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Reading Coach Quality: Findings from Florida Middle Schools

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Drawing on a statewide study of Florida middle-school reading coaches, this article examines what constitutes, contributes to, and is associated with high-quality coaches and coaching. Authors find that coaches generally held many of the qualifications recommended by state and national experts and principals and teachers rated their coaches highly on many indicators of quality. However, several common concerns about recruiting, retaining, and supporting high-quality coaches emerged. Estimates from models indicate that a few indicators of coach experience, knowledge, and skills had significant associations with perceived improvements in teaching and higher student achievement, although the magnitude of the latter relationship was quite small. Findings suggest that although possessing strong reading knowledge and instructional expertise may be important for coaching, it may not be sufficient.

Keywords adult learning, adolescent literacy, literacy coaching

Introduction

In recent years, much attention has been paid to defining and supporting the development of high-quality teachers. This often ideological debate about who to hire, retain, and promote, has sought to identify the specific experience, knowledge, skills, preparation, and attributes that make up an effective teacher. And while the empirical evidence on this topic remains somewhat inconclusive and incomplete (for reviews of this literature see Goe, 2007; Rice, 2003), policies have been forged at all levels with clear assertions about what matters most. Most notably, the federal No Child Left Behind Act (NCLB) relies on certification and content-area expertise to define high quality. However, a growing number of district policies are taking a different approach to thinking about quality—defining it either as a function of outcomes (as measured by student achievement) or an interaction between practice and outcomes.

Although instructional coaches have become increasingly prevalent in U.S. schools and districts, there has been surprisingly little attention to similar questions about what defines an effective coach and how coaches gain the knowledge and skills necessary to be effective in these instructional support roles. School-based reading coaches (sometimes called literacy coaches) are one type of instructional coach that has become very

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popular in recent years. In fact, federal policies such as the Reading First, Striving Readers, and NCLB have encouraged the expansion of this type of coaching across the country. Numerous schools, districts, states, and school reform models (e.g., Accelerated Schools and America's Choice) currently employ coaching as a primary part of their improvement programs (Foltos, 2007; Galm & Perry, 2004; Mraz, Algozzine, & Watson, 2008; Russo, 2004; Frost & Bean, 2006). Moreover, coaching increasingly has become a centerpiece of literacy reform policies in many schools and districts, and a few states.

Despite the widespread use of coaches, there is little research examining the specific attributes of high-quality coaches or the supports needed to foster quality in instructional coaching. This article begins to fill this research gap by presenting results from a mixed methods study of a statewide reading coach program in Florida middle schools, supported by The Carnegie Corporation of New York. There are a number of ways one can conceptualize coach quality to include qualifications, expertise, experience, practice, the ability to affect teacher and student outcomes, and the interaction among these. This article focuses on indicators of "coach quality" that are of interest to district and school administrators: qualifications, expertise, and experience upon hiring and the improvement of coach practice through professional development. The article investigates three broad research questions:

1. What are the characteristics and "quality" of coaches in Florida middle schools?
2. What policies and practices do districts and schools use to support high-quality coaches?
3. To what extent are indicators of coach quality related to teacher and student outcomes?

Answers to these questions contribute to policy and practice in important ways. First, given the significant federal, state, and local resources allocated to coaching programs, it behooves policy makers to better define and support coach quality to ensure their investment in coaching reaps dividends. Second, the research can inform the work of administrators and coaches by providing lessons for selecting and supporting coaches and identifying aspects of effective coaching practice.

In this article we first provide context for the study, including a review of literature, a description of the Florida coaching program, and definitions of coach quality. Next we describe the study's conceptual framework, data, and methods. We then present answers to the research questions, including findings on the characteristics and perceived quality of coaches, policies and practices intended to support high-quality coaches and coaching, and how indicators of coach quality relate to teacher and student outcomes. We conclude with a set of implications for policy, practice, and research.

Background

Theoretical Basis for Coaching

Advocates and researchers often point to learning theory and research on professional development as the rationale for coaching. Learning theory suggests that individuals learn best when provided with opportunities to discuss and reflect with others, to practice application of new ideas and receive feedback from an expert, and to observe modeling (Brown, Collins, & Duguid, 1989; Vaughan, 1996; Lave & Wenger, 1991; Rogoff, 1990; Tharp & Gallimore, 1988). Empirical research further suggest that the transfer of ideas from the traditional professional development model of one-shot workshops into actual instructional

change and increases in student learning is extremely limited (e.g., Garet et al., 1999, 2001; Hawley & Valli, 1999; Joyce & Showers, 2002; Showers & Joyce, 1996).

In response to this literature, researchers have encouraged models of professional development that promote reflection on practice, collaboration, and active learning embedded within particular instructional settings (Butler, Novak, Beckingham, Jarvis, & Elashuk, 2000; Darling-Hammond & McLaughlin, 1995; Elmore, 2002). Coaching models are designed to fit well within the broader consensus view on “best practices” in professional development. As on-site personnel who interact with teachers in their own workplaces, coaches should theoretically be able to facilitate learning that is context-embedded, site-specific, and sensitive to teachers’ actual work experiences (Hasbrouck & Denton, 2005; Knight, 2006; Toll, 2007; Walpole & McKenna, 2004). In addition, coaches may act as schoolwide facilitators, promoting collaboration and the development of learning communities (Bean & Eisenberg, 2009). Finally, coaches may work with teachers in their classrooms and with their students in an ongoing, hands-on way that may promote deep personal reflection about teaching practice. Unlike other staff who support reading (e.g., reading resource teachers), coaches are intended to serve in a nonevaluative, support role for teachers and to not directly instruct or tutor students unless used as a means to model instruction for teachers.

Prior Research on Coaching

While reading coaches are prevalent in many schools across the nation, there is little empirical evidence regarding the nature of coaching and what attributes are associated with effective coaching and outcomes. In recent years many descriptive studies examine the various roles coaches play in schools and the factors mediating these roles (e.g., Blamey, Meyer, & Walpole, 2008; Camburn, Kimball, & Lowenhaupt, 2008; Deussen, Coskie, Robinson, & Autio, 2007; Mangin, 2005; 2009; Marsh et al., 2005; Matsumura, Sartoris, Bickel, & Garnier, 2009; Mraz et al., 2008; Smylie & Denny, 1990; Walpole & Blamey, 2008).

A limited number of studies on the effects of coaching on practice suggests that the policy shows some promise. For example, Joyce and Showers (1996, 2002) have found in several studies that elementary and secondary teachers in coaching relationships practiced new skills more frequently and applied them more appropriately in their classrooms than other teachers. A review of coaching literature from the 1980s and 1990s, Kohler, Ezell, and Paluselli (1999) reported several positive outcomes, including improvements in teachers’ ability to plan and organize, provide instruction for students with disabilities, use classroom behavior management strategies, and address instructional objectives. Others have documented positive effects of coaching on teachers’ implementation of standards and instructional strategies (Garet et al., 2008; Brown et al., 2007; Brown, Reumann-Moore, Hugh, du Plessis, & Christman, 2006; Kohler, Crilley, Shearer, & Good, 1997; Kohler, McCullough, & Buchan, 1995; Poglinco et al., 2003; Wong & Nicotera, 2006), and school culture and teacher collegiality (Guinney, 2001; Neufeld & Roper, 2003; Richards, 2003).

