Gender differences in reading strategy use
in the Greek academic context

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Reading is the most important skill in the academic environment, having a major contribution to academic success. Various studies in different educational contexts have reported differences in reading strategies between the two genders. However, the Greek higher education context has not yet been investigated in this respect. In an attempt to explain gender differences in the employment of academic reading strategies, we report results on reading strategy use of university students in relation to their gender. The t-test results indicated that female students use significantly more problem-solving and support strategies while in the global reading strategy category, the frequency of use is almost equal in the two genders. Moreover, there were statistically significant differences in eight strategy items, three of which belong to the global category, two in problem-solving and three in the support category. In six of these items, female students stand higher than male ones. Results are discussed in relation to similar studies in the literature and further research is suggested.

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1. Introduction

Reading competence has a considerable contribution to academic performance. In an academic context, different reading purposes, such as searching for information, learning from texts, integrating information in a synthesis, etc., require readers to make several decisions and to engage in different reading processes, such as the strategic one. Strategic competences involve comprehension monitoring of processing difficulties or gaps in background knowledge and the possible activation of problem-solving strategies (Grabe & Stoller, 2019), all of which characterise higher-level reading (Phakiti, 2003). Strategies are viewed as intrinsic to the reading process and as leading to superior reading performance. Therefore, awareness of reading strategy use by the learners is deemed of special significance, especially since strategy awareness has been found to be the best predictor of strategy use (Lee & Oxford, 2008).

An area which has been investigated in relation to strategy use is that of gender. According to Phakiti (2003), this investigation is of paramount importance both for contributing to the formulation of "a sound L2 reading theory" (p. 651) but also for making both theorists and teachers aware of the

significance of the gender factor in L2 reading in order to use this knowledge for improving the learning conditions for both genders.

Further investigation of the "specific conditions and variables" (Phakiti, 2003, p. 652) that have an impact on males' and females' strategy use is important because these differences, which are prominent in all cultures, can point to different learning approaches adopted by females and males (Green & Oxford, 1995). However, the purpose of investigating gender differences is not to arrive at some kind of uniform pattern of strategy use by the two genders, as inconsistent findings, explained by the different "sociocultural and political contexts", are the norm (Poole, 2010: p. 57). Gender differences should not be examined as "a universal phenomenon" (Phakiti 2003, p. 679) but in a strictly context-specific perspective, in order to assess whether they do exist. Therefore, the originality of the present study lies into investigating reading strategy use and its gender differences in the Greek tertiary education context, in which, to the best of our knowledge, neither the students' reading strategies nor the teachers' practices have been documented.

2. Literature review

2.1 Metacognition

The significant role of metacognition in learning and reading has been recognized since the late '70s and early '80s (Baker & Brown, 1984; Flavell, 1979). In this framework, "metacognitive knowledge" and "regulation of cognition" form the two components of metacognition while metacognitive knowledge has a "unique contribution to cognitive performance" (Schraw & Dennison, 1994, p. 471). Knowledge about strategies is one of the three variables of metacognitive knowledge, and it involves declarative knowledge about strategies, conditional knowledge of "when" and "why" to use them (Schraw & Dennison, 1994) and procedural knowledge about "how to" implement them (Paris, Lipson & Wixson, 1983, p. 303).

Metacognitive awareness is a term used more frequently in reading research instead of metacognition to indicate awareness of oneself as a reader, of the reading task and of strategies (Padeliadu, Botsas & Sideridis, 2002). This awareness guides readers' planning, goal setting decisions, as well as the processing of tasks and comprehension monitoring (Grabe & Stoller, 2019). An increased state of awareness and the actual utilisation of reading strategies characterises a "strategic response to text" (Grabe, 2009, p. 51) and distinguishes skilled from unskilled readers (Mokhtari, Sheorey & Reichard, 2008). Lower ability readers are less aware of the source of the problem or take any subsequent action (Block, 1992).

Mokhtari and Reichard (2002) designed the Metacognitive Awareness of Reading Strategies Inventory (MARSI) to measure the metacognitive awareness of reading strategies of adult or adolescent L1 students. The MARSI version for ESL or EFL students is The Survey of Reading Strategies (SORS) (Mokhtari & Sheorey, 2002), the instrument used in the present study. The SORS is based on the MARSI's factor analyses and theoretical considerations (Mokhtari, Sheorey & Reichard, 2008) and includes the global, the problem-solving and the support strategy categories.

2.2 Strategy categories

Within the global, problem-solving and support strategy categories, individual reading strategies have been empirically included "in validated multiple-strategy instruction" studies (Grabe & Stoller, 2013, p. 226). These strategies are used in a different way by various proficiency levels while their effectiveness increases when they are used in combination with other strategies or as a cluster. According to Mokhtari and Sheorey (2002, p. 4) "**global** reading strategies are those intentional, carefully planned techniques by which learners monitor or manage their reading". Important global

strategies are previewing, use of background knowledge, checking the context and critical thinking. *Previewing* is a strategy used by experts (Baker, 1989) to plan for reading and can facilitate comprehension through schema activation and global text awareness (Prichard & Atkins, 2016; Zhang, 2001). The contribution of *background or prior knowledge* to comprehension has been acknowledged in L2 reading (Barry & Lazarte, 1995; Bernhardt, 1991; Carrell & Wise, 1998; Mc Neill, 2012; Pritchard, 1990), especially for lower language proficiency readers, if activated in a strategic way and combined with text evidence (Macaro, 2006). Weaker readers, however, often activate irrelevant knowledge and are led, therefore, to wrong inferences (Grabe, 2009) or knowledge of a personal type that does not allow them to integrate information (Block, 1986). *Checking the context*, i.e. using information from the immediate or "wider discourse contexts" strategically (Grabe, 2009, p. 72) to overcome comprehension obstacles, can also be enhanced through background knowledge activation. However, it may "slow reading to a type of problem-solving processing" (Grabe, 2009, p. 72). *Critical reading* characterises the good reader (Baker, 1989) and the final stage in a reader's development (Grabe & Stoller, 2019). Examples of critical reading comprehension are the evaluation of information in terms of reliability, bias, etc. (Grabe & Stoller, 2019).

