



Further understanding factors associated with grade retention: Birthday effects and socioemotional skills



Francis L. Huang*

College of Education, University of Missouri, USA

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ABSTRACT

Young-for-grade kindergarteners experience a disproportionate risk of retention compared to their old-for-grade peers. Using the Early Childhood Longitudinal Study-Kindergarten cohort dataset, this study investigated whether socioemotional skills mediated the association of age with kindergarten retention. Multilevel logistic regression models tested whether certain positive (e.g., interpersonal skills, approaches to learning) and negative (e.g., externalizing behavior) socioemotional skills were related to the likelihood of grade repetition, while controlling for academic abilities and student demographic variables. Findings showed that the relatively youngest kindergarteners were approximately five times more likely to be retained compared to the oldest student and that a child's approach to learning (e.g., attentiveness, task persistence) contributed as much as a child's academic abilities in relation to the likelihood of repeating a grade.

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Grade retention continues to be a topic of much debate (e.g., Literacy Research Association [LRA], 2012; National Association of School Psychologists [NASP], 2011; Penfield, 2010) despite the majority of empirical evidence showing that the practice is not effective (Allen, Chen, Willson & Hughes, 2009; Holmes, 1989; Mantzicopoulos & Morrison, 1992) or worse, may be detrimental to the child (Burkam, LoGerfo, Ready, & Lee, 2007; Hong & Raudenbush, 2005; Meisels & Liaw, 1993; Roderick & Nagaoka, 2005). The monetary cost of retention to school districts is great (Burkam et al., 2007; Xia & Glennie, 2005) and has been estimated, at a national level, to be a staggering \$33 to \$50 billion annually (LRA, 2012). In the U.S., approximately 10% of students from kindergarten to the eighth grade have been retained at least once and the largest proportion of grade repeaters (34.1%) was held back in kindergarten or the first grade (Planty et al., 2009). In an era of high-stakes testing and rising academic expectations, concern specifically about kindergarten retention is on the rise (Winsler et al., 2012).

While retention may often be seen as a consequence of poor academic performance (Jackson, 1975; Langer, Kalk, & Searls, 1984; Tomchin & Impara, 1992) that is not necessarily the case (Cascio & Schanzenbach, 2007; Shepard & Smith, 1986). A seemingly innocuous factor that has been associated with the likelihood of a child's retention is the child's birthdate combined with the school's kindergarten entry age requirements or mandated age-cutoff dates (Corman, 2003; Elder & Lubotsky, 2009; Huang & Invernizzi, 2013).

While the studies on the association of age and learning over time, or achievement-related *birthday effects* studies, generally show that age-related achievement gaps are present upon kindergarten entry, these gaps have been found to close over time (Stipek, 2002). However, young-for-grade children often experience a disproportionately greater risk of repeating a grade (Burkam et al., 2007; Corman, 2003; Elder & Lubotsky, 2009; Hong & Raudenbush, 2005; Huang & Invernizzi, 2013; Willson & Hughes, 2009) and if retained, lessen the chances of that student catching up with the older peers. Retention may actually explain why younger students catch up. If in a cohort of students, a disproportionate number of the younger and poorer performing students are retained, *survivorship bias* results and the average achievement scores of the total number of students who proceed to the next grade artificially increase due to the lower performers' exiting the sample (Huang, Invernizzi, & Drake, 2012; Taleb, 2005). In other words, young children with higher achievement scores are more likely to proceed to the next grade (they "survived") compared to young children with lower achievement scores (are held back).

In addition, factors related with age such as socioemotional skills (e.g., externalizing/internalizing behaviors, self-control) and physical characteristics linked to relative maturity (e.g., height and fine motor skills), may be associated with the likelihood of early retention (Willson & Hughes, 2009; Winsler et al., 2012). While a teacher's assessment of a child's relative maturity, or the maturity of the child in relation to classroom peers, has been associated with higher attention-deficit/hyperactivity disorder (ADHD) identification rates in young-for-grade students (Elder, 2010), such diagnoses may also operate in a similar manner to influence higher retention rates of younger children as a

* College of Education, University of Missouri, Columbia, MO 65211, USA.

