

The Relationship Between Specific Reading Difficulties and Reading Motivation Dimensions

Elvira Jéldrez^{a*}, Macarena Silva^a, and Kate Cain^b

^a *Center for Advanced Research in Education, Institute of Education, Universidad de Chile, Santiago, Chile*

^b *Department of Psychology, Lancaster University, Lancaster, UK*

* Correspondence should be sent to Elvira Jéldrez, <https://orcid.org/0000-0001-7401-6687>, Center for Advanced Research in Education, Institute of Education, Universidad de Chile, Periodista José Carrasco Tapia 75, Santiago, Chile. E-mail: elvira.jeldrez@ciae.uchile.cl

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Abstract

Reading comprehension and reading motivation are strongly related. The current study explored the relation between groups of students with different reading profiles (poor decoders, poor comprehenders, good readers, difficulties with both decoding and comprehension – mixed deficit) and key dimensions of motivation. We assessed 120 students (2nd to 6th grade, 57 boys, 63 girls) using standardised assessments of reading comprehension, word reading, and language comprehension. Cluster analysis identified a four-cluster solution in line with the four hypothesised reading profiles. Children completed a reading motivation questionnaire examining affirming (perceived self-efficacy, reading value) and undermining (perceived difficulty, and devaluation of reading) motivations. Mixed deficit students exhibited higher reading value, perceived difficulty, and devaluation of reading than good readers. Poor decoders showed higher reading value than good readers and lower perceived difficulty than mixed deficit students. Poor comprehenders did not show differences with any of the other profiles, and no differences were found between profiles on perceived self-efficacy. These results show that different types of reader have different profiles of reading motivation and underscore the importance of understanding the nuanced relationships of reading difficulties with diverse dimensions of reading motivation.

Keywords: reading difficulties, reading motivation, reading profiles, affirming motivations, undermining motivations

The Relationship Between Specific Reading Difficulties and Reading Motivation Dimensions

Reading comprehension is a fundamental ability to both progress in school and to perform proficiently in daily life activities (Cain, 2010). Despite its relevance, international standardised tests show frequent reading comprehension difficulties in students at different school levels, and even in adults (OECD, 2010, 2016; UNESCO, 2016). These standardised tests provide a global score of reading ability making it difficult to determine the source of the problems. However, reading comprehension is a complex and multidimensional skill in which diverse linguistic, cognitive, and motivational dimensions converge (Cain, 2010; Catts & Kamhi, 2017; Snow, 2002). To understand students' reading comprehension difficulties, it is essential to understand the components that impact these problems.

Reading Comprehension: Component Skills

Reading comprehension development and difficulties have been studied within the framework of the Simple View of Reading (SVR) (Gough & Tunmer, 1986; Hoover & Gough, 1990). This framework proposes that reading comprehension is the product of two skills: *decoding* and *listening comprehension*. Decoding is essential for accurate word reading and refers to reading isolated words fluently and precisely, and correctly associating graphemes and phonemes to decode written words (Language and Reading Research Consortium, 2015). Language comprehension refers to the ability to extract meaning from a text, that is, to take the lexical information in the text and derive interpretations at the sentence and discourse level (Language and Reading Research Consortium, 2015).

The impact of these two skills on reading comprehension has been demonstrated by studies that find that they contribute independent and significant variance to reading

comprehension, a result found in opaque languages, such as English (Catts, 2018; Catts et al., 2005), and in more transparent languages, such as Spanish (Caravolas et al., 2012; Florit & Cain, 2011; Zevallos et al., 2017). The theoretical distinction between word reading and language comprehension has also been corroborated by empirical studies, which have shown that the skills that support word reading are genuinely different from those that support language comprehension (Kendeou et al., 2009; Oakhill & Cain, 2011).

Reading Comprehension Difficulties

The SVR has provided a robust framework for the study of reading difficulties, successfully used to identify students with different profiles of strength and weakness. Students with good language comprehension skills but poor word reading skills have been named *poor decoders* (Catts et al., 2006). Students with difficulties comprehending a text but adequate word reading skills have been named *poor comprehenders* (Cain, 2022). Consequently, children with problems in both abilities have been described as having a *mixed deficit* (Catts et al., 2006). Based on these conceptualisations, we can identify at least four types of reader profiles: poor decoders, poor comprehenders, mixed deficit, and good readers.

However, reading success not only relies on these linguistic components. Understanding a text and constructing meaning during reading are motivated acts (Guthrie & Wigfield, 1999; Snow, 2002). To master the skills and strategies involved in reading comprehension and word reading, students must commit considerable time and effort to learn them; that is, students must be motivated towards reading activities to achieve good reading comprehension (Wigfield et al., 2016). In the study of reading difficulties, Aaron and colleagues proposed an extension to the SVR, to include

psychological factors such as motivation as influences on reading performance (Aaron et al., 2008).