Few studies have rigorously examined the link between coaching and student achievement, and what little research exists is inconclusive. Two small scale studies (one of five Reading First literacy coaches and another of six middle-school coaches in Ontario) found greater student achievement was positively correlated with the frequency of teachers’ contact with their coach (Elish-Piper & L’Allier, 2010; Ross, 1992). Our own research on Florida middle-school reading coaches found mixed evidence regarding the impact of

coaching on achievement, as coaching was associated with small but significant improvements in average annual gains in reading for two of the four cohorts analyzed (Lockwood, McCombs, & Marsh, 2010). Two random-control studies come to seemingly different conclusions about coaching. One study (Garet et al., 2008) found no relationship between the elementary school coaching and reading student achievement at the end of the treatment year or by the end of the following year (although the professional development was not provided during the following year). While another study of elementary reading coaches found significant, positive effects of coaching on student achievement that increased over time (Biancarosa et al., 2010). The finding of increased effects over time may explain the null findings in the study by Garet and colleagues where teachers only received one year of coaching. It also helps explain the null findings for coaching in one of the four cohorts (the one that had only had coaching for one year) in our Florida study.

Some literature suggests that coach knowledge, skills, and expertise contribute to coaches' work. Studies identify the importance of interpersonal skills, often noting that supportiveness, respectfulness, approachability, accessibility, flexibility, tactfulness, and the ability to build relationships are key characteristics of successful coaches (Brown et al., 2006; Poglinco et al., 2003; Wong & Nicotera, 2006; Ertmer et al., 2005). In a 2003 survey of 31 professional development coaches, the most frequently mentioned characteristic of an effective coach was "people skills," including the ability to build relationships, establish trust and credibility, and tailor assistance to individual educators' needs. Coaches themselves ranked interpersonal capabilities higher in importance than content and pedagogical knowledge; they believed they could improve their content expertise through training but people skills would be more difficult to acquire (Ertmer et al., 2005). We are not aware of any studies, however, that link these coach characteristics to more objective measures of effects.

Ultimately, not enough is known about reading coaching. In particular, there is little research documenting who reading coaches are (i.e., their background, experience, characteristics), what principals look for when selecting coaches, how teachers and principals conceptualize coach quality, what effects coaches have on staff and students, and what coach characteristics are associated with these effects, especially at the secondary level.

Florida's Coaching Program

Florida provided a unique opportunity to study reading coaching situated within a broader state-led literacy policy, the "Just Read, Florida!" initiative. Established in September 2001 by then-governor Jeb Bush, the initiative's goal was that all students read at or above grade level by 2012. One key component of this effort was the allocation of funds to districts to hire full-time, site-based reading coaches at the elementary and secondary level. Florida scaled up its reading coach initiative over time: in a span of five years, the number of participating schools increased from 300 in 30 districts to more than 2,200 in 72 districts in 2006–07.¹ In 2006–2007, the year of this study, the state estimated that 2,360 coaches were funded through local, state, and federal funds.

Florida's reading coach program did not provide a specific model per se, but instead an array of conceptual, policy, and practical supports that were intended to guide the work

¹There are 67 county districts in Florida and 8 nontraditional districts (e.g., Florida School for Deaf and Blind in Dozier/Okeechobee). In 2006–2007, virtually all of these districts participated in the program.

of a coach. The overarching goal of Florida's coaching program was to improve students' reading ability by helping teachers implement effective, research-based instruction in reading and in content areas. The state defined the role of middle-school reading coach as an on-site person who provided professional development, progress monitoring, and student data analysis to generate improvements in reading instruction and achievement (Florida Department of Education, 2004).

Aside from the requirement that coaches be full-time employees, the state did not mandate any other aspects of a coach's job, but instead provided districts with a job description suggesting basic coach qualifications (see next section) and ways in which the coach should operate at the school level. The state also encouraged coaches to work with all teachers across content areas, with a focus on new teachers, new reading teachers, and those teaching struggling students; to prioritize their time on in-class coaching (e.g., modeling, observing, providing feedback); and to avoid formally evaluating teachers and participating in activities that detract from work with teachers (e.g., administrative tasks, substitute teaching). To encourage fidelity to the state's vision for coaching, the state provided training to coaches and principals at annual summer conferences. It also required coaches to submit biweekly coach logs accounting for time spent and districts to submit reading plans that detailed how coaches would be supported and utilized, which were monitored by the state.

Definitions of Coach Quality

Although no empirical literature documents specific characteristics or traits of coaches who attain better outcomes (e.g., improved student achievement or changes in teacher practice), there appears to be some consensus around basic qualifications of a reading coach. Building on earlier recommendations, in 2006, the International Reading Association (IRA) collaborated with the National Council of Teachers of English (NCTE), National Council of Teachers of Mathematics (NCTM), National Science Teachers Association (NSTA), and National Council for the Social Studies (NCSS) to develop "Standards for Middle and High School Literacy Coaches." "Requisite qualifications" outlined included strong foundation in literacy (credential or experience), strong leadership skills, familiarity with adult learning, familiarity with the student age groups at the school, and strong classroom teaching skills (Snow, Ippolito, & Schwartz, 2006). "Discretionary qualifications," included credentials and/or experience in specific content areas in which coaching may occur (e.g., English language arts, mathematics), strong personal literacy and communication skills, excellent presentation skills, and excellent interpersonal skills.

Consistent with these recommendations, the Just Read, Florida! Office defined the following basic qualifications for its reading coaches, noting that districts were free to add others: (1) experience as a successful classroom teacher, (2) knowledge of scientifically based reading research, (3) expertise in reading instruction and infusing reading strategies into content area instruction, (4) data management skills, (5) strong knowledge base in working with adult learners, and (6) excellent communication skills, including presentation, interpersonal, and time management skills. The state also required a minimum of a bachelor's degree, "highly recommended" advanced coursework in reading, and also required that a coach had or was working toward a state reading endorsement or certification (FDOE, 2004).

Collectively these qualifications and standards provide a starting point for defining potential dimensions of high-quality coaches and coaching. As described later, our study attempted to measure several of these dimensions and their relationship with outcomes.

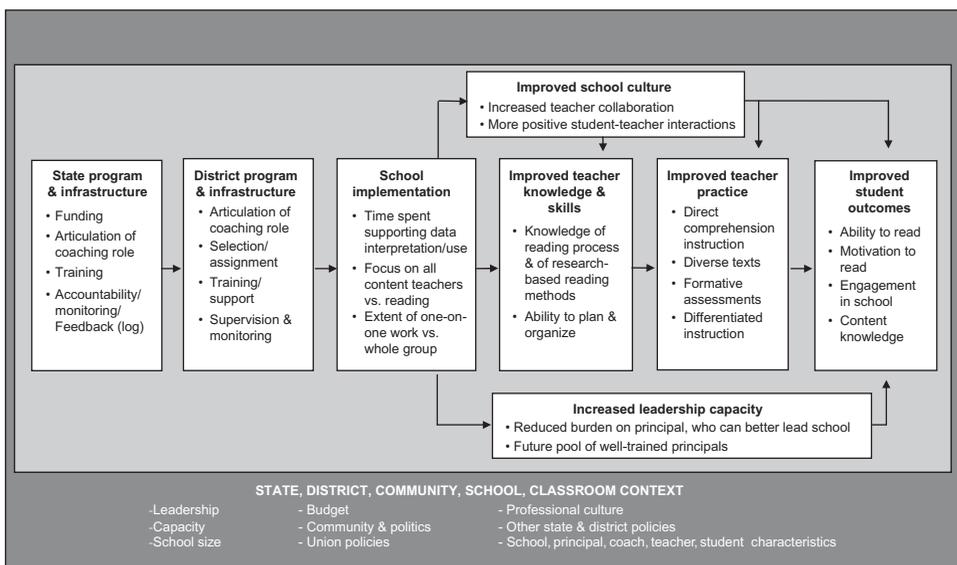


FIGURE 1 Conceptual framework.

