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AN INVESTIGATION OF RELATIONS AMONG ACADEMIC ENABLERS AND READING OUTCOMES

Lyndsay N. Jenkins and Michelle Kilpatrick Demaray

Abstract

The current study examined the link between academic enablers and different types of reading achievement measures. Academic enablers are skills and behaviors that support, or enable, students to perform well academically, such as engagement, interpersonal skills, motivation, and study skills. The sample in this study consisted of 61 third-, fourth-, and fifth-grade students (54% male). Academic enablers were rated by classroom teachers via the Academic Competence Evaluation Scales (ACES; DiPerna & Elliott, 2000). Four different measures of reading achievement were included: classroom grades, global ratings of reading skills, standardized test scores, and Reading CBM scores. Results indicated that academic enablers were significantly related to each type of reading outcome. Academic enablers accounted for the greatest amount of variance for classroom grades (45%) and the least amount of variance in standardized test scores (11%). Results suggest that academic enablers are an important part of academic success in reading, particularly classroom grades, but when considering the variance accounted for by academic enablers, they alone are not likely to improve Reading CBM scores or standardized test scores.

Academic enablers are skills and behaviors that support learning, such as academic engagement, interpersonal skills, motivation, and study skills, and are important predictors of academic success (DiPerna, 2006; DiPerna & Elliott, 2002; DiPerna, Volpe, & Elliott, 2002). Previous research has found positive relationships between academic enablers and reading outcomes, but a number of variables have served as outcome variables, including grades, standardized test scores, and subjective teacher ratings. Though academic enablers have been positively associated with each of these outcomes, no study has explored the association between academic enablers and each academic outcome in a single investigation. The degree to which academic enablers are associated with academic outcomes may vary, which has implications for school professionals involved in assessment and intervention planning and researchers who study the impact of noncognitive factors on learning (e.g., Farrington et al., 2012). Academic enablers can play an important role in assessment and intervention decisions, particularly when assessing skill deficits (e.g., lack of ability to perform academic tasks) and performance deficits (e.g., the skill to perform academic tasks, but lack of supporting behaviors such as drive or attention). Some performance deficits could be attributed to a lack of academic enablers, but the deficit may or may not manifest as differences on various academic performance measures. Additionally, there is a movement among researchers interested in the impact of noncognitive variables and academic behaviors (e.g.,

work completion, participation, perseverance) on learning (see review by Farrington et al., 2012). These researchers want to determine the extent to which student intelligence is related to learning compared to the influence of other student, teacher, and instructional characteristics. Learning can be operationalized in a number of different ways, but the way in which it is measured may have an impact on the results of the study. The goal of this study is to compare the association between academic enablers and four different academic outcomes in reading in a single study.

Literature Review

To be successful in reading, students must possess a combination of general intelligence, reading skills, and academic enablers. General intelligence accounts for approximately 50% of the variance in academic achievement (Elliott, 2007; Glutting, Adams, & Sheslow, 2000; Kaufman & Kaufman, 1993, 2004; Naglieri & Das, 1997; Reynolds & Kamphaus, 2003; Roid, 2003; Wechsler, 2003, 2008; Wechsler & Naglieri, 2006; Woodcock, McGrew, & Mather, 2001), which means that 50% of the variance in achievement is explained by other variables, such as academic skills, motivation, engagement, or instructional methods. Haertel, Walberg, and Weinstein (1983) considered 228 variables in the literature as potentially having an influence on academic outcomes. These variables ranged from student characteristics (e.g., ability and motivation), environmental characteristics (e.g., classroom and home environment), to more distal variables such as district and state policies. They determined that student characteristics and environmental variables were more important to academic success than distal variables. DiPerna and Elliott's (2002) work builds upon this literature by emphasizing the importance of student characteristics, including individual's academic enablers and academic skills.