Problem-solving strategies "are localised, focused techniques used when problems develop in understanding textual information" (Mokhtari & Sheorey, 2002, p. 4). The way they are phrased in the SORS suggests that they address both "the evaluation and regulation components of comprehension monitoring" (Baker & Brown, 1984, p. 379). Both skills are important in comprehension monitoring as readers may evaluate their weaknesses in comprehension but not be able to proceed with remedial action. Strategies of a more local type for restoring comprehension breakdown are *re-reading* (Block 1986; McNamara et al., 2007; Pritchard, 1990), *backtracking* (McNamara et al., 2007) and *adjusting the reading speed* (Young and Oxford, 1997). Re-reading and back-tracking are included in the more basic, text-based strategies of a local type, while adjusting the reading speed or monitoring the reading pace indicates higher reader awareness of task difficulty and purpose (Malcolm, 2009; Oxford et al., 2004). An important strategy used consciously by readers during comprehension monitoring is *guessing* the meaning of unknown words, i.e. drawing inferences about word meaning through the use of the immediate context. Strategic use of guessing can have long-term benefits, such as the building of "meaning frames" (Grabe, 2009, p. 72). However, the effectiveness of guessing depends on readers' conditional knowledge regarding the strategy (Hulstijn, 1993), their familiarity with a high percentage of vocabulary in the surrounding context (also in Sarig, 1987), and their ability to combine different context clues (Jimenez, Garcia & Pearson, 1996; Li & Munby, 1996; Nassaji, 2004; Oxford et al., 2004; Zhang, 2001; Zhang, 2010). In Zhang (2010), better L2 readers used a strategic approach, i.e. they either guessed word meanings or consulted the dictionary based on a word's relevance to their reading goals and task purpose while in Jimenez et al. (1996), the strategy of guessing was used in combination with other strategies such as the use of prior knowledge, questioning, inferencing, searching for cognates, and translating.

Support strategies include strategies unique to L2 processing such as translation and thinking about information in both the L1 and the L2. *Generating questions* or self-questioning (Baker and Brown, 1984) is classified as a global strategy in Grabe and Stoller (2019) but included in the support strategies in the SORS. The strategy involves more active monitoring of comprehension than a "passive" re-reading the text (Baker and Brown, 1984, p. 372) and it compensates for language deficiencies or lack of prior knowledge of students with an advanced proficiency level. However, even though the strategy has significant gains for comprehension, it does not arise naturally but needs to be taught (Baker and Brown, 1984; King, 1989). *Paraphrasing* is a text-based strategy, involving rewording at a local level (Block, 1986; Young & Oxford, 1997). Paraphrasing "externalises readers' understanding" and raises their awareness regarding comprehension difficulties, thereby making them activate additional strategies (McNamara et al., 2007) or helps readers compensate for the lack of appropriate cultural schemata (Pritchard, 1990).

What emerges through the review of the different categories of strategies as well as of the individual strategies within each category is that the same strategy can be used in a less or more effective way and that readers of higher ability levels use the strategies more successfully or use different combinations of strategies to a certain extent. For example, the effectiveness of the use of the strategies of guessing the meaning from context and consulting the dictionary would be maximised if they were used in a cluster, i.e. in combination with other strategies. However, despite the multiple studies around the world which focus on the use of individual reading strategies by students, no study has yet investigated the reading strategies in the Greek higher education context.

2.3 Reading strategy use and gender

Several studies on gender differences in strategy use have been conducted in different contexts and with different instruments, both in a language learning strategy context mainly with the use of SILL (Strategy Inventory for Language Learning, Oxford, 1990) and in a reading strategy context. Important among the latter is the Phakiti study (2003) with an instrument adapted from the O' Malley and Chamot framework (1990) and several studies investigating reading strategy use through the instruments of SORS or MARSI, which are very similar.

The main observations that can be made in relation to strategy use and gender are the following: In general, higher frequency of strategy use by women has been identified in several studies. For example, in several language learning strategy studies, higher strategy use by females in comparison to males is reported (Ehrman & Oxford, 1989; Green & Oxford, 1995; Lee & Oxford, 2008; Oxford & Nyikos, 1989; Peacock & Ho, 2003; Psaltou-Joycey & Kantaridou, 2009) or, more specifically, a higher frequency of use in specific strategy categories (Oxford & Nyikos, 1989), as for example, global strategies (Green & Oxford, 1995), memory and metacognitive strategies (Peacock & Ho, 2003) or strategies related to successful learning (Gu, 2002). Green and Oxford (1995) reached the conclusion that gender differences in strategy use could be attributed to biology or social roles. In other studies, a higher use of global strategies by males (Young & Oxford, 1997; Zhang, 1999; Zoubir-Shaw & Oxford, 1994) or of metacognitive strategies (Ghezlou et al., 2014; Lee & Oxford, 2008; Phakiti, 2003; Zhang, 2018) is reported.

