

English Applied Linguistics PhD Program

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**Strategy Use and Reader Self-Perception in L2 English
Academic Reading**

PhD Dissertation

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Abstract

The present dissertation reports the results of a research project that originally stemmed from my interest and experience as an instructor specialized in teaching reading and writing skills at the Department of English Language Teacher Education and Applied Linguistics (ELTEAL), Institute of English and American Studies (IEAS) at the University of Szeged. The research focused on L2 reading strategy use and reader self-perception in an academic context.

At the outset of the project, four major research questions were formulated, enquiring into the following areas of reading skills: the use of cognitive and metacognitive strategies when reading an academic text in the L2 (RQ1); readers self-perceptions (RQ2); the comparison of participants' strategy use and their perceptions of themselves as advanced readers in the L2 (RQ3); and, finally, the comparison of the findings to the first three research questions with the results of the Survey of Reading Strategies (SORS test, Mokhtari & Sheorey, 2001) (RQ4).

Participants (n=12) were first-year students enrolled in English Studies BA or the Teacher Trainee program at the institute of English and American Studies. The data collection included three different instruments commonly employed in L2 reading research. Data relevant to RQ1 was collected through semi-retrospective verbal protocols, which was implemented through a reading task simulating a real-life reading task to the extent possible under the circumstances. RQ1 constituted the major focus of the research, and the data retrieved from the protocols therefore constituted the bulk of the total. Data for RQ2 was elicited through semi-structured follow-up interviews. RQ3 was answered through the comparison of findings of RQ1 and RQ2, offering useful insight into the similarities and potential differences between actual strategy use and self-reports. RQ4 involved participants' completion of the SORS test.

The nature of the research topic required a principally descriptive-interpretive analysis. Following transcription, the raw data was entered into MAXQDA. The coding of observed instances of strategy use and of participant self-perceptions was done through a predominantly deductive coding logic, which was later complemented with inductive coding, given the unforeseen abundance of strategies in the data. The descriptive-interpretive analysis was supplemented with quantified presentations of the data to facilitate and nuance the discussion.

The analysis yielded complex and pedagogically valuable results. The most important finding to RQ1 and RQ2 is that participants' have an overwhelming preference for metacognitive strategies, with problem-solving and global strategies being the most frequently used and reported categories, in accordance with the Mokhtari-Reichard taxonomy (2002). The top strategies included re-reading, guessing from the context, self-evaluation and the use of external resources, which was the only support strategy appearing among the most frequently reported strategies. The findings to RQ1 and RQ2 can be considered to be relatively consistent with each other (RQ3) as well as with the results of the SORS test (RQ4). In addition, participants demonstrate a good awareness of their reading practices and strategy use, and show capability for pointing out their potential weaknesses in this particular skills area.

Dissertation declaration

I declare that all the work presented in my dissertation is the result of my own original research under the supervision of Associate Professor Dr. Donald W. Peckham. I would like to state that no part of this dissertation has previously been submitted for an award of any other degree or any other qualification in my name at this university or any other institution. All the materials previously published or written by other people are clearly attributed and quoted in my dissertation. Apart from these due references, the dissertation is entirely my own work. Some parts of this text have appeared in my recent, related publications, which were done concurrently with my dissertation (i.e., Aradi, 2023). I agree that the final version of my thesis can become available via the university's research repository, the university, and search engines.

Dr. Aradi Csenge

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“I decide to read on and hope that it will help me understand what was not clear before.”

(English major university student and study participant)

1. Introduction

1.1. Background to research

With the globalization of scientific research and the predominance of Anglo-American academic culture, being able to efficiently read and compose academic texts in English has become a widespread expectation in higher education. It is not uncommon for English-language study programs in different disciplines to offer courses in academic reading and writing. For example, at the University of Szeged, students enrolled in the English and American Studies and the Teacher Training programs have to complete several courses focusing on the development of academic skills. One such course is the Reading Skills seminar, which is meant to equip first-year students with the principal skills and strategies they will need in their academic career. It was, in fact, the recent redesigning of this course which primarily motivated the research project presented in the study.

In international applied linguistic research, there has been a long tradition of studying L2 reading skills. The main areas of interest include the components of reading ability, the creation of systematic strategy taxonomies and the measuring of learner strategies through various instruments. Given the complex nature of reading skills, these areas are naturally interrelated as any investigation into reading as a cognitive-cultural phenomenon requires adopting a transdisciplinary perspective (see Grabe & Stoller, 2013; Grabe & Yamashita, 2022). Theoretical and experimental research on the nature of reading ability (i.e. what does it mean to be able to read?) is therefore a prerequisite for conducting relevant and meaningful research in applied linguistics.

Being inseparable from the practice of EFL/L2 teaching, strategy research has become one of the most widely discussed topics in the field, which is evidenced by the myriad of studies published over the last roughly fifty years (Alderson, 2000; Grabe & Yamashita, 2022; Semtin & Maniam, 2015). As the present dissertation focuses on academic reading in a tertiary education context, the studies cited here are almost exclusively conducted among college or university students. Research in this subtopic ranges from single- and multivariable survey studies investigating the effect of cultural background, gender, study track and/or

proficiency on L2 reading strategy use (e.g., Čeljo, Bećirović & Dubravac, 2021; Mokhtari & Sheorey, 2002; Poole, 2005); to descriptive-interpretive verbal protocols enquiring into the in-depth mechanisms of strategy use (e.g., Block, 1986; Handayani & Widijantie, 2021; Li & Munby, 1996); and, occasionally, mixed-method studies employing both quantitative and qualitative instruments (e.g., Mónos, 2005). The overall findings of the field suggest some potentially generalizable patterns of learner behavior as well as touching upon pedagogically relevant implications of the results.

Despite the continuing popularity of L2 academic reading in international applied linguistic research, it has been given relatively little attention in Hungarian higher education. The data available (Mónos, 2005; Szűcs, 2017) suggests that students entering tertiary education do not generally tend to have a well-developed repertoire of strategies when it comes to reading in their L2. Adopting a comparative approach, some recent studies provide valuable information about students' strategy use and self-perception in both their L1 and L2 (Tary & Molnár, 2022; Tary, 2023).

1.2. Research goals

It is within this rich and diverse context of research that I formulated my research goals. The research aimed at fulfilling three major objectives. The first one was to provide a detailed descriptive-interpretive account of L2 learner strategy use when reading academic texts in English in a tertiary education context. Being the most important goal of the three, this part constitutes the bulk of the analysis and the basis of the discussion as it shall be seen later. The second goal focused on how participants perceive themselves as L2 readers. The third and final goal of the research was to see how the two sets of data emerging from these two individual yet not independent objectives relate to each other in terms of consistency, and to compare the findings to a more quantifiable means of measurement, i.e. the Survey of Reading Strategies (SORS, 2001). These three objectives will be translated into four research questions presented at the end of Chapter 2. From a broad perspective, the project is intended to contribute to and expand the existing body of Hungarian research and L2 reading research in general by exploring English as a Foreign Language (henceforth EFL) majors' strategy use and self-perception in the process of reading scientific texts in English.

1.3. Participants and data collection

Participants of the research (n=12) were first-year students enrolled in the BA and in the teacher trainee programs at the Institute of English and American Studies, University of

Szeged. They were selected from a student population which had not, at the time of the data collection, taken the complex language exam, the prerequisite for entering their upper division years. All participants contributed on a voluntary basis.

Since the research goals highlighted multiple aspects of L2 reading strategy use, it was necessary to adopt a research design integrating different methods of data collection. Accordingly, the research design comprised three major components: a semi-retrospective think-aloud protocol (TAP), a structured follow-up interview and the SORS questionnaire. The data collection was preceded by a pilot study. The first and major part consisted of the semi-retrospective think-aloud protocols, in which participants were given a text they had to read and reflect upon following a set of well-defined instructions. The second part was the structured follow-up questions, which included questions targeting participants' self-perceptions of their reading strategy use. The third and last part was the taking of the SORS test.

1.4. A preliminary summary of results

Following the transcription of the recordings, the verbal protocols and the subsequent interviews were analyzed in MAXQDA. The data was then divided into two major datasets, one for the verbal protocols and one for the follow-up interviews, which provided a solid basis for the subsequent data analysis. The results suggest that participants generally tend to show awareness of their strategy repertoire and they prove to be capable of viewing themselves as readers from a critical angle. The comparison of the three sets of data show a strong preference for metacognitive strategies, with problem-solving and global strategies being the most frequently used and mentioned ones. The results appear to be consistent with international research findings indicating that proficient readers tend to use high-order strategies to a considerable extent.

Some parts of the dissertation were published in Aradi (2023) prior to submission.

1.5. The structure of the dissertation

The structure of the dissertation is as follows. Chapter 2 presents the overview of the relevant literature, divided into two parts. The first part discusses the theoretical background, focusing on reading skills research in cognitive psychology and L2 education sciences. The second part presents applied linguistic research in the field, starting with survey-based quantitative studies and then moving on to verbal protocols. Additionally, the literature review takes up some

current definitional issues and outlines major data collection methods and measurement instruments used in the field. Chapter 3 presents the research questions and the methodology of the research. It provides a detailed presentation of the research design and the data collection as well as the method of analysis. Chapter 4 presents the analysis and interpretation of results along the four research questions. A separate section is dedicated to each of the RQs, all while keeping the comparative perspective adopted at the beginning of the project. The dissertation is concluded in Chapter 5, which reiterates the main research goals and summarizes the findings. This last chapter provides space for briefly discussing the limitations of the research as well as suggesting some potential directions for future enquiries into L2 academic reading.

2. Literature Review

In this second chapter of the dissertation I have established the ambitious goal to summarize and discuss the major theoretical questions of reading strategy research and to present the most important findings of related applied linguistic research. As it will be seen in the following, there exist several theoretical approaches to (L2) reading research, which, apart from certain important points of convergence, show considerable differences in how they view the nature of reading. Disagreements over the cognitive reality behind reading processes mostly spring from the complexity of the subject matter itself, it being extremely difficult to study with the tools available to researchers. At the same time, recent developments in cognitive psychology have contributed to a better understanding of the underlying processes of reading, which has brought a certain unity to the field. Related applied linguistic research typically focuses on L2 strategy use, with surveys and verbal protocols being the principal methods of data collection. The vast body of research accumulating since the late 1970s has shed light on many important aspects of strategy use when reading in a foreign language, and the increasingly refined taxonomy of (L2) reading strategies has made it possible to identify and describe strategy use in any type of data collected for this aim.

The structure of the Literature Review is as follows. It is divided into two major sections: the first (2.1.) provides a theoretical overview of field, comprising and connecting its various subfields, from general learning strategies to the most specific aspects of reading skills. The second section (2.2.) summarizes related applied linguistic research. The presentation of research is organized around the methods of data collection; accordingly, the first subsection discusses quantitative studies, relying, in the majority of cases, on survey methods, and the second subsection focuses on verbal protocols as an efficient means of examining L2 reading strategy use in a more in-depth manner. Survey-based studies usually employ the MARSII or the SORS tests (a detailed description of both is provided in the relevant sections), while verbal protocols are usually executed in the form of think-aloud protocols. Throughout the chapter, I will strive to create connection points between the theoretical and applied linguistic findings, in the hope of showing how immensely complex yet intriguing the field of reading research is, being embedded into an essentially interdisciplinary framework.

2.1. Theoretical overview

The first major section of the Literature Review presents the main tenets of language learning and reading strategy research and then moves on to discuss current approaches to reading ability, highlighting the principal connecting points between theory and pedagogical applications.

2.1.1. General overview of learning strategies: basic definitions and issues

This section of the chapter provides a brief overview into some of the key questions of strategy research, namely: definitions, taxonomies and variables influencing strategy use. It summarizes the ongoing debate about definitional issues and offers a simple yet useful model for interpreting strategy use in context. Although some of the basic sources discuss strategy use in general terms, i.e. independent of field of study, these considerations have all been applied to and developed in the field of L2 strategy research and are used as primary references. The section also introduces the concepts of cognitive and metacognitive strategies, relying mostly on the foundational texts of O'Malley and Chamot (1990) and Oxford (1990).

The creation of systematic learner strategy taxonomies has been a priority both in education sciences and language pedagogy since the 1980s, with the unification of taxonomies being a major objective which still has not been completely realized (Doró, Habók & Magyar, 2018, p. 6). Some of the principal questions include strategy awareness, the nature of mental processes influencing strategy use and the overall teachability of learning strategies (Doró, Habók & Magyar, 2018, p. 6). Rubin's 1975 work on the concept of "the good language learner" (GLL) is considered by many to mark the beginning of L2 strategy research scholarship (Rose et al. 2018: 151).

Rubin (1975, p. 43) defined learning strategies as "the techniques or devices which a learner may use to acquire knowledge." Another broad definition of learning strategies, formulated by Weinstein and Mayer (1986, p. 315, as cited in O'Malley & Chamot, 1990, p. 43) is as follows: [Learning strategies] "affect the learner's motivational or affective state, or the way in which the learner selects, acquires, organizes, or integrates new knowledge." Drawing on theoretical work produced since the 1980s, Hu (2016, p. 306) summarizes language-learning strategies as the totality of "processes, procedures, behaviors, thoughts, beliefs, or emotions that are consciously selected and deliberately used by the learner to facilitate the use or acquisition of an L2." As these definitions suggest, the primary function of learning strategies is to facilitate the transfer and consolidation of knowledge (O'Malley & Chamot 1990, p. 43). Different strategies serve different learning purposes; O'Malley and

Chamot (1990, pp. 44-45) distinguish between three major categories of strategies, namely, metacognitive, cognitive and social/affective. As metacognitive and cognitive strategies constitute the focus of this dissertation, it is necessary to provide a general working definition for each of them in turn, noting in advance that these definitions will be re-visited and elaborated on when discussing L2 reading strategies in particular.

