

Analysis of ESP university students' reading strategy awareness

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Abstract

The research literature on metacognitive awareness of reading strategies indicates the need to increase our understanding of readers' metacognitive knowledge about reading and reading strategies so that individuals develop into active, constructively responsive readers. The study presented here is intended to study the reported strategy use of English for Specific Purposes (ESP) university students, specifically students from the Faculty of Chemistry and the Technical School of Engineering at the University of Oviedo. Specifically, I analyse (1) Spanish university ESP students' reported strategy use; and (2) differences, if any, between male and female students in their perceived use of reading strategies while reading academic materials. I conclude that there is a moderate to high overall use of reading strategies and find that students show higher reported use for problem-solving and global reading strategies. Moreover, I find that females report significantly higher frequency of strategy use and tend to use support reading strategies more than men.

Keywords: reading ability, reading strategies, metacognitive awareness, gender.

Resumen

Análisis de la percepción metacognitiva de las estrategias de lectura en el caso de estudiantes universitarios de IFE

La literatura acerca de la percepción metacognitiva de las estrategias de lectura muestra la necesidad de incrementar nuestra comprensión acerca del conocimiento metacognitivo sobre la lectura y las estrategias de lectura de los lectores para de esta manera convertirlos en lectores activos. El presente trabajo pretende estudiar el uso percibido de estrategias por parte de estudiantes universitarios de Inglés para Fines Específicos (IFE), en concreto estudiantes de

la Facultad de Química y la Escuela de Ingeniería Técnica Industrial de la Universidad de Oviedo. En concreto, analizamos (1) el uso percibido de estrategias por parte de estudiantes universitarios españoles de IFE; y (2) las posibles diferencias entre hombres y mujeres con respecto a su uso percibido de estrategias durante la lectura de textos académicos. Concluimos que se registra un uso entre moderado y alto de estrategias de lectura y que los estudiantes informan de un mayor uso de estrategias de resolución de problemas y estrategias globales. Además, encontramos que el uso percibido de estrategias se manifiesta más entre las mujeres y que, en comparación con los hombres, éstas tienden a usar más las estrategias de apoyo.

Palabras clave: competencia lectora, estrategias de lectura, percepción metacognitiva, género.

Previous research studies

University students of English as a second language and English as a foreign language have to read a large volume of academic texts in English. However, many students enter university education underprepared for the reading demands placed on them (Dreyer & Nel, 2003). They show inability to read selectively, that is, extracting what is important for the purpose of reading and discarding what is insignificant (Benson, 1991). They often present low level of reading strategy knowledge (Dreyer, 1998; Van Wyk, 2001) and lack the strategies needed to successfully comprehend expository texts. Also, they often select ineffective and inefficient strategies with little strategic intent (Wood et al. 1998).

Strategic awareness and monitoring of the comprehension process are critically important aspects of skilled reading (Pressley & Afflerbach, 1995; Sheorey & Mokhtari, 2001). Such awareness and monitoring is often referred to in the literature as “metacognition” which “entails knowledge of strategies for processing texts, the ability to monitor comprehension, and the ability to adjust strategies as needed” (Auerbach & Paxton, 1997: 240-1). According to Sheorey & Mokhtari (2001), it is the combination of conscious awareness of the strategic reading processes and the actual use of reading strategies that distinguishes the skilled from the unskilled readers. Studies in L1 and L2 contexts show that successful reading strategy use is dependent on whether a strategy is employed metacognitively (Carrell et al., 1989; Jiménez et al., 1996). Studies also show that unsuccessful students lack this strategic awareness and monitoring of the comprehension process (García et al.,

1998). These less successful students, who are often unaware of their own cognitive process, must be helped to acquire and use the reading strategies that have been found to be successful (Mokhtari & Reichard, 2004).