Reading Motivation as a Multidimensional Phenomenon

Reading motivation is a multidimensional phenomenon (Guthrie et al., 2007; Wigfield & Guthrie, 1997) that includes the beliefs, values, and goals children assign to reading (Eccles & Wigfield, 2002). In this study, we focus on four dimensions of motivation, based on two main distinctions: readers’ self-concept and value, and affirming and undermining motivations (see Table 1).

Table 1

Reading Motivation Dimensions Considered in the Study

	Affirming motivation	Undermining motivation
Readers’ self-concept	<i>Perceived reading self-efficacy</i> Students’ positive beliefs and perceptions about their reading skills, competence, and capacity to read well.	<i>Perceived reading difficulty</i> Students’ perception that reading tasks are too difficult or challenging for them to perform.
Reading value	<i>Reading value</i> Students’ appreciation of reading activities and tasks and their beliefs that reading is a relevant and appealing activity.	<i>Devaluation of reading</i> Students’ devaluation of reading activities and tasks, and their beliefs that reading is an unimportant or boring activity.

According to the Expectancy-Value Theory (EVT), reading motivation comprises two broad dimensions: *Readers’ self-concept*, understood as students’ perceived competence in reading, individually and relative to their peers, and *Reading value*, understood as students’ appreciation of reading activities and tasks, and the social value of reading (Eccles et al., 1983; Eccles & Wigfield, 2020; Gambrell et al., 1996; Wigfield & Eccles, 2000). For students to be motivated towards a task, they must

believe they are competent in it and that the activity is important. Both expectancies and values have been found to influence reading performance and choices (Wigfield et al., 2016; Wigfield & Eccles, 2000).

Readers' self-concept develops due to their experiences with reading, such as feedback on achievement, the opinion of others, and causal attributions (Schiefele et al., 2012). This self-opinion includes students' beliefs about their current competence and ability both individually and compared to others, and their expectancies for success when reading a text (Eccles & Wigfield, 2020; Wigfield & Eccles, 2000). A student who feels capable of reading and understanding a text will be more motivated towards reading activities and will read more, which can enhance reading ability in general, and comprehension specifically (Wigfield & Guthrie, 1997). Readers' self-concept relates to the concept of perception of self-efficacy coined by Bandura (1977). *Perceived reading self-efficacy* is conceptualised as students' beliefs about themselves as competent readers capable of completing reading tasks successfully (Wigfield & Guthrie, 1997). Although there are theoretical differences between readers' self-concept and perceived reading self-efficacy, the assessment of these is typically very similar (Schiefele et al., 2012).

Reading value is understood as students' appreciation of reading activities and tasks and their beliefs that reading is a worthwhile activity for their peers and family (Eccles et al., 1983; Wigfield & Eccles, 2000). Components of reading value include enjoyment and interest in the task, its intrinsic value and usefulness for the student's present and future plans, and the importance of doing well in reading activities (Eccles et al., 1983; Eccles & Wigfield, 2020; Wigfield & Eccles, 2000). Strongly related to *intrinsic reading motivation*, the assessment of reading value focuses mostly on enjoyment of, liking, and interest in reading, as well as students' curiosity and

appreciation of reading as a pleasurable activity (Gambrell et al., 1996; Malloy et al., 2013; Pitcher et al., 2007).

Both readers' self-concept and reading value can be understood from the perspective of *affirming* and *undermining reading motivations* (Guthrie et al., 2009, 2012; Klauda & Guthrie, 2015; van Steensel et al., 2019). Affirming motivations are positive aspects that motivate students to read, such as a high perceived reading self-efficacy and a high reading value (see Table 1). Undermining motivations are negative aspects that weaken students' motivation to read, such as a high perceived difficulty and devaluation of reading activities. Past research has shown that affirming and undermining motivations are not different ends of a continuum but entirely separate constructs and affects. Therefore, a low score on an affirming motivation is not necessarily associated with a high score on an undermining motivation (Coddington, 2009; Guthrie et al., 2009; Klauda & Guthrie, 2015; van Steensel et al., 2019). For example, a student could simultaneously have a high value of reading (a high affirming motivation) and a high perceived difficulty (a high undermining motivation). This distinction is relevant because undermining reading motivations can be a particular detriment for students with reading comprehension difficulties (Klauda & Guthrie, 2015; van Steensel et al., 2019).