Metacognitive learning strategies include “the planning, monitoring and evaluation of the learning activity” (O’Malley & Chamot, 1990, pp. 44-45), implying the existence of conscious effort on the part of the learner in the learning process. Wenden (1998, p. 519, as cited in Haukås 2018, p. 13) conveys a similar idea by stating that metacognitive strategies are “general skills¹ through which learners manage, direct, regulate and guide their learning, i.e. planning, monitoring and evaluating”. Cognitive learning strategies manipulate directly the new information (Wenden, 1998, p. 519, as cited in Haukås 2018, p. 13). Weinstein and Mayer (1986, p. 315, as cited in O’Malley & Chamot, 1990, p. 43) established three general subgroupings to this class of strategies: rehearsal, organization and elaboration. Social/affective strategies relate to negotiating meaning in instances of interpersonal communication or to controlling one’s emotional reactions in a given situation (O’Malley & Chamot, 1990, p. 44-45). Below is the summary of the three main strategy categories defined by O’Malley and Chamot (1990, p. 46), with basic definitions provided for all important strategies.

| Generic strategy classification | Representative strategies | Definitions |
|------------------------------------|---|--|
| Metacognitive strategies | selective attention planning monitoring evaluation | Focusing on special aspects of learning tasks, as in planning to listen for key words or phrases. Planning for the organization of either written or spoken discourse. Reviewing attention to a task, comprehension of information that should be remembered, or production while it is occurring. Checking comprehension after completion of a receptive language activity, or evaluating language production after it has taken place. |
| Cognitive strategies | rehearsal organization inferencing summarizing deducing imagery transfer elaboration | Repeating the names of items or objects to be remembered. Grouping and classifying words, terminology, or concepts according to their semantic or syntactic attributes. Using information in text to guess meanings of new linguistic items, predict outcomes, or complete missing parts. Intermittently synthesizing what one has heard to ensure the information has been retained. Applying rules to the understanding of language. Using visual images (either generated or actual) to understand and remember new verbal information. Using known linguistic information to facilitate a new learning task. Linking ideas contained in new information, or integrating new ideas with known information. |
| Social/affective strategies | cooperation questioning for clarification self-talk | Working with peers to solve a problem, pool information, check notes, or get feedback on a learning activity. Eliciting from a teacher or peer additional explanation, rephrasing, or examples. Using mental redirection of thinking to assure oneself that a learning activity will be successful or to reduce anxiety about a task. |

Table 1. Reproduction of O’Malley & Chamot’s preliminary learning strategies taxonomy (1990)

¹ The differences between skills and strategies, as well as the related terminological and conceptual difficulties will be recurring elements of this chapter.

Chamot (2004, p. 17) points out that the earliest classifications of language learning strategies were either based on data taken from observations of strategies used in L1 contexts or were compiled from the general body of educational psychology research. The classification presented above is one such example, with the definitions having a broad applicability independently of the type of knowledge that is involved in the learning process. Adopting a slightly different perspective, Oxford (1990, p. 9) summarized the features of language learning strategies in a 12-item list, where it is stated that these strategies should be “problem-oriented” and that they are considered “specific actions” that the learner takes to resolve the learning problem. Oxford’s taxonomy of strategies can be broken down into two major categories: direct and indirect, with three groups of strategies in each. The direct category includes cognitive, memory and compensation strategies, and the indirect category comprises metacognitive, social and affective strategies (see Oxford 1990, pp. 57-59, and pp. 136-137 for primary reference). Oxford justifies the rationale for creating two main categories by attributing different functions to them in the learning process: while direct strategies are employed when “working with the language itself in a variety of specific tasks and situations” (Oxford 1990, p. 14), the general purpose of indirect strategies is to coordinate and control the learning situation (Oxford, 1990, p. 15). On a side note, it might be worth taking a step back to see the overlaps between Oxford’s and O’Malley and Chamot’s classification. Oxford’s working definitions of direct and indirect strategies broadly correspond to what O’Malley & Chamot defined as cognitive and metacognitive. O’Malley and Chamot’s social and affective categories fall within the realm of indirect strategies in Oxford’s classification as they concern the emotional (anxiety, self-encouragement) and interpersonal aspects of learning and therefore require conscious efforts to control them on the part of the learner (Oxford 1990, pp. 15-17, and pp. 136-137).

A third oft-cited classification system that is frequently evoked in learning strategy research is that of Rubin’s (1987, pp. 19-20; Wenden & Rubin, 1987, as cited in Alderson, 2000, pp. 308-309). Rubin outlines three main strategy types, these being learning, social and communication strategies. Learning strategies are further divided into cognitive and metacognitive, with their respective definitions matching those in the taxonomies mentioned above. Cognitive learning strategies include strategies such as clarification, inferencing, or monitoring (a strategy generally considered metacognitive in other taxonomies; see later in this chapter); metacognitive learning strategies cover the different conscious learning decisions, for example, planning the learning process or prioritizing information. In a 2002 factor analysis, Hsiao & Oxford (2002) found that of all strategy inventories, Oxford’s 1990

taxonomy appears to be the most consistent in reflecting actual strategy use in L2 learning.

A detailed overview of learning strategy research up to the early 2010s is provided by Gu (2012). Besides examining some general definitions, Gu also lists the main purposes attributed to learning strategies in the literature. These include broad concepts such as “enhancing the learning process”; “facilitating acquisition”; “influencing the processing and retention of information”; and “completing particular tasks” (Gu 2012, pp. 332-333). Yet Gu admits that definitions are elusive, an issue which has defined – and, to some extent, stigmatized – language strategy research for a long time as it will be seen in the following.

As a matter of fact, there has been extensive criticism on the part of the research community to find a remedy to the theoretical and methodological weaknesses that have repeatedly been addressed in the literature since the early 2000s. The following subsection briefly summarizes the main points of the issue and presents some partial solutions proposed in recent publications.

2.1.1.1. Issues in strategy research

With regard to the methodological implementations of strategy research, both Oxford (1990, p. 12) and Chamot (2004, p. 15) have articulated that strategy use is often not directly observable, whether data is collected through questionnaires or verbal protocols. Chamot’s assessment of the different data collection procedures does indeed formulate some criticism with regard to the reliability of these methods and instruments to measure cognitive processes. At the same time, she emphasizes that while it appears obvious that all types of research design have their limitations (think about the amount of information that is lost in retrospective interviews between two instances of continuous speech), they all offer access into the otherwise invisible mental processes that take place during learning (Chamot 2004, p. 15). Chamot considers questionnaires to be the most reliable instruments for measuring strategies, with Oxford’s SILL (Strategy Inventory for Language Learning) being the most widely used one (Chamot, 2004, pp. 15-16). Originally designed to measure strategy use at the Defense Language Institute in Monterey, California, the SILL had two initial versions, one to measure the L2 strategy use of L1 English speakers, and another one for L2 English learners. This self-report questionnaire uses a five-point Likert-scale and focuses on the six strategy types that have previously been outlined in the Oxford taxonomy (Oxford & Burry-Stock 1995, pp. 4-5). While the SILL has been found to be generally reliable, some may argue that it fails to provide information on the cumulative nature of strategy development (Dörnyei, 2005, as cited in Macaro 2006, p. 322).

It seems, then, that creating a research design which reflects the reality of strategy use to the most realistically possible remains a complex and challenging task given the very nature of the subject matter, as we shall see it through the specific example of reading strategy research.

Despite disagreement over methodologies, it is still possible to formulate some widely accepted conclusions about the current of strategy research. In a related landmark publication, Macaro (2006) provided an overview of the mainstream cognitive theories in second language strategy research. Macaro presents the general conclusions that more than fifty years of fruitful research has yielded in the field, highlighting the following four major findings (Macaro, 2006, pp. 320-321):

- (1) There is a positive correlation between frequency of strategy use and language-learning attainment. It has been statistically shown that those learners who employ a variety of strategies tend to be more successful in their overall L2 performance.
- (2) Differences in strategy use can be demonstrated at both individual and group-level. For example, female learners use more strategies than their male peers on the whole, and the years of language-learning experience also appears to correlate with the rate of strategy use.
- (3) Even though research methodology in the field is not free of flaws and imperfections, it is generally both valid and reliable in measuring strategy use.
- (4) Strategy training – especially with regard to developing metacognitive skills – can lead to enhanced language-learning skills in various areas of language competence.

While these results unquestionably represent milestone achievements, Macaro highlights some of the methodological and conceptual problems that have persisted in the scholarship. These partially overlap with Chamot's (2004) observations presented above as they concern the research design employed in the recording of psychometric data (i.e. questioning internal validity), the speculative character of certain conclusions and the "lack of theoretical rigor" in the field (Macaro, 2006, p. 322). The lack of solid theoretical bases has, in fact, been a major issue in the scholarship: as early as 2000, Grabe called for the clarification of basic concepts and definitions (Grabe, 2000, pp. 10-11; as cited in Alderson 2000, p. 306). As it will be seen later on in this chapter, there is no unanimous consensus as to the classification of second language reader strategies, which might ultimately prove to be a hindrance when analyzing empirical data (this latter issue will be readdressed in Chapter 4). Macaro discusses the problem at a general level, implying that these flaws are likely to occur at lower levels of

research, i.e. when addressing specific research questions about learner behavior. His criticism can be briefly summarized as follows (Macaro 2006, p. 325):

- (1) There is no agreement about how a “unit of analysis” should be defined within the framework of reading research.
- (2) There is inconsistency across definitions and the logic of organization of strategies, i.e. whether they should be classified in a hierarchical structure or whether they are more similar to a framework of related strategies.
- (3) It remains unclear to this point how strategies are linked to skills and what their exact contribution is in language-learning and skills development.

In a similar vein, Hu (2016) urges the creation of a straightforward epistemology for language-learning strategies. While welcoming developments in multi-variable research design and the specialization of research into individual language skills (Hu, 2016, pp. 307-308), he shares Macaro’s (2006) and Chamot’s (2004) concerns regarding the theoretical and methodological issues in the research field. He promotes a better understanding of cognitive processes and the inclusion of teachers in the research process and calls for reconsidering the overreliance on data collection methods employing decontextualized instruments which do not measure strategy use in real-life situations but as isolated cognitive processes (Hu, 2016, p. 326). Hu concludes that a qualitative approach to learner strategies might have more far-reaching consequences than (always) focusing on quantifiable correlations between two variables (Hu, 2016, p. 327).

Seeing the apparent inconsistencies within the field, Dörnyei (2005, p. 191) suggested replacing the original logic with the concept of self-regulation, which regards the language learner as a controller of their own learning process, thereby attributing a greater role to conscious decision-making and self-monitoring and redirecting the focus from pre-defined strategies to learner autonomy. Gu (2012) openly disagrees with Dörnyei, claiming that “conceptual fuzziness” (Gu, 2012, p. 331) is not a reason *per se* to discard this vast body of research. Indeed, while in his earlier work (2005) Dörnyei dismisses the idea of strategy learning, he presents a revised version of the original argument ten years later (Dörnyei & Ryan, 2015), in which he makes two important points. First, he explains that the anti-strategy approach is still largely due to definitional issues, a criticism voiced in other sources as well (see Macaro, 2006 above). In Dörnyei’s opinion, basic definitions – such as the ones presented at the beginning of this chapter – do not make a distinction between what might be seen as simply “engaging in a learning activity” and what can be considered “strategic

learning activity” (Dörnyei and Ryan, 2015, p. 143). Without clear-cut definitions, it becomes difficult to find the divide between these two types of learning. Second, he welcomes the changes that have occurred in L2 strategy research since the early 2000s: by replacing the then deeply entrenched idea of the good language learner being the ultimate strategist, SLA scholars adopted a more neutral and therefore objective view of learning strategies while also catching up with the contemporary perspectives of educational science (Dörnyei & Ryan 2015, p. 147). For instance, Ehrman, Leaver, and Oxford’s definition implies that L2 strategy use should transcend individual instances of strategy use and is better conceptualized as a complex and dynamic mental activity resulting from the interaction of various situational and cognitive variables (2003, p. 315, as cited in Dörnyei & Ryan, 2015, p. 147):

A given learning strategy is neither good nor bad; it is essentially neutral until it is considered in context. A strategy is useful under these conditions: (a) the strategy relates well to the L2 task at hand, (b) the strategy fits the particular student’s learning style preferences to one degree or another, and (c) the student employs the strategy effectively and links it with other relevant strategies,

. The focus of research interest has essentially shifted from trying to decipher the strategies of the so-called “good language learner” to observing learner strategy use in its complexity, as manifesting in specific learning situations (Dörnyei & Ryan, 2015, p. 147).

While attempts to delineate and define L2 learning strategies have been numerous since Rubin’s (1975) seminal paper (see, for example, Oxford 2017 review), there appears to be no possibility for a consensus on the unit of analysis (equaling one instance of strategy use) that could constitute a common theoretical ground for empirical research in the field. Yet what might compensate for this lack of definitional foundation is the clear positioning of one’s research in the ocean of theoretical approaches and methodological consistency (Cohen & Macaro, 2007, p. 283 as cited in Dörnyei & Ryan, 2015, p. 147).

With all this in mind, it is noteworthy to mention that the distance between the existing definitions in the literature might not be as great as it appears. In his analysis of mainstream L2 strategy definitions presented earlier, Gu (2012) comes to the conclusion that, despite the obvious differences, there are overlaps with regard to the key concepts and cause-and-effect relationships between these concepts. For example, there seems to be unanimous agreement on the purpose of strategy use, i.e. to resolve task-specific problems and to accumulate knowledge (Gu, 2012, pp. 332-333).

In addition, Gu contends that the basic models of strategy use tend to prioritize similar variables in their descriptions; to evidence this point, he presents a general outline of the

process, which he coins the “person-task-context-strategies” model, with reference to the main elements of the process:

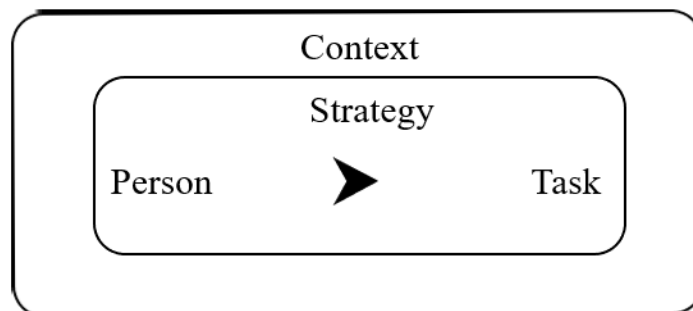


Figure 1. Gu's Person-Task-Context-Strategies model (2012, p. 344)

Drawing on earlier situational models of strategy use, this one makes a case for the importance of context and individual differences in strategy use, and draws attention to how these variables influence the learner's approach to the task that is to be performed. It is intended to be a synthesis of the existing body of research out there as well as a reference for analyzing strategy use in L2 learning (Gu, 2012, p. 345). Individual differences include variables such as age, gender, L2 proficiency level, attainment, motivation, and cultural background (Doró, Habók & Magyar, 2018, pp. 18-21). The notion of context, broadly defined, means the actual learning environment in which the task is performed. The elements of the context range from micro-level factors such as family support and the classroom environment (teachers, peers, atmosphere, methods) to macro-level variables, with the cultural perceptions of learning being a driver in the process (Gu, 2012, p. 346). Context can also include the typological and cultural relationship of the L1 to the L2 (Doró, Habók & Magyar, 2018, p. 21). The complex relationships between personality and strategy preference, as well as between personality and academic self-concept have also been subject of quantitative research (Doró, Habók & Magyar, 2018, p. 22).

