Using Early Grade Reading Assessment (EGRA) data for targeted instructional support: Learning profiles and instructional needs in Indonesia

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ABSTRACT

For many years, education researchers have grouped students into categories based on their skills and abilities. This research can help teachers and curriculum developers to understand the transition through the overlapping stages of reading acquisition, and can provide opportunities for appropriate instruction and targeted interventions for students who are struggling with certain aspects of reading acquisition. Using Early Grade Reading Assessment (EGRA) data on a nationally representative sample of second grade students in Indonesia, we have developed a new approach for categorizing students into learning profiles, which are directly tied to their particular instructional needs. We divided students into five learning profiles based on their reading ability (Grade 3 Ready, Fluent, Instructional, Beginner, and Nonreader) and then examined the relationship among these profiles and their reading skills on a variety of EGRA subtasks in order to determine the instructional need required to promote students from one profile to the next. Although the exact cuts points will differ by orthography, the framework laid out in this paper is tied directly to two EGRA subtasks in order for it to be easily adjusted for use regardless of the language or country. Accordingly, this approach significantly increases the value of EGRA results in terms of their practical implications and can be used to provide clear guidance to researchers, ministry officials, aid organizations and policy makers aiming to address educational shortcomings and improve student performance across countries.

1. Introduction

One of the most difficult aspects of large-scale education research projects in international development work is determining the most appropriate way to effectively and efficiently report findings for a wide variety of audiences (including researchers, ministry officials, donors, and other relevant stakeholders). It is important to strike a balance between technical rigor and easily digestible information, while ultimately providing results that can be used to impact policy and practice. Using Early Grade Reading Assessment (EGRA) data on a nationally representative sample of second grade students in Indonesia, we have developed a new approach for categorizing students into learning profiles, which are directly tied to their particular instructional needs.

We wanted to create a methodology that uses EGRA results to inform classroom literacy instruction. Using the data to guide the content of an instructional program responds to one of the purposes of EGRA identified by Dubeck and Gove, 2015. The data for this paper originated from a national survey of Indonesian children (a collaboration between the United States Agency for International Development (USAID), the Indonesian Ministry of Education and Culture (MOEC) and the Indonesian Ministry of Religious Affairs (MORA)) designed to understand grade two learners' reading ability. Our analyses were conducted after the orginal survey results were reported and disseminated.

We ultimately divided students into five learning profiles based on their reading ability (Grade 3 Ready, Fluent, Instructional, Beginner, and Nonreader) and then examined the relationship among these profiles and their reading skills on a variety of EGRA subtasks in order to determine the instructional need required to promote students from one profile to the next. This type of information can be used to demystify EGRA results and provide clear guidance for researchers, policy makers and aid organizations on the direction the literacy instruction should take. While cut-points will differ across languages and contexts, the framework is tied directly the length of the oral reading passage and reading comprehension questions, such that it is easily adaptable to various countries with only minor modifications.

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2. Background

2.1. Learner profiles in reading acquisition

For many years, education researchers have grouped students into categories based on their skills and abilities (Hiebert, 1983; Hong et al., 2012; Taylor et al., 2000; Slavin, 1987). This research can help teachers and curriculum developers to understand the transition through the overlapping stages of reading acquisition, and can provide opportunities for appropriate instruction and targeted interventions for students who are struggling with certain aspects of reading acquisition. There are several examples of categories of reading acquisition in the literature.

Literacy acquisition models suggest the recognition of progressively more complex aspects of written language, specifically through orthography (Ehri, 1995, 1994; Frith, 1986; Henderson and Beers, 1980). Students can be categorized as they proceed through a series of phases, or stages, that represent their understanding about printed words (Chall, 1983; Henderson and Templeton, 1986).

The concept of orthographic knowledge as a developmental phenomenon was introduced in the early 1970's. Both Chomsky (1970) and Read (1971) showed that some preschoolers develop an understanding about the relationships between letters and sounds without explicit instruction. Henderson and Beers (1980) expanded the theory and described five stages of orthographic development. Frith (1986) advocated that reading acquisition moves in a stepwise process from logographic to alphabetic and finally to orthographic skills. And, that a breakdown can occur at each step which then causes a literacy deficiency. Similar to Henderson's work, Ehri (1995) proposed five phases to refine her earlier four phase (1994) model.

