading. In essence, the theory posits that most of the variance in reading comprehension difficulties can be explainable by word recognition skills and language comprehension skills.

Although many researchers and scholars have added "complexity" to these two main components, especially in terms of inclusion of fluency or speed of processing (Joshi and Aaron 2000; Kirby and Savage 2008) and self-regulatory reading strategies (Duke and Cartwright 2021), the heart of the theory has been widely empirically validated. Studies looking at cross-language comparisons demonstrate that although word recognition and language comprehension have proportionally different contributions to reading comprehension in various orthography types, these two skills account for approximately 50–60 percent of the variance in reading comprehension scores across languages (Joshi et al. 2012; Nakamura et al. 2014; Peng et al. 2021). Studies have also revealed that each of these skills have key subcomponent skills; however, they all fall within one of these two main components (Catts et al. 2006; Ouellette and Beers 2010; Kim 2020). Research suggests that the relative contributions of each of these skills changes by grade as reading skills develop (Byrne et al. 1992; Tilstra et al. 2009).

Research also points to the fact that these two skills of oral language comprehension and decoding explain the variance in reading comprehension in L2 reading acquisition as well (Gottardo and Mueller 2009; Geva and Massey-Garrison 2013). Of note, theory suggests that L2 reading is significantly affected by L1 reading subskills, especially in terms of metalinguistic subskills (Koda 2005, 2008) and decoding skills transfer (Nakamura et al. 2019). Indeed, evidence from Western contexts shows that using students' L1 first or concurrently for reading instruction improves L2 reading outcomes (Goldenberg

2008).[3] This suggests that when weaknesses in second language (L2) decoding, rather than oral language, are the primary barrier to reading comprehension, first language (L1) decoding skills may play a more supportive role in developing L2 reading ability. In cases where L2 oral language is the primary limitation, it would make more sense for interventions to focus on L2-specific oral language support, while still promoting the foundational role of L1 in L2 literacy development.

Aims of the Present Study

In the present study, we identify and describe the skill profiles of unique groups of poor reading comprehenders across three multilingual settings—the Philippines, Rwanda, and Kenya—based on their performance on the key componential skills of decoding and language comprehension. The work reported here represents an effort to advance our understanding of the specificity and severity of reading difficulties among poor comprehenders instructed in an L2. Following an analysis to identify students struggling with reading comprehension, we addressed the following interrelated questions: To what extent can distinct profiles be identified among students with reading comprehension difficulties, based on decoding and oral language skills, in these multilingual contexts? What relative skill profiles define these unique learner groups?

Method

Participants

The current study took place in the context of a larger multicountry initiative focused on the transition of language instruction within educational systems, known as LITES (Language of Instruction Transition in Education Systems). LITES was conducted across six countries, targeting students in grades 3 and 4. However, this study focuses on three of these six LITES countries—Rwanda, Kenya, and the Philippines—because these were the only countries where comprehensive data on students' oral language ability was collected. This study specifically examines grade 4 students who typically transition from an L1, which refers to a language they use and understand, to an L2+, referring to learners' second or later acquired languages.[4] This transition is often mandated by educational policies rather than a naturally occurring or well-supported process for learners, meaning students are required

[3] The evidence from LMICs is still emerging, with some studies showing that L1 literacy predicts higher L2 reading outcomes (Walter and Dekker 2011) and others providing more nuanced evidence (Piper et al. 2016; Laitin et al. 2019).

[4] Despite English being the primary LOI, Kinyarwanda holds significant importance in literacy instruction. Kinyarwanda is the language in which learners are concurrently learning to read in early grades (including grade 3), supported by substantial investments from the US Agency for International Development (USAID) in early grade materials and teacher training.

to switch to an L2 LOI before they may have fully developed literacy skills in their L1 or oral language skills in the L2.

The overall sampling strategy for LITES involved randomly selecting approximately 60 schools within designated regions of each country.[5] Within each school, 8–10 students per grade were randomly chosen to participate. In addition, efforts were made to ensure gender representation in student selection. In total, LITES recruited about 600 grade 4 students and 600 grade 3 students per country. For the present study, a subset of LITES participants who received the full assessment battery in the L2, including all measures of oral language, was included. Specifically, the sample for this study consists of 303 fourth graders from Kenya, distributed across 30 schools; 326 fourth graders from the Philippines, distributed across 30 schools; and 311 fourth graders from Rwanda, distributed across 38 schools.

The students in the present study were, on average, 9.75 years of age in the Philippines, 10.19 in Kenya and 11.54 in Rwanda. According to self-reported data collected via a learner questionnaire, only a small percentage of students reported speaking the official LOI at home (17 percent in Kenya, 7 percent in Rwanda, and 15 percent in the Philippines), suggesting they are mostly L2 learners. These findings underscore the linguistic challenges faced by grade 4 learners as they adjust to an educational system that requires proficiency in a language that may not be commonly spoken or used in their home environments.

Ethical Approval

This study received ethical approval from the University of Notre Dame's Institutional Review Board and the relevant ethical review boards in each participating country prior to data collection. All research procedures adhered to national ethical guidelines and international standards for conducting research with human subjects.