2.1.1.2. Skills or strategies? Some further definitional questions

Since the emergence of the term 'strategy' in the information-processing theories in the cognitive sciences, researchers have repeatedly been trying to clarify the differences between 'skills' and 'strategies' (Afflerbach, Pearson & Paris, 2008, pp. 365-367). What appears to be certain is that there *is* some kind of a relationship between the two, which is normally formulated in one of the following ways (Afflerbach, Pearson & Paris, 2008, p. 364):

- the two terms are used interchangeably and are considered synonyms;

- they are complementary to each other, i.e. strategy use leads to skills development;
- strategies mark the different stages of developmental progression.

It is a widely accepted view in the literature that the definitions of the terms ‘skill’ and ‘strategy’ lack accuracy and are often loosely treated. Strategies tend to be demonstrated via examples rather than given a scope and a general definition (Afflerbach, Pearson & Paris, 2008, p. 366), and it is not uncommon to categorize “skills-like” processes as strategies (Grabe & Stoller, 2013, p. 8). For example, Wenden (1987, pp. 7-8, as cited in Alderson, 2000, p. 308) categorizes both automatic and conscious learning processes as ‘strategies’. There have been a number of proposals to resolve this problem. One potential answer might be found in the dichotomy of generality vs specificity: the broader the applicability of a strategy is, the higher the probability of it being an actual strategy is. The more specific ones might rather be considered as ‘techniques’ or ‘skills’ (Gu, 2012, p. 334). Liu (2010, p. 154) tackles the same problem, but offers a partial solution to the terminological divide by relying on the work of Urquhardt and Weir (1998). According to these definitions, the principal differences between skills and strategies can be outlined along the lines of the following criteria (Urquhardt & Weir, 1998 as cited in Liu, 2010, p. 154):

- (1) Focus: skills are “task-oriented”, whereas strategies are “learner-oriented”;²
- (2) Degree of consciousness: skills are largely automatic in nature, while strategies are conscious choices made by the learner;
- (3) Strategies are used to resolve language-related problems, e.g. text comprehension.

Similarly to (2) above, Alexander and Jetton (2000, pp. 295-296, as cited in Grabe & Stoller, 2013, p. 9; Grabe & Yamashita, 2022, p. 312) make a straightforward distinction by proposing that skills are best characterized by the *automaticity* of the process, whereas strategies are the result of *intentionality*. Strategies could be described as “controlled, intentional and conscious”, being “potentially open to conscious reflection” on the part of the learner (Grabe & Stoller, 2013, p. 10; Grabe & Yamashita, 2022, pp. 312-313). On the other hand, skills are highly proceduralized and do not need conscious effort (Grabe & Yamashita, 2022, pp. 313-314). O’Malley and Chamot’s general definitions of metacognitive and cognitive strategies (1990, see earlier this chapter) are to a great extent in line with these considerations, pointing towards some degree of unity across the different terminologies.

² Urquhardt & Weir’s definitions were cited by Liu with the L2 reader in mind; for the sake of generalization, the terms ‘reader’ and ‘text’ were replaced with ‘learner’ and ‘task’, respectively.

While at first sight Alexander and Jetton's simple and logical definitions seem to have resolved the terminological confusion, they still cannot seem to account for all the uncertainties concerning the psychological realities of the learner mind. One such area is that of strategies that are not consciously employed in the learning process, such as the activation of background knowledge when trying to make sense of new information (Grabe & Yamashita, 2002, pp. 313-314).³ According to most strategy taxonomies, using background knowledge is considered a strategy; what about those cases, however, when the learner does *not* make the conscious decision to recall what they know about the subject matter, but, instead, these pieces of information are evoked through priming? Is this an instance of strategy use or skill, then (Grabe & Yamashita, 2002, pp. 313-314)? Or take an example from the broad field of metacognitive awareness, a topic that will be comprehensively discussed in a later subsection of this chapter. It has been noticed that strategy use does not necessarily follow the "conventional" path of gradually converting declarative knowledge into procedural (see, for example, Veenman, Van Hout-Wolters & Afflerbach, 2006, pp. 4-5); in fact, it can be quite the reverse: learners have been observed to start out by applying automatized cognitive processes in a given learning (reading) situation, and, when those fail, they will switch to metacognitive mode to revise and replan the learning path (Grabe & Stoller, 2013, p. 146). As it will be seen in later sections of this theoretical chapter, strategy use and metacognition are inseparably intertwined in the scholarly study of learning, with L2 reading being no exception.

To summarize this brief subsection, the conceptual and terminological uncertainty to distinguish between skills and strategies appears to be satisfactorily resolved by postulating the complementary concepts of automaticity and intentionality in the learning process. There remain, however, some areas which need further elucidation in the future.

To recapitulate the main arguments of this section, it appears to be safe to say that learning strategy research has been in the forefront of educational and L2 research since the mid-70s, when Rubin introduced the ideal of the good language learner. There have been a number of different definitions and taxonomies attempting to describe and explain strategy types, which, despite certain conceptual and terminological differences, overlap to a considerable extent. These definitional inconsistencies have, however, generated disagreements, with experts calling for the unification of the theoretical framework and the reviewing of data collection procedures. There has also been an increased awareness of the importance of context and task

³ I will briefly return to this question when discussing the most common reading strategy types.

in the learning process, as demonstrated in Gu's (2012) schematic representation of a synthesized model of strategy use.

Having covered the aspects of strategy research that will be directly relevant to the study of L2 reading processes, the rest of the chapter will outline and discuss the principal questions and directions of L2 reading studies. The logic of organization is as it follows: the first subsection covers theoretical and empirical research on what might generally be labelled "reading ability". The second subsection discusses the most influential reading strategy taxonomies and attempts to present a more or less unified view of the most common L2 strategies. The third and last subsection serves as an overview of the various empirical research that has been going on in L2 reading studies. This last one is divided into two major parts, one covering survey-based research, and the other one discussing verbal protocols. Related methodological considerations of these data collection procedures are also going to be included in this subsection.

2.1.2. Reading ability

Reading has become vital in our everyday lives. We read in a variety of contexts and for a variety of reasons. Statistically speaking, 86% of the global population has some degree of literacy (Grabe & Yamashita, 2022, p. 5; based on 2016 UNESCO numbers). In fact, the skill of reading has become so automatized for many that it appears to be completely effortless despite its being a very complex mental process (Dehaene, 2009, as cited in Grabe & Yamashita, 2022, p. 5). With travelling, studying and career opportunities having become globalized, an increasingly large number of people have learnt to read in an L2 or in multiple foreign languages. Oftentimes people need to be literate in their L2 (mostly English) for academic purposes (Dehaene, 2009, as cited in Grabe & Yamashita, 2022, p. 5).

While there is common-sense knowledge of what 'reading' and 'being literate' mean on a practical level, the scholarly definitions do not generally capture the complexity of the reading process. Grabe and Stoller (2013, p. 3) illustrate this argument by pointing out that the one-sentence definition: "Reading is the ability to draw meaning from the printed page and interpret this information appropriately" might factually be true, but it still fails to account for five essential properties of reading as a construct, these being:

- (1) there exist multivariate purposes of and approaches to (i.e. combinations of strategies) reading;
- (2) the fact that fluent reading is a result of skills and other types of knowledge interacting with each other;

- (3) the fact that reading comprehension takes place in a minimum amount of time, i.e. it is so rapid that it is almost unnoticeable. The average reading speed is around 250-300 wpm (Grabe & Yamashita, 2022, p. 16).
- (4) the success of reading in the L2 is to a great extent dependent on proficiency level;
- (5) the social context and the goal(s) of the reading activity are of crucial importance (see Gu, 2012 above).

In a very recent publication, Grabe and Yamashita (2022, p. 16) address the same concern and urge the creation of a definition which takes broader learner characteristics into consideration. Cain and Barnes (2017) go even further by proposing that reading comprehension should be seen as the creation of a mental model in which several cognitive processes interact, and which activates different modalities of the brain in the process of creating meaning (Cain & Barnes, 2017, p. 257). Their definition, however, that “[S]uccessful comprehenders construct a coherent and integrated meaning of the text, rather than a verbatim record of its specific words, syntax, or structure” (Cain & Barnes, 2017, p. 257) still appears to be lacking in depth for Grabe & Yamashita (2022) as any attempt to delineate a concept so broad and complex will necessarily be incomplete (and theoretically biased, it might be added). Adopting a mindset similar to Grabe & Yamashita’s but approaching the question from the perspective of EFL testing, Alderson admits that the scholar wishing to provide an exhaustive account of reading will be confronted with the problem of selectivity (Alderson, 2000, p. 1). Instead of limiting the process to a static definition, Alderson opts for describing, in broad terms, what assumedly takes place during reading, emphasizing the dynamic and individual character of the experience (Alderson, 2000, p. 3).

2.1.2.1. A very short account of mainstream theories of reading

Over the years, several theories of reading have attempted to propose a comprehensive framework to describe the cognitive realities behind the reading process. Among the most influential ones is Kintsch’s approach of defining reading as the constant interaction of bottom-up and top-down processes (Kintsch, 2005). Adult reading is seen as an essentially automatic process, where conscious analysis takes place only when the natural flow of the reading is broken, i.e. the reader experiences some kind of difficulty in comprehension. The natural interaction between sensory (bottom-up)⁴ and memory and knowledge (top-down) processes is what guarantees the automaticity of reading as well as the use of problem-solving

⁴ Basic bottom-up processes, such as phonemic decoding and word recognition, are not going to be discussed in the present dissertation as they do not constitute the focus of the research.

strategies when something hinders comprehension. Top-down processes are to a considerable extent based on prior knowledge and experience, which acts as a filter to setting expectations with regard to the text; moreover, they are thought to control comprehension and regulate certain aspects of bottom-up perceptions (Kintsch, 2005). As it will be seen later on in this chapter, bottom-up and top-down processes are considered a priority in reading strategy research.

While this assumption of lower- and higher-level cognitive abilities guiding the reading process is still widely accepted and used in practice, not all theories of reading have become generally adopted within the field. A good example of this is schema theory, an influential cognitivist theory developed by Rumelhart (1980). In its original definition, a schema is “a data structure for representing generic⁵ concepts stored in the memory” (Rumelhart, 1980: 34 as cited in An, 2013, p. 130). In other words, schemata are structured knowledge that facilitates the understanding of the world around us. Bottom-up and top-down processes are simultaneously at work during reading, with the latter eliciting general schemata to facilitate the understanding of specific information retrieved by sensory processes (i.e. visual and phonological decoding). With the help of context and background knowledge, the reader can narrow down the range of potential schemata that should be activated in the process (An, 2013, pp. 131-132). To give an example, the word ‘acid’ can evoke a number of potential themes and scenarios, such as acid rain, food industry, or chemistry lessons. The schema appropriate in the given context is selected as a result of heuristic search in the long-term memory (An, 2013, pp. 131-132). Schema theory sees reading as interaction operating between lower- and higher level mental processes as well as between reader prior knowledge and the background knowledge required to understand the text (An, 2013, p. 134). As schema theory emerged within the cognitivist mindset, there is a strong emphasis on the notion of embodiment, meaning that concepts, schemata and cognitive processes in general are fundamentally motivated by physical experience, and are communicated through social conventions and cultural practices (McVee, Dunsmore & Kailonnie, 2005, p. 555).

Although this line of reasoning appears to be perfectly coherent at first sight, it has been often criticized on the grounds that schemata are ill-defined (McVee, Dunsmore & Kailonnie, 2005, p. 556). As Sadoski and Paivio (2007) put it in a major review of current theories of reading, the main problem with Schema Theory is that it is based on “abstract and amodal representations”, which makes them comparable to computer algorithms (Sadoski &

⁵ Misquoted in An (2013, p. 130) as “genetic”.

Paivio, 2007, p. 344). By proposing an abstract, idealistic structure with empty slots to be filled in by the memory, Schema Theory denies the existence of mental imagery, which is the principal tenet of Paivio's Dual Coding Theory (DCT), to be discussed below (Sadoski & Paivio, 2007, p. 346). A further criticism is related to the introduction of embodiment in the theory, which is thought to disrupt the internal structure of the logic. As the assumption of imagery being a principal form for creating meaning clearly conflicts with the idea of abstract schemata, merging the two will result in an unresolvable contradiction within the theory (Sadoski & Paivio, 2007, p. 344). A final argument against Schema Theory is the fact that there is, indeed, very little of it based on actual empirical evidence, which, according to Sadoski & Paivio (2007), violates Utall's Conservation Principle (2005), a criterion stating that theory should rely on considerable empirical evidence, with as little internal contradiction in the data as possible (Sadoski & Paivio, 2007, p. 342).

The main reason why Schema Theory fails to reliably describe reading processes – in addition to, or, rather, as a direct consequence of the theoretical flaws stated above – is its limited suitability to account for the three constitutional parts of reading, which are: decoding or recoding (the conversion of the print text into spoken or silent inner language, i.e. verbalization); comprehension (interpretation); and reader response (intellectual and/or affective) (Sadoski & Paivio, 2007, p. 341). With its fundamentally rigid theoretical framework, Schema Theory cannot account for the multifaceted connection between the lower- and higher-order processes that shape and control the incessant dynamic interaction of the three constituents. This is not to say, however, that Schema Theory should be completely discarded in the study of cognition as it does provide valuable insight into the functioning of memory and thought processes.

While Schema Theory did not fare well in the long run, there are two theories which seem to be more promising in promoting a more unified scholarly understanding of reading. The first one is Kintsch's construction-integration theory (abbreviated: CI), which directly evolved from discourse comprehension theory (Kintsch & van Dijk, 1978, as cited in Sadoski & Paivio, 2007). CI differentiates between three basic codes of representation, namely, verbatim information, propositional text base, and the situation model (Sadoski & Paivio, 2007, p. 347). Verbatim information can be understood as the combination of vocabulary and syntactic structures – this is the level of bottom-up processes, to put it more simplistically (Sadoski & Paivio, 2007, p. 347). The propositional code is an abstraction, which emerges in the combination of proposition-schemata and verbatim information (Sadoski & Paivio, 2007, p. 347); it is the instantiation of these abstract schemata that meaning is transmitted and

transferred into the memory, without the necessity to retain the surface structure, i.e. the exact wording. The micro- and macrostructures of the text – the network individual propositions and the organization of these into larger units to create coherence – constitute together the propositional base (Kintsch, 2018, pp. 180-181). Situation models are created when the reader's prior knowledge is integrated into the propositional base, thus creating individual forms of understanding: while propositional bases are probably near-identical across readers of similar level of attentiveness, their different goals and background knowledge will likely generate situation models that differ from each other in certain aspects (Kintsch, 2018, pp. 180-181). Situation models can be propositional and imagery-based, which would naturally contrast with the formalistic abstractions of CI (Kintsch, 2018, p. 189). CI represents a multimodal theory where several modes of coding interact (Sadoski & Paivio, 2007, p. 347). An obvious advantage of CI is that it is amenable to empirical verification and attempts to connect mathematical formalism with the embodied view to cognition. Ironically, it is this last assertion that makes CI slightly problematic: with formalist constructs of abstract propositions and schemata constituting the core of the theory, it appears to be conflictual to assimilate imagery into the system seamlessly (Sadoski & Paivio, 2007, p. 347).

