Latent national subpopulations of early education classroom disengagement of children from underresourced families

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ABSTRACT
This research examined the latent developmental patterns for early classroom disengagement among children from some of the most underresourced families in the nation. Based on standardized teacher observations from the Head Start Impact Study, a nationally representative sample of children (N = 1377) was assessed for manifestations of reticent/withdrawn and low energy behavior over four years spanning prekindergarten through first grade. For each form of disengagement, latent growth mixture modeling revealed three distinct subpopulations of change patterns featuring a dominant class associated with generally good classroom adjustment, a medial class that varied close to the population average over time, and a more extreme class (about 10% of the population) whose adjustment was relatively marginal and sometimes reached problematic levels. Whereas reticent/withdrawn behavior ordinarily subsided over time, low energy behavior increased. More extreme low energy behaviors tended to dissipate through schooling and extreme reticence/withdrawal became more accentuated, with both types associated with later academic and social problems. Attendant risk and protective factors are identified and mitigating assessment and prevention measures are discussed.

1. Introduction
Successful early schooling is dependent on the positive participation of children with teachers, classmates, and the learning activities that surround them. This positive participation is often called classroom engagement and the interactions that flow from it are deemed formative for eventual cognitive and social-emotional development (Mashburn et al., 2008; McWilliam & Casey, 2008; McWilliam, Scarborough, & Kim, 2003; Willford, Vick Whittaker, Vitiello, & Downer, 2013) because they show the child how to encounter novelty and risk, seek assistance where needed, master new learning challenges, interact appropriately with teachers and peers, and respond reflectively and resiliently to failure and opposition (Fredricks, Blumenfeld, & Paris, 2004; McDermott et al., 2011).

The nature of classroom engagement and the relative structure of the classroom environs change as children transition from preschool to school (Fredricks et al., 2004; Powell, Burchinal, File, & Kontos, 2008; Searle, Sawyer, Miller-Lewis, & Baghurst, 2014),

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but the residual effects of these early experiences have lasting influence for subsequent encounters with formal learning and life in general. Ample research literature supports that the quality of early school engagement connects predicatively to later educational achievement (Chien et al., 2010; Fredricks et al., 2004; Greenwood, Horton, & Utley, 2002), to social and emotional outcomes (McDermott, Rikoon, & Fantuzzo, 2016), and to school retention, absenteeism, delayed graduation, and accelerated dropout (Alexander, Entwistle, & Horsey, 1997; Buhs & Ladd, 2001; Ladd, Birch, & Buhs, 1999; Searle et al., 2014).

1.1. Forms of disengagement

Although classroom engagement is always active, it is not always positive. Negative classroom engagement is illustrated by aggressive, hyperactive, impulsive, or defiant behavior; commonly referred to as externalizing or overactive behavior problems (Noone-Lutz, Fantuzzo, & McDermott, 2002; Willford et al., 2013). Alternatively, when children can’t or won’t engage either positively or negatively, the behavioral state is more properly termed disengagement. Disengagement is marked by behavioral detachment or disconnection that could be described as pervasive shyness, diffidence, unassertiveness, reticence, withdrawal, inattention, sluggishness, or chronic lethargy. As is true for active engagement, classroom disengagement also foreshadows distal outcomes, but they are almost uniformly undesirable, including academic nonproficiency and social-emotional disturbances (Barghaus et al., 2017; Drogalis et al., 2017; Fantuzzo, Bulotsky, McDermott, Mosca, & Noone Lutz, 2003; Fantuzzo et al., 2007; Noone-Lutz et al., 2002). The current study focused selectively on the kinds of classroom disengagement that are manifest among that segment of the early education population that is at relative greatest risk for subsequent undesirable outcomes—children from some of the nation’s most economically underresourced households (per the Head Start Impact Study [HSIS]; U.S. Department of Health and Human Services [DHHS], 2010). Specifically, the investigation followed the developmental transitions in the forms of disengagement that have established construct validity as well as continuity from the earliest year of prekindergarten through first grade. These forms of classroom disengagement are known as low energy behavior and reticence/withdrawal (McDermott, Watkins, Rovine, & Rikoon, 2013).

Low energy and reticent/withdrawn forms of classroom disengagement were first identified in a study of a large sample of Head Start children from the nation’s 5th largest and most economically impoverished city (Noone-Lutz et al., 2002). These dimensions correlated below or near zero with all identified forms of negative classroom engagement (aggression, oppositionality, hyperactivity) but produced very strong positive multivariate associations with social disconnection during classroom play, as assessed through the Penn Interactive Peer Play Scale (Fantuzzo, Coolahan, Mendez, McDermott, & Sutton-Smith, 1998). Similar strong associations were observed with the classroom Inattention scale of the Conners Teacher Rating Scale (Conners, 1990). In an extension of this work, Fantuzzo et al. (2003) jointly referred to low energy and reticence/withdrawal as forms of Head Start classroom disengagement and showed their strong inverse relationships to teacher assessments of children’s physical movement and coordination and propensity to engage in social contexts with classmates and teachers. Based on a still larger and independent sample of Head Start children from the same urban locale, Fantuzzo et al. (2007) later confirmed the strong positive association between classroom disengagement and disconnected social interactions during play periods and also showed that the reticent form of disengagement is more likely to manifest in situations with teachers than with classmates.

The specific behaviors that define low energy and reticence/withdrawal were incorporated as items in the Adjustment Scales for Early Transition in Schooling (ASETS; McDermott et al., 2013). ASETS was chosen by the Head Start Bureau and DHHS (2010) to represent the social-emotional domain of child functioning within the national HSIS. The HSIS drew a large nationwide random sample of children who were eligible for Head Start entry and randomly permitted a portion to enter Head Start and the remaining portion to enter comparable non-Head Start preschool settings. Thus, the sample was designed to proportionately represent both Head Start enrollees and enrollees in alternative non-Head Start preschools. It further assessed participant children (both initial Head Start and non-Head Start enrollees) through two years of prekindergarten, kindergarten, and first grade, each year applying ASETS toward the close of the spring semester.

McDermott et al. (2013) used exploratory and confirmatory longitudinal factor analyses to establish the structural integrity and continuity of the ASETS low energy and reticence/withdrawal measures across time and, through IRT vertical equating and Bayesian scoring, established reliable scales that would reflect changes in performance while holding stable the integrity of the underlying disengagement constructs. The researchers demonstrated through multilevel individual growth-curve modeling that the low energy and Reticence/Withdrawal scales were sensitive to both linear change and to higher-order quadratic and cubic change. Moreover, they established that it was possible to isolate distinctly different change patterns as associated with children known to have later succeeded versus failed academically and to have appeared adjusted versus maladjusted by the close of first grade. Further, across the four years of HSIS, low energy and Reticence/Withdrawal assessments were significantly related to direct assessments of academic functioning, to teacher assessments of academic functioning, and to independent teacher and parent assessments of classroom and home social and emotional adjustment.

Whereas the prior work is fundamental and supportive of the prospect that low energy and reticence/withdrawal measures detect even complex curvilinear change over the early education years and furthermore can discover in retrospect the unique change patterns associated with children who eventually manifest desirable versus undesirable outcomes, it is unknown whether the measures can identify important latent subpopulations of children (developmental trajectories) that distinguish themselves in terms of growth patterns and levels of adjustment. It is also not known whether such distinct developmental trajectories are more or less likely related to eventual academic and social outcomes. Nor is there an understanding as to how such latent subpopulations of children might be unique in terms of antecedent child and family explanatory factors.

From a practical standpoint, school psychologists and other educators who are provided early warning of a child’s likely
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