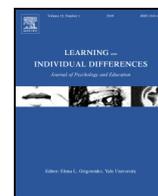




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Motivation for reading among struggling middle school readers: A mixed methods study

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ABSTRACT

Employing a mixed methods design, we explore motivation for reading comprehension (RC) among 112 struggling middle school readers at two sites, one semi-urban and one urban. Data sources included student self-reported reading motivation surveys, a standardized reading comprehension assessment, and a random sample of 44 1-on-1 student reading motivation interviews. Hierarchical linear modeling was used to model growth in reading comprehension and assess the contribution of three dimensions of reading motivation - self-efficacy, intrinsic, and extrinsic motivation - to intercepts and slopes of reading comprehension. Student interviews were also coded for the presence or absence of these three motivation constructs. Although initial HLM and interview analyses were done concurrently, follow-up analyses were conducted using each data technique based on initial findings from the other. Three main findings emerged. First, quantitative results revealed 1) a significant main effect of self-efficacy on initial RC status; 2) paradoxical site differences such that the semi-urban site's students had significantly higher RC scores, while the urban site's students had significantly higher motivation scores. Explanatory qualitative analyses of interview data further revealed that 3) the quantitative effect of self-efficacy predicting RC can be better explained through qualitative findings that struggling readers hold different motivational beliefs (which impact them differently) depending on learning environment.

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1. Introduction

Motivation for reading is a complex construct, challenging to target as an object of both study and instruction. The majority of motivational research is cross-sectional and relies heavily on group-administered survey data and their covariances with reading achievement indicators (e.g. [Mucherah & Herendeen, 2013](#); [Unrau & Schlackman, 2006](#); [Wang & Guthrie, 2004](#)). However illuminating, these studies often fail to use student voices to explore motivation (though see [Guthrie et al., 2007](#) for an exception). Additionally, there has been an increasing call to further address reading motivation among populations such as students with special needs, and students more broadly categorized as “struggling” readers ([Lau & Chan, 2003](#); [Logan & Medford, 2011](#); [Proctor, Daley, Louick, Leider, & Gardner, 2014](#)).

The aim of this mixed methodological study, focused on struggling readers, was to triangulate standardized, longitudinal reading performance, reading motivation survey data, and semi-structured motivation interviews in order to: 1) explore the developmental relationship

between motivation and reading comprehension; and 2) characterize the nature of students' motivation to read.

1.1. Motivation theory

Under the expectancy-value model of motivation (e.g., [Eccles & Wigfield, 2002](#); [Wigfield & Tonks, 2002](#)), “expectancy” refers to students' beliefs about how capable they consider themselves of completing a task successfully ([Eccles & Wigfield, 2002](#); [Pintrich & Schunk, 2002](#); [Wigfield & Tonks, 2002](#)); while “value” refers to the reasons why students might be inclined to do a given task ([Eccles & Wigfield, 2002](#); [Pintrich & Schunk, 2002](#)). Research has found that students' expectancy beliefs about their own abilities are closely related to academic achievement, and that the value students tend to place on learning better predicts their academic choices ([Pintrich & Schunk, 2002](#)). Following established conventions in the motivation literature, we operationalize the expectancy-value model using three core constructs: self-efficacy, intrinsic motivation, and extrinsic motivation.

Self-efficacy refers to students' beliefs about their capabilities to apply knowledge and skills to academic tasks at designated levels of difficulty ([Bong, 2001](#); [Schunk, 1989](#)). Self-efficacious students demonstrate higher convictions for being able to successfully perform

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academic tasks (Bong & Skaalvik, 2003), and are more likely to work hard, persist longer in the face of difficulty, and achieve academically (Bandura, 1997; Schunk & Miller, 2002; Schunk & Zimmerman, 2007). While task value is multi-faceted (see: Eccles & Wigfield, 2002), we narrow to two traditionally studied aspects: intrinsic and extrinsic motivation. Intrinsically motivated readers are internally driven to engage with text, placing value on reading through: a) inherent curiosity about reading itself; b) a perception that reading is important for its own sake; and c) personal engagement with the topic of a given text (Guthrie, Coddington, & Wigfield, 2009; Lee & Zentall, 2012; Logan, Medford, & Hughes, 2011). Extrinsic motivation is “a focus on getting good grades and pleasing others” (Pintrich, 1999, p. 466). It involves completing tasks to comply with school rules/expectations, or (as critical in shaping perceived task value) because students believe task completion will be of future instrumental value.

These dimensions are analogous to (though not synonymous with) the perceived internalized value of a task, that is, enjoyment and subjective interest (i.e., intrinsic), as well as the utility value, specifically the perceived relationship between the task and progress towards one's goals (i.e., extrinsic). We focus on these dimensions in addition to self-efficacy because of the robustness of these constructs as operationalized indicators of motivation, and because of the developmental relationships between them (Wigfield & Guthrie, 1997). Students' experiences of efficacy in reading likely shape their perceived values and related intrinsic and extrinsic motivations (Eccles & Wigfield, 2002).

1.2. Associations between motivation and reading comprehension

Research using the expectancy–value model of motivation has found self-efficacy (or perceived competence) to be predictive of scores on standardized measures of reading comprehension in middle school (Mucherah & Yoder, 2008; Proctor et al., 2014), particularly among older students (Chapman & Tunmer, 1995). However, contradictory findings have also been published (Anmarkrud & Bråten, 2009; Mucherah & Herendeen, 2013). When considering intrinsic and extrinsic motivations as analogs for value, the extant literature converges on a generally positive relationship between intrinsic motivation and reading comprehension (e.g. Becker, McElvany, & Kortbruck, 2010; McGeown, Norgate, & Warhurst, 2012; Schaffner & Schiefele, 2013; Taboada, Tonks, Wigfield, & Guthrie, 2009; Wang & Guthrie, 2004). With few exceptions (e.g. McGeown et al., 2012), research has suggested a negative association between extrinsic motivation and reading comprehension (Becker et al., 2010; Wang & Guthrie, 2004). However, these trends do not necessarily hold for diverse student backgrounds and profiles (Guthrie et al., 2009; Proctor et al., 2014; Unrau & Schlackman, 2006). Researchers have investigated possible differences in students' motivation depending on reading setting (i.e. in or outside of school; Neugebauer, 2013), as well as the possibility that motivation impacts comprehension differentially depending on student reading ability (Klauda & Guthrie, 2014; McGeown, Duncan, Griffiths, & Stothard, 2015; McGeown et al., 2012). Inconsistencies in findings across this relatively limited research base suggest a need for continued investigations.