In studies investigating reading strategy use and gender through the use of SORS or MARSI, the findings are not as consistent. In several studies, no differences between genders are reported (AL-Sohbani, 2013; Hong-Nam & Page, 2014; Park, 2010; Poole, 2005a; Sheorey & Mokhtari, 2001; Tavakoli, 2014; Wallace et al., 2021). However, in the case in which differences are noted, these are almost always in favour of females. More specifically, in several SORS/MARSI studies, no significant differences in overall strategy use or in any of the subscales is found (Abusaeedi & Khabir, 2017; AL-Sohbani, 2013; Deliany & Cahyono, 2020; Hong-Nam & Page, 2014; Park, 2010; Poole, 2005a; Sheorey & Mokhtari, 2001; Tavakoli, 2014; Wallace et al., 2021). Significant differences in favour of females have been found in relation to the following areas: overall strategy use (Chen & Chen, 2015; Okyar, 2021), more frequent use in all three subscales (Arrastia, Zayed & Elnagar, 2016; Sheorey & Baboczky, 2008), in the problem-solving and support subscales (Iyitoglou & Aydin, 2015; Poole, 2009) or only in problem-solving (Madhumathi & Gosh, 2012) or support strategies (Boonkongsaen, 2014; Lahuerta Martinez, 2008).

In the Greek educational context, a large-scale study in language learning strategies through the use of the SILL indicated that metacognitive strategies were moderately used by Greek university students (Psaltou-Joycey & Kantaridou, 2009). In relation to the investigation of the gender factor, in the Gavriilidou and Papanis (2010) study, in which the learning strategies of Greek university students were investigated, the effect of gender did not prove to be of significance, a result similar to that in Psaltou-Joycey (2008). In Griva, Alevriadou and Semoglou (2011), the verbal data revealed the female

students' flexibility in reading strategy use and their higher metacognitive awareness compared to male students. In the Greek primary sector in which an appropriately adjusted version of SILL was used, gender did not come out as a distinguishing factor in language learning strategy use (Psaltou-Joycey et al., 2014). This may indicate that differences in strategy use that appear in higher education may be attributed to educational and social context rather than innate disposition.

2.4 Individual strategy use and gender in SORS studies

As discussed above, significant differences between genders in terms of different strategy subscales have been reported in several SORS studies. Very few SORS studies have investigated the differences in individual strategy use between genders. Young and Oxford (1997), point out, however, that the differences in individual strategy use between males and females may be more meaningful and suggestive of the different ways the two genders learn and, therefore, merit closer examination. Furthermore, the most and least used strategies reported by males and females in different studies can reveal similarities regarding the strategies preferred by the two genders.

Examples of the only, to our knowledge, SORS studies in which significant differences have been observed between genders in individual strategy use are highlighted in Appendix I. In the Sheorey and Mokhtari (2001) study with ESL students, females surpassed males only in relation to one strategy (underlining or circling information). The different SORS studies conducted by Poole are a good example of the influence of the sociocultural context since in each one the participants are of different nationalities or educational settings. In Poole (2005a), ESL male college students representing "nine language groups" (p. 12) exceeded females in use of one global strategy but so did females in terms of one problem-solving. In Poole's (2005b) study with Chinese university students, significant differences in favour of female strategy use were found in 18 strategies. In the Poole (2009) study with Colombian university students, females significantly surpassed males on eight strategies while in the Poole (2010) study with Colombian high school students, females used significantly more frequently nine strategies. Finally, in Park (2010), Korean female EFL students used 10 strategies significantly more frequently than their male peers. It should be noted here that some of these strategies (e.g. "underlining or circling information in the text", "reading aloud when text becomes difficult", "using reference materials", "reading slowly and carefully to make sure I understand what I am reading", "using typographical features", "paying close attention to what I am reading") are cited as being more frequently used by females in almost all these studies.

The above literature review points to the need for investigating the genders' metacognitive awareness of reading strategies in the Greek EAP university context. The present study intends to approach an area that has been little investigated in relation to the above context and will attempt to answer the following research questions:

    1. What is the frequency and pattern of reading strategy use as self-reported by Greek female and male students in an EAP university context?
    2. Which are the most and the least used strategies used by the two genders?
    3. How does individual strategy use differ by gender?

3. Method

3.1 Participants

In total, 381 students participated in the present study. Participants include freshmen (60%) and sophomore (40%) students from the fields of economics (34%), accounting and finance (39%) and business administration (27%). There were 174 male students (45%), 185 female (49%) and 22 who did not indicate their gender (6%).

