Psicología Educativa
ISSN: 2174-0526
ISSN: 1135-755X
Colegio Oficial de la Psicología de Madrid

Míguez-Álvarez, Carla; Cuevas-Alonso, Miguel; Cruz, Mário

The Relationship between Metacomprehension and Reading Comprehension in Spanish as a Second Language

Psicología Educativa, vol. 28, no. 1, 2022, pp. 23-29
Colegio Oficial de la Psicología de Madrid

DOI: https://doi.org/10.7440/res64.2018.03

Available in: https://www.redalyc.org/articulo.oa?id=613770660003

Psicología Educativa (2022) 28(1) 23-29

Psicología Educativa

https://journals.copmadrid.org/psed

The Relationship between Metacomprehension and Reading Comprehension in Spanish as a Second Language

Carla Míguez-Álvarez[a], Miguel Cuevas-Alonso[a], and Mário Cruz[b]

[a]University of Vigo, Spain; [b]Polytechnic Institute of Porto, Portugal

ARTICLE INFO

Received 20 February 2020
Accepted 28 June 2021
Available online 22 September 2021

Keywords:
Reading comprehension
Metacomprehension
Metacognition
Second language reading

ABSTRACT

The importance of reading proficiency in a second language (L2) is growing worldwide. Reading in a L2 involves many questions about the abilities of reading comprehension, including metacomprehension, a core reading ability in native speakers (L1) that allows them to be aware of their reading comprehension level and to regulate their learning. However, its link to L2 has not been sufficiently researched. This study examines the relationship between the reading comprehension scores of diverse texts and metacomprehension, assessed by the ECOMPLEC test and PROLEC-R reading task, in Portuguese students studying Spanish as a L2. Similar to the results found in L1 research, we found a significant relationship between reading comprehension and metacomprehension in expository and discontinuous texts: students with low reading comprehension scores overestimated their metacomprehension while metacomprehension abilities of students with high reading comprehension abilities were more accurate. These results provide a frame of reference for future studies on metacomprehension in L2.

La relación entre la metacomprensión y la comprensión lectora en español como segunda lengua

Palabras clave:
Comprensión lectora
Metacomprensión
Metacognición
Lectura en L2

RESUMEN

El dominio de la lectura en una segunda lengua (L2) tiene cada vez más importancia a nivel global. La lectura en una L2 implica muchas cuestiones sobre las capacidades de comprensión lectora, como la metacomprensión, una habilidad de lectura fundamental en hablantes nativos (L1) que les permite ser conscientes de su nivel de comprensión lectora y les ayuda a regular su aprendizaje. Sin embargo, su papel en una L2 no ha sido lo suficientemente investigado. El presente estudio examina la relación entre las puntuaciones de comprensión lectora de varios tipos de textos y la metacomprensión, evaluada a través de la batería ECOMPLEC y la tarea de lectura de la batería PROLEC-R en estudiantes portugueses que estudian español como L2. De manera similar a los resultados encontrados en investigaciones en L1, hemos descubierto una relación significativa entre la comprensión lectora y la metacomprensión en textos expositivos y discontinuos: los estudiantes con bajas puntuaciones de comprensión lectora sobreestimaron su capacidad de metacomprensión, mientras que las habilidades de metacomprensión de los estudiantes con puntuaciones altas en comprensión lectora fueron más adecuadas. Los resultados proporcionan un marco de referencia para futuros estudios sobre metacomprensión en L2.

Mastery of reading is especially important during college years to achieve academic success as well as a successful career development (Xin et al., 2018). However, in order to achieve a successful reading comprehension, it is essential for the student to have developed a high number of skills and strategies to build meanings, make appropriate connections, and infer the meanings conveyed by the text, as well as many other cognitive abilities (Kieffer et al., 2016). Among these abilities, current studies on reading and reading for understanding have being paying more attention to a metacognitive ability known as metacomprehension. Metacomprehension can be described as a reader's knowledge about their competence of the written material, i.e., the knowledge that helps them know if they are understanding the text, which parts of the text are more difficult and which strategies and actions a reader should carry out to improve

Cite this article as: Míguez-Álvarez, C., Cuevas-Alonso, M., & Cruz, M. (2022). The relationship between metacomprehension and reading comprehension in Spanish as a second language. *Psicología Educativa, 28*(1), 23-29. https://doi.org/10.5093/psed2021a26

Funding: Funding was granted through the program "Grants for stays in research centers" by the University of Vigo, 2018, the project *"Adquisición fónica y Corpus. Tratamiento en phon del Corpus Koine de habla infantil"* (grant FFI2017-82752-P, funded by the Spanish Ministry of Economy, Industry and Competitiveness), and the project "*Ayudas para grupos de referencia competitiva – Grupo Language Variation and Textual Categorisation"* (grant ED431C 2021/52, funded by the Autonomous Government of Galicia). This work is funded by National Funds through the FCT – Fundação para Ciência e Tecnologia, I.P., under the scope of the project UIDB/05198/2020 (Centre for Research and Innovation in Education, inED). Correspondence: camiguez@uvigo.es (C. Míguez Álvarez).

ISSN: 1135-755X/

their comprehension (Schmitt & Sha, 2009). Several studies have shown the link that exists between reading comprehension and metacomprehension in a L1 (Blasco Serrano & Allueva Torres, 2010; Dunlosky et al., 2007).

Like native speakers, reading and understanding written texts is essential to learn any foreign language and achieve a good L2 competence, as reading is one of the tools used in a language-learning course (Nation, 2015). Thus, it is crucial to learn the appropriate strategies that could help improve reading comprehension. However, researchers found no consensus regarding how these strategies are used. On the one hand, Davis (1993) established that the strategies used for reading in a L2 are different from the ones used when reading in L1 and the readers react to reading problems in a different way depending on the language and their proficiency. On the other hand, Tang (1997) found that readers used similar strategies when reading in their L1 and in their L2 and were able to apply them in a selective way regardless of the language. Nevertheless, researchers agree that "readers' L2 proficiency level and L2 reading ability interacted with each other" (Zhang, 2001, p. 278).