Recent studies recognize the role of metacognitive awareness in reading comprehension. For instance, Sheorey & Mokhtari (2001) examine differences in the reported use of reading strategies of native and non-native English speakers when reading academic materials. Participants were 302 college students (150 US native-English-speaking and 152 ESL students), who completed a survey of reading strategies aimed at discerning the strategies readers report using when coping with academic reading tasks. Results of the study revealed, first, that both US and ESL students display awareness of almost all the strategies included in the survey. Secondly, both groups attributed the same order of importance to categories of reading strategies in the survey, regardless of their reading ability or gender. Thirdly, both ESL and US high-reading-ability students show comparable degrees of higher reported use for cognitive and metacognitive reading strategies than lower-reading-ability students in the respective groups, and while the US high-reading-ability students seem to consider support reading strategies to be relatively more valuable than low-reading-ability US students, ESL students attribute high value to support reading strategies, regardless of their reading ability level. Lastly, in the US group, the females report significantly higher frequency of strategy use; this gender effect is not reflected in the ESL sample. These authors conclude that it is important for all readers, native and non-native, to be aware of the significant strategies proficient reading requires. Teachers can play a key role in increasing students' awareness of such strategies and in helping them to become active readers.

Dhieb-Henia (2003) investigates into the reading processes of English as a foreign language/English for specific purposes (EFL/ESP) students with respect to research articles in their speciality area: Biology. Specifically, two groups of undergraduate Biology students (62 in all) from two science institutions took pre- and post-course reading tests, and 12 participated in retrospection. The purpose of this study was to find if, and to what extent, a metacognitive strategy training course in the study skills and strategies necessary for reading scientific research articles can help ESP students in an EFL context read more efficiently and rapidly in their subject area. The general hypothesis of this study was that the students who received this strategy training would show enhanced declarative and procedural knowledge (as indicated by their higher scores and lower task-achievement

timings) at the end of the course. The tests and protocols provided evidence of the effectiveness of metacognitive strategy training in improving the subjects' familiarity with and proficiency in reading research articles, and also of the effectiveness of retrospection as a method for evaluating the subjects' reading behaviour.

Dreyer & Nel (2003) conducted research on strategic reading instruction. Their purpose was to address if the students in the experimental group who followed strategic reading instruction attained statistically and practically significantly higher mean scores on their end-of-semester English, reading comprehension tests and if they differed in terms of their reading strategy use. The participants were 131 first-year English as a Second Language students taking an English for Professional course at the Potchefstroom university for CHE, in South Africa. The results indicated that students who received strategic reading instruction attained both statistically and practically significantly higher marks on the reading comprehension tests than the students in the control group did. This was true for successful students, as well as for those considered to be at risk.

Mokhtari & Reichard (2004) also investigated whether significant differences exist between first and second language readers in their metacognitive awareness and perceived use of specific strategies when reading for academic purposes in English. A total of 350 college students (141 US and 209 Moroccan) completed an instrument designed to measure their metacognitive awareness of reading strategies. The results revealed that despite the fact that the two student groups had been schooled in significantly different socio-cultural environments, they reported remarkably similar patterns of strategy awareness and reported use when reading academic materials in English. Both US and Moroccan students demonstrated a moderate to high awareness level of reading strategies. An examination of the type of strategies reported used by the subjects showed that Moroccan students reported using certain types of strategies more often than did their American counterparts. These authors conclude that this study's findings help to explain some of the differences and similarities between second language readers and those reading in their first language, which have only been seen in terms of deficiencies but not in other, presumably more beneficial or even neutral ways.

The first conclusion to be drawn from the research literature on metacognitive awareness of reading strategies just reviewed indicates the need to increase our understanding of readers' metacognitive knowledge

about reading and reading strategies so that individuals can develop into active, constructively responsive readers. The studies analysed tend to conclude that it is important for all readers to be aware of the significant strategies proficient reading requires. Moreover, they show that students who receive strategic reading instruction improve their reading comprehension performance. These studies also reveal that in general students display some awareness of reading strategies without much difference among native and non-native students in the types of strategies reported to have more often been used. Finally, one study (Sheorey & Mokhtari, 2001) shows that females report significantly higher frequency of strategy use.