Most studies examining the relation between reading motivation and reading comprehension have focused on affirming reading motivations, such as reading value and perceived self-efficacy, finding a positive and significant correlation between them and reading comprehension (Hidi & Harackiewicz, 2000; Klauda & Guthrie, 2015; Taboada et al., 2009; van Steensel et al., 2019; Wigfield & Guthrie, 1997). The relationship between undermining reading motivations and reading comprehension has been less studied. The available studies have found that these motivations have a

negative relationship with reading comprehension, and they agree that both affirming and undermining motivations explain unique and significant variance in reading comprehension (Guthrie et al., 2009; Klauda & Guthrie, 2015; van Steensel et al., 2019). In this study, we focused on four dimensions of reading motivation (see Table 1), which allowed us to explore students' reading self-concept and value from an affirming and undermining perspective. From an affirming perspective, we explored how children value reading and their perceived self-efficacy, and from an undermining perspective, we explored the extent to which reading is devalued (not considered useful or of worth) and the perceived difficulty of reading.

Reading Motivation in Students with Difficulties

A robust body of literature confirms a positive influence of reading motivation on reading comprehension in students with average reading comprehension abilities (Schiefele et al., 2012; Taboada et al., 2009). Thus, there are strong theoretical reasons to also expect a relation between reading motivation and reading comprehension in students with comprehension difficulties. However, given that motivation is also a multidimensional construct, it is plausible that there may be a different pattern of association between these two constructs in students with reading difficulties (Klauda & Guthrie, 2015; McGeown et al., 2012). Most studies to date have used global scores of both constructs, so have not elucidated the relations between specific dimensions of reading motivation and different types of reading comprehension difficulties.

Studies involving students with reading difficulties have found that poor readers tend to have lower affirming reading motivations than good readers (Lau & Chan, 2003; Lee & Zentall, 2012; McGeown et al., 2012; Morgan et al., 2008; Torppa et al., 2019; Wolters et al., 2014). This work includes students aged 6 to 20 years. In particular, students categorised as good readers have been found to have a higher perceived self-

efficacy and self-concept than poor readers (Lee & Zentall, 2012; McGeown et al., 2012, 2015; Torppa et al., 2019; Vaknin-Nusbaum et al., 2018), as well as higher reading value (McGeown et al., 2015; Torppa et al., 2019), although other researchers have found no difference in this dimension (Vaknin-Nusbaum et al., 2018). Previous research has also observed stronger differences between poor and good readers in self-concept than in reading value (McGeown et al., 2015; Torppa et al., 2019; Vaknin-Nusbaum et al., 2018) and poor readers also present a steeper decline of self-concept over time (Vaknin-Nusbaum et al., 2018).

The previous research indicates that reading motivation differs between good and poor readers. In addition, several studies have found associations between reading motivation and reading comprehension only for struggling readers (Klauda & Guthrie, 2015; Logan et al., 2011; Louick et al., 2016; McGeown et al., 2012). For example, Logan et al. (2011) found that intrinsic reading motivation (related to an intrinsic reading value) predicted growth in reading comprehension skills only for a sample of poor readers ($n = 37$) aged 9 to 11 years old, but not for good readers ($n = 32$), highlighting the importance of reading enjoyment and value for low-ability readers' performance and development. The results suggest that a genuine interest in and value of reading activities might be particularly relevant for students with reading difficulties as it would allow them to persevere with difficult material, resulting in greater improvement in their reading comprehension during the school year.

Turning to the relationship between undermining motivations and reading comprehension, there is a critical study by Klauda and Guthrie (2015). They found lower correlations between motivation, involvement and reading comprehension in a group of 7th grade struggling readers ($n = 307$) than in advanced readers ($n = 430$). However, for the group of struggling readers there were stronger correlations between

some undermining motivations and general reading comprehension, than for advanced readers. They observed a negative and significant correlation between devaluation of reading and reading comprehension for the struggling readers, and a smaller positive and not significant correlation for the advanced readers. In addition, students' devaluation of reading predicted lower achievement in reading comprehension in the struggling readers' group, but was not a significant predictor in the advanced readers' group. They also found a stronger relation between reading comprehension and another undermining motivation – peer devalue – for the group of struggling readers, but not for the advanced group. The dimension of peer devalue is understood as students' perception of disrespect and disregard from peers about their reading practices, opinions and value.

The previous findings raise the possibility that undermining motivations might play a particularly important role in the reading comprehension of struggling readers. Poor readers who devalue reading activities, who do not find them particularly useful or important, and/or who perceive that their peers disregard their reading practices and opinions are more likely to have reading comprehension problems than students who have a lower depreciation of reading tasks. Lowering these negative beliefs might be more relevant for their comprehension than increasing their positive beliefs and values.

Although research in this field conceptualises reading comprehension and motivation as multidimensional, there is a tendency to take a unidimensional approach in the interpretation of findings. Related to this, most studies do not focus on the nature of the reading difficulties and include a general measure of reading comprehension that cannot distinguish between different sources of poor reading comprehension (e.g., word reading and language comprehension). A notable exception is the study of Torppa et al. (2019) of 15- to 16-year-olds that included a measure of reading fluency (a word

reading skill), to try to understand the differences in reading motivation based on different types of difficulties. However, they did not include a language comprehension measure. Exploring the underlying nature of the reading comprehension difficulty is necessary to elucidate the relationships between different dimensions of reading motivation with specific reading difficulties, such as poor word reading or poor language comprehension.