The theory proposed by DiPerna and colleagues purports that academic competence refers to all attitudes, behaviors, and skills that a student needs to be successful in the classroom (DiPerna et al., 2002) including two main components: academic skills and academic enablers. Academic skills and academic enablers work together and complement each other. The central tenet of the academic competence theory is that academic success requires not only academic skills, but also enabling behaviors that support learning and the application of academic skills. DiPerna's theory of academic competence was chosen to guide the current investigation because it looks at academic success in a comprehensive manner. Additionally, based on this theory of academic competence, DiPerna and Elliott created a teacher-friendly rating scale to assess academic enablers called the Academic Competence Evaluation Scales (ACES; DiPerna & Elliott, 2000). The ACES is readily available and could be a vital part of the process of development academic intervention plans.

Academic Enablers

DiPerna and colleagues include engagement, interpersonal skills, motivation, and study skills as academic enablers. Each of these has received theoretical and

empirical attention in the literature, which is briefly summarized next. To receive maximum benefit from academic instruction in the classroom, students should be attentive to what the teacher is saying, be ready to take direction, participate in discussions, and have appropriate materials ready for class. These behaviors can collectively be described as academic engagement. DiPerna and Elliott (2000) defined engagement as “behaviors that reflect attentive, active participation” (p. 6). Students who are academically engaged are more likely to have higher test scores (Willingham, Pollack, & Lewis, 2002), receive higher grades (Willingham et al., 2002), and have lower dropout rates (Croninger & Lee, 2001) and higher attendance (Klem & Connell, 2004).

Interpersonal skills are “cooperative learning behaviors necessary to interact with other people” (DiPerna & Elliott, 2000, p. 6). Interpersonal skills, also commonly referred to as social skills, have been explored by numerous researchers. Prosocial behaviors have been positively linked with several measures of academic achievement, including grade point average, standardized tests, and global teacher-rated academic competence scores (Malecki & Elliott, 2002; Wentzel, 1993). Although there is research to link interpersonal skills and academic achievement (Malecki & Elliott, 2002; Wentzel, 1993; Wentzel & Caldwell, 1997), there is little information about why and how these are linked (Wentzel & Watkins, 2002).

Though there is debate in the field about the definition of motivation, a general definition that encompasses many critical components was offered by Schunk, Pintrich, and Meece, “Motivation is the process whereby goal-directed activity is instigated and sustained” (2008, p. 4). Historically, there have been numerous theories explaining motivation; however, the current prevailing theories of motivation are from the social cognitive perspective (Wentzel & Wigfield, 1998). The social cognitive models do not view students as motivated or not motivated, nor do they assign a quantitative value to motivation. Instead, social cognitive models of motivation emphasize that students can be motivated in multiple ways and it is important to understand how a student is motivated (Linnenbrink & Pintrich, 2002). Wentzel and Wigfield (1998) provide a comprehensive review of the literature on academic motivation from a social cognitive perspective. The current theories of motivation focus on four constructs: competence-related belief, control beliefs, subjective task values, and achievement goal orientation. Though theoretical evidence supporting motivation as critical to academic success is plentiful, Linnenbrink and Pintrich (2002) pointed out that there is a lack of empirical and practical applications of these motivation theories. It is not clear what classroom characteristics or interventions increase student motivation, as this has not been studied extensively. However, the general literature about the relation between motivation and academic achievement is clear: higher motivation is related to greater academic achievement.

The term study skills includes a range of cognitive skills and processes that work together for the purpose of enhancing the effectiveness of learning (Devine, 1987), and includes acquiring, recording, organizing, synthesizing, remembering, and using

information (Hoover & Patton, 1995). Many researchers have demonstrated that students who are academically successful demonstrate effective study skills, whereas poor students do not demonstrate the same skills (Gettinger & Seibert, 2002). To benefit from instruction, students must be active participants in the learning process, and utilizing effective study skills can facilitate this active participation. If students are monitoring their own learning by organizing and synthesizing new information and then reviewing and remembering information, they will be able to use the information at a later time. Study skills deficits can be seen in elementary school, but deficits are more commonly seen and have a greater impact in middle and high school.

