Does perceived competence serve as a protective mechanism against performance goals for struggling readers? Path analysis of contextual antecedents and reading outcomes

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ARTICLE INFO

Keywords: Motivation Reading Classroom goal structures Achievement goals Perceived competence Reading difficulties

ABSTRACT

This study examined the extent to which struggling readers’ perceived classroom goal structures explain their adoption of personal achievement goals and ratings of perceived competence. We also investigated how these motivational characteristics relate to outcomes in word reading and reading comprehension in a sample of fourth and fifth grade struggling readers (N = 112). In a series of path analyses, different motivational patterns emerged in predicting word reading and reading comprehension. Mastery goals negatively predicted while perceived competence positively predicted word reading. For reading comprehension, only perceived competence was a significant motivational predictor. However, for both reading outcomes, perceived competence had a positive moderating role against the potential negative effect of performance-avoidance goals on reading. Our findings also highlight the importance of focusing on mastery goals within the classroom in order to promote students’ perceptions of competence in reading comprehension.

1. Introduction

A decline in students’ intrinsic academic motivation across the later elementary and middle school years is a well-documented trend (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Lepper, Corpus, & Iyengar, 2005; McKenna, Conradi, Lawrence, Jang, & Meyer, 2012; Unrau & Schlackman, 2006). Motivation for reading is not an exception, with previous studies demonstrating a similar developmental decline in students’ enjoyment of and perceived competence in reading (Guthrie & Wigfield, 2000). This phenomenon is particularly concerning for struggling readers in the upper elementary grades as, after third grade, students are asked to engage with increasingly complex text. Therefore, students who have not mastered fluent word-level reading skills are likely to be left behind, a phenomenon often referred to as the ‘fourth grade slump’ (Chall & Jacobs, 2003). Exacerbating the problem is that it becomes less likely that struggling readers will read for pleasure and spend time engaged with text, leading to reduced print exposure and continuing to fall further behind their peers (Guthrie & Davis, 2003; Guthrie, Wigfield, Metsala, & Cox, 1999; Mol & Bus, 2011; Stanovich, 1986; Wigfield & Guthrie, 1997).

In fact, reading researchers have recognized the importance of examining psychosocial factors, including motivation, related to reading development (Fletcher et al., 2002; International Reading Association, 2000; RAND, 2002) with a suggested bidirectional relationship between motivation and reading (Morgan & Fuchs, 2007). However, little is known about the complex relations among different aspects of motivation in explaining reading achievement (Guthrie et al., 1999) or the contextual sources of variabilities in student motivation (e.g., Neugebauer, 2013). Thus, the primary goal of the present study is to address this gap. In particular, we focus on relations of reading to perceived competence and achievement goals for struggling readers in upper elementary grades. Furthermore, we seek to understand whether and to what extent students’ perceived learning environment (i.e., classroom goal structure) predicts their self-reported motivation.

1.1. Perceived competence

1.1.1. Perceived competence and reading

Competence beliefs encompass different terms—self-efficacy, perceived competence, self-concept—all of which can be broadly defined...
as one’s evaluative perception about how well he/she will do on a given task (Bandura, 1977; Schunk, 1991; Wigfield & Eccles, 2002). Such personal belief systems serve as a key mechanism in the learning process by affecting achievement-related behaviors and engagement, which in turn promote students’ performance (see Honikicke & Broadbent, 2016; Schunk & Pajares, 2009; Zimmerman, 2000 for reviews). Students who are more confident about their ability to do well on a task are more likely to engage in challenging activities (Bandura & Schunk, 1981) and deeper strategy use (Prat-Sala & Redford, 2010), show higher levels of academic achievement (Fast et al., 2010), display intrinsic motivation (Guay, Roy, & Valois, 2017), and put forth more effort and persistence in the face of difficulties (Hoffman, 2010; Komarraju & Nadler, 2013; Milton, Brown, & Lent, 1991). Through these achievement-related behaviors, students with positive competence beliefs achieve higher than those who doubt their abilities (Shell, Murphy, & Bruning, 1989). In fact, one of the strongest and most consistent motivational predictors of student achievement, even after controlling for prior achievement level, is one’s competence beliefs (Pajares, 1996).

Although some theoretical distinctions exist among the different terms describing competence beliefs (Hughes, Galbraith, & White, 2011), reading researchers have generally used these terms interchangeably (Conradi, Jang, & McKenna, 2014; Schiefele, Schaffner, Möller, & Wigfield, 2012; Wigfield & Eccles, 2002). In the present study, we use the term perceived competence when discussing students’ perceptions and beliefs about their reading competence. Prior research has found that perceived competence contributes between 6% to 14% of the variance in reading comprehension, beyond that which is explained by cognitive and linguistic variables in typically-developing students in the upper elementary grades (Conlon, Zimmer-Gembeck, Creed, & Tucker, 2006; Katzir, Lesaux, & Kim, 2009; Retelsdorf, Köller, & Möller, 2011; Solheim, 2011). Unlike the well-established relations between perceived competence and reading comprehension, we know little about the associations between perceived competence and word reading. According to the study that examined reading comprehension and word reading separately, it is believed that perceived competence makes a unique contribution to each (Conlon et al., 2006).

1.1.2. Perceived competence in struggling readers

Perceived competence may play an even greater role for struggling readers. The aforementioned studies focus on typically-developing students or modeled the effects of perceived competence in a representative sample of students (Conlon et al., 2006; Katzir et al., 2009; Retelsdorf et al., 2011; Solheim, 2011). However, converging evidence suggests that the effects of motivation are more salient for struggling readers than their typically-developing peers (Lau & Chan, 2003; Logan, Medford, & Hughes, 2011). For instance, a recent study focusing on linguistically diverse middle school students with disabilities found that students’ perceived competence explained about 20% of the variance in reading comprehension outcomes beyond what was explained by English Learner status and performance on formative measures, which is a greater contribution to reading comprehension than other studies have found (Proctor, Daley, Louick, Leider, & Gardner, 2014).