However, compared to the studies in L1, less is known regarding the relationship between reading comprehension and metacomprehension in a L2 (Samo & Mikulec, 2018), especially in the Spanish-Portuguese combination.

The research presented in this study is motivated by the interest of teachers of the "Spanish as a second language" subject to improve their students' reading abilities and language competence when learning this language. Our research is based on the premise that reading competence in a second language implicates both declarative knowledge, which includes mastery of the linguistic system that conforms our target language, as well as procedural knowledge, that includes metacognitive knowledge, which allows a reader to implement a series of strategies that will regulate their reading process as well as their learning in general (Grabe, 2009). Our main objectives are to find out: a) if metacomprehension results obtained from our sample are related to their reading comprehension scores, b) if the results obtained followed a similar trend to the findings discussed in the literature review for native students, and c) the implications of our research for improving language learning in L2 classroom. Before describing the empirical study, we will review the current literature on the topic, focusing on metacomprehension and reading in L1, and on metacomprehension and reading in a L2.

Taking the legibility of the texts into account, similarities in vocabulary and syntax between Portuguese (L1) and Spanish (L2), and considerations made by the Spanish as a second language teachers, it was predicted that the difficulty level for our sample should be low for the narrative text and intermediate for the expository text. In all cases, the expository text should be more difficult to read than the narrative text.

Background

Metacomprehension and Reading in a L1

Metacomprehension, also known as reading metacomprehension or reading metacognition, is a person's metacognitive ability to judge their own understanding (and subsequent learning) of text materials. Moreover, reading comprehension requires the integration and application of multiple strategies and skills: memory, cognitive, compensation, metacognitive, affective, social and test-taking strategies (Caverly, 1997; Oxford, 1990). This ability allows the reader to be aware of whether or not they understand a text, even if they do not know where the source of their difficulties lies. Good metacomprehension is an important ability for the regulation of learning, as it will allow the reader to know if they understand the text material, to identify the problem and to apply the relevant strategies that will help solve the problem. A person with adequate metacomprehension skills will be able to judge which parts of the text require higher concentration and attention to increase understanding. In contrast, a person with poor metacomprehension skills will be incapable of appropriately guiding their learning and, thus, it will affect their reading performance (Blasco Serrano & Allueva Torres, 2010; Dunlosky et al., 2007; León et al., 2019; Muijelaar et al., 2017).

Being able to understand different types of academic and informational texts is a fundamental skill for university students that will allow them to achieve academic success as well as be successful in their future career development (Bharuthram, 2012; Caverly et al., 2004; MacMillan, 2014; Perry, 2013; Xin et al., 2018). For L1 readers, academic text reading is not an easy task due to the high complexity of the texts (Pugh et al., 2000). In fact, many students exit secondary school without achieving a good reading comprehension level, lacking the strategies needed to properly understand complex academic texts (Elosúa & Mujica, 2013; Fidalgo et al., 2014; MacMillan, 2014; Taraban et al., 2000). Therefore, it is essential to help college students to be conscious of their reading problems and help them apply the strategies needed to solve the difficulties they encounter (Xin et al., 2018).

Metacomprehension is an ability that has been extensively studied in both native children and adults. Generally, the majority of studies on reading and metacomprehension in L1 show that judgements readers make about their own metacomprehension are inadequate when the participants had low reading comprehension skills and how metacomprehension improves with mastery of reading. In fact, both children and adults who were not expert readers tended to overestimate their reading abilities (Dunlosky et al., 2007; Mañá et al., 2009; Schneider & Pressley, 1998; Thiede et al., 2005; Vössing et al., 2017; Wiley et al., 2016; Wiley et al., 2005). These low accuracy estimations might be explained by external factors such as poor reading abilities, an inaccurate self-perception and self-confidence of one's reading ability, perceptions of the reading task (attitudes, interests, previous knowledge, and performance), an inability to adjust the predictions to the demands of the reading task or a lack of solutions available to repair mistakes and misconceptions (García-Rodicio & Sánchez, 2014; Linderholm et al., 2008).

Metacomprehension and Reading in a L2

Metacomprehension seems to be important for non-native students due to their limited vocabulary and grammar, and the fact that they acquire different types of structural knowledge while developing their reading abilities in the language they are learning (Samo & Mikulec, 2018). In fact, learning both cognitive and metacognitive reading strategies during L2 learning substantially improves a student's reading performance due to the contribution the readers make to reading activities and their awareness of how, when, and where to use those strategies (Aghaie & Zhang, 2012; Phakiti, 2008; Zhang, 2012). As Phakiti (2003) found "highly successful test-takers reported significantly higher metacognitive strategy use than the moderately successful ones who in turn reported higher use of these strategies than the unsuccessful testtakers" (p. 26).

Raoofi et al. (2014) have stated several arguments regarding the importance of learning metacomprehension strategies in a L2:

(a) Metacomprehension provides an extended vision of the cognitive abilities of L2 students.

(b) Metacomprehension allows teachers to make a more complete and precise analysis of said abilities and all the strategies that the students use or should be taught.

(c) Metacomprehension allows teachers to make a distinction between successful and unsuccessful students.

(d) Metacomprehension allows students to regulate their own learning as well as the strategies they use and seek help when needed.

(e) With a good reading performance, students feel like true users of a language and have the confidence to improve and direct their own learning.