E-mail address: huangf@missouri.edu.

number of retention decisions are initiated by teachers (Penfield, 2010; Tomchin & Impara, 1992). The associations of relative age and socioemotional skills in relation to kindergarten retention have not been explored in more detail on a national level.

The current study presents a national profile of grade repeaters compared to promoted students and uses multilevel logit models in analyzing data from the National Center for Education Statistics' (NCES) Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K) of 1997–98 to explore the role of both teacher- and parent-reported socioemotional assessments, a child's relative age, and the likelihood of kindergarten retention. Specifically, this study investigated if socioemotional skills mediated the relation of relative age and kindergarten retention.

Findings of birthday effects studies

The study of various types of outcomes (e.g., achievement scores, likelihood of special education placement or college attendance, future income) of individuals born during different times of the year has been referred to as birthday or relative age effects studies, also known as season-of-birth research (Allen & Barnsley, 1993; Martin, Foels, Clanton, & Moon, 2004). Most classrooms, as a result of the natural variation of birth dates of children, will always have a youngest and an oldest child. For the majority of school systems in the U.S., students must be five years old by September of the year in which they are enrolling for kindergarten (Bush, 2010). As a result, children born in the fall (e.g., October, November) are usually the oldest, while children born in the summer (e.g., July, August) are often the youngest.

Over several decades, studies have reported the advantage, using various measures such as IQ and standardized achievement tests, which old-for-grade students have over their younger peers upon kindergarten entry (Bedard & Dhuey, 2006; Crone & Whitehurst, 1999; Datar, 2006; Halliwell, 1966; Huang & Invernizzi, 2012; Langer et al., 1984; Martin et al., 2004; Oshima & Domaleski, 2006; Stipek & Byler, 2001; Uphoff & Gilmore, 1985). Shepard and Smith (1986) reported in their synthesis of birthday effect studies that "regardless of the entrance age requirements ... the youngest children are *always* at a slight disadvantage" (p. 80). However, age-based achievement gaps are relatively small (Jones & Mandeville, 1990; NICHD Early Child Care Research Network, 2007) and have been found in many studies to disappear after the first few years of school (Shepard & Smith, 1986; Stipek, 2002) leading some to conclude that age-related gaps are small and consequently, not a worthy subject of much debate (Morrison, Griffith, & Alberts, 1997). However, the popular media continues to highlight the concerns that parents of young-for-grade students face (e.g., Dizikes, 2011; Gladwell, 2008; Paul, 2010; Shafer, 2012; Weil, 2007).

While educational researchers and psychologists generally do not view age-based performance differences as worrisome (e.g., Crone & Whitehurst, 1999; Morrison et al., 1997; Shepard & Smith, 1986; Stipek, 2002), quantitative researchers using longitudinal, large-scale datasets present a minority view that relative age may have longer-term effects on the child (e.g., Bedard & Dhuey, 2006; Dhuey & Lipscomb, 2010; Elder, 2010; Elder & Lubotsky, 2009). Bedard and Dhuey, in their analyses of several national and international datasets concluded that even in eighth grade, older students scored 2–9 percentiles higher than younger students in several countries. In the U.S. and British Columbia, Bedard and Dhuey also found that younger students in a cohort are much less likely to enroll in college, compared to the oldest students. An analysis of three nationally representative surveys revealed that relatively older students were also found to excel in softer skills (e.g., sociability, team work, leadership skills) and were more likely to be student leaders, sports team captains, or club presidents in high school (Dhuey & Lipscomb, 2008).