Moreover, as students get older, perceived competence tends to correlate even more strongly with reading skills (Chapman & Tunnmer, 1997). As such, it is not surprising that struggling readers in upper elementary grades, who have experienced failure in mastery of word-level reading skills in primary grades, are less likely to have positive perceptions of their own competence (Chapman, Tunnmer, & Prochnow, 2000; Cho et al., 2015; Tabassam & Grainger, 2002). Thus, promoting positive perception of competence becomes even more critical for struggling readers.

1.1.3. Domain specificity of perceived competence

Although the reviewed studies consistently demonstrate the importance of perceived competence in explaining reading outcomes, particularly reading comprehension, one notable limitation across these studies is measurement specificity. Reading is a multidimensional skill—with word reading and comprehension relying on different, though overlapping, sets of cognitive skills. Skillful word reading requires acquisition of letter-sound correspondences and decoding/spelling patterns. Successful reading comprehension requires not only basic word-level reading skills, but also draws upon higher-level linguistic and cognitive processes (Gough & Tunnmer, 1986). Accordingly, a substantial amount of heterogeneity exists in the sources of reading difficulties in older students, such that reading failure is accompanied by either word reading, comprehension, or both (Catts, Adlof, & Weism, 2006).

Because perceived competence is based on domain- and task-specific evaluative appraisal (Hughes et al., 2011), students’ perceptions of their competence in reading might vary depending on the specific skills being measured. That is, perceived competence may differ based on the specific area of reading in which a student struggles. Nevertheless, most of the extant studies do not match the domain of perceived competence assessed to the reading achievement outcomes (Conlon et al., 2006; Katzir et al., 2009) because the commonly used measures, such as the Motivation for Reading Questionnaire (Wigfield & Guthrie, 1997) and the Reading Self-Concept Scale (Chapman & Tunnmer, 1995), do not clearly distinguish between these two reading outcomes. It therefore stands to reason that the predictive value of perceived competence in explaining reading would be clearer when it is measured separately for word reading and reading comprehension, particularly among struggling readers beyond primary grades.

1.2. Achievement goals

1.2.1. Achievement goals and reading

Achievement goals refer to students’ reasons for achievement-related behaviors, such as choosing, engaging, and persisting in specific learning contexts (Ames, 1992; Dweck, 1986; Dweck & Leggett, 1988). The first generation of achievement goal researchers proposed a dichotomy model of mastery and performance goals (Dweck & Leggett, 1988; Nicholls, 1984). Students who are mastery-goal-oriented focus on developing competence through task mastery, which has been positively associated with adaptive learning outcomes and academic performance (see Hulleman, Schrager, Bodmann, & Harackiewicz, 2010 for a review). Performance-goal-oriented students, in contrast, focus on demonstrating their competence relative to others. Overreliance on performance goals has been suggested to lead to maladaptive achievement-related behaviors such as the use of shallow cognitive strategies, avoidance of help-seeking, and reduced effort in face of challenges. As the field grew, researchers proposed two subtypes of performance goals: approach and avoidance. These goals distinguish students whose goals are to demonstrate superiority to others (approach) from students who are more concerned with concealing their relative incompetence (avoidance) (Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997; Skaalvik, 1997). Performance-approach goals are generally viewed as positive because of its positive association with achievement, whereas performance-avoidance goals have been consistently viewed as detrimental to both psychological adjustment and academic achievement (Hulleman et al., 2010).

Despite its wide application in the field of educational psychology, empirical investigations of achievement goals in relation to reading are scarce. Two recent studies using constructs aligned with achievement goals have reported detrimental effects of competition, measured similarly to performance-approach goals (e.g., “do you read because you want to outperform others in your class?”), on reading comprehension with a large sample of second and third graders (Schiefele, Stutz, & Schaffner, 2016; Stutz, Schaffner, & Schiefele, 2016). Lepola, Poskiparta, Laakonen, and Niemi (2005) examined the predictive role of mastery goals on word reading and found that task orientation, defined similarly to mastery goals, made a unique contribution to word
reading in first grade. This positive prediction remained even after controlling for prior pre-reading skills such as phonological awareness, and mediated the developmental prediction of pre-reading skills to later word reading skills. Taken together, previous findings suggest that achievement goals may help explain individual differences in students' reading achievement. Still, the effect of performance-avoidance goals on reading is largely unknown and there has been no research conducted with students beyond third grade.

1.2.2. Achievement goals in struggling readers

An important reason for understanding the role of achievement goals with struggling readers is that negative perceptions of competence can potentially exacerbate the detrimental effects of performance goals. Perceived competence has been suggested to be a potential moderator of performance goals, which might determine the adaptive and maladaptive motivational consequences of performance goals. Prior to the introduction of the approach and avoidance dimensions to performance goals, Dweck and colleagues proposed that performance goals lead to positive outcomes for students with high levels of perceived competence, but can be detrimental for students with low perceived competence (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988). In a similar vein, students who have a strong conviction for success tend to strive toward demonstrating their competence, whereas students who have negative perceived competence are likely to strive for hiding their incompetence and adopt performance-avoidance goals (Law, Elliot, & Murayama, 2012).