3.2 Instrument

The present study used the Survey of Reading Strategies-SORS (Mokhtari & Sheorey, 2002) to measure the participants' metacognitive awareness of reading strategies (Appendix II-the Greek version of SORS). The SORS has thirty items, grouped into three strategy categories: the global (13 items: 1, 3, 4, 6, 8, 12, 15, 17, 20, 21, 23, 24, 27), the problem-solving (8 items: 7, 9, 11, 14, 16, 19, 25, 28) and the support subscales (9 items: 2, 5, 10, 13, 18, 22, 26, 29, 30). The SORS uses a 5-point Likert scale ranging from 1 (never) to 5 (always). Frequency of use is calculated at three levels: ≥ 3.5 and above is considered high frequency of use; 2.5-3.4 represents moderate or medium use, and ≤ 2.4 low use. A Greek translation of the SORS was used in order to address students of all competence levels. The validity of the Greek translation was checked by expert EAP teachers with the back translation method and was piloted with 20 EAP students, who did not later participate in the main study. The Cronbach *a* of the Greek SORS was .837, which is considered high. The reliability of the strategy categories was: Cronbach *a*=.746 for global, Cronbach *a*=.582 for problem-solving, Cronbach *a*=.640 for support. The internal consistency of the global category of strategies is acceptable while for the problem-solving and the support categories questionable. However, similar results were also indicated in other studies (Αϊβάζογλου, 2013; Ghaith & El-Sanyoura, 2019; Zhang & Wu, 2009). The questionnaire was administered online and students participated in the study on a voluntary basis as part of the EAP course.

3.3 Data analysis

Data were analysed using SPSS 23 software. Initially, means and standard deviations were calculated for each of the reading strategy items and subsequently compound variables were computed on the basis of the original scales. The reliability of the scales was checked with the Cronbach alpha test of internal consistency. An independent sample t-test was used for the comparison of the two genders' frequency of strategy use. The significance level was set at .05.

4. Results

First, the results for the three strategy categories will be presented for the whole sample and the comparison between genders (Table 1). Then, in order to examine the students' reading strategies more closely, the results of the strategy items will be presented for the whole sample and the comparison between the genders (Table 2).

In relation to the strategy categories (Table 1), the problem-solving strategy category (M=3.86) emerged as the most frequently used by the students at a high level of frequency, followed by the global (M=3.47) and the support (M=3.31) categories at a moderate frequency level.

Regarding the comparison of the two genders, the independent sample t-test indicated statistically significant results in the problem-solving (*t*(357)-2.600, *p*=.010) and support (*t*(257)-4.067, *p*=.000) categories (Table 1). The results indicate that female students use significantly more problem-solving and support strategies, while in the global reading strategy category, the frequency of use is almost equal in the two genders.

	Total mean N=381	Male N=174	Female N=185	*t* (df=357)	Sig. (2-tailed)
Global	3.47 (.51)	**3.48** (.49)	3.46 (.50)	.439	.661
Problem-solving	**3.86** (.47)	3.79 (.46)	**3.92** (.44)	-2.600	**.010**
Support	3.31 (.57)	3.19 (.54)	**3.43** (.55)	-4.067	**.000**

Table 1. Means and (SD) in the reading strategy categories (total) and in the two genders.

Regarding the frequency of use of the individual items (see Appendix II), 17 items fall in the range of high use, with four of them being in the borderline between high and moderate use (items 15, 21, 2, 30). In the high use range, there are seven items of the global category, six of the problem-solving and four of the support. Twelve items fall in the moderate frequency of use: six from the global category, two from problem-solving and four from support. There is only one item from the support category (26), which falls in the low frequency range. The overall mean of metacognitive reading strategy use is M=3.55, which falls in the borderline between moderate and high frequency of use.

Regarding the comparison of the two genders (Table 2), the t-test analysis indicated statistically significant differences in eight items (5, 7, 10, 13, 14, 20, 21 and 27), three of which belong to the global category, two in the problem-solving and three in the support category. In six of these items, female students stand higher than male ones. Male students stand higher in two global category strategies, items 21 and 27.

T-test gender	Male (174)	Female (185)	t (df=357)	p
5. When text becomes difficult, I read aloud to help me understand what I read. SU.	2.41 (1.24)	3.24 (1.27)	-6.281	.000
7. I read slowly and carefully to make sure I understand what I am reading. PS.	3.87 (.93)	4.18 (.78)	-3.410	.001
10. I underline or circle information in the text to help me remember it. SU.	3.61 (1.21)	4.16 (1.02)	-4.624	.000
13. I use reference materials (e.g. a dictionary) to help me understand what I read. SU.	2.90 (1.10)	3.22 (1.05)	-2.804	.005
14. When text becomes difficult, I pay closer attention to what I am reading. PS.	4.09 (.76)	4.27 (.80)	-2.146	.033
20. I use typographical features like bold face and italics to identify key information. GL.	2.78 (1.27)	3.16 (1.15)	-3.015	.003
21. I critically analyze and evaluate the information presented in the text. GL.	3.66 (.92)	3.44 (.96)	2.182	.030
27. I check to see if my guesses about the text are right or wrong. GL.	2.72 (1.15)	2.48 (1.05)	2.085	.038
GL: Global, Problem-solving: PS, Support: SU				

Table 2. T-test results of statistically significant SORS items by gender

Overall, statistically significant gender differences were indicated in favour of females in problem-solving and support strategy categories and in one global (20), two problem-solving (7, 14) and three support strategies (5, 10, 13).

5. Discussion

We will discuss the results of the present study in the following sections by answering the research questions (RQ) and by comparing them with those of similar studies in the literature.

5.1 Frequency and pattern of strategy use by gender (RQ1)

From the above results, we derived that females are high reading strategy users (M=3.60) while males are moderate reading strategy users (M=3.48) but very close to the 3.50 margin of high use. Frequency of use is high in the problem-solving category, followed by moderate use in the global and support categories while the order of use is the same for both females and males. Significant differences between the two genders were found in the problem-solving and support categories, both in favour of women.