In the classroom, students with word reading difficulties present more noticeable problems that usually lead to quick detection by their teachers. Therefore, these students might receive more negative feedback about their reading abilities and be more aware of their difficulties, leading to lower reading motivation (Wigfield et al., 2016). In contrast, students with language comprehension difficulties might go unnoticed (Hulme & Snowling, 2011) and receive less negative feedback. It is also possible that some dimensions of reading motivation might be more relevant to these students. For example, undermining reading motivations, such as a devaluation of reading activities or the perceived difficulty of reading activities, might be particularly crucial in students with word reading problems, given that they could be exposed to more negative feedback and be more aware of their difficulties. Therefore, their negative perceptions of reading activities could have a stronger impact on their reading comprehension compared to students with language comprehension problems. On the other hand, affirming motivations such as viewing reading as a valuable activity and having a high perceived self-efficacy could act as protective factors for these students. These specific relationships between dimensions of reading motivation and reading comprehension difficulties have not been studied and could provide useful evidence for interventions to improve students' reading comprehension.

The relevance of detecting and improving students' reading motivation is highlighted by previous experimental and longitudinal studies. These studies have found that initial levels of reading motivation can be a better predictor of reading comprehension than reading skills (Morgan et al., 2008; Orellana et al., 2020) and that interventions integrating work on reading abilities with promoting reading motivation are associated with gains in 3rd to 6th-grade students' reading comprehension, word reading accuracy and reading fluency skills (Gu & Lau, 2021; Guthrie et al., 2004; Toste et al., 2019; van der Sande et al., 2023). These results suggest that targeting only the student's language skills might be insufficient to improve students' reading difficulties; it is also necessary to explicitly target students' reading motivation.

The Current Study

This study examined the relationship between specific dimensions of reading motivation and different types of reading difficulties. Specifically, the study included students with different reading profiles (mixed deficit, poor decoders, poor comprehenders, and good readers) and assessed whether or not they differed across the four dimensions of reading motivation reviewed above (perceived self-efficacy, reading value, perceived difficulty, and devaluation of reading). This study took place in Anonymous for Peer Review, a country that is considered high-income by the World Bank (2022) but with lower-than-expected literacy levels in the most recent international surveys (OECD, 2022, 2023; UNESCO, 2016).

Method

Sample

The study recruited 120 students from 2nd to 6th grade (see Table 2) from three public schools in the Anonymous for peer review. The schools had medium-low socioeconomic status and slightly below-average results on the 2019 national reading

assessment. All students were monolingual Spanish speakers. The parents of 2nd to 6th-grade students were invited to participate in the study. Students whose parents signed the informed consent were then visited in their classrooms by a research team member, who explained the project and clarified any doubts. Students who agreed to participate signed an informed assent. This project had the approval of the ethics committee of the Anonymous for peer review.

Table 2

Sample by Gender and School Grade

School grade	<i>n</i>			Mean age	<i>SD</i>
	Girls	Boys	Total		
2 nd	10	6	16	8.13	0.53
3 rd	15	6	21	9.29	0.47
4 th	12	17	29	10.19	0.51
5 th	14	18	32	11.32	0.61
6 th	12	10	22	12.58	0.90
Total	63	57	120	10.50	1.56

Instruments and Procedure

Students completed assessments of reading comprehension, word reading, language comprehension, and reading motivation as detailed below.

Reading Comprehension

Reading comprehension was assessed using the Assessment of Reading Comprehension test (Avaluació de la Comprensió Lectora, ACL test) (Catalá et al., 2007), using the grade-appropriate version for each of the school grades in this study. Each version has 7-10 short texts, and each text has 3-4 multiple-choice questions. Each student completes the test individually in a whole class setting, with a one-hour time

limit. The raw score is the number of correct questions (range 0-24 in 2nd grade to 0-36 in 6th grade). The instrument provides ten standardised reading comprehension levels for each school grade based on the total raw score of the student in the test, from 1 = *very low* to 10 = *very high*. These standardised levels allow the comparison of the results between school grades. The test had adequate reliability in this sample, with a Cronbach's alpha value of .76, tested using the MBESS package in R.

Word Reading

Word reading was assessed using the PROLEC-R pseudoword reading subtest (Cuetos et al., 2007), an individually administered test that comprises a list of 40 pseudowords that the student is asked to read aloud. The raw score is the number of correctly pronounced items minus the number of incorrect items (maximum = 40). The test provides four standardised levels of difficulty according to the score of the student and their grade: *severe difficulty*, *difficulty*, *doubt*, and *normal*. The test had adequate reliability in this sample, with a Cronbach's alpha value of .77, tested using the MBESS package in R.