Academic Enablers and Measures of Reading Achievement

Prior research has connected individual enablers to academic achievement, as described above, but since DiPerna and Elliott introduced the term and concept of “academic enablers” research is emerging about the collective benefit of academic enablers. Academic enablers explain the negative association between various externalizing behaviors and academic outcomes (Demaray & Jenkins, 2011; Volpe et al., 2006), and account for a significant amount of variance in reading achievement for children with characteristics of ADHD (DuPaul et al., 2004). DiPerna, Elliott, and colleagues found support for their initial models regarding the role of academic enablers in reading achievement. The model suggests that prior reading achievement and interpersonal skills influence motivation, which in turn influences engagement and study skills. These two variables directly influence current reading achievement. Prior reading achievement has an indirect effect on current reading achievement, via its influence on motivation, but also has a direct effect on current reading achievement (DiPerna et al., 2002). Overall, academic enablers represent a critical piece of the puzzle in determining what it takes to be academically successful in reading.

Previous research, both theoretical and empirical, has determined that academic enablers play an important role in reading achievement. However, before this research can be translated into practical classroom applications, there is a question that needs to be answered. Are academic enablers more important as determinants of teacher-evaluated classroom performance (i.e., grades), performance on standardized tests or curriculum-based measurement (CBM), or subjective teacher judgments of academic skills? The current study is designed to test the link between academic enablers and different measures of reading achievement to assess different relations between these variables. Previous work by DiPerna and Elliott have only used teacher ratings as an indicator of reading achievement (DiPerna et al., 2002), but success in reading is more than a score on a subjective rating scale. Though different measures of reading achievement are positively correlated, there may be different relations between academic enablers and different outcomes. For example, classroom grades are likely influenced by academic skills and all four academic enablers (i.e., engagement, interpersonal skills, motivation, study skills) because each of the enablers are necessary to be successful in the classroom.

Classroom grades reflect test scores (requiring study skills and engagement), homework (requiring motivation and engagement), and group projects (requiring interpersonal skills and motivation). On the other hand, standardized test scores or performance on curriculum-based measures may be more influenced by natural ability and quality of instruction received, as well as several academic enablers (i.e., engagement, motivation, study skills).

The main goal of this study was to determine whether academic enablers are differentially related to the reading outcomes of classroom grades, teacher-rated reading achievement, Reading CBM, and standardized test scores. It was hypothesized that there would be a positive relation between academic enablers and all academic outcomes; however, it was also predicted that more variance would be accounted for between academic enablers and the more subjective measures of reading achievement: grades and teacher ratings of skills (DiPerna & Elliott, 2000).

Methods

Participants

There were 61 student participants in the current study with 27 third-grade students (44.3%), 22 fourth-grade students (36.1%), and 12 fifth-grade students (19.7%). The sample contained 33 males (54.1%) and 28 females (45.9%). The sample was primarily White ($n = 59, 96.7\%$). Two cases were not included in analyses due to incomplete data and were deleted listwise. All student participants came from one elementary school building that houses students in kindergarten through fifth grade. The demographic characteristics of this sample are representative of the entire school where the student body was 90% White, 1% Black, 3% Hispanic, and 5% Asian, and 1% mixed race/other. Approximately 3% of the student body was low income and 5% received language services due to limited English proficiency.

In addition to the student participants, there were eight female teacher participants and one male teacher participant; all teacher participants were White. Teaching experience ranged from 1 to 14 years with an average of 7.5 years. Two teachers held bachelor's degrees and seven held master's degrees. Four of the teacher participants taught third grade, one teacher taught fourth grade, and four teachers taught a multiage classroom of fourth- and fifth-grade students. Teacher participants completed the ACES (DiPerna & Elliott, 2000) for students in their class who participated in the study.

Measures

The ACES (DiPerna & Elliott, 2000) teacher-rated Academic Enabler subscales (i.e., engagement, interpersonal skills, motivation, and study skills) and teacher-rated Reading subscale of the Academic Skills scale were used in the current study. The

ACES is a norm-referenced rating scale for evaluating academic functioning of students in kindergarten through college. The ACES has been standardized on a national sample of teachers and students. The sample for the teacher form consisted of 1,000 students in four grade clusters.

