



Exploring patterns of Latino/a children's school readiness at kindergarten entry and their relations with Grade 2 achievement

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ABSTRACT

This study contributed to the school readiness literature by taking an intrachild perspective that examined the relations between Latino/a children's school readiness profiles and later academic achievement. Teachers rated the school readiness of 781 Latino/a kindergartners during the first month of school using the Kindergarten Student Entrance Profile (KSEP). Latent class analysis (LCA) examined KSEP profiles across social-emotional, physical, and cognitive domains and identified five distinct school readiness classes that described students' strengths and weaknesses at kindergarten entry. Among the predictors examined, gender was the only significant difference among the top two readiness classes, with girls less likely to be in the lower of these two classes ($OR = 0.38$). In addition, children in the bottom three readiness classes were significantly less likely than students in the top readiness class to have preschool experience ($ORs = 0.02–0.19$) and had significantly lower levels of English proficiency ($ORs = 0.51–0.72$). Class membership was significantly associated with scores on the Grade 2 California Standards Tests and only the top two readiness classes had reading fluency rates near or above a national benchmark at the end of Grade 2. The variation of early achievement found across readiness classes also showed that considering the pattern of a child's social-emotional and cognitive readiness might enhance school readiness assessment. Implications for integrating universal school readiness screeners within a comprehensive multitasking assessment model are also discussed.

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A pressing interest of American schools is promoting the academic success of all children, a goal that is tempered by the recognition that children from less-advantaged social circumstances have diminished educational outcomes when compared with their more economically advantaged peers (Kieffer, 2010). This circumstance is evident in the achievement gaps that persist for children from various Latino/a backgrounds (Education Trust–West, 2010). Addressing the needs of these students is a particularly critical issue because Latino/a students represent the fastest growing demographic in U.S. schools (Gándara & Contreras, 2009). In a recent analysis of Latino/a student achievement in California's schools, Rumberger and Arellano (2007) stated, "...half of the achievement gap in fourth grade exists when students walk through the door in kindergarten" (p. 71).

One response to this educational challenge has been increased attention to the topic of school readiness, which has become a focal interest of researchers, educational practitioners, and policy makers (e.g., California First 5 Initiative, Michigan Great Start, and

North Carolina Smart Start). Specifically, recent research has illustrated that the successful transition from preschool to kindergarten (Gormley, 2005; Graziano, Reavis, Keane, & Calkins, 2007; Lonigan, 2006) and children's school readiness levels upon kindergarten entry (Matthews, Kizzie, Rowley, & Cortina, 2010; Pianta, Barnett, Burchinal, & Thornburg, 2009) are crucial factors associated with later academic success. School readiness at kindergarten entry has also been found to predict students' academic achievement in Grades 1 and 2 with samples of children from predominantly Latino/a and English learner (ELL) backgrounds (Lilles et al., 2009; Quirk, Furlong, Lilles, Felix, & Chin, 2011).

The relations between school readiness and later academic achievement suggest that school readiness assessments might be useful for the early identification of at-risk students as part of a proactive process of providing interventions that promote future academic success (Kagan & Kauerz, 2007). Used in this way, universal school readiness screening assessments could be implemented by schools to gather information on all entering kindergarten students in an effort to discern which children might benefit most from the early availability of supplemental supports. However, school readiness is multifaceted and includes social-emotional/behavioral, physical, and cognitive elements (Michlea & Michalca, 2007), and previous research has established that children enter kindergarten with distinct patterns of strengths

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and weaknesses that might call for differentiated services and supports (Hair, Halle, Terry-Humen, Lavelle, & Calkins, 2006). To the extent that it can be shown that Latino/a children exhibit common patterns or profiles of school readiness, understanding how each of these profiles is related to later academic outcomes would improve the precision with which information from school readiness screeners could be used to inform early and targeted interventions for these students (Simonsen et al., 2010). The current study addressed this gap in school readiness assessment research by utilizing latent class analysis (LCA) to identify underlying school readiness profiles with a sample of ($N = 781$) Latino/a children and examined the relations between the profiles extracted and students' longitudinal academic achievement. The goal was to provide insights into the construct of school readiness and advance the way that school readiness screening data might be understood, interpreted, and applied by school practitioners to support Latino/a students' academic progress.