Language Comprehension

Language comprehension was assessed using the PROLEC-R oral comprehension subtest (Cuetos et al., 2007). Students are assessed individually. They listen to two texts read aloud by the examiner and are then asked four comprehension questions for each text (eight questions in total). The raw score is the number of correct questions (maximum = 8). The test provides three standardised levels of language comprehension ability according to the raw score of the student and their grade: *severe difficulty*, *difficulty*, and *normal*. The test had adequate reliability in this sample, with a Cronbach's alpha value of .78, tested using the MBESS package in R.

Reading Motivation

Reading motivation was assessed using a questionnaire developed by the authors (see complete scale in Appendix A and more details on the analyses of the structure and reliability of the scale on Authors, year). The scale was designed based on previous questionnaires: the Motivations for Reading Questionnaire (Wang & Guthrie, 2004; Wigfield & Guthrie, 1997); the Motivation to Read Profile (Gambrell et al., 1996; Malloy et al., 2013; Navarro et al., 2018); and reading motivation scales designed to assess affirming and undermining motivations (Coddington, 2009; Guthrie et al., 2009, 2012). The structure of the scale was developed using factor analysis, which resulted in four reading motivation dimensions, two affirming and two undermining: perceived self-efficacy, reading value, perceived difficulty, and devaluation of reading. The scale includes 32 items presented in question format with three alternatives that range from Yes to No (e.g., “Do you enjoy reading books for school? a) Yes, I like to read books for school; b) I kind of like to read books for school; c) I do not like to read books for school”). Each item is scored 0 = *no*, 1 = *kind of/sometimes*, or 2 = *yes*. The range of scores for each dimension are: perceived reading self-efficacy = 0-14, reading value = 0-22, perceived reading difficulty = 0-12, devaluation of reading = 0-16. A higher score indicates a stronger presence of that dimension. Therefore, a score of 16 in reading devaluation indicates a very low value placed on reading as a useful or worthwhile activity. The test had adequate reliability in this sample, with an Ordinal alpha value of .87 for the complete scale and a range .76-.89 for each of the four dimensions.

Procedure

The reading comprehension test and reading motivation scale were completed first in a whole class setting, supervised by a researcher. On a separate day, the same

researcher carried out the individual assessments of word reading and language comprehension ability. These were completed in a small room, outside of the classroom.

Analyses

The first stage was to create the reading profiles. For this purpose, a cluster analysis was carried out with an agglomerative hierarchical algorithm and Euclidean distance as a measure of association. The variables used were the standardised values of reading comprehension, word reading, and language comprehension. The number of clusters was decided by analysing the dendrogram, scree plot, and theoretical appropriateness (Milligan & Hirtle, 2013). The second stage was to assess how the different reader profile groups differed in reading motivation. For this purpose, a MANOVA was carried out with the reading profiles as the independent variable and the reading motivation dimensions as the dependent variables. Subsequent analyses and pairwise comparisons with Bonferroni adjustment were conducted to determine the locus of any specific differences. The possible effect of school grade was explored through independent multiple regressions with reading comprehension and the motivation dimensions as dependent variables. School grade was only a significant predictor of the dimension reading value, with younger students showing higher value.

Results

Reading Profiles

The cluster analysis yielded 4-clusters (different reader profiles), which explained 63.4% of the total variance. The majority of students had a reading difficulty ($n = 106$, 88% of the students) (see Table 3). Of note, none of the students reached the two highest standardised levels of reading comprehension (levels 9 and 10), and even those classified as good readers scored mainly on levels 5 and 6 of the test, categorised as age appropriate ability in reading comprehension.

As predicted, there were three different groups of poor readers. The most common profile (42% of the sample) was a difficulty in word reading ability and reading comprehension but adequate language comprehension skills (poor decoders). A sizeable group (28% of the sample) was categorised as having a mixed deficit in reading: These students showed below-average results in each of word reading, language comprehension, and reading comprehension. A third group (18% of the sample) was classified as poor comprehenders (students with above-average word reading skills but poor language and reading comprehension). The fourth group of students (12 % of the sample) showed no difficulties in reading (above-average reading comprehension, word reading, and language comprehension skills). The number of students in each reading profile according to their school grade can be found in Appendix B. Pairwise comparisons confirmed that the three groups of poor reader had significantly lower reading comprehension than the good readers ($p < .001$) and comparably weak scores among the three groups ($p > .10$). The poor decoders had language comprehension scores in line with those of the good readers ($p > .10$) and the poor comprehenders had similar word reading scores than the good readers ($p > .10$). The mixed group obtained the lowest scores on each measure, with significantly lower word reading than the poor comprehenders ($p < .001$) and language comprehension than the poor decoders ($p < .001$).