Measures and Instruments

Instruments were selected to capture key component skills encompassed in the SVR framework: decoding and language comprehension. We adapted assessments from multiple literacy tools commonly used across LMICs, drawing from the following existing instruments: the EGRA (Dubeck and Gove 2015; RTI International 2015), the Literacy Boost Toolkit (Save the Children 2012), and the Facilitating Reading Acquisition in Multilingual Environments tools (Nakamura and De Hoop 2014). For the language comprehension measure, we employed the RELM (Soares et al. 2025), a new language measure developed under the Supporting Holistic and Actionable Research in Education

[5] Country specific regions included in the LITES study were Migori, Homabay, and Kisumu Counties in Kenya; Eastern, Western, Southern, Northern, and City of Kigali in Rwanda; and Region 6 and Region 7 in the Philippines.

activity, funded by USAID's Center for Education. For all three countries included in this study—Kenya, Rwanda, and the Philippines—grade 4 students were assessed in English, which is the official LOI at this grade level and a L2 for most students.

Decoding.—World reading accuracy is captured by the EGRA nonword reading subtask, named invented words (IW; Dubeck and Gove 2015; RTI International 2015). Invented or nonword reading measures children's ability to apply strings of sound-symbols correspondence rules to decode nonsense words that follow common orthographic structure with speed and accuracy. This 50-item subtask is timed to 60 seconds and is discontinued if the learner fails to give a single correct answer for the first five consecutive items. The outcome measured was the total number of correct IW read.

Fluency was assessed using the EGRA oral reading fluency (ORF) subtask (Dubeck and Gove 2015; RTI International 2015). For this subtask, students have 60 seconds to read as many words as possible in a grade-level passage. The passage length and total number of items varied slightly by country, with 74 words in the Philippines, 51 in Rwanda, and 47 in Kenya. The subtask measures students' ability to read text not only accurately but also with appropriate speed and expression. Each word in the story counts as an item, scored on a correct-incorrect binary scale. Scores used for analysis are the number of correct words students read per minute. The subtask is discontinued if none of the words in the first line is read correctly. The primary outcome measure used in the analysis was decoding fluency rate, expressed as the number of correct words read per minute.

Reading comprehension.—Reading comprehension was assessed with two measures, the EGRA reading comprehension oral reading fluency (RC-ORF) (Dubeck and Gove 2015; RTI International 2015) and the reading comprehension picture matching (RC-PM), tested and validated by the National Council of Education Research and Training (PARAKH 2023) and the American Institutes for Research (AIR 2022). RC-ORF follows ORF with up to five reading comprehension questions—both explicit and inferential—based on the same passage used for the ORF subtask. Assessors administer the questions based on how far the student reads in the text; for example, if the student reads about half of the text in the 60 seconds, they will only be asked two or three comprehension questions, depending on the word on which they stopped. The RC-PM subtask is a 10-to-12-item subtask of increasing complexity. In this subtask, the student will read a short sentence or multiple sentences, with items that are increasingly complex. The subtask requires the student to point to one of four pictures that represents the stimulus sentence or short story that they read. This subtask measures ability to comprehend the text in the language of assessment without conflating comprehension with speed and fluency, for which the RC-ORF measure is at risk.

Language comprehension.—Language comprehension is captured by the RELM, which includes subtasks for receptive (RELM-RV) and expressive vocabulary (RELM-EV) as well as listening comprehension. All students were assessed in English, which is the official LOI for grade 4 in all three study countries and a L2 for most students in this grade level. In the RELM-RV, the student is asked to select one of four images that corresponds to a word pronounced by the assessor. The subtask contains 12–15 items that become increasingly difficult. It measures the learner's RELM-RV skills in the language of assessment—that is, the learner's ability to understand words and their meanings when they are encountered in spoken or written language. The RELM-EV requires the student to say the noun or verb that corresponds to an isolated image shown by the assessor. It measures the learner's RELM-EV skills in the language of assessment—that is, the learner's ability to produce and use words in their communication.

Listening comprehension was assessed using the RELM listening comprehension picture matching (RELM-LCPM) subtask in Kenya and the Philippines. In this 12-to-15-item subtask, the student is asked to select one of four images that corresponds to a single sentence, two to three sentences, or a short story on a familiar topic read by the assessor. In Rwanda, the RELM listening comprehension short story (RELM-LCSS) subtask was used. In this 12-item subtask, the assessor reads two stories to the learner two times and asks multiple-choice questions (also presented aurally), based on the text, in increasing difficulty. Both subtasks are designed to assess children's ability to comprehend/understand oral discourse, and they cover language comprehension domains such as RELM-RV, syntactic knowledge, and inference making.

Procedures

Randomly selected grade 4 students were tested individually during their normal school day in a quiet classroom. All assessors completed a weeklong rigorous training conducted by the research team, including practice with administration procedures and scoring for each subtask within the assessment. Each assessor participated in multiple reliability tests based on an example administration skit of the entire assessment, and trainers responded to accuracy data with targeted additional practice and one-on-one support. During the training, assessors conducted a pretest with adapted assessments in a local school and trainers observed each assessor administer the test. Trainers provided immediate feedback following the pretest and resolved potential item-level confusion or data storing/uploading errors. In addition, among the learners sampled, a subsample of 120 learners in Kenya and Rwanda were coassessed concurrently by two assessors for interrater reliability (IRR) testing of the RELM subtasks. In each country and for each subtask, IRR scores were between 98 and 99.8 percent. All assessments were uploaded to a secure Tangerine

database at the end of each day. Assessors kept detailed notes of any data collection errors or difficulties for later correction during data cleaning.