A last theory to be reviewed in this subsection is Paivio's dual coding theory (DCT). According to Sadoski and Paivio (2007, p. 349), DCT might currently be the best candidate for a comprehensive theory of reading as it can explain decoding, comprehension and response processes using the same theoretical principles and it satisfies the criteria of conservation and of Occam's razor (the Parsimony Principle, Utall, 2005, as cited in Sadoski & Paivio, 2007, p. 343). Inspired by embodied approaches to cognition, DCT claims that mental representations are based on real-life physical experiences and conserve some of these traits in their structure. The representations of experience can be propositional and imagery-based (also referred to as verbal and non-verbal). These two types of code, with their specific internal hierarchy and structures, make up the entirety of one's cognition (Sadoski & Paivio, 2004, p. 1332). Through our senses, the brain receives different kinds of sensory input, which will then be converted into mental representations of the corresponding type, e.g. visual input through sight into visual representation, auditory input through hearing into auditory representation. Haptic inputs can be converted into both verbal and non-verbal representation, depending on its exact nature. What is important to retain here is that every type of representation has its specific characteristics, which will have their own specific form retained in the memory. Imagery is often accompanied by affective associations (Sadoski & Paivio, 2004, p. 1332-1333). These modalities exist independently of each other, but they together

constitute cognition. Moreover, DCT acknowledges the multimodality of imagery (Sadoski & Paivio, 2004, p. 1339). The single greatest advantage of DCT is that it does not propose the existence of any abstract proposition or schema; it operates with empirically verifiable mental representations and the associations between them (Sadoski & Paivio, 2007, p. 350). There are two basic units in this system: *logogens* (the verbal unit) and *imagens* (the nonverbal unit), which are considered to be flexible and open to change, such as, for example, the brain's capacity to create imaginary scenes from already-existing elements or to alter memories. Logogens are sequential and hierarchical in nature (think of the sequencing of a string of letters in a word), whereas imagens, being non-verbal in nature, are more synthesized and not particularly amenable to sequential analysis (Sadoski & Paivio, 2007, pp. 1335-1339). The two activate each other through referential processing, which, when applied to reading, means that decoding a sequence of letters, words or phrases, i.e. creating a verbal mental representation, triggers the activation of imagery-based representation. Referential processing might not be possible for highly abstract ideas, where imagery can be difficult to create.

The elegance of DCT resides in its simplicity: it claims to be able to explain the bulk of cognition with the help of a few well-defined and empirically testable concepts. How do the principal tenets of the theory relate to the study of reading? To understand this logic, it is necessary to break down the reading process into its three main constituents listed above (Sadoski & Paivio, 2004, pp. 1343-1352).

First comes the process of decoding, a term that Sadoski & Paivio find to be inaccurate, and which they propose to be replaced by the concept of 'recoding'. They justify their decision by pointing out that visual and phonological processing does not necessarily entail semantic understanding; it would therefore be imprecise to talk about decoding as it implies a level of comprehension, a criterion which might or might not be satisfied at this stage (e.g. in the case of an unfamiliar word or concept).

Comprehension, or the semantic interpretation of what was perceived through sensory input in the recording stage, refers to the co-activation of the situational logogens and imagens and their joint associative networks. In this process, the two mutually restrict each other to narrow down the range of possible interpretations to the correct one(s). The result of this is a mental model, constructed from the totality of verbal and non-verbal representations activated in the given reading situation. In addition, comprehension almost always involves inferencing, which is often explained in terms of the reader's creating mental imagery based on experience (e.g. of a sequence of events) to fill in the gaps of the verbal representation.

The third and last major component of reading is that of reader response. Already the

creation of a mental model can be considered an instantaneous form of reader response. To this adds what might generally be referred to as the “emotional-evaluative dimension” of the reader, that is, the affective reaction they give to the meaning decoded from the text. The reaction does not necessarily have to be affective in nature, though; depending on the reader, their goals and the type of the text, response can be intellectual or critical in nature (Sadoski & Paivio, 2004, pp. 1343-1352).

The considerations presented above are largely supported by empirical evidence (Sadoski & Paivio, 2004). As of today, DCT is one of the most comprehensive and state-of-the-art theories of the mind. Its presuppositions and findings of modality-specific cognitive processing are considered to have a high level of applicability in reading research and instruction, as suggested in relevant research in educational psychology (Sadoski & Paivio, 2004).

Despite the obvious attractiveness of DCT, it has to be emphasized that to this date, there exists no single unified theory for reading, on account of the complexity of the phenomenon. In addition, the lack of neuroscientific evidence also hinders the much-desired progress towards developing a reliable and all-encompassing theory of reading. While the diversity of theories should definitely be regarded as a positive sign indicating particular cross-disciplinary interest in the subject, the absence of a consolidated theoretical approach hinders the paradigmatic progress of the field (Sadoski & Paivio, 2007). It has been therefore proposed that reading should be studied in a flexible manner (Perfetti & Satura, 2014, p. 22).

For a study focusing on the description of L2 reader strategies in an actual reading situation, a more practically-minded approach might prove to be more beneficial in the long run than adhering to one specific theoretical model. I therefore propose to adopt a methodological framework which describes the various aspects of the reading process without adhering to any one school in particular. The theoretical considerations presented in the following constitute a synthesis of major findings in mainstream reading research and, being organically interwoven into the rich fabric of second language acquisition and L2 methodology studies, lend themselves well for L2 reading research. The next subsection will first discuss these aspects in general terms, meaning that they are largely applicable to both L1 and L2 reading processes; in fact, much of what is known about L2 reading is based on or inferred from L1 reading research (Grabe, 1991, p. 378). Then it will move on to highlight the main differences between L1 and L2 reading and present current findings on the transfer of L1 reading skills to the realm of L2 reading.

2.1.2.2. Reading: a process, a product or both?

The question whether reading should be conceptualized as a process or a product (i.e. the result of the reading process) constitutes a principal area of interest in the field to this day. Alderson (2000, pp. 3-7) defines process as interaction between reader and text, which is essentially dynamic and to a great extent individual in nature. Yamashita provides a similar definition (2002a, p. 272). The reader is not a passive receiver of the information, but, rather, an active participant who puts thinking and effort into the text, has a reading purpose, formulates hypotheses and expectations about the reading, and has different ways of overcoming difficulties by using various strategies. As Alderson puts it, it is the *how* of the reading activity and not the end result that is in the focus of process-oriented approaches. The meaning is not a priori given; instead, it emerges and is continuously revisited in the reading process. This idea evokes the Hallidayan concept of meaning potential (Alderson 2000, p. 6; Halliday, 1978). Applied to reading, Halliday's social-functional paradigm of the lexico-grammatical system being "the realization of the semantic system" – the idea that in language manifests what a speaker can *mean* and can *do* in a given cultural context – can help to illustrate the distinction between what is *potentially* there in a text and what *actual* meaning the reader will create (see Halliday, 1978, pp. 39-40). On a practical level, this should mean that no two readers will have the exact same reading of the same text, although this argument can be countered on several levels, which will not be discussed here. For the current purposes, suffice it to say that individual variation appears to be a key factor in the reading process.

The reading-as-a-process perspective has been supported by a growing body of findings in cognitive psychology suggesting the interplay of various mental operations in the process of reading. Grabe and Yamashita (2022, p. 85) offer a list of the cognitive skills and systems that presumably shape and regulate the reading process. These are the following (quoted verbatim from p. 85):

1. Implicit and explicit learning
2. Frequency of experience with language (L2) and reading
3. Automaticity
4. Statistical knowledge and statistical learning (e.g. with reoccurring forms, p. 92)
5. Associative learning, co-occurrence, and emergence
6. Real-time language processing skills
7. Speed of processing
8. Working memory system
9. Long-term memory system, incl. background knowledge (in L2 reading)
10. Conceptualization and categorization
11. Motivation and engagement
12. Contextual processing (in L2 reading)

This detailed list of the cognitive (and affective, with regard to no. 11) dimensions of reading demonstrates the psychological complexity of the phenomenon in which general cognitive mechanisms of meaning-making interact with memory systems, learning skills and contextual variables. Furthermore, Yamashita (2002, p. 276) highlights the role of metacognition in the reading process, which is not explicitly mentioned in this categorization.

An alternative or complementary path to understanding reading is to examine the product of the reading activity, that is, to compare what understanding the reader has arrived at in comparison to the original text. This approach is different from the process-oriented framework in that it focuses on the similarities of interpretation and makes a straightforward distinction between ‘correct’ and ‘incorrect’ readings. Instead of looking at the *hows* of the process, it is interested in *what* is produced in the end (Alderson, 2000, pp. 4-5). Yamashita, while maintaining the distinction between process and product, emphasizes that in the concept of product, both the quantity *and* the quality of the end result should be taken into account; in other words, product-oriented approaches should not ignore the fact that the interpretation of any text is the consequence of sophisticated and fine-tuned mental operations (Yamashita, 2002, p. 272). Earlier, the majority of L2 reading tests focused on the product aspect, i.e. whether test-takers’ responses reflect the meaning that was originally intended in the text (Alderson, 2000: 4-5). Despite the seemingly simple theory behind this approach, there are a few definitional and methodological issues that remain unclarified to this day. What constitutes, for example, a ‘correct’ or ‘incorrect’ understanding of the text; and how can one define correctness at all? Without attempting to find an answer to these questions, it is necessary to pinpoint that the product-oriented approaches might not be particularly suitable for measuring complex reading processes or critical thinking, but they do seem to yield reliable quantitative research examining the correlation between the relevant independent variable(s) and the results of the reading test administered as part of the research design (Alderson, 2000, pp. 5-7). Indeed, the research designs employed by the two approaches have been different in terms of both concept and participant number; while product-oriented research prefers large samples, studies focusing on the process side tend to have a small number of participants, enabling the adoption of a linguistic ethnographic perspective in the data analysis. Of course, small sample designs have the disadvantage of being limited in generalizability, and their administration and analysis are considerably more time-consuming than those of scoring tests (Yamashita, 2002, p. 273). It would appear that the two perspectives represent different points on the broad spectrum of reading as a complex

psychological phenomenon, and should therefore be regarded as complementary to each other, rather than binary oppositions.

2.1.2.3. The components of reading ability

Having given a general outline of how current research in cognitive psychology positions reading in the complex of mental processes, it is now time to discuss the more specific skills found to be constitutive of reading. Attempts to identify, define and systematically organize reading skills and subskills goes back to the first half of the 20th century, when it was recognized for the first time in the long history of pedagogy that measuring and assessing comprehension can provide valuable information about the learner's reading competence and performance in the mother tongue (Pearson, 2009, pp. 4-5). In fact, the very notion of skill as a unit of instruction is tightly connected to the development of educational curricula and to that of testing methods (Pearson, 2009, p. 7). Of the early theories of reading ability, Gray's (1960) tripartite distinction has been a most influential concept in the field. Gray distinguished between three levels of understanding a text, which cover three principal types of meaning: 'reading the lines', 'reading between the lines', and 'reading beyond the lines' (as cited in Alderson & Lukmani, 1989, p. 253; Alderson, 2000, pp. 7-9). These concepts correspond to literal, inferred, and critical readings, respectively, and are generally seen as three levels of a hierarchy where literal interpretation represents the lowest and critical reading the highest level of understanding. In a similar vein, Carrol separated "comprehension skills" from "inferencing skills" (1969, and 1971 as cited in Alderson & Lukmani, 1989, p. 255). The reality is often, however, not that straightforward: as much of language is not explicit; inferencing is an integral part of making sense. It is therefore questionable whether the order established by Gray unexceptionally applies to each and every reading situation (Alderson, 2000, pp. 7-9). Moving on to some other early taxonomies, Davis (1968, p. 542; Table 19) compiled a list of eight skills to describe what it actually means to be able to read (quoted verbatim):

- (1) recalling word meanings;
- (2) drawing inferences about the meaning of a word in context;
- (3) finding answers to questions answered explicitly or in paraphrase;
- (4) weaving together ideas in the content;
- (5) drawing inferences from the content;
- (6) recognizing a writer's purpose, attitude, tone and mood;
- (7) identifying writer's technique;
- (8) following the structure of the passage.

The above list is the result of several rounds of tests conducted on a large sample (n= 988), which was gradually narrowed down and fine-tuned to reflect what Davis considers a realistic set of *independent* skills, based on results obtained from regression analysis and non-error variance trials (Davis, 1968, pp. 542-543).

In another early approach, John Munby (1978) outlines a number of skills and micro-skills pertinent to L2 syllabus and curriculum design in his pedagogical work entitled *Communicative Syllabus Design* (1978, pp. 116-132, and pp. 154-189). Alderson (2000, pp. 10-11) presents Munby's list of reading 'microskills', assorted from an enormous pool of L2 language skills ranging from phonemic recognition to higher-level discourse operations. These reading microskills include processes such as understanding of explicit and implicit meaning, establishing within-text relationships and mental operations currently classified as cognitive or metacognitive strategies, like skimming or summarizing the text (Alderson, 2000, pp. 10-11). As it was mentioned earlier in this chapter, the definitional divide between skill and strategy is still subject to debate sometimes, which is reflected in the salient differences between taxonomies. It is important to add at this point that there seems to be a general disagreement on regarding reading skills as a group of separate abilities the way Davis presented them; rather, empirical data appears to support the idea of interrelatedness or, at least, some degree of interdependence between the cognitive areas responsible for the execution of these mental operations (see, for example, Alderson, 1990b). In fact the approach to reading being a multidivisible skill has been debated for a long time, with holistic theories being generally more accepted than the ones proposing independence (Liu, 2010, pp. 153). Indeed, empirical findings suggest that it does not seem plausible to separate reading ability into distinct categories, because the various mental operations applied to the different aspects of reading are likely to originate in the "same set of sources" (Liu, 2010, pp. 153). Alderson (1990a; 1990b) found that, even for experts, matching specific skills and strategies to specific test items can be a difficult, if not impossible task. Nor does the division of reading skills into lower- and higher-order abilities (e.g. understanding implied meaning is higher in value than decoding literal meaning) appear to be justified by looking at empirical data (Alderson, 1990a). In fact, some results point to the fact that, even if such distinctions exist, they might not necessarily be hierarchical in their relationship, i.e. they performance of the so-called "lower-level" skill might not be a prerequisite for performing the "higher-level" one (Alderson, 1990a, p. 427).

The general preference for the unidimensional view of reading does not mean, however, that this theory can explain the totality of reading-related phenomena (Liu, 2010, p.