Conceptual Framework

Our study design, data collection, and analysis were guided by a conceptual framework grounded in the empirical and theoretical research on coaching and learning, as well as the state's implicit "theory of action" we deduced from our interviews and review of documents (Figure 1). The basic hypothesis is that increasing the expertise and availability of reading coaches to work with teachers at a school site will allow teachers to gain new knowledge and skills or enhance existing knowledge and skills, which in turn will improve their reading instruction and ultimately improve student achievement and other outcomes. The model recognizes that quality coaching is greatly influenced by the contexts in which coaches work. Thus the state and district shape this process by articulating the roles and responsibilities of the coach, setting hiring qualifications, providing ongoing training and support to reading coaches, and monitoring their efforts. These policies and practices not only define coach quality, but are intended to support and improve it. Schools also influence the coaching process by directing coaches' attention to certain priorities. Other aspects of a coach's actual work at the school level may also influence his or her effects on teachers, such as the amount of time spent working with teachers to support data interpretation and use.

The framework also posits that coaching can affect student learning through various other intermediate outcomes, such as building school leadership capacity and enhancing school climate, which in turn might either directly affect student achievement or indirectly affect achievement through changes in teacher practice. Finally, the framework for the study recognizes that Florida's coaching program, like all coaching programs, is embedded in a broader state, district, and local context that can influence coaching practice and its impact, and includes such factors as principal leadership, school size, and other state and district policies. Characteristics of participants may also affect the implementation and effects, most notably characteristics of each coach—such as their knowledge, skills,

and confidence, as well as their experience teaching reading and coaching. These latter variables are the focus of this article.

Data and Methods

As noted, the study from which this article draws used a combination of quantitative and qualitative methods (see Marsh et al., 2008 for further details).

Sample

To examine coaching implementation, we selected a purposive sample of 12 of the largest districts (with approximately 10–45 middle schools each) in Florida that represent a range of approaches to and experience with middle-school coaching.² One district declined to participate, giving us a final sample of eight districts. In each of the eight study districts, we randomly sampled 180 schools from all regular and charter middle schools (defined as schools serving grades 6 through 8) that employed a part-time or full-time reading coach in 2006–2007 from a total population of 226 schools.³ Ultimately, we recruited 113 schools to participate, representing an overall cooperation rate of 63%.

In each school, we surveyed the principal, all reading coaches, and 10 teachers. As a general rule, from each school roster we randomly sampled five reading teachers and five social studies teachers, stratified by grade, to obtain a representative sample that would be adequate for our analyses. (Florida required middle-grade students performing below proficiency on the state reading assessment to take a reading course from reading teachers.) We selected reading teachers because state interviews and a review of documents indicated that coaches were likely focusing much of their attention on these teachers. We selected social studies teachers to capture the perspectives of core-content area teachers who we were told were likely to interact with the coach.

From the eight participating districts, we selected two districts from which to collect more in-depth qualitative data and in which we were able to pretest our survey instruments. Within each district we selected three schools to follow over the course of the year and within each school we selected the coach and three teachers with whom the coach had been working closely or planned to work with over the course of the year to follow.

Data Collection

Surveys. In Spring 2007, we administered Web-based surveys to principals, reading coaches, and reading and social studies teachers in our sample of schools from the eight participating districts. Table 1 shows the response rates for each respondent group. To adjust for potential differences due to differential sampling and nonresponse, we created weights that reflected both the known sampling probabilities and estimated response probabilities at the school and teacher level so that our responding sample would be representative of the entire population of middle schools in the eight study districts. The four

²As a condition of participation, all districts, schools, and individuals were promised anonymity. Thus, we do not provide specific data or details on any organizations or individuals that could inadvertently disclose their identity.

³One district denied access to its lowest-performing schools, which removed eight schools from the eligible population.

Table 1
Survey response

	Number sampled	Number ineligible ^a	Number responding	Response rate (%)
Principals	113	0	96	85
Reading coaches	124 ^b	0	109	88
Reading teachers	554	1	386	70
Social studies teachers	563	3	348	62

^aIneligible individuals were teachers originally identified on rosters as teaching reading or social studies who, after receiving the survey, told us they were either no longer teaching at the school or not teaching that particular subject.

^bBecause some schools had two full-time coaches, the number of coaches is greater than the number of schools and principals.

survey instruments drew on our conceptual framework, coaching literature, data collected in the first round of case study visits, measures validated from other studies, and careful review by experts. Table 2 provides details on the items and scales included in the models presented in this article.

Case Study Visits. Researchers visited each case study school three times during the 2006–2007 school year. During the visits, researchers conducted interviews with the reading coach, principal, and three case study teachers at each school, observed one period of instruction of each case study teacher, shadowed the reading coach for at least half a day, and conducted focus groups with core content area teachers. We conducted a total of 64 interviews, 13 focus groups (with 43 teachers in total), and 28 observations over the course of the academic year.

District and State Interviews, Observations, and Documents. Interviews with state-level staff, attendance at the state’s annual Leadership Conference, and documents provided us with information on Florida’s coaching program and supports. Telephone interviews with the supervisors of middle-school reading coaches in the six non–case study districts provided information on district support for coaching.

State Reading Coach, Student Achievement, and Demographic Data. We obtained “coach log” data aggregated at the state and district levels for 2006 and 2007 in order to compare our survey results on coach background to information from all coaches in the state. We also obtained from the state department of education’s K–12 Data Warehouse FCAT score information (criterion-referenced portions for reading) for individual students in all schools in the state that include any of grades 6–8 from 2001–2002,⁴ the school year prior to the first year of implementing the state’s middle-school reading coach initiative, through 2006–2007. We also obtained background information for individual students—including gender, ethnicity, socioeconomic status, limited English proficiency (LEP) status, participation in special education or gifted programs, attendance, mobility, age, and grade retention history.

⁴2001–2002 was the first year that the FCAT was administered to all students in grades 3–8.