1.3. Motivation and reading comprehension: means of data collection

Expectancy-value research on the relationship between motivation and reading comprehension tends to rely on a limited number of methodological approaches. In the most common practice, comprehension is operationalized by standardized reading test performance, and a quantitative assessment of motivation (typically a self-report questionnaire) serves as a predictor for comprehension, net other predictors in a regression model.

However, self-report quantitative measures are unlikely to sufficiently explore the complexities of the interrelationship between the three core constructs of interest. Even the Motivation for Reading

Questionnaire (MRQ; Wigfield & Guthrie, 1997), an instrument widely used to measure reading motivation (e.g. De Naeghel, Van Keer, Vansteenkiste, & Rosseel, 2012; Guthrie, Hoa, Wigfield, Tonks, & Perencevich, 2005; Lau & Chan, 2003; Lee & Zentall, 2012; Mucherah & Herendeen, 2013; Mucherah & Yoder, 2008; Proctor et al., 2014; Schiefele, Schaffner, Möller, & Wigfield, 2012; Unrau & Schlackman, 2006; Wang & Guthrie, 2004), has been subject to inquiry. Watkins and Coffey (2004) found that the subscales proposed in previous research did not “adequately fit the MRQ data” (p. 112) in their studies, and raised construct validity questions about the measure. Wigfield, Guthrie, Tonks, and Perencevich (2004) acknowledged some of Watkins and Coffey's concerns, agreeing “that further work assessing the dimensionality of children's reading motivation needs to be done” (p. 301).

Others have expressed the need for more intricate measures of motivation (Becker et al., 2010; McGeown et al., 2012), calling for research into the relationship between motivation and reading comprehension to include reading log data (Neugebauer, 2013, 2014) as well as qualitative components (Guthrie et al., 2007; Nolen, 2007; Schiefele et al., 2012). Qualitative research has been useful in understanding the complexities of reading motivation among adolescents (e.g. Chandler, 1999; Love & Hamston, 2004), including those who struggle with reading (Ivey, 1999; Smith & Wilhelm, 2002).

Guthrie et al. (2007) conducted a mixed-methods investigation of motivation and its relationship to reading comprehension among high, average and low-ability readers. In addition to a standardized indicator of reading comprehension (i.e., the Gates-MacGinitie, GM; MacGinitie, MacGinitie, Maria & Dreyer, 2002) and the MRQ (Wigfield & Guthrie, 1997), the authors gathered information from students' written responses to self-selected expository passages, and semi-structured student interviews and teacher reports of student engagement. While this study focused on situated motivation, it is worth noting that the statistical significance of different motivation constructs varied depending on data source. For example, MRQ constructs of intrinsic motivation and self-efficacy were not predictive of comprehension growth. However, when using quantified (via coding procedures) motivation constructs gained from interview data (i.e., interest, involvement, efficacy, choice, and social), interest, involvement, and choice were statistically significant predictors for comprehension performance. They explained an additional 12%, 22%, and 12% of variance, respectively (all $ps < 0.01$), even after controlling for pre-test reading comprehension performance. These findings suggest the importance of mixed methodological approaches when studying the phenomenon of motivation and operationalizing its constructs.

1.4. The present study

Following Guthrie et al. (2007), but focusing solely on struggling readers, the present study uses a mixed methods approach to examine reading motivation and its relationship with reading comprehension. Multiple strands of data collection were intended to address related aspects of our research questions (Teddlie & Tashakkori, 2009):

- RQ1: To what extent are components of motivation, as measured by a self-report questionnaire, reflected in initial status and growth in reading comprehension among struggling middle school readers over a one-year academic period?
- RQ2: How are components of motivation (i.e., intrinsic, extrinsic, self-efficacy) reflected in student discussion of their own reading experiences?
- RQ3: What relationships emerge between students' responses to the self-report questionnaire, and their descriptions of their own reading motivation and reading experiences?

We employed parallel mixed data analysis techniques to integrate inferences from qualitative and quantitative data sources (Teddlie &

Tashakkori, 2009), producing a robust picture of reading motivation among a sample of struggling middle school readers.

2. Method

2.1. Setting and participants

Our sample included 112 middle school students from two schools in the Northeast United States. North Middle School ($n = 41$)¹ is a Title I, Targeted Assistance middle school (grades 7–8) located in a semi-urban district; 29.4% of its students were eligible for free or reduced price lunch, and 0.6% were classified as English Language Learners (ELLs). Kennedy Academy ($n = 71$) is a Title I, School Wide middle and high school (grades 6–12) in an urban district; during the 2013–2014 school year, 89.6% of its students were eligible for free or reduced price lunch, and 27.2% were classified as ELLs.

Among our overall sample, students were from grades 6, 7, and 8, with 24, 67, and 21 students in each grade, respectively. 22 students (19.6%) were identified as ELLs, 87 (77.7%) received free or reduced-price meals, and 64 (57.1%) had an Individualized Educational Program (IEP). All students ($n = 112$) were enrolled in a remedial reading class and were part of the quantitative analysis. From this larger group, a subset ($n = 44$) was randomly selected to be interviewed. Of the subsample, 12 (27.3%) were identified as English Language Learners (ELLs), 35 (70.5%) received free or reduced meals, and 25 (56.8%) had an IEP. One-way Analysis of Variance (ANOVA) revealed no mean differences between interviewed and non-interviewed students on reading comprehension or any of our motivation constructs of interest (F range 0.013–1.61, all $ps > 0.05$).

2.2. Data sources

Detailed below are the data sources, gathered to answer our research questions.

2.2.1. Reading comprehension

Reading comprehension was assessed using the GM (MacGinitie et al., 2002), a 35-minute timed, group-administered assessment that presents students with short passages and corresponding multiple-choice questions. It was administered, scored, and double scored by a team of trained researchers; all raw scores were converted to standard scores and percentile ranks. The local test-retest reliability coefficient for this sample was 0.852.