However, previous studies have failed to show significant interactions between perceived competence and either type of performance goals in predicting academic achievement (Cho, Weinstein, & Wicker, 2011; Cury, Elliot, Da Fonseca, & Moller, 2006; Kaplan & Midgley, 1997). It is worth noting that these studies did not necessarily focus on vulnerable student populations, and the moderating role of perceived competence may be more evident among students who are the most susceptible to the negative consequences of performance goals. In particular, students with reading disabilities have shown to have higher performance-avoidance goals and lower mastery goals compared to students without reading disabilities (Botsas & Padelidu, 2003). Thus, more research is needed to examine how performance goals, particularly avoidance goals, are associated with reading achievement in struggling readers and whether perceived competence serves as a protective mechanism against the potential harmful effects of performance goals as Dweck and colleagues hypothesized.

1.3. Perceived classroom goal structure

Previous research also indicates that students tend to adopt a similar stance toward learning as the one emphasized by their classroom teachers (Ames, 1992; Ames & Archer, 1988; Church, Elliot, & Gable, 2001; Eccles et al., 1993). Students who see their teachers as focused on mastery goals, where a deep understanding of the material is emphasized over receiving good grades or outperforming others, tend to have higher competence beliefs (Bong, 2005; Jiang, Song, Lee, & Bong, 2014; Midgley, Anderman, & Hicks, 1995; Wolters, 2004). On the other hand, when students believe that their teachers promote competition and value high scores, students are more likely to endorse either performance-approach or performance-avoidance goals and feel less efficacious (Wolters, 2004).

It stands to reason that a mastery goal structure will create an environment that supports struggling readers because what matters is their effort and improvement rather than their (dis)ability. By contrast, students with reading difficulties, who have a lower probability of receiving high scores or outperforming their peers in reading, are likely to be vulnerable to performance goal structures. In such an intimidating climate, they might internalize performance-avoidance goals or completely lose their motivation to read. Through analyzing the motivational discourse in a classroom, Sideridis, Stamovlasis, and Antoniou (2016) observed such patterns in students with learning disabilities in 5th to 9th grades. They found that under performance goal classroom structures, the association between decoding and word recognition was disrupted, whereas mastery goal structure showed a linear relation between the two. While no studies have assessed the critical role that classroom goal structure may play in struggling readers' motivational patterns, these findings provide indirect evidence of deleterious aspects of performance goals emphasized within the classroom context.

Although the extent achievement goal studies have widely adopted the trichotomy framework (Huang, 2012; Hulleman et al., 2010), studies focusing on classroom goal structure have continued to use a dichotomy framework of mastery versus performance goals (Cho & Shim, 2013; Gonida, Voulala, & Kiosseoglou, 2009; Gutman, 2006; Lau & Nie, 2008; O'Keefe, Ben-Eliyahu, & Linnenbrink-Garcia, 2013; Wolters & Daugherty, 2007). In these studies, classroom mastery goal structure has been consistently associated with personal mastery goals, while performance goal structure has been associated with either performance-approach or avoidance goals. Additionally, performance-avoidance goal structure was often measured but not included in the analysis due to measurement issues, including low reliability (Wolters, 2004), non-significant variance at the classroom level (Kaplan, Middleton, Urdan, & Midgley, 2002; Murayama & Elliot, 2011), and high correlations between the two performance goal structures (Kaplan et al., 2002; Karabenick, 2004). Recently, a few researchers have started to examine performance-approach and performance-avoidance goal structures separately (Kim, Schallert, & Kim, 2010; Schwinger & Stiensmeier-Pelster, 2011). These studies have generally concluded that it is mainly the performance-avoidance goal structure that fosters students' personal performance-avoidance goals.

1.4. The present research

The present study used pre-intervention data from a randomized controlled trial investigating the efficacy of a multisyllabic word reading intervention for struggling readers in the upper elementary grades (Toste, Capin, Williams, Cho, & Vaughn, 2018). We aimed to explore three research questions using self-report data from surveys of motivational constructs, which have not been reported in the intervention study. First, do perceived classroom goal structures predict students' levels of perceived competence and achievement goals? We hypothesized that struggling readers' personal achievement goals would be best explained by their corresponding classroom goal structures. More specifically, for struggling readers, we expected perceived performance-approach goal structure may also be translated into performance-avoidance goals. Additionally, students who perceived that teachers value learning and effort would be likely to have higher perceived competence. In contrast, struggling readers who perceived that teachers set out normative evaluation criteria would be likely to have low perceived competence. Second, do students' achievement goals and perceived competence explain reading outcomes? We hypothesized that both word reading and reading comprehension outcomes would have positive relations to students' mastery goals and negative relations to performance-avoidance goals. No specific hypothesis was made regarding performance-approach goals. Third, does perceived competence moderate the effects of performance-approach and performance-avoidance goals on reading? We expected to see that the benefits of performance-approach goals on academic achievement may only be apparent when students' perceived competence is high (Huang, 2012; Hulleman et al., 2010). On the contrary, we expected the deleterious effects of performance-avoidance goals may stand out when students have low levels of perceived competence. Additionally, we were interested in how these pathways might differ for word reading and reading comprehension outcomes.
Table 1
Demographics of the present sample.

<table>
<thead>
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<th>Variable</th>
<th>Frequency</th>
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<tr>
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<tr>
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</tbody>
</table>

2. Method

2.1. Participants and procedures

Participating students were recruited from 14 classrooms across three schools. Fourth and fifth grade students were selected to participate through a two-step screening process. First, the school district nominated the lowest performing students on their benchmark assessment who were not already receiving an intensive reading intervention. All initially nominated students (N = 136) were then screened using the Test of Word Reading Efficiency (TOWRE-2; Torgesen, Wagner, & Rashotte, 2012). To be eligible for the study, students were required to display difficulties in word reading fluency, as evidenced by scoring at or below the 25th percentile on either subtest of the TOWRE-2 (M = 85.14, SD = 7.91 for Sight Word Efficiency subtest; M = 85.14, SD = 9.05 for Phonemic Decoding Efficiency subtest). From this screening, 114 students were selected to participate in the study, but two students were relocated before the study began resulting in a total sample of 112 students. Demographic information is presented in Table 1. The majority of the students were Hispanic (83%) and approximately one fourth of whom were school identified as having limited English proficiency. All data collection involving human subjects was conducted in accordance with the ethical standards of the Institutional Review Board where the study was implemented.