Table 2
Definition of variables used in models

Constructs	Definitions
Outcome	
Perceived influence on teacher practice	To what extent did the coach influence any changes made to your instruction over the course of the year?
Mean/Standard deviation = 2.3/0.6	Measured on a four-point scale (“not at all,” “to a small extent,” “to a moderate extent,” “to a great extent”).
Source: Teacher Surveys	
Predictors	
<i>Coach Expertise and Experience</i>	
Reading credential	Defined as coach having a master’s degree in reading, a reading certification, state reading endorsement, or combined state reading/English to speakers of other languages (ESOL) endorsement.
Mean/Standard deviation = .079/0.39	
Source: Coach Survey	
Years teaching reading	Defined as total years experience teaching reading and serving as a reading specialist or reading resource teacher.
Mean/Standard deviation = 11.2/9.67	
Source: Coach Survey	
Perceived coach quality scale (alpha = .91)	The reading/literacy coach(es) at my school: (a) has strong knowledge of best practices in reading instruction; (b) <i>has a limited understanding of the particular needs of students that I teach</i> ; (c) has a strong understanding of my needs as a teacher; (d) helps me adapt my teaching practices according to analysis of student achievement data (e.g., test results); (e) maintains confidentiality of what we discuss or work on together; (f) understands the middle-school culture and student; (g) <i>has little time to regularly support teacher</i> ; (h) is someone I trust to help me and provide support; (i) provides feedback in a nonevaluative way; (j) explains the research, theory, or reasons underpinning the strategies (s)/he suggests or the feedback (s)/he provides; (k) (social studies teacher only) <i>does not have sufficient understanding of my content area to help me with my teaching</i> .
Mean = 3.03	
Standard deviation = .41	
Source: Teacher Surveys	Measured on a four-point scale with an additional “don’t know/NA” option (“strongly disagree,” “disagree,” “agree,” “strongly agree,” “don’t know/NA”). Statements in italics were reverse coded.
Ability to support adult learners	How would you rate your reading/literacy coach’s knowledge and skills in understanding of how to support adult learners?

(Continued)

Table 2
(Continued)

Constructs	Definitions
Mean/Standard deviation = 2.50/0.61 Source: Principal Survey	If your school has more than one reading coach, answer the question for the reading coaches as a team. Measured on a three-point scale (“weak,” “medium,” “strong”)
Coach confidence scale (alpha = .59) Mean/Standard deviation = 3.54/0.45 Source: Coach Survey	To what extent do you agree or disagree with the following statements about your work as a reading/literacy coach? (a) I feel confident in my ability to support teachers with reading instruction; (b) <i>I do not feel prepared to help content area teachers incorporate reading strategies into their classrooms.</i> (reverse coded) Measured on a four-point scale (“strongly disagree,” “disagree,” “agree,” “strongly agree”)
More experienced coach Mean/Standard deviation = 0.49/0.49 Source: Coach Survey	Defined as having been a coach for three or more years (yes/no)
<i>Coach Activities</i>	
Focus on integrating instruction across content areas Mean/Standard deviation = 3.15/0.75 Source: Coach Survey	Considering all of the work you have done with teachers this school year, how much emphasis did you place on supporting the following area of instruction: integrating reading instruction across the content areas Measured on a four-point scale (“no emphasis,” “minor emphasis,” “moderate emphasis,” “major emphasis”)
Reviewed assessment data with coach RT Mean/Standard deviation = 2.14/0.59 SS Mean/Standard deviation = 1.65/0.50 Source: Teacher Surveys	How often has your school’s reading/literacy coach(es) performed the following actions? Since the beginning of the school year, my school’s reading/literacy coach(es) has reviewed student assessment data with me (individually or in a group) Measured on a four-point scale (“never,” “a few times this year,” “once or twice a month,” “once or twice a week or more”)
Received individual coaching scale (alpha = .88) RT Mean/Standard deviation = 1.88/0.51 SS Mean/Standard deviation = 1.49/0.42 Source: Teacher Surveys	How often has your school’s reading/literacy coach(es) performed the following actions? Since the beginning of the school year, my school’s reading/literacy coach(es) has: (a) come to my classroom to co-teach or model a lesson or reading strategy’ (b) assisted me with planning a lesson or curricular unit; (c) visited my classroom to observe my instruction; (d) given me feedback on my teaching or facilitated reflection on my practice. Measured on a four-point scale (never, a few times this year, once or twice a month, once or twice a week or more)

(Continued)

Table 2
(Continued)

Constructs	Definitions
<i>Context for Coaching</i>	
Number of years the school had a coach Mean/Standard deviation = 4.01/2.18 Source: Principal Survey	For how many years (including this year as one) has your school had a reading/literacy coach?
Coach caseload Mean/Standard deviation = 6.97/0.50 Sources: Principal Survey and Common Core of Data	Log (number students per coach) Note: Ideally we would have used a measure of teacher-to-coach ratio; however, we did not have reliable data to construct such a variable. Given that the ratio of students to teachers generally does not vary considerably across schools, the student-to-coach ratio is a useful proxy.
Percentage of new teachers in the school Mean/Standard deviation = 27.36/16.02 Source: Principal Surveys	A new teacher is defined as someone teaching less than three years.
Principal leadership scale (alpha = .94) Mean/Standard deviation = 3.14/0.36 Source: Teacher Surveys	The head principal at my school: (a) communicates a clear academic vision for my school; (b) sets high standards for teaching; (c) encourages teachers to review the Sunshine State standards and incorporate them into our teaching; (d) helps teachers adapt our curriculum based on an analysis of FCAT test results; (e) expects all staff to work with the reading coach to reflect on and improve their teaching; (f) ensures that teachers have sufficient time for professional development; (g) enforces school rules for student conduct and backs me up when needed; (h) makes the school run smoothly; (i) is someone I trust at his/her word. Measured on a four-point scale (“strongly disagree,” “disagree,” “agree,” “strongly agree”)

Descriptive Analysis

The answers to the first two descriptive questions are based on weighted survey responses, as well as case study and district interview data. We integrated findings from the different data sources to identify cross-district findings and themes regarding the nature, quality, and perceived impact. We also examined how coaches' work varied by such factors as coaches' experience and school characteristics, using simple cross-tabulations of data and Pearson's chi-squared test to determine if these relationships were statistically significant. Throughout the article we use the term “significantly” (e.g., “significantly more likely”) to indicate relationships that were found to be statistically significant at $p < .05$.

Analysis of Effects: Modeling Approach

We address the third research question by estimating a set of regression models.

Perceived Effects. To more precisely examine the relationship between indicators of coach quality and perceived effects on teacher practice when other factors are held constant, we employ least squares regression analyses. The variables used in the models are defined in Table 2 and are derived from the study's conceptual framework. The outcome variable modeled is teachers' perception of coach influence on their practice. As we could use only the 86 schools that provided survey responses from both the principal and the coach, we selected a fairly parsimonious set of program features and coach characteristics identified as important in prior research and in our own survey findings. We focus on indicators of coach skill, knowledge, and ability, including their reading credential status, experience teaching reading, ability with adult learners, whether or not they are a more experienced coach, their confidence or self-efficacy, and teachers' perceptions of coaches' overall quality; and school contextual factors that may enable or hinder coaches' work including coach caseload, the percentage of new teachers in the school, the number of years the school had a coach, and principal leadership. We also include measures of coaches' activities from teacher and coach surveys.

Achievement. To understand associations between indicators of coach quality and achievement, we estimate school-level random-effects models using our survey data and student-level achievement data obtained through the Florida Department of Education. In these models, student achievement in reading on the 2007 FCAT State Sunshine Standards (SSS) test was modeled as a function of coaching program features during the 2006–2007 school year (the same measures described in Table 2) and other school and student characteristics. Specifically, we estimated models of the form

$$Y_{is} = X_{is}b + a_s + e_{is},$$

where Y_{is} is the dependent variable (e.g., test scores) of student i in school s , X_{is} is a vector of covariates (including coach characteristics and activities), a_s is a school random-effect, and e_{is} is an individual-level random term. The parameter "b" measures the influence of each of the covariates in X_{is} . We assume that a_s and e_{is} are normally distributed i.i.d. random variables that are statistically independent from each other, and also that a_s and e_{is} are both uncorrelated with the covariates in X_{is} . Under these assumptions random-effects regression will provide consistent estimates of b.