Reliability for the Academic Skills Reading subscale is demonstrated through strong internal consistency (coefficient alphas were .98 for Grades 3–5 grade cluster), a good test–retest correlation of .97, and adequate inter-rater correlations ranging from .65 for the Academic Skills Scale when rated by one English and one Math teacher. Reliability for Grades 3–5 grade cluster for the Academic Enablers subscales of interpersonal skills, engagement, motivation, and study skills is demonstrated through strong internal consistency (coefficient alphas of .97, .95, .97, and .96, respectively), good test–retest correlations (.92, .92, .96, and .96, respectively). Evidence of inter-rater agreement was based on English and Math teacher ratings on a sample of 181 students from Grades 6 to 12. The manual reports correlations of .31, .42, .62, and .42 for the interpersonal skills, engagement, motivation, and study skills subscales, respectively. Inter-rater agreement was not reported for elementary students.

Validity for the ACES is demonstrated through factor analysis and correlations with similar measures. The factor analysis showed a clear two-factor structure (i.e., academic skills and academic enablers). Factor analysis within each scale demonstrated three and four factors for the Academic Skills and Academic Enabler scales, respectively. The ACES teacher and student versions have a moderate to strong associations with criteria of other measures, such as correlations with the Iowa Test of Basic Skills (ITBS; Hoover, Hieronymus, Frisbie, & Dunbar, 1993) ranging from .38 to .87 and correlations with grade point averages ranged from .56 to .90 (DiPerna & Elliott, 2000).

Fourth quarter classroom reading grades and spring standardized test scores were collected for all participants via school records. Classroom grades were transformed to the following scale: 4.25 = A+, 4.00 = A, 3.75 = A–, 3.25 = B+, 3.00 = B, 2.75 = B–, 2.25 = C+, 2.00 = C, 1.75 = C–, 1.25 = D+, 1.00 = D, .75 = D1, and .00 = F.

The standardized test administered to all students in the school as part of the end-of-year evaluation was the Measures of Academic Progress (MAP), published by the Northwest Evaluation Association (NWEA). The MAP is designed to identify the skills and concepts that individual students have learned, monitor academic growth over time, and provide information about instructional needs (NWEA, 2007). The test can be taken up to three times per year and is administered on a computer. The spring scores were used in the current study. Reliability and validity studies have been conducted on the MAP and published by the NWEA (NWEA, 2007). Internal consistency estimates range from .94 to .95 for the third-, fourth-, and fifth-grade spring reading tests. Test–retest reliability ranges from .87 to .91 when the same students took the test in the fall and spring of the same school year. Concurrent validity was estimated by examining scores on the MAP and the Illinois Standards

Achievement Test; estimates were .80 for both third and fifth grades on the spring reading test.

CBM is a set of standardized and validated tests that measure academic skills in basic skill areas (e.g., reading, math, and writing). These brief, timed tests can be given on a regular basis to monitor a student's academic progress (Shinn, 2002). Standardization is the key component to the usefulness of this measure. The directions, scoring, choices of testing material, and interpretation of the results are the same in every situation, so conclusions on progress can be drawn with confidence (Shinn, 2002). Reading fluency, sometimes referred to as oral reading fluency, is a measure of how quickly and accurately a student can read connected text (Hosp, Hosp, & Howell, 2007). Students read aloud for 1 minute and the total number of words read correctly (WRC) in 1 minute (total number of words minus errors) is recorded. This process is repeated three times with three different reading probes and the median value represents the student's Reading CBM score. Reading fluency has been shown to be a reliable and valid measure of reading ability (Hosp et al., 2007). For example, Hosp et al. (2007) reported that Reading CBM word read correct has a test-retest reliability correlation of .90 at 1 week and .82 at 10 weeks (Marston, 1982), parallel forms reliability correlation of .94 (Tindal, Germann, & Deno, 1983), and evidence of validity via a correlation of .83 with the ITBS (Jenkins, Fuchs, van den Broek, Espin, & Deno, 2003).