2.2. Measures

The surveys were administered in a group setting and read aloud to students. Students were asked to determine whether the statement was true for them on a 5-point scale ranging from 1 (not at all true; no [never]) to 5 (very true; yes [always]). Reading and verbal knowledge measures were individually administered. Test administrators were hired and trained by the research team to administer all assessments with 98% fidelity.

2.2.1. Perceived competence

The competence subscale from the Reading Self-Concept Scale (RSCS; Chapman & Tunner, 1995) was used to assess students’ perceived competence. Because perceived competence is a domain-specific judgement, we identified five items asking students about their competence in word reading (e.g., Can you work out sounds in words?) and five items assessing students’ perceived competence in reading comprehension and reading in general (e.g., Can you work out what a story means?), although the original measure did not distinguish between perceived competence in word reading and reading comprehension. Internal consistency coefficients were .73 and .76 for word reading and reading comprehension, respectively.

2.2.2. Personal achievement goals

Three personal achievement goal subscales from the Patterns of Adaptive Learning Strategies (PALS; Midgley et al., 2000) were used. Achievement goals were assessed in reference to the classwork completed in English/Language Arts class. Mastery goals were assessed with six items that asked students’ orientation to learning and understanding (e.g., An important reason why I do my class work is because I like to learn new things). Performance-approach goals were assessed with five items that asks students’ orientation to demonstrating their ability (e.g., I want to do better than other students in my class). Performance-avoidance goals were assessed using six items that asked students’ orientation to hiding their lack of ability (e.g., An important reason I do my class work is so that I don’t embarrass myself). Internal consistency coefficients for the present sample were .86, .85, and .80, respectively.

2.2.3. Perceptions of classroom goal structure

The items for students’ perception of classroom goal structure were adopted from the PALS (Midgley et al., 2000) and referenced students’ English/Language Arts classes. The four items for mastery goal structures assessed students’ perceptions of the teacher’s emphasis on learning and effort (e.g., My teacher really wants us to enjoy learning new things). The three items for students’ perception of performance-approach goal structure assessed students’ perception of the teacher’s emphasis on normative evaluation and superior test scores (e.g., My teacher tells us how we compare to other students). For performance-avoidance goal structure, students’ perception of teacher’s emphasis on avoiding looking poorly was measured with four items (e.g., My teacher tells us it is important that we do not look stupid in our class). Internal consistency coefficients for the present sample were .59, .61, and .68, respectively.

2.2.4. Reading outcomes

Word reading was measured with the Letter-Word Identification subtest of the Woodcock-Johnson III Normative Update (WJ III LWID; Woodcock, McGrew, & Mather, 2007). It is an untimed measure of word reading in isolation. The internal-consistency reliability reported in the manual exceeds .80. Reading comprehension was assessed through the Passage Comprehension subtest of WJ III (WJ III PC), which measures students’ ability to identify a missing word from a sentence or short passage. This subtest has a reported median split-half reliability of .88.

2.2.5. Control variables

Expressive vocabulary has been found to be predictive of both word reading and reading comprehension (Ouellette, 2006). Thus, we controlled for the effects of vocabulary knowledge with the Synonyms and Antonyms subtests of the extended battery of the WJ-III (Woodcock et al., 2007). They assess the ability to provide synonyms and antonyms orally in response to stimulus words. The split-half reliability reported in the manual is above .90. Additionally, based on research suggesting oral English proficiency as a key contributor of language minority learners’ reading achievement across elementary grades (Kieffer, 2008), limited English proficiency (LEP) status was included in the model as a covariate.

2.3. Data analysis

Preliminary analyses indicated overall univariate normality (with an exception of mastery goal structure and mastery and performance-approach goal), but multivariate nonnormality, Mardia’s mSkewness = 26.23, χ² (364) = 540.80, p < .05, Mardia’s mkurtosis = 147.38, χ² (1) = 3.40,
p = .06. Thus, analyses were conducted using robust variance method in maximum likelihood estimation using MLR estimator in Mplus7.4 (Muthén & Muthén, 2015), given the nonnormality and dependency issues present in
the data. In addition, students’ perception of classroom goal structure data is inherently dependent at the classroom-level with intra-class correlations of .03, .18, and .02 respectively for mastery, performance-approach, and performance-avoidance goal structures and from .01 to .06 across student motivation variables and reading achievement. However, multilevel model-
ing was not possible due to the limited number of classroom and cases
within the classroom, and given the relatively large number of parameters estimated. We had complete data on the WJ III measures. The missing data ratio from the student surveys was less than .3% across all data points and we used Full Information Maximum Likelihood method.

According to previous literature, perceived goal structure exerts its effect on personal achievement goal adoption, which in turn predicts academic outcomes (see Church et al., 2001; Meece, Anderman, & Anderman, 2006 for reviews). Therefore, we tested a model in which achievement goals and perceived competence completely mediates the relation from classroom goal structures to reading outcomes, control-
ing for verbal knowledge and LEP status. Then, the interaction terms between perceived competence and performance-approach as well as performance-avoidance goals were entered into the model to test the moderating role of perceived competence. We considered the following indices in evaluating the fit of the path models: chi-square statistics, comparative fit index (CFI), the Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residuals (SRMR). RMSEA values below .08, CFI and TLI values equal to or greater than .95, and SRMR equal to or less than .05 indicate an excellent model fit (Hu & Bentler, 1999). TLI and CFI values greater than .90 are considered to be acceptable (Kline, 2005).