1. School readiness

Although it is generally recognized that the term school readiness can be applied broadly to describe readiness at multiple levels, including ready children, ready communities, and ready schools (National Governor's Association, 2005), the current discussion focuses on definitions of readiness at the child level. Within this context, the term school readiness refers to the developmental status of children at school entry, with a specific emphasis on competencies that influence later academic success (Snow, 2006). In this regard, school readiness is the combinatorial effects of those intrachild skills and characteristics influenced by early childhood environments that prepare a child, to a greater or lesser extent, to positively respond to the typical curriculum of the kindergarten classroom. More specific definitions of school readiness often refer to multiple aspects of development that have been shown to influence children's early school performance, such as language acquisition (Roth, Speece, & Cooper, 2002), emergent literacy skills (Lonigan, Burgess, & Anthony, 2000), early numeracy skills (Duncan et al., 2007), social competence (Ladd, Birch, & Buhs, 1999), attention (Fergusson & Horwood, 1995), emotional regulation (Graziano et al., 2007), and physical health/motor skill development (Bart, Hajami, & Bar-Haim, 2007). Although the exact configuration of underlying dimensions and their relative importance in determining a child's readiness for school can vary significantly across definitions (Barbarin et al., 2008), there does seem to be consensus that school readiness is a multidimensional construct including social-emotional/behavioral, physical, and cognitive elements (Michlea & Michalca, 2007).

There are a number of contextual and experiential factors that research has identified as being associated with children's readiness levels at kindergarten entry. Some of the most commonly researched factors include the child's age at the time of kindergarten entry (Gullo & Burton, 1992); preschool experience (Connell & Prinz, 2002; Lee, Brooks-Gunn, Schnur, & Liaw, 1991; Turney & Kao, 2009); and socioeconomic factors, such as family income (Stipek & Ryan, 1997). A recent study conducted by Furlong and Quirk (2011) investigated the relative impact of age, preschool experience, and gender on the kindergarten readiness of Latino/a students from predominantly low income and ELL backgrounds. Consistent with previous research on other populations of children, preschool experience was the most influential factor on Latino/a children's readiness at kindergarten entry (large effect size), followed by age (moderate effect size) and gender (small effect size). One factor that was not included in this study and that might be important when examining the school readiness of Latino/a children is English language proficiency at the time of kindergarten

entry, as this may influence children's access to the curriculum and their ability to establish supportive relationships with teachers, peers, and other school staff (Chang et al., 2007).

Research evidence has also suggested school readiness elements alone (Duncan et al., 2007; La Paro & Pianta, 2000), and combined (Quirk et al., 2011), are significant predictors of children's subsequent academic achievement. La Paro and Pianta (2000) conducted a meta-analysis using 70 studies that broadly examined the average correlations of academic/cognitive and social/behavioral measures taken at preschool or kindergarten to students' longitudinal academic outcomes in Grades 1 and 2. The results indicated moderate effect sizes (all near $r = 0.50$) for academic/cognitive measures in predicting subsequent academic/cognitive outcomes; however, effect sizes for social/behavioral measures could not be estimated due to the small sample of published studies reporting correlations between social/behavioral measures at preschool and kindergarten to later academic/cognitive outcomes. Duncan et al. (2007) conducted a similar, but more specific meta-analysis that examined the relative influence of children's skills in reading and math, attention, and social-emotional functioning to later reading and math achievement using data from six longitudinal school readiness databases. Across all datasets, it was found that early math abilities were the strongest predictor of children's later math and later reading abilities. Early reading abilities were identified as the next highest predictor followed by attention. Finally, Quirk et al. (2011) conducted a longitudinal study that followed ($N = 1069$) predominantly Latino/a children from kindergarten entry through the end of Grade 2. Utilizing latent-variable path analysis (latent class analysis was not used in this study), the results of the study indicated that children's school readiness (comprised of a composite of cognitive, social-emotional/behavioral, and physical elements) at kindergarten entry predicted their phonological awareness midway through kindergarten and reading fluency at the end of Grade 1, above and beyond what was explained by mid-K phonological awareness. One unexpected finding of the study was the significant relation found between children's school readiness and reading fluency at the end of Grade 1, controlling for mid-K phonological awareness. The researchers speculated that social-emotional/behavioral elements of the children's school readiness might explain this relation, as previous research has identified social-emotional readiness as a specific area of strength for Latino/a students (Galindo & Fuller, 2010). These studies have yielded critical insights regarding the relative contributions of various school readiness elements on children's longitudinal academic performance; however, the practical utility of these findings is limited due to the variable-centered approach taken in exploring these relations.

2. Profiles of school readiness

A subset of recent studies has utilized a person-centered approach to examine school readiness, exploring how multiple dimensions of children's development function together to form commonly occurring patterns or readiness profiles and how these profiles are related to children's later academic and social outcomes (Hair et al., 2006; Halle, Hair, Wandner, & Chien, 2012; Konold & Pianta, 2005; McWayne, Hahs-Vaughn, Cheung, & Wright, 2012; Sabol & Pianta, 2012). The majority of these studies have identified school readiness profiles with samples of preschool-aged children (Halle et al., 2012; Konold & Pianta, 2005; McWayne et al., 2012; Sabol & Pianta, 2012), utilizing various compilations of parent report, teacher report, and direct assessment methods to measure school readiness. In addition, all of these studies found that the likelihood of a child fitting into particular readiness profile subgroups was influenced by a multitude of demographic and contextual

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