Data Analysis

LCA was employed in a two-step analytical process: first, to identify poor reading comprehenders, and second, to describe the component skill profiles of these individuals. LCA is a statistical method used to identify subgroups (or "latent classes") within a population based on multiple observable measures (Lubke and Muthén 2005). It employs maximum likelihood estimation to fit a proposed model, linking membership in a predefined number of latent classes to performance on the observed measures included in the analysis. This process generates fitted probabilities of class membership for each individual. LCA assumes that the population is heterogeneous, meaning that it consists of distinct subgroups that differ in certain characteristics. Given the variation in reading comprehension skills among students, LCA was used to uncover meaningful student subpopulations with distinct language and decoding profiles. Identifying these latent classes allows for a more nuanced understanding of the specific skill deficits contributing to poor reading comprehension. This, in turn, informs the development of targeted interventions and policies that address the unique needs of each subgroup, rather than applying a one-size-fits-all approach.

To preserve the most detailed information from the data, we conduct the LCA using dichotomous item-level response data for the corresponding related subtasks. Items with uniform responses were excluded from the analysis due to the lack of variance, which provides no informative value. In the first step of LCA, items from the RC-ORF and RC-PM were grouped to identify poor reading comprehenders. In the second step, items from decoding and language comprehension subtasks were grouped for an additional LCA to explore the skill profiles of the poor reading comprehenders identified in the first step. All LCAs were estimated 10 times with different initial values, and the one with the greatest log likelihood was reported (Linzer and Lewis 2011). For the model selection, the Akaike information criterion (AIC; Kaplan 2000) and Bayesian information criterion (BIC; Kaplan 2000) were calculated. The AIC and BIC are commonly used to assess the simplicity of a model, where lower values signify a more parsimonious model fit.

Normalized entropy was also computed, following the formula proposed by Celeux and Soromenho (1996), to assess whether the clusters were well separated. In general, an entropy value close to 1 is ideal, and higher entropy scores suggest more precise classification into the profiles. In practice, an entropy value above 0.8 is acceptable (Weller et al. 2020). However, there is no standard cutoff criterion for entropy. Therefore, this metric was not considered a key factor in the selection of profiles (Lubke and Muthén 2007).

Results

Prior to conducting the first analysis, we investigated students' literacy and oral language skills descriptively, as shown in table 1. Raw scores rather than standardized normed scores are presented because norms of standardized measures we administered are not available for the countries in the study. We present the results for the three countries combined for ease of visualization. Cross-country comparisons, however, are not appropriate, because the subtasks were adapted for different cultural contexts, and the constructs being measured may not be perfectly equivalent. In addition, it should be noted that the number of items per subtask varied slightly by country.

In the Philippines, students exhibited moderate decoding skills, with a mean score of 23.88 on the IW task. Their ORF was also relatively high, with an average of 63.83 words per minute. Although students demonstrated strong decoding skills, they showed weak performance in reading comprehension, measured through RC-ORF (mean = 1.26). Students performed better in the second reading comprehension task, the RC-PM (mean = 5.4), likely because this measure does not rely on reading fluency and allows students more time to process the text before responding. Unlike RC-ORF, which conditions comprehension on reading speed, RC-PM provides a structured passage followed by multiple-choice questions, potentially making it a more accessible assessment for students with slower decoding speeds but stronger comprehension skills. They demonstrated a solid grasp of RELM-RV (mean = 12.96) but had a lower performance on RELM-EV (mean = 9.35). Their performance on the listening comprehension task, measured through LCPM, was also strong (mean = 10.42).

In Rwanda, students showed moderate scores on IW (mean = 23.77). Their ORF was also moderate, averaging 40.89 words per minute. Students scored low on RC-ORF (mean = 1.03) but showed a better performance in RC-PM (mean = 4.78). Low scores in RELM-RV (mean = 8.02) and

TABLE 1
DESCRIPTIVE STATISTICS FOR STUDENTS' LITERACY AND ORAL LANGUAGE SKILLS

	Philippines			Rwanda			Kenya		
	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
Invented words	0–50	23.88	12.12	0–50	23.77	13.88	0–38	12.61	8.95
Oral reading fluency	0–203	63.83	38.8	0–107	40.89	20.08	0–123	43.98	26.83
RC Oral reading fluency	0–5	1.26	1.51	0–5	1.03	1.03	0–6	2.65	1.89
RC Picture matching	0–7	5.4	1.83	0–7	4.78	1.9	0–10	7.57	2.57
Receptive vocabulary	4–15	12.96	2.21	0–12	8.02	2.07	6–12	10.62	1.32
Expressive vocabulary	0–15	9.35	3.84	0–12	4.54	3.08	1–12	8.5	2.46
LC picture matching	3–12	10.42	1.92	NA	NA	NA	5–12	10.04	1.59
LC short story	NA	NA	NA	0–11	4.75	2.29	NA	NA	NA

NOTE.—LC = listening comprehension; RC = reading comprehension.

RELM-EV (mean = 4.54) and listening comprehension tasks (mean = 4.75) may indicate some challenges in oral language abilities in the L2.