The same pattern of strategy use, with higher use made by both genders in the problem-solving category, followed by the global and then the support has also been found in other studies investigating gender differences (Boonkongsaen, 2014; Hong-Nam and Page, 2014; Lahuerta Martinez, 2008; Madhumathi & Gosh, 2014; Okyar, 2021; Park, 2010; Poole, 2010). A different pattern can be noted in the Chen and Chen (2015) study, in which higher use was noted in the global category followed by the problem-solving and support ones. Finally, in Sheorey and Baboczky (2008) male subjects preferred the support, then the problem-solving and last the global strategies, while females preferred the problem-solving, then the support and last the global category.

Our findings, according to which, female students make significantly more frequent use of problem-solving and support strategies both concur and at the same time differ from those of other studies. Similarities between the findings of the present study and those of other studies are the following: in Poole (2009) and Iyitoglou and Aydin (2015) studies, females also differed significantly in the problem-solving and support strategies while in Hong-Nam and Page (2014) and Madhumathi and Gosh (2014) higher use by females was only made in the problem-solving category. Females made significantly higher use of support strategies in Boonkongsaen (2014) and of global strategies in Poole (2010). Finally, in Sheorey and Baboczky (2008) and Chen and Chen (2015) differences were statistically significant in favour of females in all strategy categories.

5.2 Most and least used strategies by gender (RQ2)

Table 3 highlights the five most and least used reading strategies indicated by our Greek university students in descending order.

Most used strategies	Male	Female
25. When text becomes difficult, I re-read it to increase my understanding. PS	✓	✓
9. I try to get back on track when I lose concentration. PS	✓	✓
14. When text becomes difficult, I pay closer attention to what I am reading*. PS	✓	✓
7. I read slowly and carefully to make sure I understand what I am reading*. PS		✓
10. I underline or circle information in the text to help me remember it*. SU		✓
3. I think about what I know to help me understand what I read. GL	✓	
17. I use context clues to help me better understand what I am reading. GL	✓	
Least used strategies		
24. I try to guess what the content of the text is about when I read. GL		✓
19. I try to picture or visualise information to help remember what I read. PS	✓	✓
8. I review the text first by noting its characteristics like length and organisation. GL		✓
27. I check to see if my guesses about the text are right or wrong*. GL	✓	✓
26. I ask myself questions I like to have answered in the text. SU	✓	✓
20. I use typographical features like boldface and italics to identify key information*. GL	✓	
5. When text becomes difficult, I read aloud to help me understand what I read*. SU	✓	
*=statistically significant differences GL: Global, Problem-solving: PS, Support: SU		

Table 3. The five most and least used reading strategies by gender

Taking a close look at the five most frequently used strategies reported here in comparison to other SORS studies (see Appendix III), we can note the following: in the current study, male and female subjects report using the same three problem-solving strategies more frequently (items 25, 9, 14) but not in the same order of preference. They differ, however, in the other two most preferred strategies, the males reporting more frequent use of two global strategies and the females of a different global strategy and one support. This support strategy, item 10, "*I underline or circle information in the text to help me remember it*", is one of the most preferred strategies by females in almost all the other studies identifying gender differences in strategy use. In general, there is a preponderance of problem-solving strategies in the most highly preferred ones, with several studies reporting three or four problem-solving strategies among the five most highly used ones, while in Poole (2005a) all five most used strategies used by males are problem-solving ones.

Another observation is that males and females do not show preference for the same types of strategies although the same items within each category appear to be more highly used by both males and females. In most of the studies reporting differences by gender, it is almost exclusively the females who use support strategies among their top five strategies, with their most preferred item being item 10, as stated above. Global strategies are almost equally reported by males and females among their top five strategies while the global item appearing in most studies is item 3, "*I think about what I know to help me understand what I read*", i.e. use of prior knowledge. In the problem-solving category, the same items are reported in almost all studies among the five most used items. These are: a) item 25 (*re-reading the text when it becomes difficult*), which appears in all the studies reviewed here, either as the most-highly used or as one among the five most-highly used both by males and females, b) item 14 (*paying closer attention to what I am reading when text becomes difficult*), which is reported by participants in all the studies, except for the male subjects in the Park (2010) study, c) item 9 "*I try to get back on track when I lose concentration*", which is used by males and females in all but the AL-Sobhani (2013) study and d) to a lesser degree item 7, "*I read slowly and carefully to make sure I understand what I am reading*."

It should be noted that *re-reading* (Block, 1986; McNamara et al., 2007; Pritchard, 1990) and *backtracking* (McNamara et al., 2007) are included in text-based strategies of a more local type for restoring comprehension breakdown. This indicates that the high use of the first strategy over others is not necessarily an optimum strategy choice. On the other hand, adjusting the reading speed or monitoring the reading pace, which are less used by students, indicate higher reader awareness of task difficulty and purpose (Malcolm, 2009; Oxford et al., 2004).

5.3 Individual strategy use by gender (RQ3)

Generally, in almost all the SORS studies in which statistically significant differences in individual strategy use between genders were found, these were in favour of women (see Appendix I). In our study, females had a higher mean in 19 out of the 30 strategies and in 6 out of the 8 statistically significant different individual strategy items. Those items, which illustrate the statistically significant higher use by females, are two problem-solving strategies, three support and one global while the two remaining strategies that are used more highly by males are global.