For the current study, the reading fluency probes and administration and scoring procedure guidelines were from Dynamic Indicators of Basic Early Literacy Skills (DIBELS, 2007). Classroom teachers administered the reading fluency probes to students in their own classroom. All teachers undergo CBM training at the beginning of the year, which is conducted by the school psychologist. Refresher trainings are given prior to each benchmark period.

Procedures

Participants were recruited from a suburban school district in a middle-class community at one elementary school. Participating teachers gave an informational letter and consent forms to students to gain parental consent. Of the 180 consent forms that were sent out, 35% of them were returned with positive consent, 9% of parents denied consent for their child's participation, and the remaining consent forms were not returned for unknown reasons. Spring CBM scores were collected by the classroom teacher in the second and third week of May. The median of three reading probes was used in analyses. Spring MAP assessments were administered the second week of May. Fourth quarter grades were provided by the teacher during the final week of school, which was the fourth week of May. Teachers were given 3 weeks to complete the ACES rating scales, which occurred during the second to fourth week of May. Teachers rated between 4 and 10 students ($M = 6.6$).

CBM data were collected for each student at their respective grade level. Probes were standardized to be able to compare scores across all grade levels. Raw scores

for Reading CBM were standardized by transforming the median scores to z-scores by subtracting the respective grade-level mean from the raw score and dividing by the respective grade-level standard deviation. Then to make the scores more interpretable, all z-scores were converted to a T-scale by multiplying each score by 10 (the standard deviation of a T-scale) and adding 50 (the mean of a T-scale).

Results

Refer to Table 1 for intercorrelation, means, and standard deviations of the main study variables. Among the four academic enablers, there were moderate to large positive correlations between the variables. For classroom grades and teacher-reported reading skills, all enablers were positively correlated. For Reading CBM, engagement, and motivation were significantly and positively related, but only engagement was significantly related to standardized test scores.

Table 1. Intercorrelations Matrix of Main Study Variables

	1. Engagement	2. Interpersonal Skills	3. Motivation	4. Study Skills	5. Classroom Grades	6. ACES Reading Skills	7. Reading CBM	8. Standardized Test Scores
Mean (SD)	33.34 (7.27)	43.02 (7.40)	40.52 (10.42)	46.97 (8.39)	3.45 (.63)	38.83 (9.51)	50.00 (9.83)	218.85 (10.19)
1	-							
2	.51**	-						
3	.73**	.71**	-					
4	.66**	.60**	.82**	-				
5	.58**	.57**	.67**	.63**	-			
6	.34**	.33*	.49**	.30*	.54**	-		
7	.32*	.13	.38**	.23	.46**	.59**	-	
8	.31*	.08	.23	.06	.20	.54**	.48**	-

* $p < .01$. ** $p < .001$.

Four separate simultaneous multiple regressions were conducted to answer the main study question (i.e., Are academic enablers differentially related to the reading outcomes of classroom grades, teacher-rated reading achievement, Reading CBM, and standardized test scores?) Academic Enabler subscales served as independent variables and the four different academic outcomes (i.e., classroom reading grades, ACES reading skills, Reading CBM, and standardized test scores) served as dependent variables. All of the regressions were significant. For classroom reading grades, there was no unique individual predictor, but collectively, all four academic enablers accounted for 45% of the variance. For ACES reading skills, motivation was a significant individual predictor ($\beta = .765$, $p < .01$). Collectively, academic enablers accounted for 22% of the variance. Motivation was also an individual predictor ($\beta = .719$, $p < .01$) for Reading CBM with academic enablers collectively accounting for 16% of the variance. Finally, for standardized test scores, study skills were a significant individual predictor ($\beta = .446$, $p < .05$), and 11% of the variance was accounted for by academic enablers. Refer to Table 2 for unstandardized betas, standard errors, standardized betas, and adjusted R^2 . Because previous work has

found that the independent variables in these analyses are correlated, multicollinearity was a concern. The variance inflation factor (VIF) estimates were below 5.0 in all regressions (ranging from 2.1 to 2.2 for engagement, 1.9 to 2.0 for interpersonal skills, 3.1 to 3.5 for study skills, and 4.7 to 4.8 for motivation).