2.2.2. Motivation

Motivation was assessed using the MRQ (Wigfield & Guthrie, 1997), a student-report questionnaire. The MRQ presents students with a series of reading-related statements (e.g., *It is very important to me to be a good reader*), asking students to select a corresponding response ranging from 1 (*very different from me*) to 4 (*a lot like me*). The MRQ consists of 11 subscales. Researchers have used a range of approaches to collapse these subscales, commonly collapsing the 8 most frequently used subscales to create super scales of intrinsic and extrinsic motivation (e.g., Guthrie et al., 2005; Lee & Zentall, 2012) or creating additional research-based motivation subscales (De Naeghel et al., 2012; Lau & Chan, 2003). In line with our own perspectives on motivation, and drawing from previous research (see Guthrie et al., 2005; Lee & Zentall, 2012; Proctor et al., 2014), we derived 3-superscales: Intrinsic Motivation, Extrinsic Motivation, and Self-Efficacy. Table 1 provides an overview of the subscales comprising each superscale; Appendix A provides specific MRQ items associated with each subscale.

Our interview protocol consisted of questions aligned with the three MRQ constructs: intrinsic motivation, extrinsic motivation, and self-

Table 1
Cronbach's alpha for superscales and related subscales items from the MRQ.

Superscale	Subscale	Relevant items	α
Self-efficacy & challenge	Self efficacy	7, 15, 21	0.797
	Challenge	2, 5, 8, 16, 20	0.743
Intrinsic			0.820
	Curiosity	4, 10, 14, 19, 25, 29	0.736
	Involvement	6, 12, 22, 30, 33, 35	0.633
Extrinsic	Importance	17, 27	0.785
			0.799
	Recognition	18, 28, 37, 43, 47	0.818
	Grade	3, 38, 50, 53	0.671
	Competition	1, 9, 41, 44, 49, 52	0.764
	Compliance	23, 34, 36, 46, 51	0.543

efficacy. To accommodate participants with diagnosed disabilities, visual aids were utilized; for example, when asked “How do you feel about reading?” students were presented with a number line that said “I love to read/I like to read/Reading is OK/I don't like to read at all” (See Appendix B for interview questions).

2.3. Procedure

Alternate forms (S and T) of the GM were administered at three different time points during the 2013–2014 academic year (fall, winter, spring), while the MRQ was group administered in the fall of 2013. Trained research assistants conducted interviews individually with a total of 43 students; each interview lasted approximately 15–30 min.

2.4. Data analysis

We engaged in parallel mixed data analysis (see Fig. 1 for our study design), including statistical analysis of quantitative data, and thematic analysis of qualitative data, followed by integration of findings into meta-inferences (Teddlie & Tashakkori, 2009). In the process of conducting such analysis, “although the two sets of analyses are by design independent, in practice the investigators might allow their knowledge of one to shape their analyses of the other” (Teddlie & Tashakkori, 2009, p. 266). Thus, decisions about how to proceed with quantitative and qualitative analyses were made iteratively (Teddlie & Tashakkori, 2009).

2.4.1. Quantitative analytic plan

Quantitative analyses were designed to address our research questions about initial status and growth in reading comprehension over the academic year, in relation to our target motivational constructs.

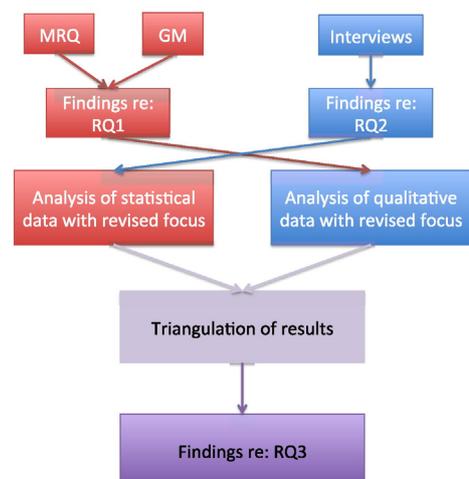


Fig. 1. Visual representation of study design.

¹ All school names are pseudonyms.

We used HLM 7 Hierarchical Linear and Nonlinear Modeling (Raudenbush, Bryk, & Congdon, 2010) to develop longitudinal growth models where Level 1 represented intra-individual differences in change over time and initial status and Level 2 represented student-level differences in change over time and initial status (Raudenbush & Bryk, 2002; Singer & Willett, 2003). For Level 1, time, we used extended scores from the GM with time coded such that interpretation of the intercept would refer to the beginning of the academic school year (Fall). Level 2, student, covariates were age, SES, and site while Level 2 main predictors (i.e., intrinsic motivation, extrinsic motivation, self-efficacy) were grand-mean centered. Non-significant Level 2 predictors were dropped from the model; we also tested for site-by-motivation interactions. The full combined Level 1 and Level 2 equation (without interaction terms) was as follows:

$$Y_{it} = \beta_{01}(Age) + \beta_{02}(SES) + \beta_{03}(Site) + \beta_{04}(SelfEfficacy) + \beta_{05}(Intrinsic) + \beta_{06}(Extrinsic) + \beta_{10}(time) + \beta_{11}(time)(Age) + \beta_{12}(time)(SES) + \beta_{13}(time)(Site) + \beta_{14}(time)(SelfEfficacy) + \beta_{15}(time)(Intrinsic) + \beta_{16}(time)(Extrinsic) + r_{0i} + r_{1i}(time) + e$$

2.4.2. Qualitative analytic plan

The first author identified codable, motivation-related statements in the transcribed interviews. Based on the work of Urdan and Mestas (2006), we defined motivation-related statements as our unit of analysis. Such statements indicated the presence (or absence) of motivation as currently defined in the literature. We used a researcher-generated list of predetermined primary codes to categorize statements that indicated orientation towards or away from one of the three categories of interest (intrinsic motivation, extrinsic motivation, and self-efficacy), a process known as Hypothesis Coding (Saldaña, 2013). We used Subcoding Techniques “to detail or enrich the entry” (Saldaña, 2013, p. 77), specifying the particular way each statement met criteria for the primary code (for example, statements indicating self-efficacy were sub-coded as indicating self-confidence, perseverance, or willingness to take on challenge). Our initial codes approximated the MRQ subcategories; additional codes were subsequently added (see Section 3.2.2; Appendix C provides a final list of codes). Statements indicative of more than one type of motivation (e.g. presence of intrinsic motivation and presence of self-efficacy) were identified (Simultaneous

Coding; Saldaña, 2013). The first, second, and fifth authors separately coded all student interview statements. Afterwards, the three coders met to resolve discrepancies until they reached consensus. Inter-rater agreement averaged 76.25% per interview, with a low of 30% and a high of 100%.