Achievement scores were modeled as a z-score with a mean of 0 and a standard deviation of 1. For this analysis, all coaching implementation measures were aggregated to the school level since we do not have any way of linking individual students to teachers who worked with the coach.

For consistent estimates of the effects of various aspects of coaching implementation to be obtained, omitted influences on student achievement must be unrelated to coaching implementation variables. To better understand the relationship between the coach characteristics (and activities) and student outcomes, we control for school and student characteristics that might be associated with both the coaching program and student achievement, including the percentage of new teachers, the number of coaches a school has, and teachers' perception of the principal's leadership. Our models also control for student characteristics including gender, ethnicity (Hispanic, African American, other),

limited English proficiency, special education, percentage of school days attended, free-lunch eligibility, reduced-price lunch eligibility, grade retention, and grade level. We also control for school-level covariates including the number of students enrolled in the school, the percentage of students eligible for free or reduced lunch, and the percentage of minority students in the school.

In addition, we control for student prior achievement by including fourth grade reading test scores in the model. Thus, the estimates we obtained reflect the association between aspects of the coaching program/coach characteristics and achievement relative to students' baseline performance observed in fourth grade. Although fourth-grade scores may be a weaker control variable than more recent achievement, the problem with using test scores from earlier years is that these are likely to be influenced by the same coaching regime a student faces in the year we observe the outcome scores. In contrast, the fourth-grade test scores provide a good proxy for "pre-coaching" baseline achievement since in fourth-grade most students were in a different school that either had no reading coach or a totally different coaching program (fifth-grade scores were not used because some middle schools start in fifth grade). Thus, even if the nature of the coaching program differs by whether a school has higher- or lower-achieving students, our estimates will still be unbiased so long as the coaching program is unrelated to the potential gains between fourth grade and middle school.

The number of schools in our analysis is 86 schools. The number of student observations in our achievement models is 71,234.⁵

Study Limitations

Our study has several limitations that stem from resource constraints. First, we were able to examine coaching implementation in only eight moderate-to-large districts, which does not allow us to generalize to all districts in Florida, particularly smaller districts. Second, we could survey only 10 teachers across two content areas in each participating school. Thus, it is possible that our responding teachers do not accurately represent the experiences of all teachers in a school, particularly content area teachers. Since teachers were selected for the survey randomly, average teacher responses are likely to provide an unbiased, although noisy, estimate of the experiences of all teachers in a school. The likely consequence is that the estimated coefficients will be attenuated toward zero. Third, several of our measures of teacher effects and coach quality were limited by the reliance on self-reported perceptions from surveys and interviews, which are clearly not as objective or nuanced as data collected through first-hand observations (e.g., of coaching skills or changes in teacher practice) or assessments of knowledge. Nevertheless, our in-depth case studies which included observations helped mitigate this limitation. Finally, this is a cross-sectional analysis that examines the effects of coaching on student achievement in one year only. Prior research suggests that the full impact of coaching may be better measured over time.

Descriptive Findings

In this section we answer the first two research questions. First we examine the quality of coaches in Florida middle schools, describing the background of coaches and the extent to which it varied by school. We also describe how principals and teachers rate the knowledge, skills, and abilities of their coaches. Next we examine the policies and practices to

⁵For additional technical details on the modeling and the full set of model results see Marsh et al. (2008).

support high-quality coaches, including hiring practices of principals, how coaches were supervised, evaluated, and monitored, and the professional development provided to them.

Coach Quality

Majority of Coaches Possessed Qualifications Recommended by the State and Expert Associations. As a whole, the majority of reading coaches possessed the *reading credentials* state administrators and national experts identify as an important qualification for reading coaches. Approximately 78% of coaches held a master's degree in reading, a reading certification, state reading endorsement, or the state reading endorsement for English to speakers of other languages teachers, with slight variation across school types. We find coaches in larger schools (more than 1,000 students) were significantly more likely than coaches in smaller schools (1,000 students or fewer) to have one of these reading credentials, as were coaches in high-performing schools (receiving state grade of A or B) compared with coaches in low-performing schools (receiving a C, D, or F).⁶ Of those without one of these credentials, 72% were working toward the reading endorsement (e.g., those reporting partial completion of endorsement).

Looking at the various credential components separately (Table 3), we see that more than two-thirds of coaches (68%) held master's degrees and more than half of these held master's degrees in reading (37% of coaches overall). Approximately one-half of coaches held elementary certifications and/or certifications in reading. Exactly half of all coaches reported having the state's reading endorsement while another 23% had partially completed the requirements for this endorsement. As illustrated in Table 3, the credentials of coaches in study districts were similar to those reported statewide.

As noted earlier, another widely accepted qualification for a reading coach is *teaching experience*—particularly, experience teaching reading and teaching at the grade level of teachers the individual will be coaching. As Table 3 indicates, the majority of coaches in the study districts were experienced teachers. For example, two-thirds of coaches had taught for 10 or more years, while only 9% had taught for three years or fewer. However, not all coaches' teaching experience occurred in reading or at the middle-school level: 35% had taught reading and 22% had taught at the middle-school level for 10 years or more. Interestingly, the teaching experience levels of coaches in the study districts differed slightly from those reported by coaches statewide. Most notably, coaches statewide appear to have less experience teaching reading: more than half of coaches statewide reported no years of teaching reading compared to 9% among the study sample coaches. One plausible explanation for this discrepancy is that the larger districts represented in our study sample have a larger pool of coach candidates from which to select and are more able to recruit coaches with experience reading, compared to smaller or more rural districts.

Similar to coaches statewide, coaches in the study districts had been working as state reading coaches for approximately three years on average. About half of all coaches had two years or less experience in this role (throughout the remainder of this article we refer to these coaches as less-experienced coaches) and the other half had three or more years experience (hereafter more-experienced coaches). Interestingly, coach experience level did not vary by such school characteristics as size, achievement, or poverty.

Principals and Teachers Generally Rated Coaches Highly, but Cited Some Areas of Weakness. Overall, most principals and teachers were very satisfied with the qualifications

⁶Note there is some overlap in these groups. For example, 68% of high-performing schools were also large schools.