3. Results

3.1. Preliminary confirmatory analyses

Prior to the path analysis we conducted a series of preliminary factor analyses to examine whether the survey items represent their respective constructs and whether each construct is separable from other related constructs. Alternative CFA models were compared using the chi-square difference tests, adjusting for the Satorra-Bentler scaling factor and the differences in CFI and Bayesian Information Criterion (BIC). CFI differences > .01 suggest meaningful differences (Cheung & Rensvold, 2002; Chen, 2007) and BIC differences of 2–6 suggest positive evidence, 6–10 strong evidence, and > 10 very strong evidence that the model with smaller BIC is a better fitting model (Raftery, 1995).

First, we tested whether perceived competence in word reading and comprehension can be meaningfully distinguished by comparing model fit statistics of the single-factor model and the two-factor model. Although the single-factor model did not significantly lower the fit, \( \Delta \chi^2(1) = 3.42, p = .06 \), other indicators suggest the two-factor model provides better account of the data structure than the single-factor model (ACFI = .01; ABIC = 3.45). We also noted different correlational patterns for each perceived competence measure to other variables (Table 2). Second, a factor structure of the trichotomy achievement goals was compared to that of the two-factor model where both performance goals were combined. The two-factor model fit significantly worse than the three-factor model: \( \Delta \chi^2(2) = 69.75, p < .05 \). Similarly, factor structures of perceived classroom goal structure were tested by comparing the three- vs. two-factor models with which items of both performance goals were combined. Results confirmed the two-factor model yielded significantly worse fit than the three-factor model, \( \Delta \chi^2(2) = 8.16, p < .05 \), suggesting that students are able to distinguish between performance-approach and performance-avoidance goal structures. In both models, one mastery goal structure item did not have a significant factor loading on the mastery goal structure; thus, removed from the subsequent analyses.

3.2. Descriptive statistics and correlational analyses

Table 2 presents means, standard deviations, and correlations among the measures. Students in this study reported relatively high levels of mastery (\( M = 3.95 \) on a scale of 1–5), but slightly lower levels of performance-approach (\( M = 3.44 \) and avoidance-goals (\( M = 2.00 \)). A series of paired sample t-tests indicated differences between the pairs were all statistically significant, \( t(111) = 3.68, 6.05, \) and 3.90, \( p < .001 \), indicating that these struggling readers possessed mastery goals toward reading. Students reported moderate levels of perceived competence in both word reading (\( M = 3.42 \)) and reading comprehension (\( M = 3.41 \)), which only weakly corresponded with their actual reading performance (\( r = .22 \) for WJ III LVID and \( r = .17 \) for WJ III PC).

There were no significant bivariate relations between motivation vari-
ables and word reading (\( -.05 \leq r \leq .09 \)), but perceived competence was positively associated with word reading (\( r = .22, p < .05 \)). A different bivariate pattern emerged in relation to reading comprehension. Although not statistically significant, a theoretically expected pattern emerged in reading comprehension: positive correlations with mastery goals (\( r = .12, p = .21 \)) and perceived competence (\( r = .17, p = .07 \)), and negative corre-
relations with both performance-approach (\( r = -.16, p = .09 \)) and per-
formance-avoidance (\( r = -.19, p < .05 \)) goals. We note that small corre-
lations of achievement goals from our results are within the range of typical effect sizes between achievement goals and achievement reported in meta-
analytic research (\( -.12 \leq r \leq .16 \), Huang, 2012).

Classroom mastery goal structure was moderately correlated with students’ mastery goals (\( r = .45, p < .05 \)) and less so with perfor-
ance-approach goals (\( r = .29, p < .05 \)), but not with performance-
avoidance goals (\( r = .13, p = .17 \)). Performance-approach goal struc-
ture was moderately correlated students’ mastery goals (\( r = .25, p < .05 \)), performance-approach goals (\( r = .31, p < .05 \)), and perfor-
enance-avoidance goals (\( r = .42, p < .05 \)). Performance-avoidance goal structure showed moderate correlations with performance-approach and performance-avoidance goals (\( r = .37 \) and .45, and \( p < .05 \) respect-
ively), but not with mastery goals (\( r = .05, p = .60 \)).

3.3. Path analysis models

We ran two separate path models, one for word reading and another for reading comprehension outcomes, to retain the measurement spe-
cificity of perceived competence.

3.3.1. Word reading model

The word reading model used perceived competence items that tapped word reading skill. This model demonstrated a good fit to the data, \( \chi^2(28) = 32.81, p = .24, \) RMSEA = .04, CFI = .97, TLI = .95; SRMR = .07 (Fig. 1). With respect to the predicted paths, our hy-
theses were generally supported in terms of the relations between classroom goal structures and students’ motivation. Students generally rated their personal achievement goals similarly to what they perceived their teachers to emphasize in class, with one exception of performance-
approach goal structure. Mastery goals were predicted by perceived mastery goal structure (\( B = .57, SE = .03, p < .01 \)), as well as per-
ceived performance-approach goal structure (\( B = .18, SE = .08, p = .02 \)). Performance-approach goals were predicted only by perfor-
ance-avoidance goal structure (\( B = .28, SE = .11, p < .01 \)) and performance-avoidance goals were predicted by both performance-ap-
proach goal (\( B = .24, SE = .10, p = .02 \)) and performance-avoidance goal (\( B = .30, SE = .10, p < .01 \)) goal structures. Perceived competence in word reading was not explained by perceived classroom goal struc-
tures.