Table 2. Summary of Regression Analyses, With 95% Confidence Intervals, of Academic Enablers Predicting Academic Outcomes

Academic Measure	Independent Variable	B	Lower	Upper	SE B	β	Adjusted R ²
Classroom Grades	Engagement	.014	-.014	.042	.01	.16	.45***
	Interpersonal Skills	.016	-.010	.041	.01	.19	
	Motivation	.015	-.015	.044	.01	.24	
	Study Skills	.015	-.015	.045	.01	.21	
ACES Reading Skill	Engagement	-.001	-.455	.452	.23	-.00	.22**
	Interpersonal Skills	-.037	-.462	.388	.21	-.03	
	Motivation**	.688	.226	1.151	.23	.76	
	Study Skills	-.334	-.799	.130	.23	-.29	
Reading CBM	Engagement	.153	-.343	.648	.25	.11	.16**
	Interpersonal Skills	-.376	-.841	.088	.23	-.28	
	Motivation***	.689	.184	1.194	.25	.72	
	Study Skills	-.315	-.822	.192	.25	-.26	
Standardized Test	Engagement	.483	-.027	.993	.25	-.14	.11*
	Interpersonal Skills	-.191	-.669	.287	.24	.35	
	Motivation	.421	-.099	.941	.26	.44	
	Study Skills*	-.532	-1.054	-.009	.26	.45	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

The academic competence model proposed by DiPerna et al. (2002) stated that academic competence comprises both academic skills and academic enablers. For example, students could have high levels of engagement and motivation, but without academic skills they may not be academically successful. Similarly, the ability to acquire academic skills might be truncated by lack of motivation, unwillingness to cooperate, inability to remain engaged, and/or inability to synthesize knowledge and apply it in new contexts.

The purpose of the current study was to examine the relations among academic enablers and different measures of reading achievement: classroom grades, global ratings of reading achievement, Reading CBM, and standardized test scores. Little research has been conducted examining specific relations between academic enablers and different reading measures. In general, the findings of the current study support previous findings that have shown that academic enablers are important for academic achievement (e.g., DiPerna et al., 2002). Though a student who performs well on one academic measure (e.g., standardized tests) is likely to perform well on another academic measure (e.g., classroom reading grades), there may be differences in performance because the various tasks require students to

utilize unique strategies to perform well. Results of the current study underscore the importance of academic enablers in many types of academic measures, which is a contribution to the current academic enabler literature since previous research has relied on teacher ratings.

In the current study, results indicate that academic enablers were significantly related to every measure of reading achievement. There was a significant positive relation between academic enablers and all measures of academic achievement in reading (i.e., classroom reading grades, teacher-rated reading skills, reading fluency, and standardized test scores). In addition, motivation emerged as a significant individual predictor for teacher-rated reading skills and reading fluency. Study skills were a significant predictor for standardized test scores. These results suggest that, overall, academic enablers are important for all measures of academic achievement, but motivation and study skills may play an especially crucial role in reading achievement. Motivation and study skills are two enablers that might be beneficial across academic settings and tasks. DiPerna (2006) demonstrated that motivation had the highest correlations with measures of academic achievement. Depending on the grade level, study skills followed motivation in terms of correlations with achievement. At younger grade levels, academic engagement had higher correlations with achievement than study skills, but as students approach late elementary school, study skills become more important than engagement. Study skills can be used in many different settings and with all academic tasks and allow students to independently gain and process new information. Motivation, in particular, may be a key to success in school. In fact, there is evidence that motivation not only works as an indirect “enabler” of success, but also directly impacts academic achievement (Wentzel, 1999, 2002; Wigfield et al., 2006).