Table 3
Middle-school coach credentials and years of experience

	Study sample (%)	Statewide (%)
Highest degree earned		
Bachelor's	28	37 ^a
Master's	68	52 ^a
In reading	37	—
In another subject	31	—
Doctorate	4	3 ^a
Areas of Certification		
Elementary education (grades 1–6)	53	51
Reading (grades K–12)	51	44
English	24	32
Middle grades social science (grades 5–9)	20	—
ESOL (grades K–12)	19	—
ESE (grades K–12)	17	12
Pre-kindergarten/primary education (age 3–grade 3)	8	8
Reading Endorsement		
Endorsed—All six competences completed	50	55
Working toward/partially completed endorsement	23	19
Does not have/not working toward endorsement	27	26
ESOL-endorsed	50	45
REESOL-endorsed	2	—
Years teaching (total)		
0	1	.4
1–3	8	4
4–9	34	26
10–19	31	32
20 or more	26	37
Mean/Median	13.8/12 years	16.7/15 years
Years teaching reading		
0	9	56
1–3	26	9
4–9	30	15
10–19	21	13
20 or more	14	8
Mean/Median	9.0 years/6 years	5 years/0 years
Years teaching at the middle-school level		
0	9	—
1–3	21	—
4–9	47	—
10–19	12	—
20 or more	10	—
Mean/Median	7.9 years/6 years	

^aState figures do not total 100% because the state measured another category of “specialist” (not included in our data collection), which makes up the remaining 8%.

of their reading coach. When asked to rate the knowledge and skills of their current reading coaches, more than three-fourths of principals reported them to be strong in virtually every area cited in the literature as important requirements for coaches, including their understanding of student needs and of research-based reading strategies (91%), and their ability to work collaboratively with administrator and teachers (87%), model reading strategies (86%), communicate (82%), and analyze student data (73%). The one area where more than one-third of principals did not rate coaches as strong was their understanding of how to support adult learners (63%). As one principal noted at the end of the survey, “A challenge is finding the right person who can deliver the information they know to teachers in a manner that is easy for teachers to take it back into their classrooms and use it without a lot of planning. The coach may know the content, but making it ‘teacher friendly’ is a challenge.”

Most teachers, regardless of whether they taught reading or social studies, gave their reading coaches high marks on a number of quality indicators derived from the literature (Table 4). Note that some teachers answered these questions with “don’t know/not applicable” (ranging from 4 to 14% of reading teacher respondents and 9 to 29% of social studies teacher respondents).⁷ The only area in which some teachers questioned their coach’s qualifications was their understanding of certain student or teacher needs. About one-quarter of reading and social studies teachers reported their coach had a limited understanding of the particular needs of the students they teach. Approximately 30% of social studies teachers

Table 4
Percentage of teachers agreeing or strongly agreeing with statements
about the quality of their reading coach

	Reading teachers	Social studies teachers
The reading coach(es) at my school . . .		
Understands the middle-school culture and student	91	97
Maintains confidentiality of what we discuss or work on together	90	96
Has strong knowledge of best practices in reading instruction	90	95
Is someone I trust to help me and provide support	82	83
Provides feedback in a nonevaluative way	80	81
Explains the research, theory, or reasons underpinning the strategies (s)/he suggests or the feedback (s)/he provides	75	79
Has a strong understanding of my needs as a teacher	81	71
<i>Has a limited understanding of the particular needs of students that I teach</i>	27	26
<i>Does not have sufficient understanding of my content area to help me with my teaching</i>	—	21

Notes. Percentages exclude those who reported “don’t know/NA.” Italics indicate negative statements.

⁷There is a strong correlation between teachers responding “don’t know/not applicable” and those reporting minimal contact with the reading coach (e.g., no one-on-one interaction). Teachers with limited interaction with the coach presumably felt less able to assess the qualifications of their coach.

did not believe that their coach had a strong understanding of their needs as a teacher and 21% felt the coach did not understand their content area.

In case study interviews and focus groups, teachers repeatedly equated coach effectiveness with experience and knowledge. In one school, teachers argued that their coach had credibility because she “did our job” and had many years of experience with and knowledge about teaching reading to diverse learners. Similarly, teachers in another school were quick to point out the vast knowledge base of their coach. “She’s the most effective reading coach I’ve worked with. She definitely knows her stuff,” said one teacher. In contrast, a perceived lack of teaching experience and knowledge in another case study school accounted for some teachers’ less-than-enthusiastic appraisal of their reading coach.

While knowledge and experience appear to be central to teachers’ perceptions of coach quality, the coach’s style or approach to working with teachers was another attribute widely cited in case study visits. Similar to other studies (e.g., Ertmer et al., 2005), many respondents pointed to interpersonal skills. For example, several teachers at one school commended the coach for “offering help without pushing it” and showing teachers “another option rather than making it feel like you’re doing something wrong.” Others equated quality with specific coaching skills. One teacher described her coach as one who modeled instruction effectively and facilitated meetings well. In another school, teachers commented on the coach’s ability to get teachers talking to one another, for example having reading teacher present literacy strategies to social studies teachers at a professional development session.

Policies and Practices to Support High-Quality Coaches

When Hiring, Principals Generally Look for Qualifications Recommended by the State and Experts. Across the study districts, there appeared to be agreement regarding the knowledge, skills, and abilities considered when selecting a coach. Almost all principals reported considering the coaches’ knowledge of reading instruction and best practices to a great extent when hiring, while more than half cited other indicators of coaches’ knowledge of and experience with teaching reading, interpersonal skills, communication skills, and experience working in similar contexts. In case study visits, principals generally cited a similar list—although often with different emphases. For example, one principal was adamant about the importance of a coach’s presentation skills and ability to communicate in “a professional manner.” In contrast, another emphasized the coach’s interpersonal skills, such as “the ability to get along with teachers.”

Although principals knew what they were looking for when hiring coaches, some administrators reported that it was not always easy to find individuals with these attributes. For example, one coach supervisor noted that middle-school teachers were generally not “reading people” and that middle-school principals across the district struggled to find coaches with a strong reading background. Similarly, a case study principal feared that her current reading coach was about to take on an administrative position elsewhere and that the district had not developed a strong pipeline of qualified coach candidates from which to draw. Interestingly, the central office supervisor of coaches in this district acknowledged a similar concern and reported plans to launch a new training program for interested teachers to build the capacity of a pool of “potential” coaches (e.g., veteran teachers) from which schools can select in the future. Another district was planning a similar program to create a pipeline of interested and trained coaches who would be available when openings arise.

Seven of the eight districts gave principals the authority to hire reading coaches, but in many of these districts, central office staff supported principals in the hiring process.

Acknowledging that most middle-school principals are not reading experts and sometimes find it difficult to distinguish which coach would be the “best fit” for their school, these district administrators assisted principals with interviewing and assessing the skills and knowledge of candidates.

Little Variation Reported in Supervision and Evaluation Policies. In all districts, a central office coordinator supervised coaches’ work, and larger districts often employed multiple coordinators to oversee and work with coaches. In both case study districts, coaches were overwhelmingly positive about these supervisors. One coach reported that in her first year on the job, a district coordinator provided extra support and mentoring, visiting her school at least weekly and being available via phone or e-mail at all times. Another coach in this same district appreciated the district coordinator’s philosophy of coaching and her efforts to model how to be an effective coach, often giving them ideas they could take back to their schools.

In seven of the eight districts, principals conducted formal evaluations of coaches. Most coaches across the districts reported knowing what was expected of them and how their performance was evaluated (94%) and receiving useful feedback on their job performance from their supervisor (84%). Although most districts did not formally evaluate their coaches, most reported monitoring their work in some way. Half of the coach supervisors interviewed reported using the state coach logs to keep track of what coaches were doing and found them helpful for identifying areas of need or where coaches might be having difficulties. For example, one coordinator used the logs to determine the amount of time coaches were spending on areas that the district felt were “crucial to the coaching initiative and coaching model,” such as time in classrooms modeling or analyzing data. If a coach was found to be spending too much time in other categories, the supervisor would then follow up with her to discuss why this was occurring and what obstacles might be getting in her way.