Once coded, statements were entered into Dedoose 5.0.11 (SocioCultural Research Consultants, 2014). They were separated into distinct documents first by major motivation category (intrinsic, extrinsic, self-efficacy), then by presence or absence. For example, the statement “I like to read because, like, I get to learn, like, new things that I never knew” was coded as “intrinsic present”, while the statement “I don't like to read. It's boring” was coded as “intrinsic absent”. This resulted in six documents (intrinsic present, intrinsic absent, extrinsic present, etc). Within each, statements were sorted according to student ID number (see Table 2 for examples).

3. Results

3.1. RQ1

Descriptive statistics for reading comprehension and motivation disaggregated by site are presented in Table 3. ANOVA comparisons revealed that North significantly outperformed Kennedy on reading comprehension at all three time points (F range = 10.13–59.32, all ps < 0.001). In contrast, Kennedy had significantly higher levels of motivation across all three motivation constructs of interest (F range = 13.57–48.50, all ps < 0.001). Thus, where North demonstrated higher reading performance, Kennedy demonstrated higher motivation to read. Given the significant site differences, site was entered as a Level 2 control.

Bivariate correlations among all variables are presented in Table 4; correlations reported above the diagonal are partialled for Site. All reading comprehension time points correlated strongly and significantly with one another, as did the three constructs of motivation. Constructs of motivation did not correlate significantly with reading, save for weak and significant negative correlations between all motivation constructs and Time 3 reading comprehension. A similar pattern of strong, significant correlations within the three motivation constructs and within the reading comprehension time points held, even after

Table 2 Sample of coded motivation statements.

Motivation type	ID	Code ^a	Excerpt
Intrinsic - present	1013	1ab	Like, if I have – or like, if there's something on [READING PROGRAM] that I would read – like, like reading, I would get on [TEACHER]'s bookshelf, and I'll read it. Like, if it matches up the – with, like, the characters, or something, then I'll read it, and it'll like fa- and like, I would like, read it on [READING PROGRAM]. Then like, when I want to find out more, I'd read the rest of the book.
		1c	I'm happy I can read because the reading is just like fun. It's relaxing, and it's nice and quiet.
		1c	I just like to read, and then I feel good when I read and stuff, because it's kind of relaxing. Yeah. I feel like, about myself when I read, because reading's nice, and calm, and stuff.
	1014	1ab	Mysteries, drama, um, school, um, realistic things that happen to the stars, stuff like that. Q: OK. A: And books that are very good-selling.
		1c	So that, like, when they're stuck, or they need help, you could help them.
		6	Reading's just bored.
Intrinsic - absent	1009	6	Reading is kind of – kind of hard and boring.
	1031	6	I'm not really, like, a big fan of reading.
	1004	2c	I want to get good grades.
Extrinsic - present	1006	2e	Homework can actually help me with – Q: Hm ... A: – other stuff, like getting a job, and stuff like that.
	1006	5a	If you like me reading a challenging book, then that's you – Q: Hm ... A: – and that's your opinion, but I don't really like, care.
Extrinsic - absent		5b	I don't really care about my scores.
	1032	5a	It's not other people's opinion that you're not a good readers. It's like, your opinion.
	2007	3c	I would have to, like, think about it, like, more than I do if it's something easier to read. Q: Does that – it – does that get you, um, feeling good? Does it get you feeling bad? Does it – A: Yeah, it makes me feel good.
3c		I just, like, like reading, like, hard stuff, just asking questions.	
1063		3a	I feel good about it. I think I can do it. Because I read a lot, so I just try on it, then I think I can do it.
Self-efficacy - present	1063	3a	It doesn't take me a long time to finish a book.
		3a	To read something challenging, I think like just to read it would just make like, be a little confusing by what I read. Because of like, some of the words I wouldn't understand inside of a certain book.
		4a	A little nervous.
Self-efficacy - absent	1059	4a	Q: A little nervous? And can you tell me why? A: Well, like first, like I don't like, usually like, read challenging books.
		4c	

^a For a list of codes, please see Appendix C.

Table 3
Reading comprehension and motivation mean scores (SD) across all waves disaggregated by site.

	Sample (n = 112)	Site 1 (Kennedy) (n = 71)	Site 2 (North) (n = 41)
Reading comprehension wave 1			
Raw score	16.56 (7.10)	15.35 (6.30)	18.61 (7.93) ^a
Percentile rank	17.68 (16.77)	13.74 (13.15)	24.32 (20.01) ^a
Extended scale score	485.70 (27.43)	479.54 (26.02)	496.07 (26.89) ^a
Reading comprehension wave 2			
Raw score	18.27 (7.0)	15.79 (6.32)	22.08 (6.25) ^a
Percentile rank	22.96 (18.32)	15.73 (15.06)	33.97 (17.56) ^a
Extended scale score	494.13 (28.29)	484.03 (27.94)	511.49 (19.14) ^a
Reading comprehension wave 3			
Raw score	18.73 (8.77)	14.74 (7.01)	25.49 (7.21) ^a
Percentile rank	21.13 (19.65)	11.73 (12.30)	37.47 (19.41) ^a
Grade equivalent	5.07 (2.02)	4.14 (1.48)	6.70 (1.82) ^a
Extended scale score	491.62 (32.94)	476.53 (28.92)	517.82 (20.87) ^a
Motivation scales			
Self-efficacy & challenge	2.70 (0.668)	2.97 (0.564) ^b	2.24 (0.538)
Intrinsic motivation	2.84 (0.585)	3.04 (0.525) ^b	2.53 (0.546)
Extrinsic motivation	2.92 (0.559)	3.07 (0.471) ^b	2.68 (0.605)

Note: Site 1 = Kennedy Academy; Site 2 = North Middle School.

^a Site 2 significantly outperformed Site 1.
^b Site 1 significantly outperformed Site 2.

controlling for site. However, when controlling for site, weak, albeit positive correlations were found between Self-Efficacy and Reading Comprehension at Time 1 and Time 2.

We next fit the growth trajectory for reading comprehension using the unconditional means model. Table 5 displays the fixed effects, variance components, deviance statistics, and pseudo R² for the unconditional means and unconditional growth model. The random effect for time, however, was not significant, suggesting that while time was a significant predictor the variance in growth over time does not vary between individuals and should therefore be fixed. However, deviance hypothesis testing suggested that the inclusion of time as a random slope provided a significantly better fit ($\chi^2 = 14.73, p < 0.01$).