However, although some studies have discussed the benefits of metacognitive instruction in listening comprehension in L2 learners (Goh, 2008; Goh & Yanushita, 2006; Gómez Álvarez & Sandoval Zúñiga, 2019; Vandergrift et al., 2007), research on reading metacomprehension in a L2 is still scarce (Escudero et al., 2015; Grabe, 2009; Samo & Mikulec, 2018; Zareva et al., 2005; Zhang, 2012). Most studies have focused on analysing the strategies that readers use during the comprehension of text materials in L2 and/or their metacognitive awareness of said strategies (Channa & Nordin, 2014; Taki, 2015; Xin et al., 2018), while others described the pedagogical interventions that were carried out and their effectiveness in promoting language and several strategies (Hernández Wilson & Izquierdo, 2016; Raoofi et al., 2014).

The Current Study

Despite the importance of metacomprehension in the development of reading comprehension in L1 (Blasco Serrano & Allueva Torres, 2010; Puente et al., 2009), it is rather surprising to see so little research regarding this topic in L2 studies, especially in the Spanish-Portuguese combination, as well as a lack of formal measures of reading comprehension and metacomprehension in Portuguese (Cadime et al., 2013). Therefore, this paper aims to fill this gap, analysing whether the metacomprehension of Portuguese students learning Spanish as a L2 is related to reading comprehension in different types of texts and whether results are similar to the results obtained in L1 research.

In addition, it is important for the reader to be able to differentiate the genre of the text (Halliday & Hasan, 1985), as each type of text has a series of characteristics that the reader must recognize and, according to their experience with that specific genre, be able to activate all the information and strategies needed to understand it (Cueto Vallverdú, 2002). Thus, the analysis will be based on the reading comprehension tests of the three most common types of texts (narrative, expository, and discontinuous).

Method

Participants

The sample consisted of 48 first-year students of Spanish A2 (39 female students and 10 male students) between 18 and 24 years old (M_{age} = 19.85 years, SD = 1.22). The students are supposed to achieve level A2 at the end of the semester according to the Common European Framework of Reference for Languages and the curricula of the subject. All of them are students in the first year of the Foreign Languages and Cultures program of the School of Education of the Polytechnic Institute of Porto (Portugal). Within this study, we considered the hours of Spanish instruction during university years. None of the participants had any cognitive, visual, or motor disorders and all were native Portuguese students.

Materials and Design

We applied two different standardised Spanish-language batteries that assessed reading comprehension.

ECOMPLEC Test. Evaluation of Reading Comprehension (León et al., 2012). This test assesses reading comprehension in native Spanish-speaking students. The manual included three types of texts with their corresponding questions:

- A narrative text called *El hombrecillo sabelotodo* ['The Little Know-it-all'], which consisted of 514 words that followed a dialogue format within a narrative structure. This text contained 20 reading comprehension questions plus 2 questions that measure metacomprehension.

- An expository text called *Los glóbulos rojos* ['Red Blood Cells'], consisting of 348 words divided into 2 paragraphs that followed an academic text structure. A large number of concepts and technical terms were present. The text contained 19 reading comprehension questions plus 2 questions that measure metacomprehension.

- A discontinuous text called *El museo del juguete* ['Toy Museum'], which follows a web page format. It consisted of 170 words plus various graphics, illustrations, maps, and distinctive areas. This text presented 22 reading comprehension questions plus 2 questions that measure metacomprehension.

Several reasons were considered for using this test. First, the ECOMPLEC Test included both reading comprehension questions for these different types of text and metacomprehension questions in the final section of each text, which is rarely found in reading comprehension tests (see the DELE exam model of the Cervantes Institute). Second, the texts that participants had to read were based on daily life situations that did not suffer the modifications usually made in texts for L2 students (too simple language, uninteresting topics, condescending tone). This will greatly increase our sample's motivation (Carvalho et al., 2010; Kung, 2017). In addition, most of the formats of L2 Spanish manuals only include literal questions, in which a student has to find the text fragment that solves the question and is not encouraged to think (Jouini, 2005). Therefore, we decided to apply a test that also includes inferential reasoning in order to answer the questions.

Text selection is essential to achieve good reading comprehension. With a highly elaborated text, a student will be unable to answer the posed questions. In the same sense, if the level of reading comprehension is too low, texts will be too simple, and students will quickly become demotivated. Therefore, the teacher must be aware of the level of the students to adapt the texts according to their lexical, morphosyntactic and thematic knowledge. Thus, the Spanish as a second language teacher of the analysed sample has reviewed both the texts and the questionnaire. In addition, the readability indexes for narrative and expository texts were calculated using three readability scales that appear in Table 1: (1) the Szigriszt Pazos Perspicuity Index that measures the total number of syllables and the number of sentences (Szigriszt Pazos, 1993), (2) the Legibility µ Scale, which measures the difficulty of a text through calculus of words, mean, and variance in the number of letters for each word (Muñoz & Muñoz, 2006), and (3) the INFLESZ Scale, that uses the same formula as the one proposed by Szigriszt Pazos (1993), but this one has the advantage of being tested in a representative sample through aleatory texts (Barrio-Cantalejo, 2008). We did not include the readability scores of the discontinuous text as it contained mostly maps and illustrations with the text embedded on them.

Table 1. Narrative and Expository Text Legibility Index

Text	Index	Score	Difficulty
ECOMPLEC Narrative	Szigriszt Pazos (1993)	79.01	Easy
	Legibility µ (2006)	66.04	Adequate
	INFLESZ (2008)	79.01	Fairly easy
ECOMPLEC Expository	Szigriszt Pazos (1993)	63.59	Normal
	Legibility µ (2006)	51.51	A bit difficult
	INFLESZ (2008)	63.59	Normal

PROLEC-R Battery's Text Comprehension task was used as a control measure (Cuetos et al., 2014). This consisted of two narrative and two expository texts that participants had to read out-loud individually and answer four inferential questions posed by the examiner. If the answer was appropriate, they would receive

one point, if not, zero points. The maximum amount of points that a student can receive is 8 for narrative texts and 8 for expository texts.