Professional Development Was Highly Valued, Yet Some Unmet Needs Were Identified. Most coaches who attended the *state*-sponsored JRF summer conference in July 2006 felt the training gave them a clear understanding of their roles and responsibilities (85% agreed or strongly agreed), was not too advanced for their experience level (94%), increased their knowledge of best practices (71%), and recognized and built on their knowledge and experience (71%). Coaches, however, identified a few areas of weakness as well. More than half of coaches did not feel the training provided them with useful information on how to work with adult learners and just under half did not feel the training was sufficient for preparing them for the challenges they faced in the job. Further, approximately one-third of coaches reported that the training did not provide them with new information.⁸

As the state envisioned, all the study *districts* provided at least monthly professional development opportunities for coaches. Described as either mandatory or strongly encouraged, the sessions were generally well attended by coaches. More than half of all coaches reported a major emphasis on four key areas: effective reading instructional strategies, working with teachers to improve their practice, the role and responsibilities of the coach, and analyzing and using student data. One area in which coaches received little district attention but wanted more support was on effective strategies for teaching adult learners. Approximately one-third of coaches reported that district professional development did not

⁸Interestingly, there were no significant differences in the perceptions of state training among less experienced versus more experienced coaches.

emphasize effective strategies for teaching adult learners and another 29% reported that it was emphasized only to a minor extent. However, approximately two-thirds of coaches reported wanting more support in this area. (Blamey et al. 2008 also found that coaches surveyed nationally wanted more professional development on effective adult learning techniques, such as how to motivate teachers to reflect on and change practice.) These reports, combined with those about the state's training, are consistent with some principals' views that coaches may not have strong skills in this area.

Some coach supervisors also reported other forms of support for coaches. For example, several districts paired up first-year coaches with veteran "mentor" coaches, but generally intended these arrangements to be informal. Two districts utilized technology to further support the work of coaches. One sponsored an online coach forum that provided ideas and resources for coaches to utilize in planning professional development or lessons with teachers; the other hosted a Web blog for coaches.

Coaches generally valued the professional development opportunities offered by the central office. The majority of coaches (65%) in all eight districts reported attending district-sponsored seminars or training sessions at least once or twice a month or more, and more than 68% of those participating found these sessions to be "very valuable." Coaches in case study schools appreciated district-sponsored meetings for a variety of reasons: Some reported learning new ideas and strategies to bring back to their schools and use in site-level professional development (e.g., one noted that "I walk away with actual things that can be done in the classroom"), while others valued the opportunity to share ideas with other coaches. A few coaches mentioned weaknesses, most notably some redundancy in the topics covered and a concern over the amount of time required off-site to attend the meetings.

Coaches were also most likely to rate forms of professional development that involved peer collaboration as very valuable for their professional growth. For example, approximately half of the coaches received mentoring, and 78% of them reported that it was very valuable for their own professional development. Similarly, collaborating with other coaches was viewed as valuable by more than 75% of coaches who did so.

Analysis of Effects

In this section we answer the final research question, examining the extent to which indicators of coach quality are related to teacher and student outcomes.

Several Indicators of Coach Quality Associated With Perceived Effects on Teaching. When asked directly to what extent the coach influenced any changes the teachers made to their instruction over the course of the year, 47% of all reading teachers and 40% of all social studies teachers reported that the reading coach had influenced them to make changes in their instruction to a moderate or great extent.⁹ A minority of reading (24%) and social studies teachers (34%) noted that the coach did not influence their instructional change at all.¹⁰ For example, of those who had interacted with their coach in some way over the

⁹This survey question followed a previous multi-item question asking teachers to think about the ways in which their teaching in general was different at the end of the year compared with the beginning of the year and the extent to which they made a series of changes to their teaching over the course of the year. Thus, their reports of coach influence were anchored in an understanding of this list of changes.

¹⁰Only 2% of reading teachers and 5% of social studies teachers reported not making any of the changes in instruction asked about on our survey over the course of the year—these teachers are

course of the year,¹¹ two-thirds of reading and social studies teachers reported that this experience helped them better plan and organize instruction.

When asked in a focus group how much their instruction had changed since working with the coach, several non-reading, case study school teachers attested to the coach's influence on their practice:

[Teacher #1:] Well, when I first started teaching I never would have done a word map, reading in a content area was minimal. Now, working with the coach, I'm looking for articles they can read, things that they can actually read and put into a word processor.

[Teacher #2:] It helps because reading used to be "we're going to read this story and answer this question." It's kind of hyped up the reading a little bit, where there's different things you can do to make it more exciting.

[Teacher #3:] That's what I get from her, the exciting part. It's not just writing and answering questions, now you can draw a map, story boards, things like that.

Not surprisingly, many teachers in this school attributed the coach's effectiveness to her skills and knowledge; for example, noting that they trusted the coach to give good advice because, as one reading teacher explained, "she's worked in reading for many years, she has a wealth of knowledge, and is always going to training to make it better."

The results of our Model 1 (Table 5) indicate that several indicators of coach quality had a strong positive association with perceptions of coaches' influence on instructional change. First, teachers' overall *views about coaches' quality* had a positive association with their perceptions of coaches' influence. This suggests that, on average, teachers who reported higher ratings of their coaches' knowledge and skills reported more positive perceptions of coaches' influence (controlling for other variables in the model). Second, principals' ratings about one particular aspect of coaches' knowledge, understanding how to support adult learners, was also positively related to teachers' perceptions of coaches' influence. That is, teachers who reported more-positive perceptions of the coaches' influence were in schools where the coach had a higher level of understanding regarding support for adult learners (as reported by the principal). Finally, two measures of experience were significantly associated with this outcome variable: *more-experienced* coaches had a positive, albeit small relationship, and *years that coaches spent teaching reading* had a very small, negative relationship with teachers' reports of influence. Although the former relationship is predicted by the literature, the latter finding is counterintuitive. One possible explanation is that those teaching for many years may become "set in their ways" and use strategies that work when teaching children and youth but that are not effective for teaching adults (we return to this issue in the discussion later). Also, it is important to remember that unlike the rest of the state, the vast majority of coaches in our sample had experience teaching reading. Because of this, years teaching reading is a continuous variable. We were unable to model whether having any experience teaching reading versus no

included in the percentage of teachers reporting that the coach did not influence changes in their instruction at all.

¹¹The vast majority of teachers surveyed (97% of reading teachers and 86% of social studies teachers) had interacted with the coach in some way over the course of the year.

Table 5
Model results: Influence on teacher practice and reading achievement

	Model 1: teachers' perception of influence	Model 2: students' reading achievement
Reading credential	-0.037 (0.093)	0.007 (0.018)
Years teaching reading	-0.009* (0.005)	-0.002* (0.001)
Perceived coach quality	0.391** (0.120)	-0.032 (0.024)
Ability to support adult learners	0.132* (0.060)	0.001 (0.011)
Coach confidence	-0.123 (0.078)	0.021 (0.016)
More experienced coach	0.161* (0.079)	-0.012 (0.017)
Focus on integrating instruction across content areas	0.130* (0.054)	0.004 (0.011)
Reviewed assessment data with coach (reading teacher)	-0.035 (0.089)	0.082*** (0.019)
Reviewed assessment data with coach (social st. teacher)	0.355*** (0.098)	0.023 (0.019)
Received individual coaching (reading teacher)	0.510*** (0.099)	-0.061*** (0.018)
Received individual coaching (social studies teacher)	0.053 (0.133)	-0.020 (0.027)
Number of years the school had a coach	-0.013 (0.017)	0.010** (0.004)
Coach caseload	-0.084 (0.073)	0.043 (0.024)
Percentage of new teachers in the school	0.003 (0.002)	0.000 (0.000)
Principal leadership	0.117 (0.111)	0.029 (0.020)

Notes. See Table 2 for variable definitions, data sources, and reliability of scales. *Significant at the .05 level, **significant at the .01 level; ***significant at the .001 level. All models include controls for student and school characteristics (not shown). Variable values are not standardized. Standard errors are given in parentheses.

experience teaching reading was related to perceived influence over instruction, which may have produced a different result.