Table 6 displays our Level 2 model building process. Model 1 adds a control for age and SES. In Model 1, SES was a significant predictor for reading comprehension at both initial status ($\beta_{00} = -23.30, p < 0.001$) and across time ($\beta_{10} = -6.71, p < 0.01$). The next model added site as a control. Site was found to be a significant predictor for reading comprehension at both initial status ($\beta_{03} = -11.24, p < 0.10$) and across time ($\beta_{13} = -11.69, p < 0.001$), such that students attending Kennedy not only started the school year with a lower predicted mean, but students' reading growth trajectories were significantly less steep. While effects for age and SES remained significant for initial status, in Model 2 site was the only significant predictor for time. Model 3 added our three time-invariant motivation variables with a significant main effect of self-efficacy ($\beta_{04} = 11.33, p < 0.05$).

Table 4
Correlation matrix for reading and motivation.

	1.	2.	3.	4.	5.	6.
1. Reading comprehension Time 1	1	0.647 ^{***}	0.716 ^{***}	0.225 [*]	0.090	0.119
2. Reading comprehension Time 2	0.669 ^{**}	1	0.614 ^{***}	0.242 [*]	0.072	0.096
3. Reading comprehension Time 3	0.725 ^{**}	0.712 ^{**}	1	0.351	0.500	0.674
4. Self-efficacy & challenge	-0.032	-0.196	-0.295 ^{**}	1	0.630 ^{***}	0.645 ^{***}
5. Intrinsic motivation	-0.039	-0.206	-0.308 ^{**}	0.752 ^{**}	1	0.664 ^{***}
6. Extrinsic motivation	0.016	-0.196	-0.220 [*]	0.704 ^{**}	0.729 ^{**}	1

Note: Bivariate correlations partialled for site reported above diagonal.

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 5
Unconditional means and growth models for reading comprehension.

	Unconditional means	Unconditional growth
Fixed effects		
Intercepts	490.18 (2.49) ^{***}	486.94 (2.47) ^{***}
Time		3.36 (1.13) ^{***}
Random effects		
Intercept	596.20 ^{***}	469.14 (21.65) ^{***}
Time		9.99 (3.16)
Residual variance	285.98	266.36 (16.32)
Deviance statistic	2927.14	2912.41 ^{**}
Pseudo R ²		3.76% [*]

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Models 4–6 tested site-by-motivation interactions. Model 3 proved to be our best fitting model with a main effect of age ($\beta_{01} = 0.455, p < 0.001$), SES ($\beta_{02} = -15.22, p < 0.05$), site ($\beta_{03} = -19.94, p < 0.01$), and self-efficacy ($\beta_{04} = 11.33, p < 0.05$) on initial status. Time was also significant ($\beta_{10} = 8.76, p < 0.001$) with site as a significant predictor for time ($\beta_{13} = -9.37, p < 0.001$). Fig. 2 displays the growth trajectories disaggregated by site and self-efficacy.

3.2. RQ2

This section includes analysis of each motivation construct, and specific examples of how students who exhibited that construct discussed reading.

3.2.1. Intrinsic reading motivation

At both sites, more than half of interviewees (11 out of 13 at North; 17 out of 31 at Kennedy) made statements demonstrating curiosity about reading and/or involvement with text. Students described reading because of an interest at a moment in time (e.g. "Reading's actually OK, because um, I usually, at night, I'll look in um, my soccer, um, handbook. Because I'm a ref"), and because of long-standing, deep personal beliefs or feelings ("I love to read ... [because] you get to sit down, and relax, and express yourself more"). One student explained, "I like to read ... because it, like, um, like, you can imagine things in your mind while you're reading. Like, you can like, pretend like you're actually there".

3.2.2. Extrinsic motivation for reading

Extrinsic motivation was most frequently expressed in terms of reading to improve grades/test scores ("If I don't learn how to read, then I won't, like—my grades won't be good") or whether or not students received positive reinforcement for reading ("It's extremely important because I like to see my parents, like, happy for me"). We created a subcode in our schema to reflect a type that did not correspond to any MRQ category: reading as a means for instrumental gain ("You have to use [reading] when you're interviewing for a job, or when they want you to do something in your job").

Table 6
Growth models for reading comprehension with motivation.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Fixed effects						
Intercept	504.69 (4.81)***	503.33 (4.86)***	510.90 (4.95)***	507.34 (5.36)***	510.45 (4.92)***	508.08 (4.88)***
Age	0.479 (0.222)*	0.571 (0.227)*	0.455 (0.203)*	0.456 (0.203)*	0.441 (0.2020)*	0.488 (0.201)*
SES	−23.30 (5.46)***	−16.19 (6.72)*	−15.22 (5.94)*	−14.44 (5.89)*	−14.48 (5.82)*	−15.71 (5.85)**
Site		−11.24 (5.88) [†]	−19.94 (6.51)**	−17.25 (6.38)**	−19.06 (6.28)**	−16.30 (6.31)*
Self-efficacy			11.33 (5.59)*	4.17 (5.63)	10.46 (4.07)*	4.32 (4.22)
Intrinsic motivation			−3.30 (5.80)	−	−	−
Extrinsic motivation			3.11 (6.03)	−	−	−
Self-efficacy * site				7.20 (7.20)	−4.71 (5.32)	−
Intrinsic motivation * site						10.88 (6.13)
Extrinsic motivation * site						
Time	8.76 (2.31)***	10.10 (2.26)***	9.44 (1.97)***	10.99 (1.75)***	10.98 (1.75)***	10.98 (1.75)***
Age	−0.293 (0.112)**	−0.181 (0.112)	−	−	−	−
SES	−6.71 (2.64)*	1.05 (3.18)	−	−	−	−
Site		−11.69 (2.31)***	−9.37 (2.68)**	−11.91 (2.21)***	−11.92 (2.21)***	−11.89 (2.21)***
Self-efficacy			−1.05 (2.65)	−	−	−
Intrinsic motivation			−4.16 (2.75)	−	−	−
Extrinsic motivation			1.20 (2.86)	−	−	−
Random effects						
Intercept	362.48 (77.84)***	370.79 (79.01)***	345.74 (76.62)***	343.18 (76.32)***	338.80 (75.35)***	331.22 (73.96)***
Time	3.63 (0.000)	0.147 (0.000)	0.309 (0.000)	0.314 (0.000)	0.447 (0.000)	0.428 (0.000)
Residual	362.48 (77.84)***	237.03 (23.36)***	235.09 (23.17)***	237.09 (23.17)***	236.61 (23.10)***	236.30 (23.04)***
Deviance statistic (AIC)	2863.26	2823.96	2790.84	2811.46	2812.26	2809.66

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.
[†] $p < .10$.