Females seem to make high use of 17 and moderate use of 11 strategies while males make high and moderate use of 15 and 13 strategies, respectively. Females reported low use of one global and one support strategy, while males reported low use of two support strategies. There was no overlap regarding the support strategy of low use between the female and the male students. Females have a higher mean in 7 of the 8 problem-solving strategies and in 7 of the 9 support strategies. However, in the global strategy category, males have a higher mean in 5 of the 13 strategies.

In the Poole studies, findings regarding individual strategy use differ. While in Poole (2005a) females and males make significantly higher use in only one strategy each, in Poole (2009, 2010) only females exceed males in strategy use in terms of eight and nine strategies respectively. The higher gender difference in individual strategy use occurs in Arrastia, Ayed and Elnagar's (2016) MARSI study, in which females make higher use in 21 strategies, seven of which (numbers 5, 8, 12, 15, 16, 22 & 23) have also been identified as strategies more frequently used by females in our study. In Park (2010) significant differences were found in ten items.

From the analysis of gender differences in individual strategy use, the following similarities between our study and studies conducted in different sociocultural contexts can be observed. First of all, certain key strategies that are consistently reported to be used more highly by women are also identified as significant in the following studies: Park (2010), Poole (2009), Poole (2010). These strategies are *reading aloud* (5) and *underlining or circling information* (*10)*. Other strategies, reported to be significant and also identical with the ones found in our study, are *reading slowly and carefully* (7) (Poole, 2009; 2010); *paying close attention to what I am reading* (*14)* (Park, 2010; Poole 2009); *using typographical features* (*20)* (Park, 2010; Poole, 2009); *using reference materials* (*13)* (Poole, 2009).

As informative these results may be concerning gender differences in reading strategy use, we should be aware that they are based on students' self-reported questionnaire answers. Students may "over-report strategies" (Mokhtari, Sheorey & Reichard, 2008, p. 57) through the SORS or provide answers based on their previous engagement with similar tasks (Oxford et al., 2004). Another limitation of the study is related with the validity of a "context-free", domain-general, self-report instrument, such as the SORS, as opposed to a "domain-specific" (or task-specific) measure (Wenden, 1995, p. 187). Observation of strategy use in action (in-class or individually) with a specific task in hand would provide more accurate and illustrative results.

6 Study Implications and Suggestions for future research

The present study sheds light on the relationship between gender and strategy use both in terms of total strategy categories as well as individual strategy use. The findings of the present study corroborate those of previous studies, according to which, females make higher use of reading strategies and, more specifically, concur with those identifying problem-solving strategies, support strategies or both categories as being more frequently used by females. The findings of the present study can serve as a springboard for classroom interventions in reading strategy use. For example, the SORS can be administered at the beginning of an EAP course to assess the level of awareness in reading strategy use by the students and the possible differences between genders. Subsequently, students could be made aware of the strategies they use while the instructors should point out the full range of strategies that could be used in approaching academic texts.

Perhaps the differences between genders in the total strategy categories should not be exaggerated. Rather, the pattern of individual strategy use by females and males should be investigated so that an individual reading strategy use profile for each student could be created that would be more meaningful. This could reveal, as was the case with the present study, that even though females use more strategies to a statistically significant degree, male students make higher use of two very important global reading strategies that may serve as alternatives and compensate for the lower use of other strategies. These are "I critically analyse and evaluate the information presented in the text" and "I check to see if my guesses about the text are right or wrong".

Finally, instructors should reflect whether reading strategies included in academic textbooks "consciously or unconsciously reflect one gender" (Zoubir-Shaw & Oxford, 1994, p. 204) and introduce more relevant reading strategies in their classrooms.

Different interpretations have been provided by researchers to account for gender differences as, for example, "psychological type" (Ehrman & Oxford, 1989, p. 260), with females exceeding males in the intuition and feeling dimensions of the Myers-Briggs Type Indicator; "underlying learning styles, motivations, and attitudes" (Green & Oxford, 1995, p. 291); cultural differences, influence in different spheres of life and "a need for social approval" (Oxford & Nyikos, 1989, p. 296)". Attempting to understand "why and under what conditions" gender differences originate should be, according to Phakiti (2003, p. 684), the focus of research on gender differences. This is especially significant in order for us to account for the consistent similarities in individual reading strategy use especially by females. Whatever the case may be, in the ELT context gender differences should be "recognized, respected and considered" when designing "gender-neutral but also interesting and thought-provoking" activities "for both genders" (Alexiou, 2016, p.94).

Another area of research could be the further investigation of gender differences and more specifically, the use of multiple qualitative methods such as interviews to investigate the reasons females make more frequent use of certain strategies. Is, for example, the reporting of higher use of strategies by females related to their diligence in language learning? The significance of proficiency level (Poole, 2010) that may counteract the impact of gender could also be investigated (see Rizouli & Kantaridou, forthcoming).

Gender differences in reading strategy use could be explored through the administration of an academic type of reading task that would allow us to assess whether gender differences continue to exist or are even enhanced or whether males and females choose different strategies during the completion of an actual task than the ones reported here. According to Poole (2005a, p. 17) gender differences may derive from "task demands and contextual motivation than biology".

Finally, another area that could produce interesting findings is whether gender differences in strategy use may be even more pronounced "in cultures with more gender egalitarianism" as this has been found to be the case "in many objectively tested cognitive measures" (Schmitt et al., 2017, p. 49).