In Kenya, decoding skills were weak to moderate, with a mean score of 12.61 for IW. ORF averaged 43.98 words per minute. Reading comprehension scores varied, with an average of 2.65 for RC-ORF and 7.57 for RC-PM, showing relatively better comprehension skills. RELM-RV and RELM-EV scores were 10.62 and 8.5, respectively, indicating a solid understanding of RELM-RV, but moderate ability to use RELM-EV. Students demonstrated strong skills in listening comprehension (mean = 10.04), as measured by LCPM.

Overall, the descriptive data suggests that although students across the three countries generally exhibit moderate decoding skills, they tend to struggle with reading comprehension in their L2, particularly when assessed through RC-ORF. Oral language abilities in the L2 vary by country, with students in Rwanda showing challenges in English oral language proficiency.

Analyses to Identify Low Reading Comprehenders

We conducted an initial analysis to identify groups of students within each of the three countries exhibiting different levels of reading comprehension across two different measures—RC-ORF and RC-PM. To determine the most appropriate way to categorize students into distinct groups based on their reading comprehension performance, we tested LCA models with different numbers of groups (or "latent classes"), ranging from two to five. To evaluate which model provided the best fit for the data in each country, we examined goodness-of-fit statistics, including the AIC and the BIC. These criteria assess how well each model explains the data while penalizing for model complexity, helping us determine the optimal number of student subgroups. Lower AIC and BIC values indicate a better-fitting model. Table 2 presents the fit statistics for models with two, three, four, and five latent classes, allowing us to compare their relative performance and select the most appropriate classification for each country.

The best-fitting model for each country was determined by identifying the lowest BIC and AIC values. The results of the LCA models across the

TABLE 2
Goodness-of-Fit Statistics for Latent Class Analysis Describing Levels of Reading Comprehension Achievement

	Philippines (n = 329)			Rwanda (n = 312)			Kenya (n = 303)		
Classes	BIC	AIC	Entropy	BIC	AIC	Entropy	BIC	AIC	Entropy
2	3,444.81	3,350.14	.85	3,397.88	3,304.31	.78	3,310.8	3,217.96	.95
3	3,340.35	3,196.45	.84	3,444.43	3,302.19	.64	3,125.11	2,983.99	.93
4	3,348.23	3,155.1	.84	3,501.45	3,310.55	.75	3,157.59	2,968.19	.90
5	3,400.03	3,157.67	.86	3,554.37	3,314.81	.79	3,202.69	2,965.01	.89

Note.—AIC = Akaike information criterion; BIC = Bayesian information criterion.

TABLE 3
PHILIPPINES: MEANS ON READING COMPREHENSION MEASURES BASED ON A FOUR-CLASS MODEL

	Struggling Comprehenders	Poor Comprehenders	Above-Average Comprehenders	Advanced Comprehenders
RC-ORF	.02 [−.01, .06]	.50 [.38, .62]	1.82 [1.66, 1.97]	4.31 [4.11, 4.51]
RC-PM	2.8 [2.49, 3.11]	5.59 [5.43, 5.75]	6.89 [6.82, 6.95]	6.73 [6.55, 6.92]
Proportion of sample classified	.25	.34	.27	.14
N classified	81	112	88	45

NOTE.—RC-ORF = reading comprehension oral reading fluency; RC-PM = reading comprehension picture matching.

Philippines, Rwanda, and Kenya reveal distinct groups of reading comprehenders based on the two measures of reading comprehension. For the Philippines, the four-class model emerged as the most appropriate fit. In Rwanda, the two-class model provided the best fit. For Kenya, the three-class model was the most suitable. These models were selected as they indicated a more parsimonious fit to the data for each respective country.

Tables 3–5 display the mean of each class in the Philippines, Rwanda, and Kenya on the two reading comprehension measures used on the LCA-derived models as well as the proportion and number of students in the sample classified into each class. We labeled each class to indicate that each successive class exhibits higher mean scores on both measures compared with the previous class. In the Philippines, we designated the groups as "struggling comprehenders" (25 percent), "poor comprehenders" (34 percent), "above-average comprehenders" (27 percent), and "advanced comprehenders" (14 percent). In Rwanda, we designated the two groups as: "poor comprehenders" (54 percent) and "above-average comprehenders" (46 percent). In Kenya, the three groups were identified as: "poor comprehenders" (16 percent), "average comprehenders" (48 percent), and "advanced comprehenders" (37 percent). These results indicate differing levels of reading comprehension across the countries, with the Philippines and Rwanda having a little more than half of the sample characterized as struggling or poor comprehenders, whereas in Kenya only 16 percent are designated poor comprehenders. In addition, in Rwanda we do not observe the group of advanced comprehenders.

TABLE 4
RWANDA: MEANS ON READING COMPREHENSION MEASURES BASED ON A TWO-CLASS MODEL

	Poor Comprehenders	Above-Average Comprehenders
RC-ORF	.43 [.33, .53]	1.58 [1.45, 1.72]
RC-PM	3.54 [3.32, 3.76]	6.26 [6.14, 6.37]
Proportion of sample classified	.46	.54
N classified	142	170

NOTE.—RC-ORF = reading comprehension oral reading fluency; RC-PM = reading comprehension picture matching.