One theory of academic motivation, the expectancy-value theory, posits that motivation is the product of expectations for success (i.e., an individual's belief that they will be successful) and values (i.e., the importance that an individual places on a task). Expectations are strongly related to actual classroom achievement, but values are strongly related to initiating and persisting toward a short- or long-term goal (e.g., Schunk et al., 2008). Because components of motivation are related to task initiation and completion, as well as classroom achievement, motivation may serve as an “enabler of enablers.” Motivated students may be positively reinforced by their parents and teachers for demonstrating skills and may seek out additional opportunities to continue to learn and apply their skills.

When examining the variance accounted for by academic enablers, classroom grades had the greatest amount of variance accounted for (45%), followed by global rating of reading skill (22%), Reading CBM (16%), and standardized test scores (11%). It seems that academic enablers play a fairly large role in classroom grades, but additional variable(s) are at work for skill-based assessments such as Reading CBM and standardized test scores. Natural ability, instructional and curricular effectiveness, parental support, etc., might play a large role, which are not directly accounted for by the academic enabler ratings. The reading achievement measures

in the current study could be conceptualized into two different categories: academic skills and academic success. Academic skills, which are quantitative and objective in nature, might include the Reading CBM scores and standardized test scores. Academic success, on the other hand, may represent achievement indicators that are more qualitative or subjective, in this case classroom grades and teacher-rated reading skills. Students who are viewed as “academically successful” are likely the students who not only receive high grades and possess strong academic skills, but those who also are engaged, motivated, and get along with others in their classroom. In the current study, academic enablers accounted for the most variance in classroom grades (45%) and teacher-rated reading skills (22%), which would fall into the hypothetical class of academic success, instead of academic skills. Classroom grades and subjective teacher ratings are based on many variables, including academic skills, but are also influenced by other variables such as class participation, ability to work in a group, and homework completion, all of which require or are considered academic enablers.

Limitations and Future Directions

There are several notable limitations that could be addressed in future studies. First, the sample was limited in size as well as was highly homogeneous. Future studies should use larger sample sizes as well as seek out a more heterogeneous sample with respect to grade level, ethnicity, and socioeconomic status. Second, given the small sample size it was not possible to explore gender differences in the levels of academic enablers or associations with the different reading achievement outcomes. Previous work has noted that girls tend to be rated as having higher levels of academic enablers (DiPerna et al., 2005), so differences in these associations might be expected. Third, the current study focused only on reading achievement measures. DiPerna and colleagues (2002, 2005) found slightly different relations between academic enablers and academic achievement when testing models for reading and Math achievement. Fourth, though it was not within the scope of the current study, future studies should consider examining differences between students with and without learning difficulties with respect to the pattern of how different enablers are associated with various academic outcomes. Preliminary evidence suggests that students with school difficulties have lower levels of academic enablers (Demaray & Jenkins, 2011; DiPerna & Elliott, 2000), therefore it is likely to expect differences in the interrelations between these variables and academic achievement. Finally, the manual for the ACES does not provide evidence of inter-rater agreement for elementary students, which was the population of interest in the current study. The level of inter-rater agreement between English and Math teachers for Grades 6–12, which was reported, was not strong, ranging from .31 to .62, with motivation having the lowest level of inter-rater agreement.

Generalization and Implications

To be successful in academics, one not only has to have academic skills, but also academic enablers. When a student is struggling in academics, school psychologists

and educators are encouraged to determine whether the problem is due to a performance deficit or a skill deficit. If the student has a skill deficit in a particular area, then an academic skill intervention may be successful by itself. However, if the problem is due to a performance issue, then increasing academic enablers (i.e., study skills, motivation, and engagement) could make an academic skill intervention more successful. Overall, while academic enabler interventions alone may not always solve academic achievement issues, when coupled with an intervention that teaches a skill, the student may have a better likelihood of succeeding. Results suggest that academic enablers are an important part of academic success in reading, but when considering the variance accounted for by academic enablers, they alone are not likely to improve Reading CBM scores or standardized test scores. Finally, for researchers studying academic enablers and related concepts, the strength of the association between academic enablers and academic outcomes may vary based on the way that the academic outcome is measured.

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