Procedure

The ECOMPLEC test was implemented in the regular classroom under the supervision of the teacher and the examiners, according to the standards proposed in the manuals. Afterwards, in a separate classroom, we performed the Text Comprehension task of the PROLEC-R battery. We corrected and marked the first battery using the TEACorrige software, a program provided by the manual of the test (León et al., 2012). After inserting the data, this software automatically scores the answers using a series of algorithms giving us a sheet that contains a series of variables related to the score obtained in the three texts, and the results of the metacomprehension questions. The PROLEC-R battery was scored manually following the standards that appear on the manual.

Data Variables

As mentioned, the results were analysed using the TEACorrige software (León et al. 2012). Each participant obtained the following variables:

- Reading comprehension variables. Two different batteries were used for measuring reading comprehension: the ECOMPLEC-Pri battery, that included the metacomprehension questions, and the text comprehension task of the PROLEC-R battery, which was used as a control measure. We obtained the scores for the following variables: Narrative Text Comprehension, Expository Text Comprehension, Discontinuous Text Comprehension, Narrative Text Comprehension (PROLEC-R). The manual establishes that the scores should be interpreted following the correspondence between mean scores and their qualitative rank as it appears in Table 2.

Table 2. Mean Scores of the Reading Comprehension Tasks and their Corresponding Qualitative Rank

Mean Scores	Qualitative Rank
61-100	High
40-60	Medium
0–39	Low

- Metacomprehension variables. Both questions appeared at the end of each text, so that the students had to judge the metacomprehension of every text after reading it and answering all its comprehension questions. In order to be able to perform the statistical analysis and compare the answers with previous results, each metacomprehension question was given a random number from 1 (*the most difficult*) to 3 (*the easiest*).

Question 1: The level of difficulty of the text is… 1 = *above your abilities,* 2 = *appropriate for your level*, 3 = *too easy for you.*

Question 2: The questions formulated are... 1 = *difficult to understand*, 2 = *appropriate for your level,* 3 = *easy to answer.*

For the metacomprehension of each text to be adequate, the students with the highest scores should have stated that the texts were appropriate or easy for their level, while students with the lowest scores should have described the test and the task as difficult.

Data Analysis

Descriptive analysis. To analyse the data, we performed the descriptive statistics of the variables (minimum, maximum, and mean and, as a measure of dispersion, the standard deviation). Following the correspondences that appear in Table 3, we can establish that, contrary to our initial expectations and the results obtained in the legibility scales, the students obtained high scores in the expository text while the narrative text was the one with the lowest scores.

Table 3. Descriptive Analysis of the Sample according to their Results on the Reading Comprehension Tests (n = 48)

	Min.	Max.	Mean	*SD*
Narrative Text	15	85	48.10	13.119
Expository Text	20	97	65.08	17.211
Discontinuous Text	15	81	57.23	17.553
Metacomprehension Q1 Narrative	1	3	2.04	0.459
Metacomprehension Q2 Narrative	1	3	2.56	0.649
Metacomprehension Q1 Expository	1	3	1.92	0.539
Metacomprehension Q2 Expository	1	3	2.17	0.859
Metacomprehension Q1 Discontinuous	1	3	2.10	0.371
Metacomprehension Q2 Discontinuous	1	3	2.60	0.707
Narrative Text Comprehension PROLEC-R	1	8	5.90	1.729
Expository Text Comprehension PROLEC-R	1	8	6.48	1.502

As Figure 1 shows, the scores obtained by the sample were located in or above what the manual considers to be “the medium rank” (between 40 and 60), which implies that the sample was able to understand the texts in an adequate way.

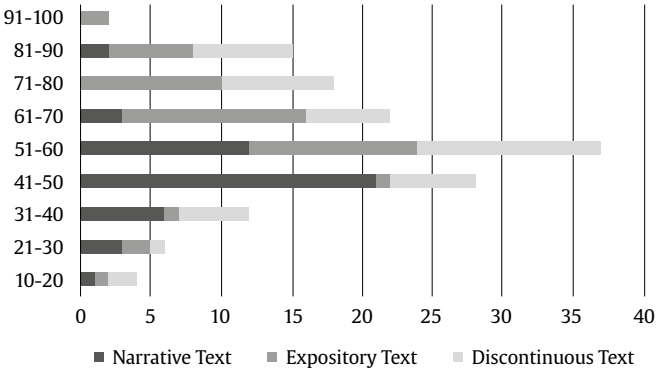

Figure 1. Graphic that Shows the Distribution of the Scores Obtained by the Participants on the Three Texts.

In more detail, Figures 2 and 3 show a boxplot that includes the average values of each variable analysed and the standard deviation respect to that value. On the one hand, Figure 2 focus on the results obtained in each type of text, while on the other hand, Figure 3 compares the results obtained on each variable analysed.

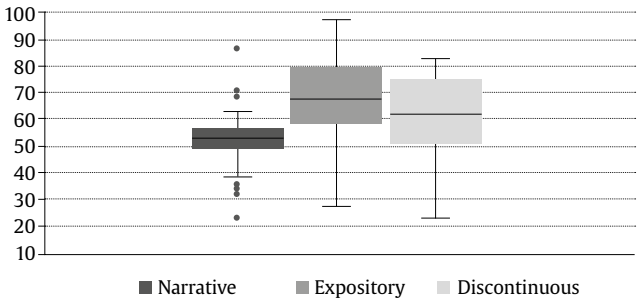

Figure 2. Boxplot that Shows the Aaverage Values of the Results Obtained on Each Type of Text and its Standard Deviation Respect to that Value.