TABLE 5
KENYA: MEANS ON READING COMPREHENSION MEASURES BASED ON A THREE-CLASS MODEL

	Poor Comprehenders	Average Comprehenders	Advanced Comprehenders
RC-ORF	.36 [.05, .67]	2.04 [1.77, 2.32]	3.93 [3.66, 4.20]
RC-PM	2.54 [1.93, 3.16]	8.19 [7.96, 8.42]	8.85 [8.65, 9.05]
Proportion of sample classified	.16	.48	.37
N classified	47	145	111

NOTE.—RC-ORF = reading comprehension oral reading fluency; RC-PM = reading comprehension picture matching.

Even though the classes appear to be ordinal, the RC-PM measure did not always distinguish clearly between each pair of comprehender classes. In the Philippines and Kenya, the RC-PM scores differentiated the lower two or three classes from one another well. However, it did not differentiate between the higher classes (between above-average and advanced comprehenders in the Philippines and between average and advanced comprehenders in Kenya). The RC-ORF scores, on the other hand, seem to consistently differentiate between adjacent classes across all three countries. The differing effectiveness of the two measures in distinguishing specific reader levels does not compromise the reliability of classifying readers into the distinct groups. Instead, as argued by Brasseur-Hock et al. (2011), the variation in measures used in the LCA models indicates that no single measure of reading comprehension can achieve the same level of precision and reliability as a composite classification that incorporates information from both measures.

Profiles of Struggling and Poor Comprehenders

Following the initial analysis, we examined the skill profiles of students within the struggling and poor comprehender classes. We fitted sets of LCA models to the sample of poor comprehenders (combined with struggling comprehenders, in the case of the Philippines), with increasing numbers of latent classes based on students' performance on decoding and oral language measures (ORF, IW, RV, EV, LC). BIC and AIC indices were examined (table 6) to

TABLE 6
GOODNESS-OF-FIT STATISTICS FOR LATENT CLASS ANALYSIS DESCRIBING LEVELS OF READING COMPREHENSION ACHIEVEMENT

	Philippines (n = 193)			Rwanda (n = 142)			Kenya (n = 47)		
Classes	BIC	AIC	Entropy	BIC	AIC	Entropy	BIC	AIC	Entropy
2	16,226.83	15,623.23	.97	11,284.26	10,778.81	.97	2,689.25	2,424.67	1
3	16,010.36	15,103.27	.98	11,235.78	10,476.13	.98	2,824.65	2,246.87	.99
4	16,004.28	14,793.82	.98	11,441.87	10,428.02	.99	3,038.01	2,507.02	.99
5	16,177	14,663.11	.99	11,687.23	10,419.18	.99	3,161.3	2,497.09	.99

NOTE.—AIC = Akaike information criterion; BIC = Bayesian information criterion.

determine that a four-group solution was the most appropriate fit for the data in the Philippines, whereas a three-group solution was most suitable for Rwanda and Kenya. In Kenya, although the BIC increases with the addition of a third class, we opted for the three-class solution as it offers more nuanced insights into the distinct profiles of poor comprehenders.

For each country, we outline the skill profile of each class and interpret these profiles in comparison with the other classes (tables 7–9). Interpretative labels were assigned to each profile with the intent of capturing each profile's most prominent features. In this process, we compared mean scores on the measures used across the profiles, considered the relative strengths and weaknesses within each profile, and examined how severe the component skill deficits were compared with the average for the full sample.

Philippines.—Students in the severe global difficulties profile ($n = 42$; 22 percent of the sample) performed the lowest on all measures. This class performed significantly below all other classes on measures of decoding, oral language, and reading comprehension, as well as significantly below the average for the full sample. Students in the second profile, moderate difficulties in decoding ($n = 49$; 25 percent of the sample), demonstrated decoding skills that were below the average and lower than the two other classes, but they exhibited one of the highest levels of oral language skills across all four measures employed (RELM-RV, EV, and LCPM). Students in the third profile, moderate difficulties in oral language ($n = 63$; 33 percent of the sample), showed average decoding skills, but they demonstrated oral language skills that fell considerably below the average for the full sample. Language skills for students in this profile were slightly above those in the severe global difficulties profile but well below the means for the other two profiles. Last, students in the difficulties in reading comprehension profile ($n = 39$; 20 percent of the sample) performed above average on all decoding and oral language skills measures but below average on the RC-ORF measure of reading comprehension, and they stayed on average on the RC-PM measure. These results may indicate that their primary difficulties lie in the RC-ORF task itself. One hypothesis is that the extremely high ORF scores suggest that students may be reading the text at a speed that hinders their comprehension.

Although the four classes showed a somewhat ordinal pattern regarding the severity of difficulties, comparisons between each class and the next most similar class revealed significant differences on some measures but not on others. For instance, students in the moderate difficulties in decoding and difficulties in reading comprehension profiles exhibit similar levels of oral language and reading comprehension skills but differ markedly in decoding abilities. This suggests that although each class shares certain strengths and weaknesses with other classes, each class also has a distinct profile.