Although the similarity of findings related to gender and proficiency level "across cultures is strong evidence for their generalizability" (Green & Oxford, 1995, p. 291), in order for the results of the present study to be generalizable for the Greek education context, gender differences should be investigated in other Greek higher education settings, with students from different departments and by the administration of different instruments investigating gender differences in reading strategy use.

7. Conclusion

The present study is the first one investigating the metacognitive awareness of reading strategies by Greek students in an EAP university context as well as one of the few studies investigating the relationship between gender and strategy use through the SORS. Moreover, it is one of the very few studies investigating variation in individual strategy use by gender. Therefore, the study provides valuable insights into a number of areas related to strategy use by Greek university students. Several interesting findings derive from the current study. One of the main findings is that regardless of gender, Greek EAP students are quite active reading strategy users, demonstrating a borderline moderate to high frequency of reading strategy use as evidenced by their use of more than half of the SORS strategies at a high level when dealing with academic texts, the rest at a moderate level and only

one at a low one. Another interesting finding, which confirms similar findings about EFL university students of diverse cultural and linguistic backgrounds, is the preference for problem-solving strategies by Greek students of both genders and the fact that three of the five most frequently used strategies were problem-solving ones. Moving to the findings derived by the comparison between genders, females were found to stand statistically significantly higher both in the problem-solving and support strategies as well as in one global, two problem-solving and three support strategies. The mean score in global strategies was almost the same in the two genders. Male students indicated statistically significant differences in two global strategies.

Acknowledgment

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Appendix I: Statistically significant gender differences in individual strategy use

Strategy Items	Current study	Poole, 2005	Poole, 2009	Poole, 2010	Park, 2010	Sheorey & Mokhtari, 2001
1				F	F	
2			F	F	F	
3				F		
5	F		F	F	F	
7	F		F	F		
8		F		F	F	
9					F	
10	F		F	F	F	F
13	F		F			
14	F	M	F		F	
16				F	F	
17					F	
18				F		
20	F		F		F	
21	M					
27	M					
29			F			

Appendix II. The Greek version of the SORS with the total mean and t-test results in the two genders

T-test gender	Total Mean (SD)	Male (174)	Female (185)	t (df=357)	p
1. Έχω ένα στόχο στο μυαλό μου όταν διαβάζω. GL	4.02 (.81)	4.03 (.78)	4.01 (.81)	.279	.780
2. Κρατώ σημειώσεις όταν διαβάζω για να με βοηθήσουν να καταλάβω αυτό που διαβάζω. SU	3.54 (1.17)	3.41 (1.13)	3.63 (1.17)	-1.742	.082
3. Σκέπτομαι αυτά που ξέρω για να με βοηθήσουν να καταλάβω αυτά που διαβάζω. GL	4.11 (.79)	4.17 (.69)	4.06 (.86)	1.224	.222
4. Ρίχνω μια ματιά σε ολόκληρο το κείμενο για να δω περί τίνος πρόκειται πριν αρχίσω να διαβάζω. GL	3.61 (1.14)	3.52 (1.15)	3.69 (1.14)	-1.350	.178
5. Όταν το κείμενο γίνεται δύσκολο, διαβάζω φωναχτά για να καταλάβω αυτό που διαβάζω. SU	2.83 (1.34)	2.41 (1.24)	3.24 (1.27)	-6.281	.000
6. Σκέπτομαι αν το περιεχόμενο του κειμένου ταιριάζει με το σκοπό για τον οποίον το διαβάζω. GL	3.31 (.96)	3.34 (.95)	3.30 (.98)	.465	.642
7. Διαβάζω σιγά και προσεκτικά για να βεβαιωθώ ότι καταλαβαίνω αυτά που διαβάζω. PS	4.03 (.88)	3.87 (.93)	4.18 (.78)	-3.410	.001
8. Αρχικά, ελέγχω το κείμενο προσέχοντας τα χαρακτηριστικά του όπως την έκταση και την οργάνωσή του. GL	2.99 (1.17)	2.97 (1.15)	2.99 (1.21)	-.189	.850
9. Προσπαθώ να ξανασυγκεντρωθώ όταν αφαιρούμαι. PS	4.43 (.74)	4.40 (.81)	4.45 (.70)	-.650	.516
10. Υπογραμμίζω ή κυκλώνω πληροφορίες στο κείμενο για να με βοηθήσει να τις θυμάμαι. SU	3.90 (1.16)	3.61 (1.21)	4.16 (1.02)	-4.624	.000
11. Προσαρμόζω την ταχύτητα διαβάσματός μου ανάλογα με το τι διαβάζω. PS	3.73 (.91)	3.71 (.91)	3.76 (.90)	-.516	.606
12. Όταν διαβάζω, αποφασίσω τι θα διαβάσω προσεκτικά και τι θα αγνοήσω. GL	3.25 (1.11)	3.22 (1.13)	3.24 (1.11)	-.164	.870
13. Χρησιμοποιώ βοηθητικές πηγές (π.χ. λεξικό) για να καταλάβω καλύτερα αυτό που διαβάζω. SU	3.06 (1.09)	2.90 (1.10)	3.22 (1.05)	-2.804	.005
14. Όταν το κείμενο γίνεται δύσκολο, εστιάζω περισσότερο σε αυτό που διαβάζω. PS	4.19 (.79)	4.09 (.76)	4.27 (.80)	-2.146	.033
15. Χρησιμοποιώ τους πίνακες, τα γραφήματα και τις εικόνες για να κατανοήσω καλύτερα το κείμενο. GL	3.59 (1.10)	3.66 (1.02)	3.58 (1.13)	.722	.471
16. Σταματώ κατά διαστήματα για να σκεφτώ αυτό που διαβάζω. PS	3.39 (1.04)	3.40 (1.06)	3.39 (.99)	.071	.944
17. Αντλώ πληροφορίες από τα συμφραζόμενα για να καταλάβω αυτό που διαβάζω. GL	4.06 (.84)	4.07 (.80)	4.05 (.87)	.233	.816
18. Παραφράζω (επαναδιατυπώνω τις ιδέες με δικά μου λόγια) για να καταλάβω καλύτερα αυτό που διαβάζω. SU	3.32 (1.10)	3.23 (1.11)	3.41 (1.09)	-1.551	.122