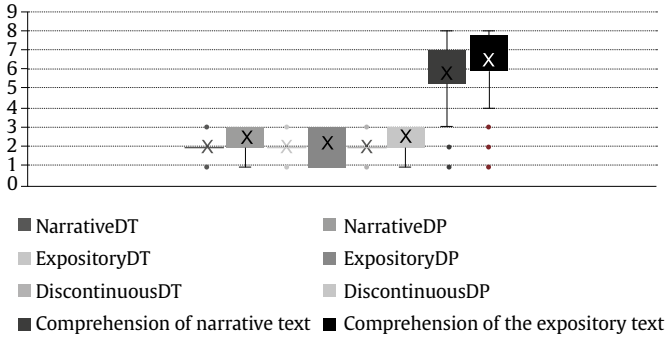

Figure 3. Boxplot that Shows the Average Values of the Results Obtained on Each Variable Analysed and its Standard Deviation with respect to That Value. *Note.* DT corresponds to the difficulty of each text as perceived by the participants. DP corresponds to the difficulty of the questions formulated about each text as perceived by the participants.

The results obtained on the narrative and expository texts of the PROLEC-R Battery (5.9 and 6.48 out of a total of 8 respectively) were also in line with the results obtained in the ECOMPLEC-Pri and, thus, we can confirm that the results obtained in our tests were coherent with the results obtained in the PROLEC task.

Inferential analysis. In order to determine whether the score of each of the reading comprehension texts is related to the metacomprehension evaluation of the corresponding text in the sample, we used contingency tables and their corresponding chi-square test.

Table 4. Contingency Table that Includes the Number of Results Obtained on Each Text (Narrative, Expository, and Discontinuous) for Each Metacomprehension Question (Q1 and Q2)

		Q1				Q2			
Text		1	2	3	Total	1	2	3	Total
Narrative	0-39	1	9	0	10	0	6	4	10
	40-60	2	25	6	33	3	8	22	33
	61-100	1	4	0	5	1	0	4	5
Expository	0-39	0	1	3	4	0	1	3	4
	40-60	5	7	1	13	5	2	6	13
	61-100	3	25	3	31	8	8	15	31
Discontinuous	0-39	0	5	3	8	0	5	3	8
	40-60	0	18	1	19	4	1	12	19
	61-100	0	18	4	22	1	3	18	22

The contingency table displays the frequency distribution of the variables, including the proportion of students who selected one of the three metacomprehension answers for each question (1, 2, or 3) according to the scores obtained in each reading comprehension variable, in order to decide whether there is statistical significant relationship between the variables (see Table 4). A chi-square analysis will tell us if the relationships between these categorical variables are significant or not (see Table 5). The participants were grouped according to their score and its corresponding rank (as it appears in Table 2).

If we look closely at the data that the contingency table of the narrative, expository, and discontinuous texts shows us (Table 4), it can be established that participants who obtained low comprehension scores (0-39) considered the texts and questions to be easy/adequate to their level, participants on the medium range (40-60) stated that the expository text was either appropriate for their level or difficult, while the discontinuous text was adequate for their level and the questions easy, and for participants with the highest score (61-100) all the texts were appropriate for their level while the questions were easy.

The results of the chi-square test that appear on Table 5 show that there is a significant connection between the three texts and their metacomprehension questions and the results obtained in the reading comprehension questions of their respective texts. These scores show that there are statistically significant relationships between reading comprehension results, and the metacomprehension of the level of difficulty of expository and discontinuous texts and their questions.

Discussion

In principle, we expected the results to show a relationship similar to the findings obtained in L1 research that established that students with low scores tend to overestimate their performance while metacomprehension adequacy should have improved with reading proficiency. The results show that there is a statistically significant relationship between reading comprehension and metacomprehension in expository and discontinuous texts. The contingency tables of said texts show us the relationship that exists between each metacomprehension question and its corresponding reading comprehension questions.

When analysing contingency tables, we can see that, in our sample, the students with the highest scores thought that the texts and the questions of both expository and discontinuous texts were appropriate or easy for their level, which implied that their metacomprehension was adequate. In fact, in this study it was found that, as explained in the literature review, the metacomprehension of the difficulty of the texts and their ability to comprehend them was adequate and, thus, readers with good reading abilities have good reading metacomprehension (Dunlosky et al., 2007; Glenberg &

Table 5. Chi-square Analysis between the Two Metacomprehension Questions (Q1 and Q2) and the Results Obtained in the Narrative, Expository, and Discontinuous Texts

		Q1			Q2		
Text		Value	*df*	Asymp. Sig. (2-sided)	Value	*df*	Asymp. Sig. (2-sided)
Narrative	Pearson's χ^2	59.519	44	.059	43.748	44	.482
	Continuity correction	42.674	44	.528	42.307	44	.544
	Linear-by-linear association	0.000	1	.985	0.181	1	.671
	No of valid cases	48			48		
Expository	Pearson's χ^2	58.573	38	.018*	57.699	38	.021*
	Continuity correction	48.647	38	.0116	64.364	38	.005
	Linear-by-linear association	0.601	1	.438	0.218	1	.640
	No of valid cases	48			48		
Discontinuous	Pearson's χ^2	66.850	30	.000**	70.824	30	.000**
	Continuity correction	27.202	30	.506	55.597	30	.003
	Linear-by-linear association	1.053	1	.305	6.712	1	.010
	No of valid cases	48			48		

*$p \leq .5$, **$p = \leq .01$.

Epstein, 1987; Mañá et al., 2009; Schneider & Pressley, 1998; Vössing et al., 2017; Wiley et al., 2016).

Students who obtained medium scores had mixed thoughts regarding the difficulty of expository texts and questions. On the other hand, they thought that the discontinuous text was appropriate for their level, which means that, in this case, their metacomprehension was appropriate. Nevertheless, they thought that questions were easy for them, which implies a certain overconfidence.

