Profiles of emergent literacy skills among preschool children who are at risk for academic difficulties[☆]

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ABSTRACT

The purpose of this study was to explore patterns of within-group variability in the emergent literacy skills of preschoolers who are at risk for academic difficulties. We used the person-centered approach of cluster analysis to identify profiles of emergent literacy skills, taking into account both oral language and code-related skills. Participants were 492 preschoolers (aged 42–60 months) enrolled in needs-based programs. In the fall of the academic year, children were administered eight measures of emergent literacy: four oral language measures (i.e., expressive and receptive grammar, expressive and receptive vocabulary) and four code-related measures (i.e., print concepts, alphabet knowledge, name writing, and rhyme). Controlling for age, hierarchical-agglomerative and K-means cluster analysis procedures were employed. Five psychometrically sound profiles emerged: highest emergent literacy (prevalence = 14%); three profiles with average oral language and differential code-related abilities (16%, 24%; 23%); and lowest oral language with broad code-related weaknesses (23%). Profiles were then compared on midyear teacher ratings of emergent literacy as well as end-of-kindergarten literacy performance; results provided convergent evidence of predictive validity. This study highlights the considerable heterogeneity of emergent literacy abilities within an "at-risk" group. The resulting profiles have theoretical and practical relevance when examining both concurrent relationships between oral language and code-related skills as well as longitudinal relationships between early patterns of performance and later reading achievement.

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There is an increased interest in the United States in improving the school readiness of preschool children who are at risk for later academic difficulties, particularly in the area of literacy (e.g., Early Reading First Initiative; U. S. Department of Education, 2007). State standards and national frameworks are increasingly specific about the emergent literacy skills and understandings that children should have in place prior to kindergarten entry. Of particular concern are the 47% of three-to-five-year-old children from low socioeconomic status (SES) backgrounds who are enrolled in center-based early childhood care (National Center for Educational Statistics, 2007). Because SES serves as a reliable and positive predictor of reading ability, it is widely accepted that children who reside in low-SES households represent a group who are at risk for later reading difficulty (e.g., Juel, Griffith, & Gough, 1986; see Snow, Burns, & Griffin, 1998). Similarly, it is often assumed that

this "at-risk" group is homogenous in terms of emergent literacy abilities; that is, they enter preschool with depressed skills in these areas compared with children who are not "at risk." This assumption draws upon research demonstrating that young children from low-SES backgrounds are likely to have under-developed school readiness in terms of alphabet knowledge, phonological awareness, print concepts, and oral language (e.g., Bowey, 1995; Juel et al., 1986; Lonigan, Burgess, Anthony, & Barker, 1998; Lonigan & Whitehurst, 1998; Neuman, 2006; Smith & Dixon, 1995).

Although concern for children from low-SES backgrounds is warranted with respect to later reading outcomes, evidence suggests that considerable individual differences exist among these preschoolers in terms of emergent literacy performance (e.g., Justice & Ezell, 2001; Welsch, Sullivan, & Justice, 2003). Some children living in poverty may, in fact, have well-developed skills in some aspects of emergent literacy whereas others have under-developed skills, the latter circumstance potentially signifying a need for educational interventions. A more nuanced research approach is needed to move beyond characterizing these children as a single, homogenous group, and in the present study, we explore this variability, with the goal of contributing to theoretical and applied understandings of the heterogeneity of emergent literacy skills among preschoolers who come from low-SES backgrounds.

Specifically, we determined whether there were distinct profiles of emergent literacy among English-speaking preschool children from low-SES backgrounds, seeking to identify whether patterns of strengths and weaknesses reliably differentiated groups of children considered at risk.

1. Theoretical model of emergent literacy

The term *emergent literacy* connotes the understanding that children's reading, writing, and oral language develop in an interdependent fashion in the years prior to formal reading and writing instruction, and that *emergent literacy skills* serve as precursors to skilled and fluent reading (Whitehurst & Lonigan, 1998). For the present study, we adopted a model specified by Whitehurst and colleagues (Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998, 2001) proposing that children's emergent literacy skills are separated into two distinct, albeit interrelated, domains that relate to subsequent reading achievements: oral language and code-related skills. *Oral language skills* comprise the modalities of both expression and comprehension in the areas of form (e.g., syntax) and content (i.e., vocabulary). Although these skills are predictive of decoding early in the reading process (e.g., National Early Literacy Panel [NELP], 2008; NICHD Early Child Care Research Network [ECCRN], 2005), research demonstrates that young children's oral language skills provide their greatest contribution to reading comprehension abilities later in the reading process (Roth, Speece, & Cooper, 1996; Speece, Roth, Cooper, & De La Paz, 1999; Storch & Whitehurst, 2002). *Code-related skills* enable young children to "break the code" and acquire early understanding of the alphabetic principle. These include abilities such as print concepts, alphabet knowledge, emergent writing, and phonological awareness. Code-related skills are both theoretically and statistically distinct from oral language skills, and with respect to reading achievement, are most predictive of skills in beginning reading acquisition (Kendeou, van den Broek, White, & Lynch, 2009; NELP, 2008; Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998).

