



Classroom quality as a predictor of first graders' time in non-instructional activities and literacy achievement



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ABSTRACT

This study investigated how quality of the classroom learning environment influenced first grade students' ($n = 533$) time spent in two non-instructional classroom activities (off-task and in transition) and their subsequent literacy outcomes. Hierarchical linear modeling revealed that higher classroom quality was related to higher student performance in reading comprehension and expressive vocabulary. Further, classroom quality predicted the amount of time students spent off-task and in transitions in the classroom, with slopes of change across the year particularly impacted. Mediation effects were detected in the case of expressive vocabulary such that the influence of classroom quality on students' achievement operated through students' time spent in these non-instructional activities. Results highlight the importance of overall classroom quality to how students navigate the classroom environment during learning opportunities, with subsequent literacy achievement impacted. Implications for policy and educational practices are discussed.

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1. Introduction

Students' early literacy performance is one of the strongest indicators of success throughout formal schooling, with patterns of achievement established in early elementary school often lasting into adulthood (National Institute of Child Health and Human Development [NICHD], 2000). Students who are able to read proficiently by third grade are less likely to exhibit attention and behavior problems (Adams & Snowling, 2001; Maughan & Carroll, 2006) and are far more likely to experience overall long-term success (Reynolds & Ou, 2004; Spira, Bracken, & Fischel, 2005). In addition, multiple studies have documented relations between poor achievement patterns and negative life outcomes, such as higher rates of school dropout and incarceration (Duncan et al., 2007; NICHD, 2000). Despite these findings, recent large-scale evaluations of reading achievement in elementary students present a discouraging picture, with only 38% of fourth graders reading at or above a proficient reading level with rates even lower for students from low income families (National Association of Educational Progress [NAEP], 2011) even in the decade following major federal initiatives such as Reading First and Race to the Top. This staggering deficit in reading achievement illustrates the need for research investigating the reasons behind reading failure in early elementary students. The present study seeks to contribute to these efforts by clarifying exactly how the classroom

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environment, a highly influential developmental context, impacts the way students spend their time during learning opportunities and what the implications of these factors are for early literacy skill growth.

1.1. Theoretical framework

First grade is considered a critical period for literacy development because it is the first time students are exposed to purposeful, formal literacy instruction (Spira et al., 2005). During this time, teachers have the capacity to set the course of student development through their contributions to the learning environment. The bio-ecological model of child development (Bronfenbrenner & Morris, 2006) and dynamic systems theory (Yoshikawa & Hsueh, 2001) are two views that illustrate how the classroom context can influence student development in these early years. The bio-ecological model highlights the significant systems in which child development takes place, paying close attention to the contexts in which students spend their time (e.g., microsystems). Following this, we view the classroom as a significant microsystem of influence that has strong potential to impact early development across multiple domains. Further, dynamic systems theories posit that within this microsystem, there are multiple elements of the classroom that interact synergistically to determine how students experience (and what they take away from) their time. That is, characteristics within a classroom have the potential to influence each other in a chain reaction of events that work together to impact student outcomes. Utilizing this framework, we hypothesize that classroom systems indicative of classroom quality, namely the instruction, management and organizational systems in place to promote efficient learning, may impact student outcomes indirectly by influencing how students spend their time in the classroom. Specifically, if a classroom is poorly organized with ineffective management and instruction, students may have difficulty navigating their environment, attending to learning opportunities, or staying on-task, which may negatively impact learning.

We recognize that multiple student characteristics bring unique contributions to the microsystem of the classroom (Bronfenbrenner & Morris, 2006), undoubtedly influencing classroom quality independently of the teacher; however, teacher-focused elements of classroom quality have been conceptualized as the “starting point” in the relations hypothesized within this study. This is because we posit that it is the teachers' responsibility to make purposeful adjustments to classroom elements that may be hindering student development. As such, we approach this study from the teachers' points of view, focusing on their contributions to the classroom environment and the impact they may have on student actions and subsequent literacy achievement (Guo, Connor, Tompkins, & Morrison, 2011; Merritt, Wanless, Rimm-Kaufman, & Peugh, 2012).

1.2. Defining and measuring classroom quality

The quality of the classroom-learning environment has been found to be a primary driving force behind student development (Bronfenbrenner & Morris, 2006; Cameron, Connor, & Morrison, 2005; Connor et al., 2009a, 2009b; Guthrie, Anderson, Aloi, & Rinehart, 1999; Rimm-Kaufman, La Paro, Downer, & Pianta, 2005). High quality classrooms support social-emotional development and academic competence (Connor, Son, Hindman, & Morrison, 2005; Domitrovich, Cortes, & Greenberg, 2007; Hamre & Pianta, 2007; Ponitz, McClelland, Matthews, & Morrison, 2009a) as well as buffer against academic and social delays associated with student risk characteristics, such as difficult temperament, low self-regulation, and low socioeconomic status (SES; Curby, Rudasill, Edwards, & Perez-Edgar, 2011; Hamre & Pianta, 2005; Rimm-Kaufman et al., 2005; Reyes, Brackett, Rivers, White, & Salovey, 2012). Many of the individual components of classroom quality, including organization, management, and instruction have been found to be independently predictive of student outcomes (Bohn, Roehrig, & Pressley, 2004). Additionally, there appears to be a large degree of relatedness between the individual classroom quality components. Pressley et al. (2001) investigated the impacts of multiple classroom features concurrently on first graders' literacy achievement and found that a combination of effective classroom management, purposeful support for student self-regulation, balanced and developmentally appropriate instruction, and tactful interweaving of literacy lessons throughout the day were predictive of student achievement. Additionally, Mashburn et al. (2008) found that teachers' instructional and emotional interactions with students were predictive of both academic and social emotional outcomes. Such findings suggest that these classroom elements are well-conceptualized together as one comprehensive construct that has the capacity to impact student outcomes (Connor et al., 2011; Hamre & Pianta, 2007).

In the present study, we measure classroom quality using the Quality of the Classroom Learning Environment (Q-CLE; Connor et al., 2011, 2014) rubric, a novel observational measure developed by the authors and used multiple times within the longitudinal parent study described below (Connor et al., 2009a; b; Connor et al., 2014). Building directly on our theoretical framework, which views the classroom as a dynamic system of developmental influence, the Q-CLE rubric separately assesses the observable physical characteristics of the classroom environment, the purposeful instruction provided by the teacher, and the interactions that take place between teachers and their students—then considers these factors concurrently as a whole construct. Using this approach, we attempt to provide a comprehensive, multi-component view of the classroom as a dynamic microsystem that involves many elements interacting with each other in various ways to impact student experiences.

High-quality classrooms are defined herein as learning environments that involve purposeful and teacher-implemented systems of organization, instruction, and management meant to aid in successful student learning. Organization includes both the physical characteristics of a classroom as well as the techniques employed by the teacher to promote efficient use of time (e.g., explaining upcoming activities, allowing opportunities for students to rehearse the behaviors necessary to complete assigned academic tasks). Management refers to the teachers' use of intentional proactive and reactive actions to maintain an environment in which students can successfully learn. This includes both a teachers' level of warmth and responsiveness to students (analogous to “emotional support” in other comparable measures, i.e., Pianta, La Paro, & Hamre, 2007) as well as classroom control and

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