Table 3

Reading Profiles Descriptive Results

Reading profile	<i>n</i>	<i>M</i> <i>Age</i>	Reading comprehension			Word reading			Language comprehension		
			<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Mixed deficit	34	10.6	2.15	0.96	1-4	1.09	0.29	1-2	1.00	0.00	-
Poor decoders	50	10.5	2.56	1.13	1-5	1.94	1.08	1-4	2.00	0.00	-
Poor comprehenders	22	10.6	2.55	1.30	1-5	3.45	0.51	3-4	1.00	0.00	-

Good readers	14	10.2	5.64	0.93	5-8	2.21	1.42	1-4	1.86	0.36	1-2
Total	120	10.5	2.80	1.51	1-8	2.01	1.18	1-4	1.52	0.50	1-2

Note. The table reports the standardised scores for each measure.

Reading Motivation: Comparisons between Reader Profiles

The descriptive statistics for reading motivation are presented in Table 4. The MANOVA on the reading motivation scores was significant ($F(3,111) = 2.80, p = .001$, Pillai's Trace = .28), indicating differences between profiles in one affirming motivation: reading value ($F(3,111) = 3.16, p = .027$), and both undermining motivations: perceived difficulty ($F(3,111) = 4.82, p = .003$), and devaluation of reading ($F(3,111) = 4.1, p = .008$). For perceived self-efficacy, the groups obtained similar scores ($F(3,111) = 0.23, p = .880$).

Table 4

Reading Motivation Descriptive Results

Reading profile	<i>n</i>	Affirming motivations						Undermining motivations					
		Perceived self-efficacy (<i>max</i> = 14)			Reading value (<i>max</i> = 22)			Perceived difficulty (<i>max</i> = 12)			Devaluation of reading (<i>max</i> = 16)		
		<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Mixed deficit	34	9.28	3.27	1-14	12.91	5.07	1-22	7.31	2.86	2-12	6.44	3.27	1-16
Poor decoders	50	9.31	2.64	4-13	12.65	4.34	2-22	5.76	2.39	1-11	4.63	3.06	0-12
Poor comprehenders	22	9.55	2.44	3-13	10.80	5.04	1-20	6.20	2.44	1-10	4.75	3.21	0-13
Good readers	14	9.93	2.20	6-14	8.86	4.94	1-17	4.50	1.83	2-8	3.29	2.16	0-7
Total	120	9.42	2.72	1-14	11.94	4.88	1-22	6.11	2.60	1-12	4.99	3.18	0-16

For reading value, the good readers obtained the lowest scores, and these were statistically significantly different to the higher scores obtained by the mixed deficit group ($p = .044$), and also the poor decoder group ($p = .046$). For the undermining motivation of perceived reading difficulty, the good readers also obtained the lowest scores, and these were statistically significantly different to the higher scores obtained

by the mixed deficit group ($p = .004$). The mixed deficit group also obtained statistically significant higher scores than the poor decoder group ($p = .04$). For devaluation of reading, the mixed group obtained the highest scores and the good readers the lowest. This difference was significant ($p = .01$). No other differences reached statistical significance. All tests were made with the Bonferroni adjustment to correct for multiple comparisons.

Discussion

This study confirms that groups of readers differentiated by strengths and weaknesses in word reading and language comprehension show different profiles across four dimensions of reading motivation. The results support the view that reading motivation should be included in the models of reading comprehension for a deeper understanding of students' reading difficulties (Aaron et al., 2008). The study is novel in providing evidence that there are differences in specific motivation dimensions according to the reading difficulty of the student. Students with difficulties in both word reading and language comprehension (mixed deficit students) exhibited a contrasting pattern to the other reading profiles, presenting a mix of strong affirming and undermining reading motivations. They had the highest scores in the undermining dimensions of motivation, showing a strong devaluation and avoidance of reading activities, as well as finding them very difficult. They also presented the highest scores in reading value, appreciating the relevance of reading activities and of being a good reader.

The cluster analysis confirmed that different groups of poor readers exist, with different patterns of reading and reading-related skill weaknesses: Those with pronounced poor word reading, those with marked poor language comprehension, and those with weaknesses in both. These profiles are consistent with previous research and

highlight the importance of understanding the varied sources of reading difficulties (Cain, 2022; Catts et al., 2006; Keenan et al., 2014). Of note, we found that 88% of the students in our sample of students across grades 2 to 6 had a reading difficulty. This is a worryingly high proportion. We also note that the prevalence of poor decoders and poor comprehenders is higher than that reported in previous research (see, for example, Catts et al., 2006, and Cain, 2022). Moreover, previous studies suggest that the contribution of word reading and language comprehension to reading comprehension changes throughout schooling, with word reading being the stronger predictor in the initial years of primary education and language comprehension in the following years (Catts, 2018; Catts et al., 2005; Florit & Cain, 2011; Lonigan et al., 2018). In our sample, 5th and 6th grade students still struggled with word reading ability (see Appendix B). One reason for these findings may be that our sample came from schools serving areas of low to medium socio-economic status and, indeed, our sample as a whole had below-average results on a national reading assessment. Thus, our sample may have (unintentionally) included students more likely at risk of poor reading. We also note that our study was conducted after periods of significant disruption to schooling due to covid, which may have had a negative impact on reading development. The 2022 PISA results show a worldwide decline in reading results attributed to the effects of the pandemic, with an average of 26% low performers in reading and only 7% of highly proficient readers (OECD, 2023).