154). For example, it has been suggested by Alderson (1990a) that vocabulary should be treated as a language skill area that is independent of reading, or, rather, it should be regarded as a component that is integral part of the reading process but exists regardless of that. With the holistic perspective apparently not being free of flaws, there have been efforts to create a system of reading which allows for multiple skills while still trying to keep their numbers to the minimum. One dominant view is that of dividing reading skills into two main areas, which are decoding (i.e. word recognition) and comprehension (Alderson, 2000, p. 12).

Narrowing down the focus to L2 reading skills specifically, Coady (1979, as cited in Grabe, 1991, p. 377) identified three components: process strategies, background knowledge and conceptual abilities. Coady argued that the complexity of skills use increases proportionately to proficiency (1979, as cited in Grabe, 1991, p. 377). A more detailed yet still fairly concise taxonomy comes from Grabe (1991), who, in his overview of the then mainstream trends of L2 reading research, proposes six subsets of skills drawing on relevant findings in psycholinguistics and L2 reading. These are the following (cited verbatim from Grabe, 1991, p. 379):

- (1) Automatic recognition skills;
- (2) Vocabulary and structural knowledge;
- (3) Formal discourse structure knowledge;
- (4) Content/world background knowledge;
- (5) Synthesis and evaluation skills/strategies;
- (6) Metacognitive knowledge and skills monitoring.

These subskills definitely show some overlap with the taxonomies presented earlier in this section; what might be of greater interest, however, is the fact that they also overlap, to some extent, with the cognitive components of reading listed by Grabe and Yamashita (2022, p. 85, see earlier in this chapter), namely, with automaticity and background knowledge. Moreover, Grabe's 1991 taxonomy introduces the concept of 'skills and strategies' as well as emphasizing the importance of metacognition in monitoring one's use of skills. Grabe defines metacognition as "knowledge about cognition and the self-regulation of cognition" (1991, p. 382). Metacognitive knowledge is then broken down into monitoring and self-regulation, with different subskills assigned to these two main categories (Grabe, 1991, p. 382). There is, however, one important observation to make here with regard to the definitional issues in strategy research addressed above: while Grabe distinguishes between skills and strategies, he does not go on to define them as separate areas of learning and (meta)linguistic competence.

Anderson (2004, pp. 13-14) conceptualizes reading ability as the intersection of

strategies, fluency (reading at an “appropriate rate” and understanding the text), the reader and their background knowledge and the text. This relatively simple model integrates the main “components” of reading, and accounts for intentionality (purposeful reading and strategy use) as well as the flexible and dynamic nature of the process. Anderson emphasizes that reading ability should be seen as a general capacity which is (ideally) acquired in the L1 at a young age, and the skills and strategies learnt at that stage are then transferred to the domain of L2 reading (Anderson, 2004, pp. 13-14). This supports the general observation that L1 and L2 readers have similar strategy repertoires (Zhang & Wu, 2009, p. 41).

Moving on to the most recent models of reading ability, Grabe and Stoller (2013, p. 13) propose that reading is regulated by general cognitive mechanisms. Skills are divided into lower- and higher-level processes in order for the reader to be able to clearly see the different skills domains. In other words, the decision to create two levels is that of pure pragmatism, the distinction being largely “metaphorical” in nature (Grabe & Stoller, 2013, p. 13). In this framework, lower-level processes are the ones that are assumed to be mostly automatic and require the use of skills; more complex comprehension processes, inferencing, and the use of background knowledge are categorized as higher-level abilities.

In Grabe and Stoller’s model (2013, pp. 13-23), reading ability can be understood as the totality of working memory processes. Working memory is most commonly defined as “as the small amount of information that can be held in an especially accessible state and used in cognitive tasks” (Cowan, 2014, p. 198). To put it simply, the working memory combines information and general cognitive mechanisms to perform the task at hand (Grabe & Stoller, 2013, p. 13). Another presumed function of the working memory is to select information that is necessary in a given situation and suppress what is superfluous (Grabe & Stoller, 2013, p. 35). Working memory processes in reading can be divided into two major groups, which are, again, pragmatically, labelled as lower- and higher-level. Lower-level processes include access to lexical repertoire, syntactic analysis and semantic proposition formation (Grabe & Stoller, 2013, p. 14), which refers to the combining of syntactic and lexical information in order to make sense of what is written down (Grabe & Stoller, 2013, p. 18). As for higher-level processes, the literature distinguishes between four types (quoted verbatim): text model of comprehension, situation model of reader interpretation, background knowledge use and inferencing, and executive control processes (Grabe & Stoller, 2013, p. 14). Due to the complex nature of these phenomena, further elaboration seems necessary.

Higher-level processes encompass those comprehension skills which are commonly thought of as “typical” reading skills (Grabe & Stoller, 2013, p. 9). The *text model of reading*

comprehension refers to the reader's conceptualization of the main argumentative structure of the text, i.e. the main idea and its supporting details. The basic mental outline of the text is then pieced out with additional information and the logical relationships (e.g. cause-and-effect, opposition) between the arguments, which will ultimately lead to the formation of a mental model of the text as understood by the reader. Background knowledge of textual and discourse-level organization will probably facilitate this process (Grabe & Stoller, 2013, p. 21). While reading, the reader will form expectations about the text and anticipate what might or might not come next; in other words, they create *a situational model of reader interpretation* as the meaning emerges and is constantly re-shaped in the process. Variables such as *background knowledge*, *inferencing skills* or motivation all have an influence on this emergent construct (Grabe & Stoller, 2013, pp. 21-22). These processes are continuously monitored and revised by a group of higher-order operations collectively called the *executive control processes*. This group is responsible for controlling attention and focus, evaluating the reading activity as well as selecting the right strategies (Grabe & Stoller, 2013, pp. 22-23). Grabe and Stoller's model offers a fairly comprehensive view of how reading ability is assumed to work. While the emphasis is on the mostly automatically-functioning cognitive processes, the idea of some sort of metacognitive dimension is, once again, also strongly embedded in the logic of the system.

For a final model, let us now turn to Grabe and Yamashita (2022), which presents the state-of-the-art theories of reading comprehension. Similarly to the 2013 model, this one locates the center of reading ability in the working memory, and the relevant processes are divided into lower- and higher-level operations, with the additional comment that the adjective "lower" designates the possibility of these processes to become automatic or procedural, which is a prerequisite of fluent reading (Grabe & Yamashita, 2022, p. 21). The main lower-level processes are word recognition, syntactic parsing and semantic proposition formation. A quick comparison with the 2013 version shows strong accordance, with one notable difference, which is the detailed description of word recognition processes, explaining the phenomenon from phonological processing to the role of contextual factors (Grabe & Yamashita, 2022, pp. 22-29). The categorization of higher-level comprehension processes is also quite the same as the earlier model, with the exception of one modification: 'background knowledge and inferencing' is not listed as a separate process but is categorized under "a set of reading skills and resources under the command of the executive control mechanism in working memory", along with three other components, namely, strategies, goals and monitoring (Grabe & Yamashita, 2022, p. 39).

As mentioned above, executive control processes regulate attention, which, in turn, selects necessary information from the episodic buffer (Grabe & Yamashita, 2022, p. 50), a key part of the working memory which integrated information from multimodal sources in order to create scenes or episodic representations that can later be transferred into the long-term memory (Baddely & Hitch, 2000)⁶. In addition to regulating attention, there are several other functions attributed to executive control such as restraining the activation of unnecessary information, “updating” the content of the working memory (i.e. modifying information content underway) or controlling attention shift (Grabe & Yamashita, 2022, p. 50). It is assumed that strategy use is coordinated by attention, and is a general feature of the executive control processes as it necessarily involves goal-setting, (re)planning and monitoring the reading activity, which requires a certain degree of metacognitive and metalinguistic awareness. If a strategy is employed successfully on multiple occasions, then there is the likelihood of it becoming an automatized skill that is activated in similar learning situations (Grabe & Yamashita, 2022, pp. 52-53).

To recapitulate this subsection on reading ability, it can be concluded that there are considerable similarities across models in terms of the general components. The most recent theories draw on the findings of contemporary cognitive psychology, with the working memory being the key cognitive system in the process. Both automatized skills and metacognitive processes are highlighted in these models. Strategy use is to a great extent dependent on metacognition, given that it is based on the (at least partially) conscious regulation of the learning process. To conclude, it seems timely to attempt a broad definition for reading skills and reading strategies respectively. In order to achieve this, I am going to refer to Afflerbach, Pearson and Paris’s working definitions (2008, p. 368), in which reverberate the key concepts and distinguishing features that were outlined in the section discussing general learning skills and strategies.

In their definition, reading skills are automatized cognitive processes that are directed towards decoding texts at a linguistic and conceptual level with the aim of creating meaning. Skills promote efficiency and fluency and tend to be activated without reader’s awareness or deliberate control; they can be described as “out of habit” activities. Reading strategies, on the other hand, are intentional and are driven by a specific goal. Strategies control, monitor and (re-)assess all phases of the reading activity in order to maximize efficiency; in other words, they act as a form of “supervision” in the process. It is important to note, however, that

⁶ Source: <https://dictionary.apa.org/episodic-buffer>

strategy use is not always successful as it is often a matter of experimenting and conscious re-adjusting of strategic approaches before the reader achieves their goals (Afflerbach, Pearson & Paris, 2008, p. 368).

This leads us to the next subsection of this theoretical section, which will review the principal definitions and aspects of research in metacognition and discuss the role of metacognition in reading. While the definitions of skills, strategies and metacognitive processes explained previously are generally applicable and functional in educational and second language research, the following section will further nuance some of these general assumptions related to metacognition before moving on to discuss taxonomies of reading strategies. As metacognitive strategy use will constitute a central part of the data analysis, a short summary about the current state of research in metacognition seems necessary in order for us to obtain a more complete picture of general learning and thinking processes.

2.1.2.4. Views of metacognition in psychology and in L2 research

The previous two sections have already provided some preliminary definitions of metacognitive strategy use, which involves the conscious monitoring of the learning process. For a broad (i.e. not discipline-specific) definition of metacognition as a psychological phenomenon, however, one has to take several aspects of the concept into account as theories have proliferated since the 1970s, covering diverse areas of cognitive psychology, educational sciences and second language acquisition (Veenman, Van Hout-Wolters & Afflerbach, 2006: pp. 3-4). Flavell's original definition of metacognition being "the knowledge about and the regulation of one's cognitive activities in learning processes" (Flavell, 1979, as cited in Veenman, Van Hout-Wolters & Afflerbach, 2006, p.) can constitute a useful point of departure. It evokes the idea of both conscious attention and monitoring, which is considered to be a part of the higher-order executive control skills. Speaking from a chiefly L2 learning perspective, Anderson (2004, p. 17) gives a pragmatic definition by saying that metacognition is "thinking about thinking". Thus metacognition can be broken down into five principal elements, these being planning, good timing (of using a particular strategy), monitoring, orchestrating strategies, and evaluating the process. Similarly to his reading model presented above, Anderson sees metacognition as a dynamic and complex phenomenon in which the integration of various components leads to the emergence of metacognitive strategies and skills (Anderson, 2004, p. 17)

Despite the apparent simplicity of the working definitions presented in the previous paragraph, there is, however, no consensus about the exact components that make up

metacognition as a whole (Anderson, 2004, p. 5). Flavell (1979, p. 907, as cited in Haukås, 2018, p. 12) identified three components, these being metacognitive knowledge, metacognitive experiences and metacognitive strategies. Another possible way to approach this issue would be to simply differentiate between metacognitive knowledge and metacognitive skills, a distinction which roughly corresponds to the dichotomy of declarative and procedural knowledge (i.e. *knowing what I know and how I do it* versus *doing it*). Metacognitive skills are meant to control problem-solving and act as a “built-in feedback mechanism” in learning activities (Veenman, Van Hout-Wolters & Afflerbach, 2006, p. 5). Findings in developmental psychology indicate that metacognitive skills emerge between the ages 8-10, and then continue to grow as the child matures. While general intelligence is considered a catalyst of metacognitive abilities, its impact does not appear to increase proportionately to maturing (Veenman, Van Hout-Wolters & Afflerbach, 2006, p. 8). The term “metacognitive skills” might in itself sound like an oxymoron as it suggests the existence of automatized self-reflection and monitoring processes. This seemingly contradicts the idea of metacognition being the domain of intentionality and awareness, but, as it was argued earlier in this chapter, there exist types of complex thinking where strategies are automatically employed, which is one reason why terminological issues are not yet completely clarified (Grabe & Yamashita, 2022, pp. 313-314). This is further complicated by the fact that metacognition is not directly observable and is mostly deduced from cognitive processes (Veenman, Van Hout-Wolters & Afflerbach, 2006, p. 6). Indeed, expert opinions widely differ in two areas concerning metacognition: the role of automaticity and the question of domain-specificity. With regard to the former, it is assumed that there is a certain degree of proceduralized monitoring operating in the background when skills are being performed. While there is no definite answer to this conundrum as of yet, it can be safely concluded that cognitive and metacognitive processes cannot be categorically separated from each other, and the most probable explanation is that the two are in a “circular” relationship, similarly to skills and strategies. If metacognition is defined as an ability to self-reflect and regulate performance, then cognition should be seen as the “vehicle” of these activities (Veenman, Van Hout-Wolters & Afflerbach, 2006, pp. 5-6). As to the question of domain-specificity versus generalizability, most research in the field has been highly domain-specific, meaning that it has been limited to particular cognitive phenomena. The little that has been concluded suggests that encyclopedic knowledge of a given area of expertise is a prerequisite for the development of metacognitive knowledge (Veenman, Van Hout-Wolters & Afflerbach, 2006, pp. 5-6). Individual differences in socio-economic status, learning efficiency and motivation

are known to be highly influential variables in the individual's metacognitive abilities (Veenman, Van Hout-Wolters & Afflerbach, 2006, pp. 10-11).

With all these uncertainties taken into account, it is undeniable that metacognition occupies a vital place in foreign language instruction and education in general (Haukås, Bjørke & Dypedahl, 2018, p. 1). According to the current state of research, humans are the only species that possess the ability of self-reflection, which is estimated to have emerged fairly recently on the evolution timeline (Haukås, 2018, p. 11), which makes it a valuable object of academic study. A more detailed and comprehensive definition of metacognition is provided by Haukås (2018, p. 13), which goes as “[metacognition] is an awareness of and reflections about one's knowledge, experiences, emotions and learning”. In the particular context of foreign language education, metacognition is inseparably connected to the notion linguistic awareness, implying the need for awareness in the areas of general linguistic competence, language learning and language teaching (Haukås, 2018, p. 14). Equally important is the concept of learners being the agents of their own path, which goes back to Kluwe's idea of people possessing agency over their thinking processes and thus being able to deliberately control and shape them in goal-driven ways (1982, as cited in Hacker, Dunlosky & Graesser, 2009, p. 1).