With regard to the association between motivational variables and reading achievement, perceived competence positively predicted word reading (\( B = 2.60, SE = .91, p < .01 \)). Mastery goals negatively predicted word reading (\( B = -2.03, SE = .76, p < .01 \)) while con-
trolling for verbal knowledge (\( B = .42, SE = .06, p < .01 \)). In
addition, we found statistically significant interactions between perceived competence and performance-avoidance goals in predicting word reading ($B = 2.39$, $SE = 0.86$, $p < .01$), but perceived competence did not moderate the effects of performance-approach goals on word reading ($B = -1.02$, $SE = 0.84$, $p = .29$). We then plotted the regions of significance with the 95% confidence interval to interpret the significant interaction. As can be seen in Fig. 2, performance-avoidance goals negatively predicted word reading when perceived competence was approximately 0.70 point below the mean (2.72 on a 1–5 scale). Finally, performance-avoidance goals positively predicted word reading when perceived competence was extremely high (above 4.67 on a 1–5 scale).

### 3.3.2. Reading comprehension model

The reading comprehension model (Fig. 3) demonstrated a good fit to the data, $\chi^2(35) = 44.48$, $p = .13$, RMSEA = .05, CFI = 0.95, TLI = .94, SRMR = .06. Predictive paths of classroom goal structures to achievement goals were identical to those of word reading model. However, perceived competence was explained by students’ perception of mastery goal structure ($B = 0.32$, $SE = 0.16$, $p = .04$), an association that did not exist in the word reading model. None of the achievement goals were significant in predicting reading comprehension when controlling for the significant effects of verbal knowledge ($B = 0.47$, $SE = 0.20$, $p = .01$).
\( SE = 0.06, p < .01 \) and LEP status \( (B = -2.73, SE = 1.23, p = .03) \). Again, we found a significant interaction between performance-avoidance goals and perceived competence in predicting reading comprehension \( (B = 1.67, SE = 0.62, p < .01) \). As shown in Fig. 4, performance-avoidance goals negatively predicted reading comprehension when self-efficacy was approximately 0.60 score below the mean (2.81 on a 1–5 scale), confirming the moderating role of perceived competence. Perceived competence did not moderate the
relation between performance-approach goals and reading comprehension ($B = -0.94$, $SE = 0.71$, $p = .19$).²

4. Discussion

Previous research testing various models of reading (e.g., Cromley & Azevedo, 2007; Gough & Tumner, 1986; Kim, 2017) have reported that approximately 40% to 80% of the variance in reading comprehension can be explained by individual differences in decoding, linguistic comprehension, and other cognitive factors (Cutting & Scarborough, 2006; Kershaw & Schatschneider, 2012; Kim, 2017). The variability of, and less than perfect, $R²$ found in these studies suggests that there may be other variables not specified in the models that can make unique contributions to explaining individual differences in reading. Although motivation has been suggested to be an important source of individual differences in reading beyond cognitive factors (Anmarkrud & Bråten, 2009; Conlon et al., 2006; Guthrie et al., 1999; Katzir et al., 2009; Proctor et al., 2014; RAND, 2002; Retelsdorf et al., 2011), reading motivation research is only at its burgeoning stage. Two recent reviews have identified the need for research that is grounded in motivation theories (Conradi et al., 2014; Schievele et al., 2012). This is one of the first studies to integrate achievement goal theory in modeling reading outcomes using standardized assessments. In particular, we tested the hypothesized moderating role of perceived competence. Furthermore, we extended earlier studies by modeling word reading and reading comprehension separately using the domain-specific perceived competence items. The divergent pattern of results from these two outcome models highlights the importance of using survey instruments that align well with a clearly defined motivational construct (Conradi et al., 2014; Schievele et al., 2012). Finally, we explored how students’ perceived classroom environments impact their motivational patterns, with implications for instructional strategies that teachers can employ to promote adaptive motivational patterns of struggling readers.

4.1. Struggling Readers’ motivation and reading outcomes

Our results underscore the important role of perceived competence in reading achievement. Our path model confirmed that struggling readers who hold positive views of their word reading skills had higher word reading scores than those who were low in perceived competence. This finding builds upon previous finding that perceived competence significantly contributed to word reading (Conlon et al., 2006). Although bivariate correlation coefficients were smaller than the previous studies that documented a strong positive link between perceived competence and reading comprehension (e.g., Conlon et al., 2006; Katzir et al., 2009), perceived competence also predicted reading comprehension in struggling readers.

Our findings suggest that the consequences of adopting mastery or performance goals may differ along with the levels of cognitive demand required for reading task. We found an opposite pattern of bivariate relations between achievement goals and reading achievement depending on the reading tasks (word reading and reading comprehension). Performance goals were negatively related to reading comprehension, whereas mastery goals were positively related to reading comprehension. Bivariate relations between achievement goals and word reading were generally very weak and not significant.

In the path models, it is noteworthy that mastery goals negatively predicted word reading—contrary to the well-documented benefits of pursuing mastery goals in other domains (see Baranik, Stanley, Bynum, & Lance, 2010; Elliot, 2005 for reviews). Although some studies failed to find a positive link between mastery goals and graded performance yielding null effects (Elliot & Church, 1997; Elliot & McGregor, 2001; Senko, Durik, Patel, Lovejoy, & Valentiner, 2013), studies reporting negative academic outcomes of mastery goals are rare. This is also

² When interaction terms with all three achievement goals were included, the model fit statistics were low, $\chi^2(43) = 69.22$, $p < .05$, RMSEA = 0.07, CFI = 0.87, TLI = 0.85, SRMR = 0.09. In this poorly fitting model, significant interactions of perceived competence were found with mastery goals ($B = 1.07$, $SE = 0.50$, $p = .03$) and performance-avoidance goals ($B = 2.22$, $SE = 0.61$, $p = .03$), but not with performance-approach goals ($B = -1.48$, $SE = 0.80$, $p = .06$).
contrary to Lepola et al. (2005), where teacher-rated task orientation (including concentration and persistence during task) positively predicted word reading growth in young children.