A surprising finding was that the four groups obtained comparable scores on the dimension of self-efficacy. This dimension included several items that required students to reflect on their ability to understand text. We note that the three groups of poor reader obtained much lower reading comprehension scores than the good reader group. This finding contrasts with previous studies that report higher perceived self-efficacy for

good readers (Lee & Zentall, 2012; McGeown et al., 2012, 2015; Torppa et al., 2019; Vaknin-Nusbaum et al., 2018). It may be that different groups of reader set a different threshold for text comprehension and/or that the poor readers are not aware of the extent of their comprehension difficulties (McGeown et al., 2012), which may account for similar scores on the self-efficacy scale. The lack of differences in all motivation dimensions between poor comprehenders and the other reading profiles suggests that students with this type of reading problem might be particularly unaware of their difficulties and competence (Cain, 1999). This finding might also arise because this group has adequate ability in word reading; as a result, they might receive less negative feedback in the classroom or their difficulties might go undetected (Hulme & Snowling, 2011), leading to a lesser impact on their motivation. Future research should include classroom variables that allow a deeper understanding of these students' reading motivation.

Of note was the finding that the three groups of poor reader obtained higher scores than the good readers on the other affirming motivation – reading value. This difference was significant with poor decoders and mixed deficit. This suggests that readers with difficulties place a higher value on the activity of reading, in contrast to previous research (McGeown et al., 2015; Torppa et al., 2019). Our results align with authors who have suggested that poor readers can have equal or even higher reading motivation than typical readers (Klauda et al., 2020; Neugebauer, 2014). One explanation for these contrasting results is that the differences in favour of good readers has been found in older students, from 6th to 9th grade in the studies of McGeown et al. (2015) and Torppa et al. (2019). It is possible that younger students with difficulties in word reading are highly aware of the importance of being a good reader, perhaps

because their teachers attend more to their word reading instruction to support development of this skill.

These findings from our survey are supported by a qualitative study of 75 students from 2nd to 6th grade (46 poor readers and 29 typical readers) (Authors, manuscript submitted for publication). Analysis of interviews indicated that poor readers placed a higher value on reading than did typical readers. However, both typical and poor readers manifested low genuine interest for reading activities as they understood reading ability as a bridge to other goals, such as their future careers or university. Louick et al. (2016) suggested that poor readers might be more motivated to read for instrumental or utilitarian purposes than typical readers. In the present study, it is possible that poor readers' positive view of reading value might be related to a high perception of the utility of reading, and not an intrinsic interest in reading activities. The findings suggest the need for further studies that elucidate the reasons for students' appreciation of reading activities, and to understand why good readers might be lacking on this dimension.

The two dimensions relating to undermining dimensions of reading motivation – perceived difficulty and devaluation of reading – indicated a striking, significant, and expected contrast between the good readers and the poor readers. The good readers obtained the lowest scores on these dimensions and the mixed deficit group obtained the highest scores, indicating strong feelings of devaluation and difficulty. Not only did this group have difficulties with both components that support reading comprehension – word reading and language comprehension, but they also obtained the lowest scores on all three reading measures relative to the other three groups. That may account for their high ratings on these two undermining dimensions; students with difficulties in both

word reading and language comprehension may find reading activities harder than students who struggle with only one component.

The difference between the affirming and undermining aspects of readers' self-concept might also be related to the items used to assess these dimensions (see Appendix A). The items that were associated with the dimensions of reading motivation were established through factor analysis. Examination of the items revealed that whilst the perceived self-efficacy items focused mainly on beliefs about general competence and comprehension in reading activities (e.g., "Can you understand the books that you read?"), the perceived difficulty items were more focused on word reading competence (e.g., "Do you make mistakes when you read aloud?"). This difference could explain that poor word readers were able to assess their difficulty in reading words, and therefore had significantly higher perceived difficulty than good readers, but they were less able to assess their ability to comprehend texts as a whole, resulting in no differences in this dimension with the other profiles. These results highlight the relevance of understanding the subtle differences between the different dimensions of reading motivation and how the ways of assessing them impacts on the results (Authors, 2023).