Our study

Aims

Bearing all these studies in mind, the present paper is aimed at increasing our understanding of readers' metacognitive knowledge about reading and reading strategies in the context of ESP Spanish students. Thus, the present study is aimed at assessing the metacognitive awareness and perceived strategy use of ESP students who are native speakers of Spanish and read academic texts written in English. Likewise, I also intend to provide more conclusive results about the gender effect (the females report significantly higher frequency of strategy use). Specifically, I will explore these two issues:

1. ESP Spanish students' reported strategy use.
2. Differences, if any, between male and female students in their perceived use of reading strategies while reading academic materials.

Subjects

The participants in this study were 157 non-native-English speaking Spanish students from the University of Oviedo. Of these, 43.3% were first-year chemistry students and 56.7% were first-year students from the Technical School of Engineering. With respect to their sex, 48% were women and 52% were men. The students' average age was 19.44.

Data collection

The students' metacognitive awareness of reading strategies was assessed through the use of the Metacognitive Awareness of Reading Strategies Inventory (MARSİ) (Mokhtari & Reichard, 2002), which was designed for measuring adolescent and adult students' awareness and use of reading strategies while reading academic or school-related materials.¹ The MARSİ instrument (see Table 2 in the appendix) measures three broad categories of strategies including:

- (1) Global Reading Strategies (GLOB), which can be thought of as generalized or global reading strategies aimed at setting the stage for the reading act (for instance, setting purpose for reading, previewing text content, predicting what the text is about, etc.);
- (2) Problem-Solving Strategies (PROB), which are localized, focused problem-solving or repair strategies used when problems develop in understanding textual information (for instance, checking one's understanding upon encountering conflicting information, re-reading for better understanding, etc.); and
- (3) Support Reading Strategies (SUP), which involve using the support mechanisms or tools aimed at sustaining responsiveness to reading (for instance, use of reference materials like dictionaries and other support systems). These three classes of strategies interact with and support each other when used in the process of constructing meaning from text.

The MARSİ instrument was administered during a regular class period. After a brief overview of the purpose of the study, a description of the instrument, and an explanation of the steps involved in completing it, the students were instructed to read each of the 30 statements in the MARSİ inventory, and circle the number which best described their perceived use of the strategies described in the statements using a Likert scale ranging from 1 (I never or almost never use this strategy) to 5 (I always or almost always use this strategy). The students were also advised to work at their own pace. They could take as much time as they needed to complete the inventory. On the average, the students completed it in 12 minutes.

Results

As a first step, we examined the students' responses in terms of the individual strategies as well as the three MARSİ categories identified. Table

1 shows the individual reading strategy preferences of students arranged in descending order by their means (that is, the most favoured or often used to least favoured or least used strategies).

Type	Strategy	Mean Students (n=157)
PROB	When text becomes difficult, I reread to increase my understanding.	4.2323
PROB	When text becomes difficult, I pay closer attention to what I'm reading.	4.2115
PROB	I try to get back on track when I lose concentration.	4.1346
PROB	I read slowly but carefully to be sure I understand what I'm reading.	4.0637
PROB	I try to guess the meaning of unknown words or phrases.	3.9484
GLOB	I use context clues to help me better understand what I'm reading.	3.9481
GLOB	I skim the text first by noting characteristics like length and organization.	3.7452
PROB	I adjust my reading speed according to what I'm reading.	3.6538
GLOB	I try to guess what the material is about when I read.	3.6282
GLOB	I use tables, figures, and pictures in text to increase my understanding.	3.5541
GLOB	I check my understanding when I come across conflicting information.	3.5355
SUP	I use reference materials such as dictionaries to help me understand what I read.	3.4581
GLOB	I think about what I know to help me understand what I read.	3.4522
PROB	I stop from time to time and think about what I'm reading.	3.3399
SUP	I go back and forth in the text to find relationships among ideas in it.	3.3013
GLOB	I have a purpose in mind when I read.	3.2597
SUP	I paraphrase (restate ideas in my own words) to better understand what I read.	3.2532
PROB	I try to picture or visualize information to help remember what I read.	3.1742
GLOB	I decide what to read closely and what to ignore.	3.1090
SUP	I underline or circle information in the text to help me remember it.	3.0581
GLOB	I check to see if my guesses about the text are right or wrong.	3.0516
GLOB	I use typographical aids like boldface and italics to identify key information.	2.8516
SUP	I discuss what I read with others to check my understanding.	2.7436
GLOB	I think about whether the content of the text fits my reading purpose.	2.8431
GLOB	I critically analyze and evaluate the information presented in the text.	2.8077
SUP	I take notes while reading to help me understand what I read.	2.6306
SUP	I summarize what I read to reflect on important information in the text.	2.5962
GLOB	I preview the text to see what it's about before reading it.	2.5779
SUP	When text becomes difficult, I read aloud to help me understand what I read.	2.4076
SUP	I ask myself questions I like to have answered in the text.	2.3718