TABLE 7

PHILIPPINES: MEANS ON COMPONENT READING SKILLS BASED ON FOUR-CLASS LATENT CLASS MODEL DESCRIBING STRUGGLING AND POOR READING COMPREHENDERS (n = 193)

	Severe Global Difficulties	Moderate Difficulties in Decoding	Moderate Difficulties in Oral Language	Difficulties in Reading Comprehension
Decoding:				
IW	6.88 [5.13, 8.63]	13.31 [11.85, 14.77]	22.51 [21.22, 23.80]	32.15 [30.66, 33.65]
ORF	15.12 [11.12, 19.12]	32.18 [28.17, 36.20]	50.41 [46.88, 53.95]	76.54 [70.28, 82.80]
Oral language:				
RELM-RV	9.60 [8.94, 10.25]	13.29 [12.89, 13.68]	10.85 [10.77, 11.54]	13.87 [13.50, 14.24]
RELM-EV	3.74 [3.16, 4.31]	9.20 [8.59, 9.82]	5.40 [5.37, 6.47]	10.74 [10.05, 11.44]
RELM-LCPM	7.31 [6.65, 7.96]	10.80 [10.46, 11.13]	8.93 [8.88, 9.63]	11.26 [10.93, 11.58]
Reading comprehension:				
RC-ORF	.02 [−.02, .07]	.45 [.27, .63]	.16 [.06, .26]	.64 [.44, .84]
RC-PM	2.43 [1.91, 2.94]	5.02 [4.65, 5.39]	4.49 [4.12, 4.86]	5.69 [5.40, 5.98]
Proportion of sample classified	.22	.25	.33	.20
N classified	42	49	63	39

NOTE.—IW = invented words; ORF = oral reading fluency; RELM = Receptive and Expressive Language Module; RV = receptive vocabulary; EV = expressive vocabulary; LCPM = listening comprehension picture matching; RC-ORF = reading comprehension oral reading fluency; RC-PM = reading comprehension picture matching.

TABLE 8
RWANDA: MEANS ON COMPONENT READING SKILLS BASED ON THREE-CLASS LATENT CLASS MODEL DESCRIBING POOR READING COMPREHENDERS (n = 142)

	Severe Global Difficulties	Moderate Global Difficulties	Moderate Difficulties in Oral Language
Decoding:			
IW	5.00 [3.90, 6.10]	15.10 [14.19, 16.02]	27.15 [25.48, 28.83]
ORF	16.27 [13.73, 18.82]	29.56 [27.54, 31.58]	44.49 [41.32, 47.66]
Oral language:			
RELM-RV	6.34 [5.69, 6.99]	6.93 [6.41, 7.46]	7.05 [6.53, 7.57]
RELM-EV	1.39 [.88, 1.89]	2.66 [2.20, 3.12]	3.23 [2.64, 3.82]
RELM-LCSS	2.48 [2.02, 2.93]	3.81 [3.27, 4.36]	4.51 [3.91, 5.11]
Reading comprehension:			
RC-ORF	.23 [.07, .39]	.61 [.43, .79]	.38 [.21, .56]
RC-PM	3.02 [2.60, 3.45]	3.53 [3.17, 3.88]	4.15 [3.84, 4.47]
Proportion of sample classified	.31	.42	.27
N classified	44	59	39

NOTE.—IW = invented words; ORF = oral reading fluency; RELM = Receptive and Expressive Language Module; RV = receptive vocabulary; EV = expressive vocabulary; LCSS = listening comprehension short story; RC-ORF = reading comprehension oral reading fluency; RC-PM = reading comprehension picture matching.

Rwanda.—Similar to findings in the Philippines, students in the severe global difficulties profile (n = 44; 31 percent of the sample) exhibited the lowest performance across all measures. Meanwhile, students in the moderate global difficulties profile (n = 59; 42 percent of the sample) also demonstrated below-average performance on all measures, albeit to a lesser degree. Their scores in decoding, oral language, and reading comprehension were higher than those of the severe global difficulties group but still below the sample average. Finally, students in the third and final profile, moderate difficulties in

TABLE 9
KENYA: MEANS ON COMPONENT READING SKILLS BASED ON THREE-CLASS LATENT CLASS MODEL DESCRIBING POOR READING COMPREHENDERS (n = 47)

	Severe Global Difficulties	Severe Difficulties in Decoding	Moderate Global Difficulties
Decoding:			
IW	1.50 [.45, 2.55]	1.56 [.49, 2.62]	17.80 [6.78, 28.82]
ORF	3.67 [1.60, 5.73]	10.44 [5.57, 15.32]	20.20 [5.71, 34.69]
Oral language:			
RELM-RV	8.67 [8.05, 9.29]	10.22 [9.57, 10.87]	9.00 [7.76, 10.24]
RELM-EV	4.08 [3.45, 4.72]	8.72 [7.86, 9.59]	5.20 [1.64, 8.76]
RELM-LCPM	8.00 [7.28, 8.72]	9.72 [8.87, 10.57]	8.60 [7.18, 10.02]
Reading comprehension:			
RC-ORF	.12 [−.17, .42]	.54 [−.05, 1.12]	.25 [−.5, 1.05]
RC-PM	1.35 [.69, 2.01]	3.89 [3.00, 4.77]	3.20 [.51, 5.89]
Proportion of sample classified	.51	.38	.11
N classified	24	18	5

NOTE.—IW = invented words; ORF = oral reading fluency; RELM = Receptive and Expressive Language Module; RV = receptive vocabulary; EV = expressive vocabulary; LCPM = listening comprehension picture matching; RC-ORF = reading comprehension oral reading fluency; RC-PM = reading comprehension picture matching.

oral language ($n = 39$; 27 percent of the sample), demonstrated language skills slightly higher than the previous two groups yet still below the sample average. However, this group performed above the sample average in the two measures of decoding, suggesting that their low reading comprehension performance may stem from their difficulties with oral language. Overall, 73 percent of poor comprehenders in Rwanda have deficits in both decoding and language skills and differ based on the severity of this deficit. Only one other group was identified based on specific component skill deficits: students with moderate oral language deficits.