The views on metacognition presented above overlap considerably, which suggests at least some degree of unanimity in the research community. Nevertheless, similarly to the other key concepts discussed previously, the field of metacognition also suffers from definitional deficiencies, which is, again, a consequence of the subject not being directly accessible for scientific scrutiny (see Haukås, Bjørke & Dypedahl, 2018, p. 1). Haukås calls for the clarification of the scholarly understanding of metacognition, arguing that consensus needs to be reached in order to successfully implement metacognition in language instruction (Haukås, 2018, p. 13).

As mentioned above, the possibilities for observing and describing metacognition are rather limited in the sense that the subject of research does not have physical extension (if we disregard the neurobiological processes measured in laboratory circumstances). Throughout the years, various data collection methods have been developed and experimented with in psychology and education sciences. Among the most frequently used ones are surveys, including the MARSIS and SORS tests (to be described later on in the chapter) as well as many others developed for specific data collection purposes. These self-report surveys usually measure learners' and teachers' perception of their own metacognitive strategies. Despite the obvious benefits such as easy applicability and the straightforwardness of data analysis, self-

report surveys are known to have validity issues, given the subjective nature of respondent answers (Haukås, 2018, pp. 15-16).

Mixed-methods studies have increasingly been more prevalent as they offer multiple perspectives on the same research question. These include a range of methods: classroom observation, interviews, eye-movement tracking, verbal narratives, think-aloud protocols, or – by virtue of modern technology – blogging (Haukås, 2018, p. 16; Veenman, Van Hout-Volters & Afflerbach, 2006, pp. 8-9). A further distinction is established between on-line and off-line data collection methods, with the former generally considered to be more “predictive” of learner behavior (Veenman, Van Hout-Volters & Afflerbach, 2018, p. 16). With these mixed-methods studies, the focus is often on the correlation between metacognitive knowledge, strategy use and language proficiency (Haukås, 2018, p. 17).

This purpose of this brief section was to outline the basic theoretical and educational tenets of metacognition. It has been established that metacognition involves some degree of awareness and intentionality and should not be treated as a faculty of the human mind independent of cognition. While its academic investigation faces methodological difficulties, there is an extensive repertoire of data collection methods and instruments available to the researcher to gather information about their topic of investigation.

The literature review has so far discussed the principal definitions and issues in learning strategy and reading ability research. The purpose of doing so was to prepare the ground for the next subsection, which presents reading strategies and strategy taxonomies in L2 reading research.

2.1.3. Reading strategy research

Setting the starting point in the 1980s, the subchapter will take account of the most influential strategy classifications to compare, contrast and – to the extent possible – synthesize them in order to obtain a general picture of overlaps and differences. As all throughout the literature review, the principal purpose is to create an understanding of the subject matter which will facilitate the description and interpretation of the data collected in this present dissertation.

When discussing L2 reading strategy taxonomies, Block’s (1986) early categorization of reading strategies cannot be overlooked as it constituted the theoretical basis for one of the first verbal protocol studies in the field (see subsection 2.2.2.4.). Block’s taxonomy distinguished between general strategies and local linguistic strategies (1986, pp. 472-474) and interprets them in terms of what are referred to as “reader modes”, representing two

approaches to reading a text, namely, extensive and reflective modes. The extensive mode refers to the readers' understanding of the text at the conceptual and linguistic levels, while in the reflective mode readers have their own space to evaluate their thoughts and emotional reactions to the text. In the extensive mode, readers typically use the third person singular and in the reflective mode, they are more likely to talk in first person singular.

As for general strategies, Block labels them as "comprehension-gathering" and "comprehension-monitoring" strategies, and provides a list of 10 strategies that she considers essential in L2 reading (paraphrased from Block, 1986, pp. 472-473):

1. Anticipating content. The reader makes predictions about what will "happen" in the text.
2. Recognizing text structure. The reader can distinguish between the main idea and the supporting arguments.
3. Integrating information. The reader connects the different pieces of information for a more complete understanding.
4. Questioning information to check the truth value of the text.
5. Interpreting the text through inferencing and hypothesizing.
6. Using background knowledge, making associations.
7. Evaluating one's own performance and strategy use in the process of reading.
8. Monitoring comprehension.
9. Correcting one's behavior upon recognizing an error in interpretation. This strategy combines (re-)integrating information and self-monitoring.
10. Giving emotional reactions to the text.

With the exception of 7, which was not categorized by mode, and 10, which is clearly a strategy used in the reflective mode, all the other general strategies were typically used in the extensive mode.

The other group of strategies, termed local linguistic strategies, refers to how the reader processes and understands the linguistic units making up the text. These strategies are usually employed in the extensive mode (paraphrased from Block, 1986, p. 474):

11. Paraphrasing. The reader paraphrases the original clauses and sentences of the text to facilitate comprehension.
12. Re-reading aloud or silently.
13. Questioning meaning for clarification, e.g. 'What does this sentence mean?'
14. Recognizing unfamiliar vocabulary and reflecting on it.
15. Using context clues, synonyms or other strategies to find out the meaning of the word.

It will be seen later on in this subsection that Block's prioritized strategies (which were observed and identified in the verbal protocols of all participants, to different degrees) considerably overlap with what are considered cognitive strategies (or skills) and

metacognitive strategies in recent literature. As a matter of fact, many of these strategies are covered in Rubin (1987) and in O'Malley and Chamot's (1990) taxonomies of general language-learning strategies discussed earlier in the Review, which will prove to be of key importance in the taxonomy used in the data analysis. A complementary view to Block's is presented in one of William Grabe's early works, which relies on his theory of the components of the reading process noted previously (1991). This typology contrasts automatic recognition skills with metacognitive strategies, which can be further broken down into two subcategories, metacognitive skills and self-regulation strategies. Metacognitive skills include strategies such as pre-viewing, skimming, questioning, or monitoring comprehension. Self-regulation strategies are different in that they relate to the reader's controlling the reading process in terms of planning, verifying effectiveness and revising strategies (Grabe, 1991, pp. 381-382). In short, Grabe differentiates between metacognition directed towards the specific reading task and metacognition focusing on controlling the process which guarantees the success of the goal. The full list of strategies is listed in the Table 2. presented at the end of this subsection.

With the MARSII and SORS questionnaires being among the most widely used quantitative instruments, it is undeniable that Mokhtari and Reichard's taxonomy of metacognitive strategies (2002) still serves as a yardstick for the identification of metacognitive strategies. The taxonomy delineates three major strategy groups: global, problem-solving and support strategies. It is important to add, however, that in their study published a year prior to this one, Sheorey and Mokhtari (2001) labelled the very same strategy groups as metacognitive, cognitive and support strategies. The decision to change the labels was not justified in Mokhtari and Reichard (2002).

Global (or metacognitive) strategies deliberately employed and usually involve planning on the part of the learner. The purpose of metacognitive strategies is to control and navigate the reading process. Examples for global strategies are pre-viewing, using typographical clues, making predictions or activating prior knowledge.

Problem-solving (or cognitive) strategies focus on understanding the meaning conveyed by the text. These are defined as "localized" techniques, and include strategies such as adjusting reading speed, guessing word meaning from context, or re-reading.

Finally, support strategies refer to techniques and external resources which help the reader overcome comprehension problems; using a highlighter, looking up an unfamiliar word in the dictionary or asking for help, for example, count as instances of support strategy use (Sheorey & Mokhtari, 2001, p. 436).

The logic and the components of the Sheorey-Mokhtari/Mokhtari-Reichard taxonomies (henceforth referred to as the Mokhtari-Reichard taxonomy or classification for pragmatic reasons) have been profusely recycled since the publication of the surveys. Ali & Razali (2019) provides a fairly comprehensive overview of reading strategy taxonomies published between 2004 and 2017, many of which are based on the Mokhtari-Reichard taxonomy or use the SORS or MARSII test to identify and describe reading strategies in addition to quantifying the frequency and type of strategy use. To take a couple of representative examples from Ali & Razali's article, Tercanlioglu (2004) combined the SORS survey and an adult anxiety test to measure the relationship between learner beliefs, learner anxiety and reading strategy use in the Turkish educational context. Solak & Altay (2014) relied on the Mokhtari-Reichard classification and the MARSII test when identifying and categorizing pre-service ESL teachers' use of reading strategies. There are, of course, taxonomies that only partially rely on this classification.

There are, naturally, examples of research relying on classifications other than the Mokhtari-Reichard taxonomy. Semtin and Maniam (2015), for instance, used O'Malley and Chamot's (1980; 1990) system of general learning strategies in a mixed-methods study to measure Malaysian ESL students' strategy use when reading in their L2. It is important to add, however, that there are only a few differences between the Mokhtari-Reichard taxonomy and the one used in the Malaysian study. On a side note, it might be worth mentioning one interesting observation: in the former, skimming is categorized as a global metacognitive strategy, whereas in the latter, scanning is considered a cognitive strategy. Skimming and scanning are conventionally referred to as complementary reading strategies; while skimming means reading through a text to obtain general information, scanning is the process of deliberately searching for specific details or information in the process of reading (see Harmer, 2010, pp. 100-101). It should be therefore surprising to see that two taxonomies treat the two strategies as belonging to different categories. Another potentially important observation is that the Mokhtari-Reichard taxonomy does not explicitly include scanning in its list of strategies; what might be its closest equivalent are the strategies of re-reading and adjusting reading speed from the problem-solving group.⁷

Below is a summary table of the strategy classifications described so far. As the present research focuses on cognitive and metacognitive strategies, the emphasis is logically

⁷ The author of the dissertation expresses no intention of formulating criticism of the classifications presented above in any way; remarks of this kind are simply reflections of her observations.

on these two major categories; any additional categories, comments and comparisons are included in the last column.

| Literature | Cognitive st. | Metacognitive st. | Other/comments |
|--|--|--|---|
| O'Malley & Chamot (1980; 1990) Language-learning sts in general | resourcing, repetition, grouping, deducation, imagery, keyword research, auditory representation, elaboration, transfer; inferencing | planning, monitoring, evaluating; self-monitoring, self-evaluation, self-management, selective attention (i.e. know, plan, control, learn) | They add affective/social as a third category: comm. interaction with other people |
| Block (1986) | Global (general): <i>anticipate information, monitoring reading process</i> , emotional reaction Local: language-level processes, incl. paraphrasing, <i>conscious reflection on language</i> | | Block mostly relies on bottom-up and top-down processes in her taxonomy |
| Rubin (1987) | clarification, verification, guessing, induction, deduction, memorizing, monitoring | choosing (selection), prioritization, planning, advanced preparation, selective attention | Rubin categorizes monitoring as cognitive unlike the other scholars |
| Alderson (2000), based on Grabe (1991) | Cognitive strategies = automatized, skill-level processes | Recognizing the more important info in a text, using context, skimming, preview, adjusting reading rate, formulating questions, monitoring cognition (incl. problems); self-regulating strategies in general | |
| Mokhtari & Reichard (2002) | Do not have a taxonomy for cognitive strategies | <u>Global:</u> setting a purpose, previewing text, skimming, predicting, activating prior knowledge <u>Problem-solving:</u> re-reading, slowing down, reading aloud, guess the meaning, | Sheorey & Mokhtari (2001): Global metacognitive strategies → metacognitive Problem-solving strategies → cognitive cf. O'Malley & |

| | | | |
|---------------------------------------|---|--|---|
| | | visualize info <u>Support:</u> outside reference, paraphrasing, note-taking, annotating. | Chamot's (1980; 1990) cognitive strategies above |
| Semtin & Maniam (2015) | Scanning, Analyzing, Summarizing, L1 skills transfer | <u>Global:</u> conscious focusing on r. goal <u>Problem-solving:</u> changing reading speed, meaning from context <u>Support:</u> extra-textual tools | Relies on O'Malley & Chamot (1980; 1990); high similarity to Mokhtari & Reichard (2002) Mokhtari & Reichard (2002) categorize skimming as global met.cog., whole Semtin & Maniam (2015) group scanning under cognitive. |

Table 2. A summary of strategy classifications relevant to the present research

2.1.3.1. Towards a synthesis of reading strategies

Moving away from individual taxonomies, Grabe and Yamashita (2022) provide a synthesized overview (to the extent possible) of the skills and strategies required for strong reading comprehension abilities, based on the past over five decades of L1 and L2 reading research.

With the bottom-up/top-down logic in mind, Grabe and Yamashita (2022) start with the most basic building blocks of comprehension: vocabulary and syntax. Word recognition and comprehension combined with syntactic processing is what makes comprehension possible (Grabe & Yamashita, pp. 284-288). The words, phrases and statistical information about the frequency of co-occurrence of certain lexical elements are stored in the long-term memory and are transferred into the working memory during reading. Through the process of chunking, lexical-syntactic combinations are instantaneously arranged into familiar patterns, which enables on-line comprehension (Grabe & Yamashita, 2022, p. 287). A key concept here is that of syntactic awareness, which refers to the reader's knowledge of the syntactic structure of the language they are reading in and the use of that knowledge as a form of problem-solving (Grabe & Yamashita, 2022, p. 290). In fact, syntactic parsing "should happen in every moment of fluent reading" (Grabe & Yamashita, 2022, p. 292), meaning that it should ideally be an automatic process taking place simultaneously as the reader progresses with the text. Related to this concept is the reader's awareness of grammatical information,

this serving as a “cueing system” in syntactic parsing. Grammatical information includes features such as word order, sentence structure, the identification of co-referential relationships within the text or grammatical markers of the author’s attitude (Grabe & Yamashita, p. 2022, 297). Through these elements of the word-to-text interpretation process, the reader recognizes the discourse structure of the text (p. 284).

Let us now turn to reading strategies that have been found to promote comprehension. At this point, it is necessary to refer back to subsection 2.1.2.3, which discussed the cognitive components of reading ability with the help of the pragmatic distinction between lower-level and higher-level abilities. Applying the same logic to reading comprehension, it might be argued that the processes presented in the previous paragraph represent the lower, or, rather bottom-up linguistic components of reading comprehension, while the list of strategies that are to be described and elaborated on belong to what might be justifiably labelled top-down, or text-level components. In fact, Oxford (2016, pp. 274-276) categorizes the L2 learning strategies discussed here as bottom-up and top-down (respectively), emphasizing that individual learning styles can also influence strategy choice: holistic learners are more likely to use top-down strategies, while analytic learners often prefer bottom-up strategies. Oxford proposes to see lower- and higher-order strategies as parts of a continuum rather than two distinct realms of cognitive processing (Oxford, 2016, pp. 274-276). Grabe and Yamashita (2022, p. 301) propose a list of ten higher-level reading strategies, which the literature considers to be effective in promoting comprehension (taken verbatim from the page indicated above):

1. Previewing of the text (visual cues, titles, headings, typographical elements)
2. Activating prior knowledge
3. Predicting
4. Forming questions (self-interrogation)
5. Answering questions about the text
6. Summarizing (main idea comprehension)
7. Monitoring comprehension
8. Using text structure awareness and graphic organizers
9. Visualizing and making mental representations
10. Generating appropriate inferences

Although the vast majority of these ten strategies speak for themselves, it seems necessary to provide short explanatory definitions and examples to illustrate the logic behind them. In addition to the above ten strategies, some additional ones are also presented by virtue of their being profusely discussed in the literature and frequently employed by more proficient L1 and

L2 readers. While generally there is agreement across taxonomies as to whether a specific strategy belongs to the cognitive or metacognitive group, some strategies might be categorized differently by different authors – see, for example, Rubin (1987) considering monitoring to be a cognitive strategy despite it being commonly regarded as metacognitive. To ensure methodological consistency, the strategies described in the following will be categorized in accordance with the majority opinions.