As Table 5 indicates, a number of other variables were also significantly and positively related to perceptions of coach influence, including the frequency with which the coach helped social studies teachers review assessment data and the frequency with which the coach worked one on one with reading teachers. These, too, may indicate important practices associated with effectiveness (For further discussion of these findings, particularly the importance of time spent supporting data analysis and use, see Marsh, McCombs, & Martorell, 2010).

Few Relationships Detected Between Indicators of Coach Quality and Student Achievement. In our model of reading achievement (Model 2, Table 5), we found very few statistically and practically significant results regarding indicators of coach quality. Neither measure of *perceived coach quality*, teacher scale and principal rating of coach ability to teach adult learners, was associated with student reading achievement. The model

indicates, only one objective indicator of coach background/quality was related to achievement. The *number of years a coach had previously taught reading* has a very small, negative relationship with student reading achievement, controlling for other factors. This is similar to the findings from our models of perceived impact on teachers' instruction. Recall we were unable to model whether having any experience teaching reading versus no experience teaching reading was related to student achievement, which again may have produced a different result.

Discussion and Implications

These results provide important insights into what constitutes and contributes to "coach quality" as defined by expertise and experience. As described, the middle-school reading coaches in our study generally held many of the qualifications recommended by the state of Florida and expert associations, including reading credentials (master's degrees, certifications) and previous teaching experience (in reading and at the middle-school level). In addition, principal reports of hiring criteria indicate widespread agreement on conceptions of coach quality, once again including coach knowledge of reading instruction, interpersonal skills, experience working in similar contexts, official certification/preparation, and communication skills.

To support the growth and development of high-quality coaches in terms of practice, most districts had implemented monthly professional development sessions for coaches that addressed many of the domains of quality cited in the literature, such as effective reading instructional strategies, working with teachers, and analyzing and using student data, which were highly valued by coaches.

Overall, principals and teachers generally rated their coaches highly on many indicators of quality, such as knowledge of best practices in reading instruction and of middle-school students, as well as ability to work collaboratively and communicate. Nevertheless, several common concerns about recruiting, retaining, and supporting high-quality coaches emerged. First, some administrators voiced concerns about a shortage of qualified candidates, turnover among coaches, and principals' ability to adequately judge the quality of coach candidates (due to a lack of background in reading). Second, many coaches requested additional professional development, particularly around supporting adult learners.

Most importantly, the study provides empirical evidence linking measures of coach "quality" with measure of outcomes. Although our data do not support causal inferences, they nonetheless identify several indicators of coach experience, knowledge, and skills associated with more positive perceptions of coaches' influence on teacher practice, including teachers' assessments of coach quality (a composite measure that included perceptions of coach knowledge of best practices in reading instruction, understanding of middle-school contexts and students, skills at helping teachers use data to guide practice, providing feedback in a nonevaluative way, and explaining the research and theory underpinning strategies suggested), principals' rating of coach understanding of how to support adult learners, and years of coaching experience. Nevertheless, we found no relationship between teacher and principal perceptions of coach quality and students' reading achievement. Only one objective indicator of coach quality was related to achievement: controlling for other factors, previous experience teaching reading had a very small, negative relationship with achievement in reading. Although we were unable to model whether having some or no reading experience was related to achievement.

Implications

These findings have several important implications for theory, policy, practice, and future research. First, the pedagogical dimensions of coach quality may deserve more attention in the conceptualization of coach quality, the articulation of coach qualifications, and the supports provided to develop the practice of coaches. Although possessing strong reading knowledge and expertise was considered to be very important, our findings point to another key area for needed expertise: Understanding how to support adult learners. As noted, principals rate it as an important coach attribute and one sometimes lacking among the coaches. Many coaches also identified it as an area in which they wanted more training. Further, our models indicate that coaches' perceived knowledge of how to support adult learners was significantly related to measure of coach influence on teacher practice. Combined with the finding that years teaching reading was negatively associated with student achievement and perceived influence on teacher practice, these data suggest that being an effective literacy coach may require more than content-area expertise and teaching experience. In other words, being a high-quality teacher may not guarantee being a high-quality coach. As others have asserted, the skill set required to successfully teach adults is not the same as that required to successfully teach children and "effectiveness in the classroom does not always indicate a teacher who is ready for a staff development assignment" (Richards, 2003, p. 5).

To strengthen the field of coaching, it behooves researchers and educators to better define what it means to be competent working with adult learners and the pedagogical knowledge and skills needed to ensure this competence. Research on adult learning (e.g., Brookfield, 1986; Knowles, 1980) might be particularly useful. With this foundation, administrators can identify effective modes of instilling this knowledge and skills in coaches via high-quality state- and district-sponsored preparation and ongoing professional development.

Our research also suggests several other lessons for administrators to strengthen coach quality and maintain a qualified coaching corps. First, state and district policy makers and administrators should consider providing guidance to school administrators in how to identify high-quality coach candidates. Given that many middle-school administrators do not have a reading background, they may not know how to evaluate a candidate's knowledge of research-based reading instruction or their skills in integrating reading across the curriculum. As such, state and district administrators might provide training to principals or directly assist in the hiring process, as some of our study district coordinators reported doing (e.g., co-interviewing candidates, pre-screening candidates).

Second, given principal and district coordinator concerns about identifying qualified coach candidates, particularly teachers with experience teaching reading at the middle-school level, and replacing coaches when they move on to administrative positions (a common career path), it may be useful to replicate some of the efforts underway in several of the study districts to develop a pool of qualified candidates. As noted, two districts were launching training programs for interested teachers. Finally, although these results provide useful information for policy makers and practitioners, the limitations of our data suggest several fruitful avenues for future researchers. First, researchers should consider assessing coaching implementation and achievement over a longer period of time than a year. This type of longitudinal coaching study could allow for a more careful discernment of the relationship between coaches' characteristics, activities, and teacher and student outcomes. Research with different and more objective measures of coach quality, particularly knowledge, skills, and quality of coach practice, would also add depth to our understanding of what coach attributes are associated with better outcomes. Emerging work by Biancarosa,

Bryk, Atteberry, and Hough (2010) on a coach assessment tool are moving the field forward in this area.

Another area ripe for more research is an analysis of the specific skills, knowledge, and abilities associated with effective coaching and coaches at different levels of schooling. Coaches at the secondary level work in schools that are often organizationally more complex (e.g., with content area departments), involve greater numbers of teachers and teachers with less training in reading instruction, and are culturally different than those of elementary school coaches (Blamey et al., 2009; Snow et al., 2006). Thus, a comparative analysis of coaches at different levels would help determine the attributes of coaches best aligned to these contexts.

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