3.2.3. Self-efficacy for reading

Interview statements were identified as indicating the presence or absence of reading self-confidence (e.g. “I feel good because I can do it, and I know I can do it” vs. “I don’t know how to read that much and it’s hard”); presence or absence of reading perseverance (e.g. “If you keep working on stuff that you read in, like, ELA, then it can help you more” vs. “If like part of it’s not interesting, then I just like give up on the whole thing”); and whether or not the student embraces challenging reading material (e.g. being “excited” for reading challenges “because it’s for me to read challenging things makes me a better reader” vs. saying that, when presented with challenges, “I feel like I just don’t want to do it”). Statements indicating that students did not feel particularly self-efficacious were more prevalent than statements indicating feeling of capability. Eighteen students made statements indicative of strong self-efficacy beliefs, while 31 made statements indicative of a lack of self efficacy beliefs. However, more than a quarter (12 of 43 students) made statements indicative of strong reading self-efficacy beliefs, as well as statements indicative of a lack of reading self-efficacy beliefs.

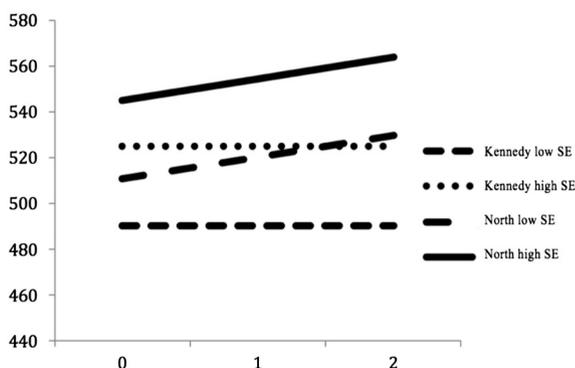


Fig. 2. Growth trajectories for reading comprehension disaggregated by site and self-efficacy.

3.3. RQ3

Given the RQ2 findings regarding the particular salience of certain elements of extrinsic motivation, we transformed our qualitative data into numerical codes that could be statistically analyzed, a process called quantizing, so as to engage in further analysis (Jang, McDougall, Polton, Herbert, & Russell, 2008). As indicated in Table 7, the total number of incidences of interview statements indicating the presence or absence of each particular motivation subcode was linked to its related MRQ category (note that the “instrumental value” code could not be linked to any MRQ category). We found that students made 45 statements regarding grades and 39 regarding recognition, but only 9 statements regarding competition and 14 regarding compliance. Checking for related patterns in the MRQ data for the larger sample, we found 58 instances of MRQ scores for grades/recognition being higher than competition/compliance, and 34 instances of MRQ scores for competition/compliance being higher than grades/recognition, suggesting that grades/recognition may be an especially salient element of extrinsic motivation among this sample of struggling readers.

We referred back to the MRQ subscales scores for “grades” and “recognition” and created a new extrinsic superscale which only included these two subscales ($\alpha = 0.808$); re-running our growth model with the new extrinsic superscale, we found it did not alter the original analyses (i.e., all predictors from RQ1 either retained their statistical significance or null effects). A final model included the “grades” and “recognition” superscales as separate predictors; in this iteration neither construct was significantly predictive of the intercept or slope (see Table 8).

Because site had an unexpectedly substantial effect in the quantitative analysis, we compared student interview responses across sites, engaging in similar quantizing procedures (Jang et al., 2008). Comparable proportions of both North and Kennedy students made statements indicating the presence and/or absence of intrinsic and extrinsic motivation; these proportions remained consistent among each of the sub-constructs. Statements indicating self-efficacy presence (i.e., self-

Table 7
Statements of motivation.

Type of motivation	Code	Incidences	Total incidences for group	Definition	Related MRQ category
Extrinsic motivation	2a	23	39	Positive reinforcement	Recognition
	5a	16		NOT positive reinforcement	
	2b	9	9	Competition	Competition
	5b	1	45	NOT test	Grade
	2c	44		Grades & tests	
	2d	14	14	Compliance	Compliance
	2e	38	38	Instrumental value	Not in MRQ
	Extrinsic total		145		
Intrinsic motivation	1ab	57		Curiosity about reading/involvement with text	Curiosity/involvement
	1c	20		Personal fulfillment	Importance
	Intrinsic total		77		
Self-efficacy	3a	9	53	Self-confidence	Self-efficacy
	4a	44		Self-doubt	
	3b	9	11	Perseverance	Challenge - item 8
	4b	2		NOT perseverance	
	3c	11	14	Challenge	Challenge - item 2, 5, 16, 20
	4c	3		Avoids challenge	
	Self-efficacy total		78		

confidence, perseverance, and interest in challenge) were also distributed similarly across the school sites. However, among statements of self-efficacy concerns, two notable site-difference trends emerged.

First, both Kennedy and North students made a similar proportion of statements exhibiting self-doubt and the belief that hard work and persistence would not pay off, but only Kennedy students made statements coded as avoiding challenge (i.e., actively avoiding situations in which he/she would have to read something difficult). When asked how he felt when presented with challenging reading materials, a Kennedy student explained, “I feel like I just don’t want to do it ... because, I don’t know, just makes me not want to do it”.

Another self-efficacy site pattern concerned students’ description of apprehensions about their own abilities. 10 of the 21 Kennedy students who made statements demonstrating a lack of self-efficacy beliefs emphasized decoding worries (i.e. fears about incorrectly reading “words”), compared to 3 of 10 students from North. As one Kennedy

student explained, “I get scared, because, like, when you’re reading so good, and you come across—upon a word that you don’t know and then you don’t want to say it, because you don’t want to look stupid in class. So that’s why I never read”. By contrast, students at North made more statements about comprehension (e.g. “I forget what happened, because I don’t really understand it”).