2.1.3.2. The description of the most commonly used reading strategies

1. Previewing (also spelt as pre-viewing; metacognitive strategy): Previewing is a strategy employed in the pre-reading stage of the reading process. It enables the learner to make predictions about the content and to anticipate what will happen in the text through the noticing of textual and typological features such as titles, subtitles, headings, visual or (in the case of online reading) audiovisual materials (Grabe & Yamashita, 2022, pp. 301-302). Pre-reading tasks such as previewing encourage the activation of background knowledge (Grabe & Yamashita, 2022, p. 302; Oxford, 2016, p. 276).
2. Activating prior knowledge (metacognitive strategy): Recognized as one of the most important strategies to improve reading comprehension, the activation of prior knowledge is an essential part of the pre-reading stage which can increase the efficiency of comprehension (Grabe & Yamashita, 2022, p. 302). Besides activating information about the subject matter, the reader might also recall information pertaining to textual structure, which can be a characteristic of strong readers (Oxford, 2016, p. 275). Pre-reading questions and discussions can be an effective way of activating prior knowledge provided that they are consistent with the topic and the content of the reading; otherwise, they might not be useful or might prove to be counterproductive (Grabe & Yamashita, 2022, p. 302).
3. Predicting (metacognitive strategy): Making predictions is a part of pre-viewing where the learner activates background knowledge in an attempt to predict content (Alderson, 2000, pp. 312-313; Grabe & Yamashita, 2022, p. 302). Both the activation of prior knowledge and predicting can include the recall of visual imagery (Oxford, 2016, p. 245).
4. Forming pre-reading questions (metacognitive strategy): Readers' formulating questions with relation to the possible information in the text can be considered as a form of making predictions and setting expectations. Empirical research indicates that pre-reading questions contribute to memory retention and reading comprehension (Grabe & Yamashita, 2022, p. 303).

5. Answering questions after reading: Post-reading questions are most typical in instructional environments, but they can be present in self-regulated reading as well. Follow-up questions have been shown to significantly increase comprehension (Grabe & Yamashita, 2022, p. 303) more than pre-reading questions do (Alderson, 2000, p. 51). In fact, higher-order post-reading questions (i.e. questions needing the activation of top-down processes) are known to promote both incidental and intentional learning, as they increase the retention of information. These findings can have important contributions in the field of task development and language testing (Alderson, 2000, p. 51).

6. Summarizing (main idea comprehension): Of the higher-order comprehension processes, summarizing the main arguments of a text is probably the most complex one as it requires the reader to form a general idea of the text by separating the thesis from the supporting details and specific (often secondary) information (Alderson, 2000, p. 232). Getting the gist of a text is the most common purpose of a reading activity, which requires a high level of automaticity and speed on the part of the reader. Thus, the ability to summarize depends on processing efficiency (Grabe & Stoller, 2013, p. 8), and research has suggested that L2 readers' ability to create efficient summaries is related to reading performance (Grabe & Yamashita, 2022, p. 304).

7. Monitoring comprehension (metacognitive strategy): Monitoring is considered a major executive control skill which unites a range of metacognitive strategies in order to continuously check understanding and evaluate the reader in their performance (Grabe & Yamashita, 2022, pp. 304-305). It is believed that monitoring is mostly automatic in L1 reading, and conscious attention is brought to the process when fluent comprehension is interrupted for some reason. Good readers tend to have an increased awareness of the strategies they use to monitor their progress in the text and they are less likely to notice or report inconsistencies within the text as they focus on creating a coherent interpretation of the information presented. The same tendency seems to apply to L2 readers: poor readers often get stuck on details that are not relevant to understanding the main idea, while good readers prefer to ignore these problems, or, if they don't, they know which strategy to use to overcome the obstacle (Alderson, 2000, pp. 347-348). Monitoring includes strategies such as recognizing textual organization, identifying the main idea, applying background knowledge to facilitate comprehension, re-reading, or translation to L1 (for the full list, see Grabe & Yamashita, 2022, p. 305). As a matter of fact, it can be argued that any strategy that requires conscious control and promotes comprehension can be regarded as a form of monitoring,

which suggests that this strategy should indeed be considered a general executive control skill instead of a specific strategy (Grabe & Yamashita, 2022, p. 305).

8. Using text structure awareness and graphic organizers (metacognitive): Readers' awareness of text structure is considered a crucial element in comprehension, which includes attention to the logic of textual organization by genre (e.g. descriptive, expository or argumentative text), discourse signals (discourse markers, transition devices) or co-referential relationships within the text (Grabe & Yamashita, 2006, p. 306). Graphic organizers (GOs) are the visual representations of the information presented in a text (Jiang & Grabe, 2007, p. 34). These visual elements include diagrams, matrices or charts (Jiang & Grabe, 2022, p. 306), but the definition of GOs can be extended further to include visual semantic networks or the outline of the text structure (Jiang & Grabe, 2007, p. 37). Outlines are suitable to represent classifications, timelines or within-text relationships (e.g. comparison and contrast, cause and effect, process and sequence), which can, alternatively, be developed into a task (Jiang & Grabe, 2007, pp. 44-45). GOs can therefore reproduce the whole of the textual organization, but it is more typical for specific subparts of the text to be depicted in visual ways (Grabe & Yamashita, 2022, p. 306). The use of GOs has been found to contribute to comprehension through facilitating the organization of information (Grabe & Yamashita, 2022, p. 306). Awareness of text structure and GOs can be regarded as a subtype of background knowledge which is activated in the pre-viewing or skimming process (Grabe & Yamashita, 2022, p. 306).

9. Visualizing and making mental representations: O'Malley & Chamot (1990) categorize the creation of mental imagery as cognitive, whereas in the Mokhtari-Reichard taxonomy (2002) visualizing information is regarded as a metacognitive strategy. Here a distinction has to be made between spontaneous imagery created as a result of recoding (with reference to Paivio's DCT presented earlier in this chapter) and visual representations deliberately made to facilitate comprehension, this latter being a problem-solving strategy in the Mokhtari-Reichard taxonomy (see Table 2 above).

10. Generating appropriate inferences (mostly cognitive): As mentioned earlier, drawing inferences about word meanings from the context and inferences about the content are considered basic skills for efficient reading (Davis, 1968). Inferencing or 'reading between the lines' is a fundamental element of critical reading (Alderson, 2000, p. 21). It is a general higher-order cognitive skill; inferences made during reading are implicit most of the time as they emerge when the concept recoded from the text triggers related elements of the associative network in the long-term memory. Explicit inferencing usually occurs when the

reader is confronted with a task, such as synthesizing the text (Grabe & Yamashita, 2022, p. 307). Research on the effect of explicit inferencing in instructional settings suggests that it has a positive contribution to lexical guessing and reading comprehension, although research on the topic has been relatively scarce (Grabe & Yamashita, 2022, p. 307). For example, Parel (2004) demonstrated that lexical inferencing can compensate for the lack of receptive vocabulary.

The above list of ten items represents the most common higher-order reading strategies. The activation of background knowledge – although listed as a separate strategy – appears to be a crucial element in several strategies. In the Mokhtari-Reichard taxonomy, activating prior knowledge is categorized as a global metacognitive strategy; based on the descriptions above, however, this decision might need reconsideration given the broad interpretation of background knowledge and what we know about the functioning of mental representations and associative networks. While this dissertation does not seek to revisit or to reinvent definitions and taxonomies, the question of intentionality versus automaticity is, most probably, a decisive factor in whether activating prior knowledge should be considered cognitive (or skills-like) or metacognitive in the given reading situation.

One overarching “set of strategies” that is frequently discussed and researched in SLA studies is that of L1 skills transfer. Transfer or interference is the result of two linguistic and conceptual systems running parallel; differences at the linguistic and conceptual levels will inevitably cause difficulties in the L2. In reading, at lower levels especially, reading speed and word recognition processes tend to be noticeably slower than in the L1 (Grabe & Yamashita, 2022, p. 161). Research in skills transfer indicates that there is a cause-and-effect relationship between linguistic proficiency and transfer: the evidence available suggests that there exists a certain level of linguistic threshold which has to be exceeded before L1 skills begin to be transferred into the L2. Task difficulty may also influence the level of threshold required for successful completion (Alderson, 2000, p. 121). Generally speaking, differences arise at three levels: language & language processing, cognitive & educational and sociocultural & institutional (Grabe & Yamashita, 2022, p. 169). At lower levels of proficiency, translating from L2 to L1 is a typical strategy to overcome comprehension difficulties. The continuous back and forth between languages comes with extra processing costs (Grabe & Yamashita, 2022, pp. 170-171). Such “interference effects” are expected to abate in proportion to the increase of proficiency, whereby the use of the transferred L1 skills will have become automatized. L2 readers tend to have a higher degree of metalinguistic awareness in their L2

than in their L1 (Grabe & Yamashita, 2022, p. 175), and proficient L2 readers have been observed to use the following higher-order skills transferred from the L1 (Grabe & Yamashita, 2022, p. 173, paraphrased):

1. Finding the main idea of the text
2. Inferencing
3. Linking main and supporting ideas
4. Selecting information
5. Noticing and learning novel information
6. Integration within- and cross-text information
7. Evaluating information based on prior knowledge and cross-text information

These skills show significant overlaps with the major top-down strategies presented earlier. On a final note, there is evidence that L1 reading attitudes might be a predictor of L1 skills transfer at lower levels of proficiency, which suggests that attitudinal factors can possibly play a role in L2 reading development (Uslu, 2020). This brief discussion of L1 skills transfer concludes the theoretical section of the Literature Review.

2.1.4. Conclusion

The principal goal of this section was to present the major theoretical directions and issues in (L2) reading studies, focusing on the components of reading ability and reading strategies. It can be concluded that despite disagreements over basic definitions, it is still possible to establish a framework that provides space for the meaningful discussion of mental processes and strategy use underlying reading comprehension in both the L1 and the L2. It can be furthermore added that strategy taxonomies show considerable overlap, suggesting a certain degree of consistency across general learning and reading-specific classification systems. The most basic distinction is made between cognitive and metacognitive strategies, with the latter receiving noticeably more attention in research as they are tightly connected to the concept of metacognitive awareness, a higher-order cognitive process involving conscious decision-making and self-regulatory learning. As a consequence, some taxonomies concentrate exclusively on metacognitive strategies (see Mokhtari & Reichard, 2002), while others strive to achieve a more balanced distribution of strategies (see O'Malley & Chamot, 1990; Rubin, 1987, for example). As no two taxonomies are identical, the comprehensive investigation of reading strategies (to the extent possible) would require setting up an *ad hoc* classification through uniting existing taxonomies. In fact, Table 2 was created with this goal in mind: it provides a fairly exhaustive list of general learning and reading strategies considered important in the current literature without forcing a fusion of individual taxonomies. For this

very reason, the strategies presented there will provide the basis of the coding process in the data analysis procedure (see section 3.4.5 for further clarification).

The Literature Review will now move on to the discussion of empirical research.

2.2. Empirical research in L2 reading strategies

The second major section of the Literature Review is dedicated to the presentation of empirical research in L2 reading studies. It first summarizes L2 reading research in Hungary, and then presents the current state of international research through a systematically selected pool of studies. The logic of organization is based on the method of data collection: the first part reviews survey-based and mixed-methods studies that were conducted along different independent variables, and the second part discusses L2 reading strategy research through verbal protocols. In both cases, the presentation of these two major research corpora is preceded by a brief introduction into the methodology of the respective data collection procedure. The studies presented in the following section were almost exclusively conducted in a higher education context, in line with the focus of the present dissertation.

2.2.1. Summary of L2 reading research in Hungarian tertiary education

While L2 academic reading is a widely researched topic in international applied linguistic research, it has been given relatively little attention in Hungarian higher education. The data available suggests that students entering tertiary education do not tend to have a well-developed repertoire of strategies when it comes to reading in a foreign language. In a mixed-methods study employing a combination of the think-aloud protocol (TAP) and a questionnaire, Szűcs (2017) measured Hungarian L1 EFL majors' metacognitive reading skills. The results suggest that the participants (n=59) had overall poor metacognitive skills, which seems to be a contradiction to the fact that a good part of the national curriculum of Hungarian language education in secondary education is dedicated to developing metacognition in reading (Szűcs, 2017). These findings obviously question the reality behind the implementation of the curriculum, but, more importantly perhaps, they emphasize the need for explicit instruction to help EFL learners acquire the basic metacognitive skills that make them competent readers in English in the higher educational context. The same idea is formulated by Tánczikné Varga (2016), whose experience as an EFL teacher reinforces the long-held assumption that advanced reading comprehension requires systematic strategy use (p. 130).

Another mixed methods study conducted earlier by Mónos (2005) has shown that even

though English majors (n=86) appear to be aware of the strategies they use when reading in the L2, they prove to be less successful in the actual reading tasks than the survey results might have suggested. According to the survey results, students have recourse to problem-solving strategies the most frequently, while global strategies come second and support strategies in third place. Their apparent awareness of strategy use stands in strong contrast with the low scores they attained on the reading skills component of the EYE exam, a comprehensive language exam given at the end of the first year to students in the English studies program at the University of Debrecen. Mónos accounts for this discrepancy by reminding the reader that strategy use in itself will not make someone a competent reader in their L2 if other key linguistic or strategic competences are missing (Mónos, 2005, p. 19). Mónos puts forward some pedagogical recommendations to bridge the gap between students' self-perception and their performance, including the designing of a curriculum in which skills development and language training are in balance. Both Mónos (2005) and Szűcs (2017) use an adapted version of Mokhtari and Sheorey's Survey of Reading Strategies (SORS, 2002). Tániczikné Varga (2016) emphasizes the need for teaching first-year EFL students the different techniques and strategies that can help them make sense of scientific texts.