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19. Προσπαθώ να φανταστώ με εικόνες τις πληροφορίες του κειμένου για να θυμάμαι αυτό που διαβάζω. PS	2.99 (1.26)	2.87 (1.28)	3.09 (1.25)	-1.627	.105
20. Χρησιμοποιώ τυπογραφικά στοιχεία, όπως έντονα ή πλάγια γράμματα για να αναγνωρίσω σημαντικές πληροφορίες. GL	2.94 (1.24)	2.78 (1.27)	3.16 (1.15)	-3.015	.003
21. Αναλύω με κριτική σκέψη και αξιολογώ τις πληροφορίες που παρουσιάζονται στο κείμενο. GL	3.57 (.94)	3.66 (.92)	3.44 (.96)	2.182	.030
22. Ξαναδιαβάζω σημεία που έχω διαβάσει ή πάω και παρακάτω στο κείμενο για να βρω σχέση ανάμεσα στις ιδέες. SU	3.84 (.92)	3.88 (.86)	3.79 (.97)	.871	.384
23. Ελέγχω αν καταλαβαίνω όταν συναντώ νέες πληροφορίες. GL	3.96 (.80)	3.93 (.71)	3.94 (.89)	-.111	.912
24. Προσπαθώ να μαντέψω το περιεχόμενο του κειμένου όταν διαβάζω. GL	3.18 (1.13)	3.29 (1.15)	3.12 (1.12)	1.401	.162
25. Όταν το κείμενο γίνεται δύσκολο, το ξαναδιαβάζω για να το καταλάβω καλύτερα. PS	4.47 (.72)	4.41 (.72)	4.54 (.68)	-1.714	.087
26. Θέτω στον εαυτό μου ερωτήσεις που θα ήθελα να μου απαντηθούν στο κείμενο. SU	2.36 (1.07)	2.43 (1.10)	2.31 (1.03)	1.041	.299
27. Ελέγχω για να δω αν οι προβλέψεις μου για το κείμενο είναι σωστές ή λάθος. GL	2.61 (1.10)	2.72 (1.15)	2.48 (1.05)	2.085	.038
28. Όταν διαβάζω, μαντεύω το νόημα των άγνωστων λέξεων ή φράσεων. PS	3.66 (.97)	3.63 (1.01)	3.70 (.94)	-.688	.492
29. Όταν διαβάζω, μεταφράζω από τα αγγλικά στη γλώσσα μου/στα ελληνικά. SU	3.49 (1.22)	3.42 (1.27)	3.55 (1.17)	-.977	.329
30. Όταν διαβάζω, σκέπτομαι τις πληροφορίες και στα αγγλικά και στη γλώσσα μου/στα ελληνικά. SU	3.51 (1.09)	3.45 (1.09)	3.56 (1.11)	-.977	.329

APPENDIX III: Most and least used SORS strategy items by gender

Current study		AL-Sohbani, 2013		Poole, 2005		Poole, 2009		Poole, 2010		Park, 2010	
Most used SORS strategy items by gender											
M	F	M	F	M	F	M	F	M	F	M	F
PS-25	PS-25	PS-25	PS-25	PS-14	PS-25	PS-9	PS-9	PS-7	PS-7	PS-25	SU-10
PS-9	PS-14	PS-14	PS-14	PS-25	SU-10	PS-25	SU-13	PS-9	PS-9	SU-10	PS-25
GL-3	PS-9	GL-24	SU-10	PS-9	PS-9	PS-14	PS-14	PS-14	GL-3	PS-9	PS-9
PS-14	GL-1	PS-19	GL-23	PS-7	PS-14	GL-3	PS-7	PS-25	PS-14	PS-28	PS-14
GL-17	SU-10	SU-18	PS-28	PS-11	PS-11	PS-7	SU-10	GL-3	PS-25	GL-15	GL-20
Least used SORS strategy items by gender											
PS-19	GL-24	SU-2	SU-5	SU-18	GL-6	GL-21	GL-12	GL-20	GL-24	GL-6	SU-30
GL-20	PS-19	GL-3	SU-29	SU-26	GL-21	PS-19	GL-6	GL-12	PS-19	GL-21	SU-29
GL-27	GL-8	GL-23	SU-22	GL-8	SU-2	GL-20	PS-28	SU-2	GL-17	SU-2	SU-18
SU-26	GL-27	GL-8	GL-17	SU-5	SU-26	SU-26	GL-21	SU-5	PS-28	SU-26	GL-21
SU-5	SU-26	GL-12	GL-24	SU-2	SU-5	SU-5	SU-26	SU-10	GL-12	SU-5	SU-26

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