One possible explanation for this unexpected finding might be related to the unique cognitive demands of word reading for struggling readers who have not yet developed automatic, fluent word-level reading skills. Word reading in English involves two major processes: a sublexical process that utilizes grapheme-phoneme conversion at different grain sizes and a lexical process that recognizes words as wholes retrieved from memory (Coltheart, Curtis, Atkins, & Haller, 1993; Fiebach, Friederici, Müller, & Von Cramon, 2002; Grainger & Ziegler, 2011). Beginning readers mainly rely on the sublexical process through phonological decoding that requires memorization of grapheme-phoneme correspondences and spelling patterns. Then, repeated exposure to words and practice applying phonological decoding skill is essential in developing automatic word recognition skills (Share, 1995). As English orthography is quasi-regular such that there are varying levels of consistency in the mapping of spelling to sound (Plaut, McClelland, Seidenberg, & Patterson, 1996; Seidenberg, 2005), many irregular words have to be memorized and rely on lexical processes.

The reason why mastery goals were negatively predictive of word reading for struggling readers may be because both sublexical and lexical processes involved in word reading do not necessarily require deep cognitive strategies (elaboration), which are found to be related with mastery goals (Diseth, 2011; Elliot & McGregor, 2001; Elliot, McGregor, & Gable, 1999; Meece, Blumenfeld, & Hoyle, 1988; Vrugt & Oort, 2008); but rather, they necessitate efficient use of what are often considered “shallow” cognitive strategies such as rote memorization and repeated practice. Correspondingly, this interpretation suggests we might expect performance goals to be positively associated with word reading because both performance goals are often related to use of such shallow learning strategies (Elliot et al., 1999; Elliot & McGregor, 2001)—strategies that would correspond well to the type of learning strategies for acquiring English word reading. Although we note positive effects of performance-avoidance goals on word reading when students judged their word reading ability to be high (Fig. 2), the potentially positive effect of performance goals on word reading was not clearly evident in our study. We recognize the importance of replicating such pattern of results as it is not supported by the achievement goal literature. Moreover, meta-analysis of achievement goals and academic outcomes (Huang, 2012) indicates only 12 out of 151 studies had language/literacy outcomes, and only six of those 12 studies used test scores (not course grades). None of the studies examined standardized word reading outcome in relation to achievement goals. Thus, our findings call for the need to attend to the effects of achievement goals conditional on the specific outcome and population.

In terms of reading comprehension outcome, none of the achievement goals were significant predictors. Drawing from past research suggesting deep cognitive strategies employed by mastery goals (Diseth, 2011; Elliot & McGregor, 2001; Vrugt & Oort, 2008) are critical in reading comprehension, we expected mastery goals would positively predict reading comprehension. In a similar vein, we postulated that performance goals, specifically performance-avoidance goals, would have deleterious effects on reading comprehension. Contrary to our hypothesis, mastery goals did not predict reading comprehension, controlling for verbal knowledge and LEP status. In addition, despite the negative correlation between performance goals and reading comprehension, both performance goals failed to be significant predictors of reading comprehension in a multivariate context. This finding is inconsistent with those found by Stutz et al. (2016), who reported that competition and normative evaluation were negatively associated with sentence- and text-level reading comprehension outcomes in a representative sample of students. Although debilitating effects of performance-avoidance goal have been identified in the achievement goal literature (Elliot & Church, 1997; Urdan, 2004), it was not evident in the present study.

4.2. Interaction of perceived competence and performance goals

The present findings provide partial support for the hypothesis that the negative consequences of performance goals are conditional upon the levels of perceived competence (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988). Although effects of performance-approach goals did not vary depending on the perceived competence, the interaction between performance-avoidance goals and perceived competence was significant in both word reading and reading comprehension models. Negative effects of performance-avoidance goals were only evident when perceived competence was low in both word reading (Fig. 2) and reading comprehension (Fig. 4). In other words, low perceived competence exacerbated the potential harm of performance-avoidance goals in struggling readers. It is also important to note that although potentially positive effect of performance-avoidance goals was found for word reading when students held extremely high levels of perceived competence, it is uncommon (approximately 5% of our sample) for students to rate their perceived competence in word reading to be above 4.67 on a 5-point scale.

The moderating role of perceived competence proposed by Dweck and her colleagues has failed to obtain empirical support in the achievement goal literature yielding mainly null results for academic outcomes (Cho et al., 2011; Cury et al., 2006). The significant interaction between perceived competence and performance-avoidance goals might be explained by the unique characteristics of our sample. Whereas Cho et al. (2011) and Cury et al. (2006) included unselected samples of participants with a wide range of abilities, students who participated in our study were identified as struggling readers by their teachers. The vulnerability of our participants may have created a psychological environment in which the moderating role of perceived competence on the negative effect of performance-avoidance goals was augmented. Theoretically, performance-avoidance goals are presumed to be grounded in the fear of failure (Elliot & Church, 1997). Struggling readers tend to experience frequent and repetitive failures in general education classrooms, where reading demands may be higher than what they can achieve with the current skill level. Therefore, these students may experience heightened anxiety and fear, accompanied by low perceived competence. This has been noted in experimental studies exploring the negative effects of performance-avoidance goal adoption on tasks assessing verbal and mathematical reasoning (Dickhäuser, Buch, & Dickhäuser, 2011; Elliot, Shell, Henry, & Maier, 2005).