Table 1. Reported reading strategy use: reported reading strategies used most and least.

In examining reading strategy use among students on the MARS scale, which ranges from 1 to 5 (1 = low strategy use; 5 = high strategy use), we identified three types of use as suggested by Oxford & Burry-Stock (1995) for general language learning strategy use: high (mean ≥ 3.5), medium (mean = 2.5-3.4), and low (mean ≤ 2.4).

The means of individual strategy items ranged from 4.2115 to 2.3718, indicating a moderate to high overall use of reading strategies according to the established strategy use criteria. This use is only slightly higher if compared with this use in previous studies (Sheorey & Mokhtari, 2001; or Mokhtari & Reichard, 2004). Eleven of the 30 strategies fell within the high use group (mean ≥ 3.5 or above), 18 strategies registered means between 3.45 and 2.57 indicating medium use. Only two of the strategies in the survey were reported to be used with low frequency (mean values ≤ 2.4).

We further analysed the data according to the MARS categories. Students showed a clear preference for problem-solving strategies followed by global reading strategies and support reading strategies. The four strategies with the highest use are problem solving.

We then analysed if there were any differences between male and female students in their self-assessed strategy use. We analysed the data using ANOVA. The results obtained revealed statistically significant differences ($p < 0.005$) for the use of strategies 2 (I take notes while reading to help me understand what I read.), 6 (I summarize what I read to reflect on important information in the text) and 12 (I underline or circle information in the text to help me remember it). Women tend to use these strategies more often than men. They are all support reading strategies.

Concluding remarks

In this study, we wanted to explore the metacognitive awareness and perceived use of reading strategies of ESP college students while reading academic materials. Specifically, we carried out an analysis of Spanish ESP University students' reported strategy use, as well as an analysis of possible differences between male and female students in their perceived use of reading strategies while reading academic materials.

The previously presented research has enabled us to conclude that there is a moderate to high overall use of reading strategies among Spanish ESP students when reading their academic materials. This result agrees with previous studies on the matter. Moreover, we have found differences in strategy-type use among students. Our study shows higher reported use for problem-solving and global reading strategies.

In addition, we have found differences between male and female students in their self-assessed strategy use. Women tend to report significantly higher frequency of support reading strategy use. This gender effect supports the

results found in previous studies which show that females report significantly higher frequency of strategy use although in our research this gender effect is found with respect to only one type of strategies (i.e., support and reading strategies).

More research work is needed to go deeply into these two results. Thus, we intend to continue this study in the future with a further analysis of students' higher reported use for some strategies. We will analyse the reason for this preference and what it is related to (reading proficiency, academic background, etc.). Similarly, we will carry out more research into the gender effect found with an analysis of the relationship between support reading strategies and reading comprehension performance. This study might indicate whether this type of strategies is or not significant for reading performance and may help explain women's reasons for their preference for support reading strategies.