It is highly interesting to note that students with the lowest scores were overconfident about their abilities, claiming that both the texts and their questions were too easy for their level. This is in line with the research on L1 metacomprehension and the concept of the "unskilled and unware effect" that states that participants with low reading comprehension scores tend to overestimate their own reading abilities. This leads to less use of monitorization and assessment strategies that, in turn, impairs their reading comprehension (Dunlosky et al., 2007; Glenberg & Epstein, 1987; Maki et al., 1994; Mañá et al., 2009; Thiede et al., 2005; Wiley et al., 2005).

In sum, these results provide an approximation to the study of Spanish as a second language in Portuguese universities that could contribute to the improvement of the teaching of this subject at university level. In addition, our results in metacomprehension and its relation to reading comprehension ability in a L2 sample show a certain degree of similarity to other research carried out in L1 samples, which which may be the proof of a similar tendency regarding the process of metacomprehension and reading. This assumption should be further investigated in future research.

This study may expand the research on metacomprehension in L2 and shed light on its importance for future research. It also adequately reveals both the level of reading comprehension of the sample and students' metacomprehension skills for various types of texts, as well as some similarities to L1 research. In future studies of this nature, other instruments for metacomprehension evaluation should be used to provide greater validity to the results. Furthermore, we highly recommend implementing both experimental and longitudinal studies that will explore in a controlled way the study of Spanish as a second language in Portuguese universities as a result of its low level of investigation, despite being two of the world's most spoken languages.

Conclusions

Metacomprehension is a crucial ability that allows the reader to know if they understood a text properly (main theme, secondary ideas, how ideas are connected, and so on), to comprehend the problems they have encountered throughout a text and to apply the strategies needed to improve their comprehension. Our research is based on the premise that reading competence in a foreign language implicates both declarative knowledge, which includes the mastery of the linguistic system that conforms our target language, as well as procedural knowledge, that includes metacomprehension knowledge. These types of knowledge will allow the reader to implement a series of strategies that will regulate their reading process as well as their learning in general. Because of the lack of research in L2, especially in the Spanish-Portuguese combination, we decided to compare the results obtained with the findings in L1 research. Our results show that expository and discontinuous texts were appropriate to measure metacomprehension of the sample concerning their reading comprehension. In fact, similarly to L1 research, students with low scores in reading comprehension tend to overestimate their reading skills, while readers with good reading abilities have good reading metacomprehension, that is, it improves with reading proficiency. Metacomprehension is usually developed explicitly and depends on the activities and strategies used by the teacher in the classroom. Therefore, interventions in L2 should target metacomprehension abilities and provide students with the strategies needed to monitor their comprehension in order to gain experience and learn strategies that will help them improve their reading abilities. We believe that performing some metacomprehension activities that are part of a series of training programs performed with native Spanish students in the L2 classroom (such as, among others, planning and prediction of text content, assessment of the characteristics of text genre, assessment of a text's contents, construction and revision of a mental model, supervision of comprehension and text understanding, revision, and self-correction) would be beneficial to improve our students' reading skills.

It is important to point out the limitations of our study, in order to offer a context in which to interpret the results. First of all, the number of cases is still relatively small and we cannot extract conclusions and methodological proposals that can be broadly applied; they are instead hypotheses that may be useful to guide future research with larger amount of data. This will enable more sophisticated data analysis, including mixed-effects models. Also, we think that inclusion of metacomprehension judgements and data about the role of working memory in reading processes or about the differences between L1 and L2 obtained in testing comprehension/metacomprehension of texts are necessary to enrich the research and the analysis, and to lead clearer policies related to the use of different strategies in teaching to read.

Our results indicate that more studies should be conducted to investigate the nature of the relationships tested here in order to draw conclusions that may be generalisable across multiple groups of data, languages, and reading strategies and tasks.

Conflict of Interest

The authors of this article declare no conflict of interest.

Acknowledgements

We would like to thank the staff and professors of the School of Education of the Polytechnic Institute of Porto for allowing us to perform our investigation.

References

Aghaie, R., & Zhang, L. J. (2012). Effects of explicit instruction in cognitive and metacognitive reading strategies on Iranian EFL students' reading performance and strategy transfer. *Instructional Science, 40*(6), 1063-1081. https://doi.org/10.1007/s11251-011-9202-5

Barrio-Cantalejo, I. (2008). Validación de la Escala INFLESZ para evaluar la legibilidad de los textos dirigidos a pacientes. *Anales del Sistema Sanitario de Navarra, 31*(2), 135-152. https://doi.org/10.4321/S1137-66272008000300004

Bharuthram, S. (2012). Making a case for the teaching of reading across the curriculum in higher education. *South African Journal of Education, 32*, 205-214.

Blasco Serrano, A. C., & Allueva Torres, P. (2010). La metacomprensión en relación a la comprensión lectora [Metacomprehension and its relationship to reading comprehension]. *International Journal of Developmental and Educational Psychology, 3*(1), 721-730.

Cadime, I., Ribeiro, I., Viana, F. L., Santos, S., Prieto, G., & Maia, J. (2013). Validity of a reading comprehension test for Portuguese students. *Psicothema, 25*(3), 384-389.

Carvalho, A. M., Freire, J. L., & da Silva, A. J. B. (2010). Teaching Portuguese to Spanish speakers: A case for trilingualism. *Hispania, 93*(1), 70-75.

Caverly, D. (1997). Teaching reading in a Learning Assistance Center. In S. Mioduski & G. Enright (Eds.), *Proceedings of the 17th and 18th Annual Institutes for Learning Assistance Professionals: 1996 and 1997* (pp. 27-42). University Learning Center, University of Arizona.