4. Discussion

The current study adds to the literature on reading and motivation by examining the relationship between these two constructs among a population of struggling middle school readers. Similar to Guthrie et al. (2007), we employed the GM, MRQ, and semi-structured interviews to examine the relationships between three subtypes of motivation, and reading comprehension performance.

4.1. Self-efficacy: degree of intra-individual variability, relation to reading comprehension

We found a significant main effect for self-efficacy on the initial status of reading comprehension, such that a student’s GM score was predicted to be 11.33 points higher for each self-efficacy point on the MRQ. That is, students who were more self-efficacious were predicted to have higher reading comprehension scores at the beginning of the academic year. Similar to previous research (e.g. Guthrie et al., 2007), however, self-efficacy was not predictive of growth. There was a positive association between students’ self-efficacy beliefs and standardized reading comprehension scores. Interview data provided a more nuanced understanding of students’ views of themselves as readers and their expectancies in reading tasks. More than a quarter of students made statements indicating the presence of self-efficacy beliefs, and statements indicating these beliefs’ absence, suggesting that level of self-efficacy can vary, even within the same student. Future research might investigate whether an individual’s reading self-efficacy beliefs are context-specific (Neugebauer, 2013, 2014).

4.2. Site differences in motivation and reading comprehension

Where some research has suggested a relationship between some aspects of motivation and reading (e.g., intrinsic motivation and reading, Becker et al., 2010; McGeown et al., 2012; Schaffner & Schiefele, 2013; Taboada et al., 2009; Wang & Guthrie, 2004), contrasting patterns at the two sites in this study suggest no overall relationship. Quantitative data suggest that Kennedy demonstrated higher motivation for reading, whereas North demonstrated higher reading performance. Further, site was a significant predictor for both initial status and

Table 8
Model with grades and recognition subscales.

	Model 1	Model 2
	Coefficient (SE)	Coefficient (SE)
Fixed effects		
Intercept	511.76 (5.14)***	508.53 (5.07)***
Age	0.605 (0.225)**	0.627 (0.229)**
SES	−15.86 (6.64)*	−17.07 (6.76)*
Site	−20.56 (6.65)*	−13.77 (6.13)**
Self-efficacy	12.32 (5.24)*	–
Intrinsic motivation	−2.81 (5.83)	–
Extrinsic motivation ^a	1.20 (4.62)	–
Grades		2.74 (4.82)
Recognition		2.87 (3.91)
Time	8.77 (2.42)***	9.49 (2.36)***
Age	−0.174 (0.113)	−0.203 (0.113) ^t
SES	0.465 (5.24)	1.01 (3.20)
Site	−8.81 (3.22)**	−10.65 (2.95)***
Self-efficacy	−1.18 (2.48)	–
Intrinsic motivation	−4.16 (2.78)	–
Extrinsic motivation	1.09 (2.24)	–
Grades		0.610 (2.29)
Recognition		−2.06 (1.87)
Random effects		
Intercept	347.66 (76.82)***	369.34 (79.42)***
Time	0.336 (0.000)	0.201 (0.000)
Residual	233.57 (23.14)***	237.36 (23.47)***
Deviance statistic (AIC)	2787.58	2806.17

^a New construct for extrinsic motivation which only includes grade.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

growth: North students were predicted to perform 19.94 points above their Kennedy peers at the beginning of the school year on the GM, and tended to improve at a rate 9.37 points faster per time point. This negative effect for site held above and beyond SES. Further, while SES was predictive of initial status, it was not predictive of growth, suggesting the important role specific school environment factors can play in students reading comprehension development. Although students at both sites made different kinds of intrinsic and extrinsic motivation statements in similar proportions, statements indicating active avoidance of reading challenges were only present among Kennedy students. When describing their reading self-doubt, Kennedy students were more likely than their North peers to describe concerns in terms of decoding. Further research is warranted into the impact of specific learning environments on the relationship between motivation and reading comprehension among struggling readers.

4.3. Benefits to mixed-methods study of motivation

Our quantitative and qualitative analyses, synthesized together, illustrate the complex interaction of motivation and reading. Kennedy readers' conceptions of reading were constrained to basic text level skills; however, they understood reading as an opportunity to accomplish nuanced goals. In this school, students demonstrate motivation for reading, yet they still struggle to read, and are self-aware of this challenge. Thus, they seek out reading to unpack the complexities of their world, but define reading in terms of low-level skills.

Including student interviews enabled us to move beyond investigating correlations between standardized reading measures and self-report motivation questionnaires. Our interview data indicated the relevance of reading as a skill of instrumental value, aligning with expectancy-value theory's description of tasks of utility value (i.e. tasks that are undertaken in the service of goals but are "less personally central" in and of themselves; Eccles, 2009, p. 83). However, this component is not currently reflected in the MRQ. Given that intrinsic and extrinsic motivation are theorized to exist not as separate ends of the same continuum, but as beliefs that students hold simultaneously to varying degrees (Pintrich & Schunk, 2002), further investigation is warranted into elements of both kinds of motivation. Our data suggest that struggling readers may be motivated to learn to read for instrumental purposes, such as to complete specific job-related tasks. Future surveys would do well to incorporate items that address this element of extrinsic motivation, similar to the "value" items in Klaua and Guthrie (2014)'s self-report survey.

4.4. Limitations

While our mixed-methods approach to examining motivation for reading among a sample of struggling middle school readers provided some interesting results, we acknowledge study limitations. Our sample size was constrained to 112 students who were enrolled in a remedial reading curriculum; our interview sample was further limited to a sub-sample. Previous research has suggested multiple components of motivation. While our perspectives of motivation are also multi-dimensional, we only focused on three constructs of motivation. Further, our data sources for motivation were constrained to student self-report; similarly only one data source was used for reading comprehension, so inclusion of additional sources for these variables is warranted. Additionally, in analyzing site differences, we were constrained to basic data on SES; future research would benefit from additional school level variables such as curriculum, class size and support structures. Finally, all interviews took place in school; interviews in multiple contexts (e.g. home, public library) might have yielded even richer results.