It has been widely accepted that effects of various facets of student motivation are not orthogonal but synergistic (Barron & Harackiewicz, 2001; Sideridis et al., 2016; Sideridis & Stamovlasis, 2014, 2016). For example, Sideridis and his colleagues examined non-linear effects of performance goals using the cusp catastrophe model and found that performance goals have a bifurcation function, such that negative effects of performance goals become salient beyond the certain point. Similarly, the significant interaction between perceived competence and performance-avoidance goals suggests the effects of performance-avoidance goals on reading are not linear. Perceived competence could have set different levels of pressure point that activate damaging effects of performance-avoidance goals on reading.

4.3. Perceived classroom goal structure and motivation

The upper elementary grades are an important period for struggling readers. Not only do curricular materials become increasingly difficult demanding greater cognitive resources (Chall & Jacobs, 2003), but also a heavier focus is imposed on tests, grades, and competition (Guthrie & Davis, 2003; Stipek & Maclver, 1989). Therefore, we considered how students’ personal motivation could be explained by their perception of classroom goal structures. The current findings suggest some potential avenues through which students’ perception of their classroom environment can be transformed into their reading motivation during English/Language Arts instruction.
Our results provide only partial support for the proposed advantages of mastery goal structure and disadvantages of performance goal structures for struggling readers. We found divergent effects of teachers' emphasis on attaining normative competence, such that perceived performance-approach goal structure predicted both personal mastery and performance-avoidance goals. Previous studies have found that performance-approach goal structure does not predict students' performance-avoidance goal with typically-achieving middle and high school students (Kim et al., 2010; Schwinger & Stiensmeier-Pelster, 2011). In a sample of struggling readers in the present study, however, when students perceived that their teachers encouraged students to attain competence compared with other students, they were likely to endorse performance-avoidance goals. Although our results suggest performance-avoidance goals can be potentially advantageous in developing word reading skills for students with very high perceived competence, costs associated with pursuing performance-avoidance goals cannot be ignored.

Most importantly, we found that classrooms that emphasize normative evaluation on performance and grade did not enhance struggling readers' sense of competence in both word reading and reading comprehension. This appears to be different from the extant study reporting a positive link between perceived contexts emphasizing performance-approach goal and perceived competence with typically-achieving students (Jiang et al., 2014). Thus, performance goal structures may hinder struggling readers, who have a low probability of receiving high grades or reading better than others in general education classroom instruction, from developing a positive sense of competence.

Understanding the consequences of a mastery goal structure is challenging as well. It appears that a positive role of mastery goal structure is not supported relative to the benefits of students' word reading skills. Students who perceived their teachers as emphasizing learning and critical thinking, understanding, and progress will help struggling readers feel more efficacious, particularly in reading comprehension.

4.4. Limitations and future directions

Several limitations should be considered when interpreting the present study findings. First, our sample size was relatively small. Due to small number of students (N = 112) and classrooms (N = 14), and the large number of parameters estimated, multi-level analyses or correcting standard error to account for classroom-level variance was not possible. Future studies of classroom goal structure would benefit from modeling classroom-level effects on student motivation. Relatedly, we focused on students' perception of the classroom environment because previous literature suggests that it is an individual's perception of the environment, more so than the actual context, which predicts student motivation (Anderman & Young, 1994; Kaplan et al., 2002). However, it would be informative to collect classroom observational data or teacher reports of instructional approaches in order to model these variables alongside student perceptions.

Second, our interpretations of the findings are based on extant literature suggesting that the types of cognitive strategies employed by students vary depending on their achievement goals (e.g., Elliot & McGregor, 2001). Given the correlational nature of the data, the reason why mastery goals were negatively associated with word reading might be that students with lower word reading skills impose higher mastery goals to improve their reading ability. Thus, our hypothesized interpretation needs be confirmed in the future study. Due to the exploratory focus of the present study, we did not collect data on cognitive strategies and, as such, there is a need for follow-up studies to confirm our interpretation. Similarly, we acknowledge small effect sizes of motivation measures on reading outcomes. The reason why achievement goals did not show strong direct link to reading achievements can be fully understood when recognizing that achievement goals are not postulated to have direct influence on achievement, but rather exerts indirect effects mediated by cognition and achievement related behaviors (Cho, Toste, Lee, & Ju, 2018; Elliot et al., 1999; Wolters, 2004).

Future studies need to examine the mechanism through which achievement goals are linked to reading achievement.

Third, we report smaller correlations between perceived competence and reading comprehension compared to prior studies, in which moderate-sized correlations are reported (.29 to .53). In particular, in the two studies using the RSCS, perceived competence was moderately correlated with reading comprehension in middle school students, ranging from .40 to .53 (Conlon et al., 2006; Katzir et al., 2009). These findings may be partly due to the restricted variance resulting from the participant selection procedures. In the present study, our sample’s SD was 7.54 on the standard score metric (half of what is found in the population) whereas SDs of reading comprehension measures ranged from 21 to 276 in a variety of score metrics in the reviewed studies. Additionally, the reading comprehension measure used in this study was a sentence-level cloze format test. This format is different from previous research used text-level reading comprehension tests (Conlon et al., 2006; Katzir et al., 2009; Proctor et al., 2014). Thus, future studies may employ reading measures sensitive to detecting small differences among struggling readers and with varying formats.

Fourth, the strength of relations between performance goals and reading outcomes were not strong enough to be statistically significant. We note that the domain of reading was not emphasized at the item-level. Because achievement goals are also domain-specific, we would have found more salient results if we were to modify individual items to reference specific reading tasks.

Lastly, we acknowledge that perceived competence may not be the only moderator of the effects of performance goals on achievement (e.g., Barron & Harackiewicz, 2001; Cho et al., 2011). Barron and Harackiewicz proposed multiple goal perspectives elaborating on the synergistic effects of having both high mastery and performance-approach goals. Thus, understanding the effects of multiple goals in struggling readers with person-centered modeling approach would be another area of future research (Wormington & Linnenbrink-Garcia, 2017).

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