Caverly, D. C., Nicholson, S. A., & Radcliffe, R. (2004). The effectiveness of strategic reading instruction for college developmental readers. *Journal of College Reading and Learning, 35*(1), 25-49. https://doi.org/10.1080/10790195.2004.10850166

Channa, M. A., & Nordin, Z. S. (2014). Identifying metacognitive strategies through learners' reading comprehension: A review of related studies. *Science International, 26*(5), 2457-2460.

Cueto Vallverdú, N. (2002). *Representación e inferencia. El proceso de la interpretación*. University of Oviedo, Department of Spanish Philology.
Cuetos, F., Rodríguez, B., Ruano, E., & Arribas, D. (2014). *PROLEC-R. Batería de Evaluación de los Procesos Lectores, Revisada* [PROLEC-R. Battery of Assessment of Reading Processes, Revised]. TEA Ediciones.
Davis, J. N., & Bistodeau, L. (1993). How do L1 and L2 reading differ? Evidence from think aloud protocols. *The Modern Language Journal, 77*(4), 459-472. https://doi.org/10.1111/j.1540-4781.1993.tb01993.x
Dunlosky, J., Serra M. J., & Baker J. M. C. (2007). Metamemory. In F. T. Durso, R. S. Nickerson, S. T. Dumais, S. Lewandowsky, & T. J. Perfect (Eds.), *Handbook of applied cognition* (pp. 137-162). John Wiley & Sons.
Elosúa, P., & Mújica, J. (2013). Invariance levels across language versions of the PISA 2009 reading comprehension test in Spain. *Psicothema, 25*(3), 390-395. https://doi.org/10.7334/psicothema2013.46
Escudero, M. P., Reyez Cruz, M. E. & Hernández Méndez (2015). The impact of a linguistic intervention on rhetorical inferential comprehension and metacognition in EFL academic reading: A quasi-experimental, mixed-methods study. *Revista Signos, 48*(89), 332-354. https://doi.org/10.4067/S0718-09342015000300003
Fidalgo, R., Torrance, M., Arias-Gundín, O., & Martínez-Cocó, B. (2014). Comparison of reading-writing patterns and performance of students with and without reading difficulties. *Psicothema, 26*(4), 442-448.
García-Rodicio, H., & Sánchez, E. (2014). Does the detection of misunderstanding lead to its revision? *Metacognition and Learning, 9*(3), 265-286. https://doi.org/10.1007/s11409-014-9116-0
Glenberg, A. M., & Epstein W. (1987). Inexpert calibration of comprehension. *Memory & Cognition, 15*(1), 84-93. https://doi.org/10.3758/BF03197714
Goh, C. (2008). Metacognitive instruction for second language listening development theory. *RELC Journal, 39*(2), 188-213. https://doi.org/10.1177/0033688208092184
Goh, C., & Yunsita, T. (2006). Metacognitive instruction in listening for young learners. *ELT Journal, 60*(3), 222-232. https://doi.org/10.1093/elt/ccl002
Gómez Álvarez, L. C., & Sandoval Zúñiga, M. S. (2019). Alfabetización metacognitiva para el desarrollo de la comprensión auditiva en segundas lenguas: fundamentos para la didáctica de ELE. *Doblete. Revista de Lengua y Literatura, 5*, 19-46. https://doi.org/10.5565/rev/doblele.56
Grabe, W. (2009). *Reading in a second language. Moving from theory to practice.* Cambridge University Press.
Halliday, M. A., & Hasan, R. (1985). *Language, text and context.* Derkin University.
Hernández Wilson, J., & Izquierdo, J. (2016). Metacognición y comprensión oral en L2. Observación de la práctica docente en nivel universitario. *Redie. Revista Electrónica de Investigación Educativa, 18*(1), 39-52.
Jouini, K. (2005) Estrategias inferenciales en la comprensión lectora. *Glosas Didácticas, 13,* 95-114.
Kieffer, M. J., Petscher, Y., Proctor, C. P., & Silverman, R. D. (2016). Is the whole greater than the sum of its parts? Modeling the contributions of language comprehension skills to reading comprehension in the upper elementary grades. *Scientific Studies of Reading, 20*(6), 436-454. https://doi.org/10.1080/10888438.2016.1214591
Kung, F. (2017). Teaching second language reading comprehension: The effects of classroom materials and reading strategy use. *Innovation in Language Learning and Teaching, 13*(1), 93-104. https://doi.org/10.1080/17501229.2017.1364252
León, J. A., Escudero Domínguez, I., & Olmos Albacete, R. (2012). *ECOMPLEC. Evaluación de la comprensión lectora.* Ediciones TEA.
León, J. A., Martínez-Huertas, J. A., Olmos, R., Moreno, J. D., & Escudero, I. (2019). Metacomprehension skills depend on the type of text: An analysis from differential item functioning. *Psicothema, 31*(1), 66-72. https://doi.org/10.7334/psicothema2018.163
Linderholm, T., Zhao, Q., Therriault, D. J., & Cordeel-McNulty, K. (2008). Metacomprehension effects situated within an anchoring and adjustment framework. *Metacognition and Reading, 3*(3), 175-188. https://doi.org/10.1007/s11409-008-9025-1
MacMillan, M. (2014). Student connections with academic texts: A phenomenographic study of reading. *Teaching in Higher Education, 19*(8), 943-954. https://doi.org/10.1080/13562517.2014.934345
Maki, R. H., Jonas, D., & Kallod, M. (1994). The relationship between comprehension and metacomprehension ability. *Psychonomic Bulletin & Review, 1*(1), 126-129. https://doi.org/10.3758/BF03200769
Mañá, A., Vidal-Abarca, E., Domínguez, C., Gil, L., & Cerdán, R. (2009). Papel de los procesos metacognitivos en una tarea de pregunta-respuesta contextos escritos. *Infancia y Aprendizaje, 32*(4), 553-565. https://doi.org/10.1174/021037009789610412