While these models for categorization of reading acquisition were not aligned with a specific developmental age, they did relate closely to Chall's (1983) stages from a decade prior. Chall's categories begin with Stage 0, or pre-reading, which occurs from birth through about 6 years, where students mostly learn verbal language skills, but may acquire some other skills around word sound structure. Stage 1, initial reading or decoding, typically occurs during grade 1, and students focus on the alphabet and sounds. Stage 2, confirmation, fluency or ungluing from print, typically occurs around grades 2 and 3, when students learn to recognize words and practice reading and writing. At Stage 3, reading for learning new information, students expand their vocabulary and expand background knowledge; this stage usually occurs between grades 4 and 8. Stage 4, multiple viewpoints, usually occurs around grades 9 through 12, as students learn to understand multiple sets of facts and competing theories or interpretations. Finally, Stage 5, construction and reconstruction, usually occurs in post-secondary years as individuals learn to analyze and synthesize what they have read to construct knowledge and understanding.

These stage, or phase, models were developed by researchers working in English. Yet, many researchers since have used them to help frame how reading skills develop (Avdyli et al., 2014; Calet et al., 2015; Yildirim and Ates, 2012). While the exact categories of reading acquisition suggested in the research differs, the overall themes on the familiarity with the orthography are the same. Students at the onset of learning to read rely on visual cues, before transitioning through an understanding of letter and sound correspondence, then developing a deeper understanding of letters and sounds to decode new words, before a final transition to reading fluently. Assessing the abilities of students at each of these levels can help identify where interventions can support students who are struggling to learn to read.

2.2. Using learner profiles in reading instruction

Using assessment data to guide instruction is a common practice to help students learn to decode and encode (i.e., spell) accurately, learn to read text fluently, and learn to comprehend and learn from text. For example, the guided reading model (Fountas and Pinnell, 1996) relies on a student's facility reading a short story and answering questions to make instructional decisions. Word study, uses a developmental spelling analysis to differentiate instruction to improve reading and spelling knowledge (Henderson, 1990; Zutell, 1998). And at its foundation, the response to intervention (RTI) model uses child level data to determine appropriate instruction intensity (Vellutino et al., 2006).

As an effective practice, the What Work's Clearing House recommends to "[m]ake data part of an ongoing cycle of instructional improvement" (Hamilton et al., 2009, p. 8). A natural consequence of following this recommendation is providing varied, or differentiated, literacy instruction, to meet student needs which was supported by the National Reading Panel (NCHD, 2000). This influential panel noted higher effect sizes when phonological awareness and phonics instruction was in small groups to meet student's varied needs. Research with children learning in their non-native language also found that varied instruction was influential, and even more so, than language of instruction to influence student outcomes (Cheung and Slavin, 2012). Differentiated instructional models are used to help with beginning reading, word identification, spelling, language development and reading connected text and they need to be informed by instructionally transparent assessments.

The Early Grade Reading Assessment (EGRA) has been used in more than 70 countries across the globe (in over 120 languages) and measures the basic reading skills that students need in order to transition from the most basic literacy skills into reading with fluency and comprehension (Dubeck and Gove, 2015). EGRA reports universally provide descriptive statistics across subtasks but only sometimes do authors attempt to categorize the students into reading categories. However, these categories are not consistently well-defined, nor do they typically relate to student instructional needs. Instead, they are often created to provide a broad categorization of EGRA test-takers for simplified conclusions but do not provide ease of interpretation for policy and practice. For example, in the main analyses for our own project report for the 2014 Indonesian National EGRA, learners were categorized into four different levels: 1) nonreaders (students who read zero words correctly on the oral reading passage); 2) reading with limited comprehension (students who did not receive a zero on oral reading but had reading comprehension rates below 60%); 3) reading with comprehension (students who correctly responded to 60% of reading comprehension questions attempted; and 4) reading fluently with comprehension (students who scored 80% correct on reading comprehension and completed the reading passage) (Stern and Nordstrum, 2014). While these categories did allow for a few simplified tables of results, they were ultimately found to be insufficient for the regional policy dialogues, where the intention was to explain how the EGRA results could be used to improve practice via targeted support for teachers and learners.

2.3. Reading acquisition in Bahasa Indonesia

Reading acquisition can vary across languages based partly on consistency of the orthography (Seymour et al., 2003; Ziegler et al., 2010). Bahasa Indonesia is an orthographically transparent language, meaning that the letters have consistent sounds in different words, which has a facilitative effect in learning to read (Abu-Rabia and Siegel, 2003). Monosyllabic forms are not very common, with primarily bi- and multi-syllabic forms present in the language (Winskel and Vivilia, 2007). However, despite the transparent orthography, the language is complex at the syllabic and morphological levels—with agglutinative features where word segments or syllables can be added to root-words to extend a semantic meaning (Lee et al., 2012).

Research on language acquisition in Bahasa Indonesia and Malay (variants of a single base language) (Yong, 2001) can provide clues to challenges in the continuum of reading acquisition where students struggle. Recent research suggests that phonological decoding is a significant indicator of reading comprehension (Lee and Wheldall, 2009). A similar study of low-progress readers also found phonology related errors in reading attempts, supporting the evidence that phonological