5. Conclusion

This study's site differences on motivation and reading comprehension highlight the important role of school environment factors in student affect and performance, suggesting that educators, particularly in urban school settings, should be cognizant of challenges their students face that are not necessarily ameliorated by high self-efficacy beliefs. The use of mixed methods sheds further light on the importance of a multidimensional approach to understanding student motivation for reading. Independently, neither our quantitative nor qualitative measures could have provided the depth of information that enabled an unpacking of the relationship, or lack thereof, between motivation and reading comprehension among struggling middle school readers. We consider our findings a challenge for researchers to continue seeking ways to better understand reading motivation among members of this population, enabling us to unpack why certain aspects of motivation might impact struggling readers differently in different learning environments.

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Appendix A

Superscale	Subscale	MRQ items
Competence and efficacy beliefs	Self efficacy	I know that I will do well in reading next year. (Item 7) I am a good reader. (Item 15) I learn more from reading than most students in the class. (Item 21)
	Challenge	I like it when the questions in books make me think. (Item 2) I like hard, challenging books. (Item 5) If a book is interesting I don't care how hard it is to read. (Item 8) I usually learn difficult things by reading. (Item 16) If the project is interesting, I can read difficult material. (Item 20)
Intrinsic	Curiosity	If the teacher discusses something interesting I might read more about it. (Item 4) I have favorite subjects that I like to read about. (Item 10) I enjoy reading books about different people in different countries. (Item 14) I read to learn new information about topics that interest me. (Item 19) I like to read about new things. (Item 25) I read about my hobbies to learn more about them. (Item 29)
	Involvement	I enjoy a long, involved story or fiction book. (Item 6) I make pictures in my mind when I read. (Item 12) I read stories about fantasy and make believe. (Item 22) I like mysteries. (Item 30) I read a lot of adventure stories. (Item 33) I feel like I make friends with people in good books. (Item 35)
	Importance	It is very important to me to be a good reader. (Item 17) In comparison to other activities I do, it is very important to me to be a good reader. (Item 27)

(continued)

Superscale	Subscale	MRQ items
Extrinsic	Recognition	My parents often tell me what a good job I am doing in reading. (Item 18)
		I like having the teacher say I read well. (Item 28)
	Grade	My friends sometimes tell me I am a good reader. (Item 37)
		I like to get compliments for my reading. (Item 43)
Competition	I am happy when someone recognizes my reading. (Item 47)	
	I read to improve my grades. (Item 3)	
Compliance	Grades are a good way to see how well you are doing in reading. (Item 38)	
	I look forward to finding out my reading grade. (Item 50)	
Compliance	My parents ask me about my reading grade. (Item 53)	
	I like being the best at reading. (Item 1)	
Compliance	I try to get more answers right than my friends. (Item 9)	
	I am willing to work hard to read better than my friends. (Item 41)	
Compliance	It is important for me to see my name on a list of good readers. (Item 44)	
	I like being the only one who knows an answer in something we read. (Item 49)	
Compliance	I like to finish my reading before other students. (Item 52)	
	I read because I have to. (Item 23)	
Compliance	I do as little schoolwork as possible in reading. (Item 34)	
	Finishing every reading assignment is very important to me. (item 36)	
Compliance	I always try to finish my reading on time. (Item 46)	
	I always do my reading work exactly as the teacher wants it. (Item 51)	

Appendix B. Interview questions

- How do you feel about reading?
 - What do you like about reading? What don't you like?
- If you are interested in something, do you read more about it on your own?
 - If yes/sometimes/maybe, what kinds of things do you read? Examples (if necessary): sports, hobbies, music, history, science
 - Can you give me an example of something you read more about?
 - If no, how do you find out more about things that are interesting to you? Probe examples (if necessary): parents/teacher, internet, tv
- Describe how you feel when you are asked to read challenging materials in school.
- Now I'm going to show you a list of words. Pick the one that best describes how you feel (you can pick more than one, if you want). When we read challenging materials in school I feel _____.
 - Can you tell me about why you chose that/those word(s)?
 - What is it about challenging materials that makes you feel _____?
- You know more about yourself as a reader than anyone else. Think about a word or a couple words that describe who you are as a reader. What word or words would you use? Can you tell me about why you chose that word?
 - How do you know you are a _____ reader?
 - If student cannot provide his/her own word, probe with slide: Here is a list of words that might be good to describe you. Why would you choose to describe yourself as a reader? Can you tell me why

you chose that word? How do you know you are a _____ reader?

- How important is it to you to be a good reader?
 - Can you tell me why you chose _____?
- Is it important that other people think you are a good reader?
 - Can you explain why?
- Is it important to you that your SRI or Lexile score gets better? Why or why not?
- How important is it to you to do all your reading assignments?
 - Can you tell me why you chose _____?

Appendix C

Motivation subtype	Definition
<i>Intrinsic</i>	
1ab: curiosity about reading/involvement with text	<ul style="list-style-type: none"> Seeks opportunities to learn more in another context, expresses thoughts/feelings about the process of constructing meaning Evidence of continued thought/purpose Describes being fully immersed in the world of a story
1c: personal fulfillment	<ul style="list-style-type: none"> Perceives reading as being important to achieving contentment and life satisfaction Demonstrates growth or development, recreational interest in reading
6: lack of curiosity about reading	<ul style="list-style-type: none"> Demonstrates lack of interest in reading to learn more in another context, does not see reading as a means of gathering interesting information
<i>Extrinsic</i>	
2a: positive reinforcement	Seeks approval from others for reading
2b: competition	Measures reading aptitude in comparison to peers
2c: grades & tests	Expresses interest in getting good grades/test scores
2d: compliance	Expresses interest in completing tasks simply because they have been assigned
2e: instrumental value	Sees reading as important to everyday tasks, including basic tasks in the future; practical tasks
5a: NOT positive reinforcement	Expresses lack of interest in others' opinion of reading skills
5b: NOT comparison	Expresses lack of interest in improving grades or test scores
<i>Self-efficacy</i>	
3a: self-confidence	Expresses belief in ability to successfully perform tasks in an academic setting and/or pride in ability to complete tasks/accomplish something
3b: perseverance	Expresses belief that hard work and persistence will pay off
3c: challenge	Requires indication of progress as the result of hard work
4a: self-doubt	<ul style="list-style-type: none"> Seeks opportunities to read things that will be difficult Enjoys and embraces challenging material
4b: NOT perseverance	Expresses lack of belief in own ability to successfully perform tasks in an academic setting
4c: avoids challenge	Expresses lack of belief that hard work and persistence will pay off
4d: avoids challenge	Avoids situations in which he/she will have to read something difficult

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