Kenya.—In Kenya, similar to Rwanda and the Philippines, students in the severe global difficulties profile ($n = 24$; 51 percent of the sample) exhibited the lowest performance on all measures of decoding, oral language, and reading comprehension, significantly below the sample average. This profile represented the largest group in Kenya, accounting for approximately half of the poor reading comprehenders. Students in the second profile, severe difficulties in decoding ($n = 18$; 38 percent of the sample), showed extremely low scores on IW tests, akin to the severe global difficulties profile. Their ORF scores were slightly higher, though still well below average. The disparity between IW scores and ORF indicates that these students may rely on familiarity with words rather than decoding skills while reading. On average, these students performed at or just below average on oral language skills, suggesting their reading difficulties primarily stem from weak decoding abilities. Last, students in the moderate global difficulties profile ($n = 5$; 11 percent of the sample) performed better on decoding measures compared with the previous two profiles, but still below average. They demonstrated slightly better language skills than students in the severe global difficulties profile, yet their performance was lower than that of students in the severe difficulties in decoding profile and below the sample average. Overall, these results indicate that 62 percent of the sample of poor comprehenders present difficulties in both oral language and decoding and are classified in two classes based on the severity of these difficulties. One additional class based on specific skill deficits in decoding (38 percent of the sample) emerged.

Discussion

Our findings revealed several distinct profiles of poor and struggling reading comprehenders across the three countries. In the Philippines, the profiles were characterized primarily by the specificity of their deficits, with students demonstrating difficulties in specific areas such as decoding, oral language, or both. This suggests that the reading challenges faced by Filipino students are more differentiated, with unique groups experiencing distinct component skill deficits. In contrast, in Rwanda and Kenya, the profiles were

predominantly characterized by the severity of the deficits. Students in these countries tended to exhibit global reading difficulties, ranging from severe to moderate challenges across both decoding and oral language skills.

Consistent with findings from Western settings (Brasseur-Hock et al. 2011; Clemens et al. 2017), in Rwanda and Kenya the formation of classes was primarily distinguished by the severity of reading deficits and, to a lesser extent, by the specificity of these deficits. Most learners in these two countries exhibited global reading difficulties, characterized by weaknesses in both decoding and oral language skills. This is unsurprising, given prior research that shows the interrelationships and codependence of these skills in predicting reading comprehension outcomes (Foorman and Petscher 2018; Lonigan et al. 2018; Foorman et al. 2020; Taboada Barber et al. 2021). These findings are very much in line with the SVR/CFRA, which posits that if either component or both components are weak or lacking, reading comprehension is unlikely to happen.

The variation in the number and nature of latent profiles across the Philippines, Rwanda, and Kenya highlights the influence of contextual factors, such as language-in-education policies and educational practices, on the development of reading skills. In Rwanda, the lack of an advanced comprehender group combined with the fact that all struggling and poor comprehenders exhibited difficulties in oral language, may reflect the challenges associated with the frequent shifts in language-in-education policy, limited proficiency of teachers in English as the LOI, and provide insufficient support for students' language development at home and in school. As noted earlier, only a small percentage of the Rwandan population is able to read and write in English, the current medium of instruction from grade 1. This situation suggests that many teachers lack the ability to effectively use English in the classroom (Pearson 2014; Niyibizi 2015). Consequently, they modify the policy to align with both their own and their students' limited English proficiency by frequently code-switching and mixing English with Kinyarwanda, which becomes the dominant language in classroom interactions (Pearson 2014; Niyibizi 2015). In addition, the absence of a supportive environment for English learning, both at home and in school, leaves most students struggling to achieve basic proficiency in the language (Sibomana 2022). The limited proficiency in English among both students and teachers could be a significant factor contributing to the severe difficulties we observe. Our findings suggest that a more gradual transition to English, with stronger support in English oral language development, might be necessary for students' successful development of reading skills. This is supported by previous research that found that explicit oral instruction in an L2 helps support reading development in that L2 (Saunders et al. 2006) as well as a growing body of evidence highlighting the benefits of late-exit bilingual and transitional models for language and literacy development (Heugh 2011; Collier and Thomas 2017; Schroeder et al. 2021).

In Kenya, the fact that only 16 percent of the sample was characterized as poor reading comprehenders in English may be explained by the de facto immersion in English or Kiswahili starting from grade 1, despite the fact that the language-in-education policy technically promotes the use of language in the catchment area or Kiswahili in early grades. This early immersion could be benefiting the English literacy skills of some students, who may have considerable exposure to the language by the time they reach grade 4. On the other hand, for a minority of students, the lack of L1-based literacy instruction likely exacerbates these severe difficulties, as they are forced to acquire reading skills in a language (English) that is not their first language (L1) and to which they may have little exposure, thereby limiting their ability to develop foundational literacy skills. This is reinforced by the fact that 62 percent of the sample of poor comprehenders present difficulties in both oral language and decoding, likely reflecting the broader issue of students being immersed in a language in which they lack proficiency.