We can finally extract some pedagogical implications. We think it is important for non-native readers to be aware of the significant strategies proficient reading requires. We, as teachers, can contribute to increase students' awareness of such strategies and help them become "constructively responsive" readers (Pressley & Afflerbach, 1995: 80). We believe it is important for metacognitive reading strategies to be part of reading instruction in a foreign language. Such instruction can help promote, as Sheorey & Mokhtari (2001) defend, an increased awareness of the mental processes involved in reading and the development of thoughtful and constructively responsive reading. Teaching students to become constructively responsive readers can be a powerful way to promote skilful academic reading, which will, in turn, enhance academic achievement.

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¹ A complete description of MARSII, including its psychometric properties as well as its theoretical and research foundations, can be found in Mokhtari & Reichard (2002).

Appendix

Listed below are statements about what people do when they read academic or school-related materials such as textbooks. After reading each statement, circle the number that applies to you using the scale provided: 1 "I never or almost never do this", 2 "I do this only occasionally", 3 "I sometimes do this", 4 "I usually do this", 5 "I always or almost always do this". Please note that there are no right or wrong answers to the statements in this inventory.

Type	Strategy	Scale
GLOB	1. I have a purpose in mind when I read.	1 2 3 4 5
SUP	2. I take notes while reading to help me understand what I read.	1 2 3 4 5
GLOB	3. I think about what I know to help me understand what I read.	1 2 3 4 5
GLOB	4. I preview the text to see what it's about before reading it.	1 2 3 4 5
SUP	5. When text becomes difficult, I read aloud to help me understand what I read.	1 2 3 4 5
SUP	6. I summarize what I read to reflect on important information in the text.	1 2 3 4 5
GLOB	7. I think about whether the content of the text fits my reading purpose.	1 2 3 4 5
PROB	8. I read slowly but carefully to be sure I understand what I'm reading.	1 2 3 4 5
SUP	9. I discuss what I read with others to check my understanding.	1 2 3 4 5
GLOB	10. I skim the text first by noting characteristics like length and organization.	1 2 3 4 5
PROB	11. I try to get back on track when I lose concentration.	1 2 3 4 5
SUP	12. I underline or circle information in the text to help me remember it.	1 2 3 4 5
PROB	13. I adjust my reading speed according to what I'm reading.	1 2 3 4 5
GLOB	14. I decide what to read closely and what to ignore.	1 2 3 4 5
SUP	15. I use reference materials such as dictionaries to help me understand what I read.	1 2 3 4 5
PROB	16. When text becomes difficult, I pay closer attention to what I'm reading.	1 2 3 4 5
GLOB	17. I use tables, figures, and pictures in text to increase my understanding.	1 2 3 4 5
PROB	18. I stop from time to time and think about what I'm reading.	1 2 3 4 5
GLOB	19. I use context clues to help me better understand what I'm reading.	1 2 3 4 5
SUP	20. I paraphrase (restate ideas in my own words) to better understand what I read.	1 2 3 4 5
PROB	21. I try to picture or visualize information to help remember what I read.	1 2 3 4 5
GLOB	22. I use typographical aids like boldface and italics to identify key information.	1 2 3 4 5
GLOB	23. I critically analyze and evaluate the information presented in the text.	1 2 3 4 5
SUP	24. I go back and forth in the text to find relationships among ideas in it.	1 2 3 4 5
GLOB	25. I check my understanding when I come across conflicting information.	1 2 3 4 5
GLOB	26. I try to guess what the material is about when I read.	1 2 3 4 5
PROB	27. When text becomes difficult, I reread to increase my understanding.	1 2 3 4 5
SUP	28. I ask myself questions I like to have answered in the text.	1 2 3 4 5
GLOB	29. I check to see if my guesses about the text are right or wrong.	1 2 3 4 5
PROB	30. I try to guess the meaning of unknown words or phrases.	1 2 3 4 5

Table 2. The MARSJ instrument (Mokhtari & Reichard, 2002: 259).