Our results indicate that reading value and devaluation of reading are independent dimensions, rather than being extreme ends of a continuum, an interpretation supported by previous studies (Coddington, 2009; Guthrie et al., 2009; Klauda & Guthrie, 2015; Rosenzweig & Wigfield, 2017; van Steensel et al., 2019). Students can have a high value of reading and a high devaluation simultaneously; a finding that has both theoretical and practical implications. Students with a mixed deficit were indeed in this situation, evidencing a high value of reading alongside high devaluation, which might be related to their difficulties. As they struggle with both

word reading and language comprehension skills, they seem to be highly aware of the importance of reading comprehension and of being able to read well, but at the same time, finding it boring and not an enjoyable activity, which they want to avoid. The results are troubling, as these patterns of high undermining motivations could result in an obstacle for students' improvement of their reading comprehension (Rosenzweig & Wigfield, 2017). On the other hand, good readers seemed to not appreciate reading activities as much or their importance, but they did not find them especially boring or try to avoid them. Future longitudinal research is needed to establish how these perceptions influence growth in reading habits and performance.

Limitations and Future Research

The study is not free of limitations. In addition to those discussed above, we note the three most pertinent. First, there were only 120 students in the study as a whole and only 14 students in our group of good readers. Future studies should include a larger initial sample to allow for bigger samples in each reader group and greater statistical power to detect true differences between groups and relations between reading comprehension and motivation. It would also allow to explore interactions with variables of interest, such as school grade.

A second limitation is that students described as poor decoders in our sample might include children with dyslexia, but we did not have enough information about the trajectories and abilities of these students to identify them. The term dyslexia refers to a difficulty with both decoding and spelling fluency that is evident from the first school years and persistent over time, affecting general academic functioning (Snowling et al., 2020). Since we did not have the data to make this distinction, we classified the group of children with decoding difficulties as poor decoders, using the more general label

proposed by Catts et al. (2006). It would be valuable for future research to expand the comparisons including children with dyslexia.

A third limitation is that the reading motivation assessment relied on a self-report questionnaire. Although this is typical in other studies (Davis et al., 2018), this format may be hard for poor readers to complete accurately, due to their word reading and comprehension difficulties. In addition, self-report questionnaires may be biased by socially desirable responses. However, the differentiation between the different reading motivation dimensions and the higher scores for the perceived difficulty dimension in the groups with reading difficulties compared with the good readers, indicates that the questionnaire was sensitive to individual differences and that students may have responded truthfully. We recommend that qualitative methods, such as individual interviews, and comparisons with complementary measures such as teacher questionnaires, are used in future research to provide a deeper understanding of reading motivation in different reader groups.

In conclusion, the results of this study show that students with different profiles of reading strengths and weaknesses show different patterns of reading motivation. Specific reading comprehension difficulties affect their reading motivation. Of note, students in the mixed deficit group showed the most striking pattern of divergence between undermining and affirming motivations; compared to other groups, they found reading more difficult and boring, yet also more relevant. The results highlight the need to continue exploring the nuanced relationship between distinctive dimensions of reading motivation and reading difficulties. This deeper understanding could guide the design of specific interventions with these students, that could improve their engagement and achievement in reading activities.

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Appendix A

Reading Motivation Scale

Dimension	Item
Perceived self- efficacy	Can you understand difficult words when you're reading?
	Can you understand the books that you read?
	Can you correctly answer questions about a text?
	Do you learn from the texts you read for school?
	Do you read about subjects that interest you?
	If a book interests you, would you read it even if it's hard? Do you think reading is boring?*
Reading value	Do you enjoy reading books for school?
	Do you enjoy reading at home?
	Does it make you happy to start a new book?
	Do you think that reading is more important than the other activities you do in school?
	When you are old, would you like to be a person who reads a lot?
	Do you prefer to do other things instead of reading?*
	Does it bother you having to read books for school?*
	Do you and your friends recommend each other books? Do you like to talk to your friends about what you are reading? Do your friends ask your opinion about the books you've read? Do you like to talk to your family about what you're reading?
Perceived difficulty	Do you make mistakes when you read aloud?
	Do you think the texts you read for school are hard?
	Do you need help reading?
	Are your classmates better than you at reading?
	Is it hard for you to read aloud in class? Do you think you're a good reader?*
Devaluation of reading	Do you try to read as little as possible?
	When you have to read books for school, do you try to avoid it?
	Do you think reading for school takes too much of your time?
	Do you think there are more important things to do than read for school?
	Do you think reading is a waste of time?
	Do you think it's strange that your classmates read in their spare time?
	Do you try to convince your classmates that reading is a waste of time? Do your friends think it is weird to read outside of school?

* Reversed items.

Appendix B

Number of students in each Reading Profile according to their School Grade

Grade	Reading profile				Total
	Mixed deficit	Poor decoders	Poor comprehenders	Good readers	
2nd	4	7	2	3	16
3rd	7	7	6	1	21
4th	7	16	1	5	29
5th	10	8	10	4	32
6th	6	12	3	1	22
Total	34	50	22	14	120