In the Philippines, the high percentage of struggling and poor comprehenders in our sample (almost 60 percent) and their diverse profiles underscore the complex effects of the MTB-MLE policy and its implementation challenges. The fact that four distinct profiles of struggling and poor comprehenders emerged highlights the variety of reading challenges in the country and indicates that the MTB-MLE model may not have been implemented in a way that could fully support the linguistic diversity and needs of the student population. Nearly half of the sample of struggling and poor comprehenders demonstrated difficulties in oral language (on its own or combined with decoding), whereas the other half demonstrated above-average skills in oral languages but difficulties in decoding or reading comprehension. These findings suggest that not only stronger support for English oral language development is needed under the current model prior to student transition to grade 4 but also more targeted decoding interventions are warranted.

Policy and Practice Implications

Our findings offer critical insights for ministries of education, practitioners, and educators working in multilingual education settings. A key implication is the need to strengthen oral language development in the L2 alongside literacy instruction. The high prevalence of poor comprehenders with oral language difficulties—either alone or combined with decoding challenges—emphasizes the importance of explicit oral language instruction in the L2 in early grades, particularly in contexts where students have limited exposure to the LOI outside of school. Developing structured oral language programs that support vocabulary, syntax, and listening comprehension could provide a stronger foundation for reading comprehension.

Our findings from Rwanda suggest that a more gradual transition model, paired with explicit support for oral language development in the L2, may be

necessary to ensure students have the linguistic foundation needed for successful L2 reading development. The benefits of late-exit bilingual and transitional models (Heugh 2011; Collier and Thomas 2017; Schroeder et al. 2021) should be considered when designing policies that support students' language and literacy development over time.

At the same time, results from Kenya and the Philippines suggest that, for some students, weak decoding skills—rather than limited oral language ability—may be a primary barrier to reading comprehension. This underscores the need for enhanced decoding interventions in both L1 and L2. Strengthening L1 decoding skills in early grades could facilitate L2 reading development, as research has shown that decoding abilities transfer across languages (Goldenberg 2008). Ensuring that early grade reading programs incorporate systematic, explicit decoding instruction could help address decoding-related challenges among struggling readers.

Overall, our study demonstrates the value of classifying students into distinct profiles to guide policies and programs. Rather than treating all struggling readers as a homogeneous group, education systems could use similar classification approaches, ensuring that students receive targeted support based on whether their difficulties stem primarily from oral language, decoding, or a combination of both. The classification approach used in this study serves as a valuable tool for identifying patterns of reading comprehension difficulties, which in turn can inform more effective instructional and policy decisions that better support diverse learners.

Limitations

Although this study advances our understanding of reading comprehension challenges in multilingual settings, several limitations must be noted. First, the study was conducted in specific geographic regions within each country, and the findings may not be representative of national-level trends. Future research should consider expanding the sample to include more diverse regions to better capture the heterogeneity of reading difficulties across multilingual learners. Second, this study did not include measures beyond the SVR components of decoding and language. Previous studies have found that decoding and language comprehension explain about 60 percent of the variance in reading comprehension (Foorman and Petscher 2018). Cognitive measures, such as executive functioning (EF), could provide further insights into the underlying cognitive processes associated with each reading profile. EF skills can not only contribute to reading directly but may also play an important role helping readers link important elements across word recognition and language comprehension (Duke and Cartwright 2021). Content knowledge has also shown to predict reading abilities and could further help explain reading comprehension difficulties (Duke and Cartwright 2021). Including these additional measures in future research may help in refining the profiles

and tailoring interventions more effectively (Capin et al. 2021, 2022) and may also prompt a change in perspective about reading difficulties, emphasizing that such challenges can be influenced by context and arise when there is a disparity between the assumptions made by the author or text and the reader's existing knowledge (Duke and Cartwright 2021).

Conclusion

The present study contributes to the growing body of literature on reading comprehension in multilingual settings by providing a nuanced understanding of the profiles of poor reading comprehenders who are taught in languages in which they may or may not have oral proficiency. By using a person-centered approach, such as LCA, to characterize students' skill profiles, this study underscores the importance of customizing interventions to meet the unique needs of multilingual learners. The distinct profiles identified across the Philippines, Rwanda, and Kenya, characterized by both the severity and specificity of reading difficulties, highlight the influence of language education policies and contextual factors on student learning. To support effective interventions, future research should continue exploring these skill profiles and tailor educational policies and approaches to the unique needs of multilingual learners in each context.

Positionality Statement

Given our institutional affiliations at the University of Notre Dame and the American Institutes for Research, we approached this study with a clear awareness of the power dynamics that often characterize global education research. To mitigate asymmetries, we collaborated closely with in-country partners to co-construct research tools, guide implementation, and jointly interpret findings. We also acknowledge that the researcher's familiarity with the research field affects all phases of the research process (Berger 2015). The fact that three of the researchers who have conducted this study have conducted prior research on understanding how literacy is acquired in complex multilingual education contexts influenced the framing of our research questions and our interpretation of the findings. Although this expertise strengthened our ability to engage meaningfully with the data, we remained mindful of the need to allow the evidence and local insights to lead our conclusions, rather than rely solely on existing assumptions or frameworks.

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