Muijselaar, M. M. L., Swart, N., Steenbeek-Plating, E., Droop, M., Verhoeven, L., & de Jong, P. F. (2017). Developmental relations between reading comprehension and reading strategies. *Scientific Studies of Reading, 21*(3), 194-209. https://doi.org/10.1080/10888438.2017.1278763
Muñoz, M., & Muñoz, J. (2006). *Legibilidad Mμ* (Version 1.0) [Computer Software]. Viña del Mar, Chile.
Nation, P. (2015). Principles guiding vocabulary learning through extensive reading. *Reading in a Foreign Language, 27*(1), 136-145.
Oxford, R. L. (1990). *Language learning strategies: What every teacher should know.* Heinle & Heinle.
Perry, D. (2013). Comprehension strategies while reading expository texts in Spanish (L1) and English (L2). *Psicología Educativa, 19*(2), 75-81. https://doi.org/10.5093/ed2013a13
Phakiti, A. (2003). A closer look at the relationship of cognitive and metacognitive strategy use to EFL reading achievement test performance. *Language Testing, 20*(1), 26-56. https://doi.org/10.1191/0265532203lt243oa
Phakiti, A. (2008). Predicting NESB international postgraduate students' academic achievement: a structural equation modeling approach. *International Journal of Applied Educational Studies, 3*(1), 18-38.
Puente, A., Jiménez, V., & Alvarado, J. M. (2009). *ESCOLA. Escala de conciencia lectora. Manual.* Instituto de Orientación Psicopedagógica EOS.
Pugh, S. L., Pawan, F., & Antommarchi, C. (2000). Academic literacy and the new college learner. In R. F. Flippo & D. C. Caverly (Eds.), *Handbook of college reading and study strategy research* (pp. 25-42). Lawrence Erlbaum Associates Publishers.
Raoofi, S., Chan, S., Mukundan, J., & Rashid, S. M. (2014). Metacognition and second/foreign language learning. *English Language Teaching, 7*(1), 36-49. https://doi.org/10.5539/elt.v7n1p36
Samo, R., & Mikulec, A. (2018). EFL reading metacomprehension from the developmental perspective: A longitudinal case study. *Journal of Language and Education, 4*(1), 105-116. https://doi.org/10.17323/2411-7390-2018-4-1-105-116
Schmitt, M. C., & Sha, S. (2009). The developmental nature of metacognition and the relationship between knowledge and control over time. *Journal of Research in Reading, 32*(2), 254-271. https://doi.org/10.1111/j.1467-9817.2008.01388.x
Schneider, W., & Pressley, M. (1998). *Memory development between two and twenty* (2nd ed.). Lawrence Erlbaum.
Szigriszt Pazos, F. (1993). *Sistemas predictivos de legibilidad del mensaje escrito: fórmula de perspicuidad* (Unpublished doctoral dissertation). Complutense University of Madrid.
Taki, S. (2015). Metacognitive online reading strategy use: Readers' perceptions in L1 and L2. *Journal of Research in Reading, 39*(4), 409-427. https://doi.org/10.1111/1467-9817.12048
Tang, H. (1997). The relationship between reading comprehension processes in L1 and L2. *Reading Psychology: An International Quarterly, 18*(3), 249-301. https://doi.org/10.1080/0270271970180303
Taraban, R., Rynearson, K., & Kerr, M. (2000). College students' academic performance and self-reports of comprehension strategy use. *Reading Psychology, 21*(4), 283-308. https://doi.org/10.1080/027027100750061930
Thiede, K. W., Dunlosky, J., Griffin, T. D., & Wiley, J. (2005). Understanding the delayed-keyword effect on metacomprehension accuracy. *Journal of Experimental Psychology, 31*(6), 1267-1280. https://doi.org/10.1037/0278-7393.31.6.1267
Vandergrift, L., Goh, C., Mareschal, C., & Tafaghodtari, M. H. (2006). The Metacognitive Awareness Listening Questionnaire (MALQ): Development and validation. *Language Learning, 56*(3), 431-462. https://doi.org/10.1111/j.1467-9922.2006.00373.x
Vössing, J., Stamov-Roßnagel, C., & Heinitz, K. (2017). Text difficulty affects metacomprehension accuracy and knowledge test performance in text learning. *Journal of Computer Assisted Learning, 33*(3), 282-291. https://doi.org/10.1111/jcal.12179
Wiley, J., Griffin, T. D., Jaeger, A. J., Jarosz, A. F., Cushen, P. J., & Thiede, K. W. (2016). Improving metacomprehension accuracy in an undergraduate course context. *Journal of Experimental Psychology: Applied, 22*(4), 393-405. https://doi.org/10.1037/xap0000096
Wiley, J., Griffin, T. D., & Thiede, K. W. (2005). Putting the comprehension in metacomprehension. *The Journal of General Psychology, 132*(4), 408-428. https://doi.org/10.3200/GENP.132.4.408-428
Xin, Y., Ismail, F. B., & Ahmad, A. B. A. (2018). Influence of L1 metacognitive reading strategies on L2 academic reading of Chinese college students. *Mediterranean Journal of Social Sciences, 9*(5), 147-155. https://doi.org/10.2478/mjss-2018-0146
Zareva, A., Schwanenflugel, P., & Nikolova, Y. (2005). Relationship between lexical competence and language proficiency: Variable sensitivity. *Studies in Second Language Acquisition, 27*(4), 567-595. https://doi.org/10.1017/S0272263105050254
Zhang, L. J. (2001). Awareness in reading: EFL students' metacognitive knowledge of reading strategies in an acquisition-poor environment. *Language Awareness, 10*(4), 268-288. https://doi.org/10.1080/09658410108667039