In addition, the analyses of several large-scale datasets have indicated that relatively younger students are much more likely to be diagnosed with a learning disability or exhibit behavior problems (Dhuey

& Lipscomb, 2010; Elder, 2010; Elder & Lubotsky, 2009). Using the ECLS-K, Elder reported that the youngest students in a cohort were 2.2 to 3.6 times more likely to be diagnosed with ADHD compared to the oldest children. Other studies using national surveys (e.g., the Current Population Survey, the Medical Expenditure Panel Survey, the National Health Interview Survey) in the U.S. (Evans, Morrill, & Parente, 2010) and in Britain (Goodman, Gledhill, & Ford, 2003) have also indicated that younger children were more at risk of being diagnosed with ADHD or other psychiatric disorders compared to their older peers. Incidence rates of learning disabilities should not be affected by birth dates and so some diagnoses could be a result of a child's relative immaturity, an under-diagnosis of older children, or a combination of both (Evans et al., 2010).

Age and retention

A real risk experienced by young-for-grade students is the disproportionate likelihood of repeating a grade compared to older students (Cosden, Zimmer, & Tuss, 1993; Graue & DiPerna, 2000; Huang & Invernizzi, 2013; Langer et al., 1984; Lincove & Painter, 2006; Martin et al., 2004; Willson & Hughes, 2009). Unlike the mixed empirical evidence that is often found in educational research, retention research is somewhat more consistent and suggests that retention is not an effective policy (Allen, Chen, Willson, & Hughes, 2009; Burkam et al., 2007; Mantzicopoulos & Morrison, 1992; Meisels & Liaw, 1993; Penfield, 2010). Holmes (1989) conducted an early meta-analysis and analyzed 861 individual effect sizes from 63 studies and indicated that the effect size of retention was between -0.15 and -0.26 SD compared to promotion. Other meta-analyses conducted over several decades (e.g., Jackson, 1975; Jimerson, 2001) have shown consistent results that retention does not appear to show a positive impact on student achievement (Penfield, 2010). Retained students, in comparison to promoted students, often show lower cognitive growth (e.g., Hong & Raudenbush, 2005; Roderick & Nagaoka, 2005), increased issues related to personal adjustment, emotional health/self-esteem (Frey, 2005; Jimerson, Carlson, Rotert, Egeland, & Sroufe, 1997), and experience a higher likelihood of dropping out of school, even if held back as early as kindergarten (Jimerson, Anderson, & Whipple, 2002; Jimerson, Ferguson, Whipple, Anderson, & Dalton, 2002; Kreitzer, Madaus, & Haney, 1989; Rumberger, 1995).

Analyses of nationally representative datasets such as the National Educational Longitudinal Study (NELS) have shown that the youngest students in a cohort were approximately 2.6 to 6.0 times more at risk of being retained compared to the oldest students (Elder & Lubotsky, 2009; Lincove & Painter, 2006). Statewide datasets have also reported similar findings (e.g., Graue & DiPerna, 2000; Huang & Invernizzi, 2013) and experimental data have also shown that younger students, while controlling for academic achievement, were also more likely to be retained (Cascio & Schanzenbach, 2007). Retention decisions are possibly affected by other nonacademic factors such as relative maturity (Byrd & Weitzman, 1994; Jimerson et al., 1997; Tomchin & Impara, 1992), inappropriate behaviors (Burkam et al., 2007), and even a child's height (Jackson, 1975; Wake, Coghlan, & Hesketh, 2000).

Who gets retained?

Retention decisions are often not independent of student demographic characteristics (Meisels & Liaw, 1993). Using national datasets such as the ECLS-K and NELS, studies have often profiled grade repeaters as being young-for-grade, male, have never been in center-based care, and from low-SES families (Alexander, Entwisle, & Dauber, 1994; Burkam et al., 2007; Corman, 2003; Hong & Raudenbush, 2005; NCES, 2000). Nationally, based on the ECLS-K, approximately 4% of kindergarteners repeated kindergarten in the 1998–1999 school year (Burkam et al., 2007).

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