Whitehurst and colleagues' theoretical model and other empirical research support the interrelationship of the two domains during the preschool period (Burgess & Lonigan, 1998; Chaney, 1994; Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003; Kendeou et al., 2009; Lonigan et al., 1998; Storch & Whitehurst, 2002). For instance, measures of preschoolers' skills in syntax exhibit statistically significant positive and moderate correlations with concurrent code-related skills in rhyme and alphabet knowledge (Burgess & Lonigan, 1998). However, the majority of these studies employed variable-centered approaches, which do not reveal patterns of strength and weakness across the two strands of emergent literacy, as would occur in a person-centered approach. This study, thus, expands upon the Whitehurst model by looking for *within-child patterns* of performance across the two domains of emergent literacy and seeks to better understand the complexity of skills within an at-risk population.

2. Emergent literacy development among preschoolers from low-SES backgrounds

Children from low-SES backgrounds tend to perform more poorly across both domains of emergent literacy skills than children from middle-class homes (e.g., Bowey, 1995; Justice, Bowles, & Skibbe, 2006; Neuman, 2006; Whitehurst, 1997). It is important to consider why children reared in poverty consistently exhibit underdeveloped emergent literacy skills. There are likely child-level and experiential-level reasons for the lagged emergent literacy development of children living in poverty. At a child level, given the interrelationships among emergent literacy skills, developmental weaknesses in one domain may have a cascading effect, creating a broader deficit across skills. For example, a child with weaker vocabulary skills may also display impoverished phonological awareness skills (see Goswami, 2001). At an experiential level, children living in poverty are likely affected by increased stress in their environments and consequently may be exposed to reduced quality of parental language input (e.g., Hart & Risley, 1995), a factor shown to affect language development (e.g., Hoff, 2006a; Hoff & Naigles, 2002; Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002). In addition, poverty is associated with lower quality home literacy environments (see Neuman, 2006). The focus of this paper is on understanding child-level factors in the emergent literacy development of children living in poverty. By pinpointing preschool profiles of emergent literacy and their relation to performance in kindergarten, this study provides a more nuanced understanding of child-level contributions to literacy development in this at-risk population.

Evidence from large-scale studies points to the fact that children from low-SES backgrounds cannot simply be considered a homogenous group with regard to oral language and code-related skills. For example, in a comprehensive report of the Head Start program, Zill and Resnick (2006) indicated that the fall receptive vocabulary abilities of three- and four-year-old children ($N = 1801$) entering Head Start demonstrated substantial variability. In particular, there was great disparity when examining the performance of the bottom and top quartiles of students. The mean for children performing in the lowest quartile was 62.6 (i.e., approximately 2nd percentile), while the mean for the top quartile was 101.1 (i.e., approximately 50th percentile). Children also exhibited a wide range in performance on measures of letter-word identification (akin to alphabet knowledge; $N = 833$) and early writing ($N = 799$). The children whose relative performance fell in the bottom quartile of the sample scored approximately 1–2 SD below the mean of the normative group on both measures (82.7, 70.9, respectively), whereas children comprising the top quartile scored at or above the 50th percentile (103.9, 100.8, respectively). Other reports also show that children demonstrate substantial heterogeneity in code-related skills (Justice & Ezell, 2001; Welsch et al., 2003), although it is important to note that none of these studies actually investigated this heterogeneity through examination of children's patterns of emergent literacy skills.

This wide range of individual differences in children's performance indicates that there are likely high- and low-performing profiles across emergent literacy domains reflected in the low-SES preschool population. However, empirical research also suggests that there may be at least one other profile in which children demonstrate specific areas of strength or weakness. Why would one expect different levels of skill to manifest within the same child (i.e., intra-individual differences)? Evidence indicates that certain skills are highly dependent upon particular experiences. For example, in homes in which book sharing is emphasized, children may have stronger vocabulary abilities but weaker code-related abilities. Alternatively, in homes featuring an increased focus on direct teaching, children may display greater code-related skills (Sénéchal, LeFevre, Thomas, & Daley, 1998). In addition, some skills may be more intrinsic to children while others may be more responsive to varying environmental influences. The experience of poverty may have differential effects on oral language abilities, with greater environmental effects on children's receptive and expressive vocabulary than syntactical knowledge (i.e., grammar; Whitehurst, 1997). Similarly, some code-related skills (e.g., alphabet knowledge) may be more heavily influenced by environmental factors than others (e.g., phonological awareness) (Lemelin et al., 2007). To sum, it is not necessarily the case that all skills are commensurate with each other within a given child. Consequently, it is likely that children's patterns of performance are characterized