In a comprehensive publication on language learning strategies, Doró, Habók and Magyar (2018) make reference to O'Malley and Chamot's (1990) division of strategies (pp. 12-13) while emphasizing that the most commonly used system of classification today is probably the one developed by Oxford (1990). Metacognitive strategies occupy an important position in Oxford's system, with the three main aspects of it being focusing on one's learning, planning and organizing the learning process and evaluating one's progress (p.14). As it was demonstrated in the previous section, these broad categories of metacognition are all present in the general theoretical considerations of L2 reading strategies, which appears to reinforce the validity of the typologies existing today. Indeed, Doró, Habók and Magyar (2018) provide a list of foreign-language reading strategies which can be successfully employed in the classroom. The authors differentiate between pre-reading, during reading and after-reading strategies (Doró, Habók & Magyar, pp. 63-64), including both cognitive (e.g. scanning, summarizing content) and metacognitive (e.g. pre-viewing, guessing from context) strategies. It is important to note, however, that the authors of this publication discuss language-learning in general, with primary- and secondary levels of education being the main organizing principle. By no means does that mean that the ideas formulated there are not applicable to EFL or EAP instruction in higher education as many of the strategies mentioned in the book are considered basic strategies of L2 reading comprehension by several of the

mainstream taxonomies.

In a recently published article, Tary and Molnár (2022) present an adapted version of the revised MARSIR (Mokhtari et al. 2018) survey. Their goal was to design an instrument which can reliably measure both L1 and L2 metacognitive reading strategies in the context of Hungarian tertiary education. The instrument also included some elements of the SORS questionnaire (Mokhtari & Sheorey, 2002) in the L2 reading section. Participants were teacher trainees (n=166), and they took the survey online. The statistical analysis shows that teacher trainees use problem-solving strategies the most often in both their L1 and L2, with supporting and global strategies coming in the second and third places. As it should be expected, there are visible differences in strategy use in the two languages. Students tend to use more problem-solving and global strategies in the L1, and the use of supporting strategies falls into the intermediate category whereas in the L2 the order of the strategies in terms of frequency of use is different: students have recourse to problem-solving and support strategies the most often when they read in the L2, and only then do they tend to employ global strategies (Tary & Molnár, 2022, p. 65). In addition, it was also found that teacher trainees who major in an L2 use more global strategies when reading in the L2 than those who are in a completely monolingual program. The authors tackle the possibility of this pattern being a direct consequence of L2 majors' ability to transfer their L1 reading skills and employ them in tasks which require a high(er) level of linguistic proficiency (Tary & Molnár, 2022, p. 67). Besides providing valuable pedagogical information, Tary and Molnár's research also serves as a validation of the adapted questionnaire, suggesting that it can be reliably used in similar environments.

In a related study, Tary (2023) measured teachers' L1 and L2 reading strategy use with multiple variables (e.g. gender, years of teaching experience, majors) being included in the statistical analysis. The participants (n= 256) filled in the original MARSIR questionnaire. The results suggest that while teachers are more likely to employ global and support strategies in their L1, there is not any significant difference in the ratio of problem-solving strategies in the two languages. At the same time, Tary reports that there appears to be significant correlation between teachers' reading in the L2 on a regular basis and the breadth of strategy repertoire in the L2 (Tary, 2023, p. 115).

Despite the relative scarcity of EFL reading research in the Hungarian higher education context, the existing body of research is in line with international scholarly work in this particular field of applied linguistics. The following subsection provides an overview of

the most representative empirical studies on L2 reading strategy development and use in higher education from all across the globe.

2.2.2. Survey studies

2.2.2.1. The MARSİ and SORS tests

Surveys have traditionally been one of the most popular psychometric tools in education sciences. They are also widely used to measure both L1 and L2 reading strategies, and, over the years, Mokhtari and Reichard's Metacognitive Awareness of Reading Strategies Inventory or the MARSİ test (2002) and its different adaptations have become the benchmark instrument in researching metacognitive reading. Originally developed to be used in primary- and secondary education to measure L1 reading skills, its reliability and easy-to-use design was quickly recognized, and it was adapted to suit L2 reading research; this version is known as the Survey of Reading Strategies Questionnaire, commonly abbreviated as SORS (Mokhtari & Sheorey, 2002). The MARSİ is a self-report instrument which measures metacognitive awareness in reading through three strategy subscales, namely: global, problem-solving and supporting strategies, each of which are then further broken down into more specific strategies (see the Mokhtari-Reichard taxonomy (2002) in subsection 2.1.3, Table 2). With its .93 reliability score, the MARSİ is considered a dependable measurement instrument (Mokhtari & Sheorey, 2002, pp. 3-4; Sheorey & Mokhtari, 2001, p. 435). The SORS test is commonly used to gain psychometric information about adolescent and (young) adult L2 readers' strategic repertoire. With the English L2 learner population in mind, Mokhtari and Sheorey (2002) designed a version of the original MARSİ test which takes into account the fact that the respondents are at least bilinguals and will therefore probably use strategies that are non-existent in the case of monolingual speakers, such as translating from one language to another or using both languages simultaneously. The authors contend that the SORS test should not only be regarded as a tool of measurement but also as a source of skills development in L2 classes (Mokhtari & Sheorey, 2002). Besides reformulating some of the original MARSİ statements and adding ones that should be suitable for measuring L2 reading, Mokhtari and Sheorey also eliminated some statements that, according to the then current state of research, did not directly measure the metacognitive components of reading comprehension but reflected general learning strategies (Commander, Ashong & Zhao, 2016, pp. 43-44; Mokhtari & Sheorey, 2002, p. 4;). Let us have a closer look at the structure of the survey, which was used as a complementary instrument of measurement in my research as well. The complete official version of the survey is found in the Appendix.

The 30-question survey measures the three principal groups of metacognitive strategies with a variety of questions that refer to various sub-strategies. For example, Question 1: “I have a purpose in mind when I read” belongs to global categories, and can be labelled as the reader’s intention of “setting a purpose”. In comparison, Question 6 highlights the same process from a slightly different angle by focusing on the reader’s evaluative strategy: “I think about whether the content of the text fits my reading purpose”. While, according to the taxonomy under discussion, this question still measures global metacognitive strategies, it also touches upon the processes of pre-viewing, and, quite possibly, skimming. The distribution of the questions per category is as follows: 13 for global, 8 for problem-solving, and 9 for support strategies. Respondents answer the questions by positioning their perceived skills on a 5-point Likert scale, and then they add up their points to receive the mean average of the survey. An average of 2.4 or below indicates overall weaker metacognitive strategies, a value that falls between 2.5 and 3.5 is considered average, and anything above 3.5 suggests that the respondent has strong repertoire of metacognitive strategies. The calculation of these values was based on Oxford (1990, pp. 297-300, as cited in Mokhtari & Sheorey, 2002; see SORS test in Appendix).

Besides informing EFL educators about their students, the MARS and the SORS tests are convenient tools to raise student awareness and to promote the importance of self-reflection in learning processes (Mokhtari & Sheorey, 2002, p. 8). The SORS was introduced in a large-scale study by Sheorey and Mokhtari (2001), in which native and non-native English learners’ metacognitive strategies were compared. A total of 302 respondents (150 L1 and 152 L2 English speakers) participated in the research which focused on the metacognitive strategies which presumably emerge in the process of reading academic materials. The study had three main areas of interest, namely (1) the differences in the self-perception of L1 and L2 English readers in terms of strategy use; (2) the possible differences between male and female respondents of the same population (based on the received notion that women are more successful language learners than men); and (3) whether there is any cause-and-effect relationship between strategy use and the results of the self-report survey. Results suggest a significant difference between the use of supporting strategies between L1 and L2 readers, with L2 readers employing supporting strategies a lot more frequently than the native respondents. At the same time, both groups established the same order of importance with regard to reading strategies, that is: problem-solving, global and supporting strategies. Sheorey and Mokhtari concluded that there appears to be a positive relationship between self-perception and reading ability, which can have far-reaching pedagogical implications in the

long term. This piece of research was the first to employ the then newly designed SORS, which should justify its being presented in such a detailed fashion.

In a more recent study, Mokhtari, Dimitrov and Reichard (2018) presented a revised version of the MARSI scale, named the MARSI-R. The modifications to the original version included the reduction of the questions from 30 to 15, the simplification of the questions in order to make it suitable for testing young readers as young as 9-10 years, as well as the reformulation of the scale format. The classification of strategies was the same as in the original one. The reliability and validity of the MARSI-R was confirmed through the validation test. The study concludes with explicit indications to the future revision of the SORS test as well, but this improvement has not yet taken place to the best of my knowledge. Despite the authors' plans to introduce these changes, it is emphasized throughout the paper that the original versions of both scales are perfectly suitable for measuring L1 and L2 reading strategies. It is necessary to add, though, that, in an earlier study, Nguyen (2016) proposed some modifications to the SORS based on statistical analyses of a pilot and a main study. Instead of the original three scales, Nguyen introduced five scales, namely: overviewing, problem-dealing, supporting, guessing and information-dealing strategies (Nguyen, 2016, p. 61). The original survey was further complemented by a short pre-reading questionnaire asking for linguistic and ethnographic data and an extra statement on top of the original 30. Based on the relevant literature produced since the publication of Nguyen's paper, the proposed changes to the SORS scale do not seem to have reached a larger audience.

The following subsection presents an overview of relevant survey and mixed-methods studies which used the MARSI, the SORS, or an adapted version of either one as a principal instrument to measure reading strategies. It is by no means intended to be comprehensive of such research; it is meant to be an insight into the versatile applications of this data collection method, and, at the same time a justification of employing it as a supplementary source of data for my dissertation. The order of presentation is not necessarily chronological, but based on how these different research papers are related to one another.

2.2.2.2. Overview of survey and mixed-methods research studies

First of all, it is important to point out that survey research studies measuring L2 reading strategy use tend to use a variety of independent variables to provide a nuanced analysis of the sample. This most often includes the inclusion of one or multiple of the following variables: age, gender, major (field of study), and level of proficiency. The population is often taken from a higher education environment, and it is not uncommon for researchers to collect data

from two independent populations (i.e. two universities from two countries) to compare strategy use across differing samples. This subsection presents a number of examples for five of these scenarios: cultural/linguistic differences, gender, fields of study, proficiency and perceived self-efficacy.

In a 2004 paper, Mokhtari and Reichard investigated whether linguistic background and cultural context act as significant variables when it comes to ESP learners' evaluating their own metacognitive awareness and strategy use (Mokhtari & Reichard, 2004). They compared American (English L1) and Moroccan (Arabic L1, French L2) undergraduate students (n=350) who shared approximately the same characteristics with regard to age, education level and gender (p. 383). The two populations represent two considerably different socio-cultural structures, one salient element of which is the fact that while the US is a chiefly monolingual culture (especially with regard to the educational system), Morocco is a multilingual and multicultural country given its history of colonization. For Moroccan students, English is usually the second foreign language, with French being their L2 and a main language of academic instruction. Participants were given the MARSII instrument, and the data was subsequently processed with multivariate analysis of variance. The results suggested that Moroccan students' perceived strategy use is to some extent higher than that of their US counterparts. With a similar goal in mind, Commander, Ashong and Zhao (2016) set out to compare the metacognitive strategy use of US and Chinese undergraduate students (US n= 117, China n= 117). The results of the SORS test suggest similar strategy use for both populations, with both US and Chinese students showing moderate levels of strategy use (M=3.54 and M= 3.25 respectively). When it comes to comparing the use of the specific scales, US students reported higher strategy use in all three subscales, which appears to contradict Mokhtari and Reichard's (2004) conclusions in the comparison of Moroccan and US students.

Mokhtari and Reichard's 2004 study has since inspired a number of other cross-cultural or cross-linguistic investigations going beyond the L1/L2 (or US/non-US) distinction, including Karbalaee's (2010) comparative study on Iranian EFL and Indian ESL English majors' reading strategies in an academic environment. The respondents (n= 189, of which 93 are Indians and 96 Iranians) were given a reading test (specially designed and piloted for the purpose of this research) and the MARSII test. The principal independent variables were the markedly different socio-cultural and linguistic environments. The fact that English is an official language in India was expected to have an impact on the results as the majority of

Indian students attending higher education have a solid foundation in English. Results indicate similar patterns in both populations of the sample, but Indians appear to employ more of a top-down approach to reading whereas Iranian EFL students tend to have a bottom-up approach. Also, Indians use almost all strategies in a greater number and they are more willing to have recourse to support strategies (e.g. paraphrasing, note-taking, highlighting information) than their Iranian counterparts (Karbalaeei, 2010, pp. 175-176). These results are different from those of an earlier large-sample study conducted by Anderson (2004), which, based on the results of the SORS test, found that there are no noticeable differences between EFL and ESL environments with regard to global and support strategies. The only scale where there is statistically observable variation is that of problem-solving strategies, which EFL learners tend to use more often than their ESL counterparts. These findings might be indicative of the decreasing differences between EFL and ESL contexts, given the easy accessibility of L2 materials today (Anderson, 2004, p. 21).

In a 2008 case study, Mokhtari undertook a project in which he took his earlier research to a new level by including trilingual readers to see if learners (n=3) employ different metacognitive strategies when reading in their different (native and non-native) languages (Arabic, English and French). Based on the results, it can be concluded that patterns of metacognitive strategy use are similar across languages, with problem-solving strategies being the most prominent, followed by global and support strategies. It was also found that the frequency of strategy use was dependent on language proficiency: learners used more strategies in their weaker languages and visibly fewer in their most proficient ones. Inspired by Mokhtari's endeavor, Alsheikh (2011) conducted a similar case study with trilingual speakers of English, French and Hausa, a language spoken in West Africa. A major difference to Mokhtari's research is that Alsheikh employed triangulation in the data collection, where the original SORS survey was supplemented with TAP interviews during reading. The results reflected Mokhtari's findings with respect to the order of strategies preferred (Alsheikh, 2011, p. 39). Adjusting reading speed, highlighting textual information and paraphrasing were among the most preferred strategies, which reinforces the importance of problem-solving strategies in the process of reading.

The potential role of gender differences in L2 reading strategy use is probably one of the most frequently studied areas in the field. Before the publication of the MARSI and SORS tests, researchers preferred using Oxford's SILL test, as evidenced in relevant studies between 1989 and 2003. Findings from this period are rather mixed: while some results suggest that females are likely to use more strategies than males, there is evidence for the contrary, and

some of the research did not find any significant differences between the two genders (summarized from Poole, 2005, pp. 8-10). In one of the earliest multivariate studies on gender and L2 reading research, Phakiti (2003) explored various interrelated aspects of this relationship, namely, the potential differences in reading comprehension performance and strategy use between the male and female college students in Thailand (n= 384, of which males = 173, females = 211). Students were given a reading comprehension test and a cognitive and metacognitive strategies questionnaire which was developed based on O'Malley and Chamot's classification (1980). Differences in reading comprehension and cognitive strategy use were found to be statistically not significant. One noteworthy finding was that males outperformed females in terms of metacognitive strategy use, which was unexpected, given that scores in the comprehension were not predictive of such difference. Subsequent research by Poole (2005) reached similar conclusions. The same year, Mónos (2005, see section 2.2.1.) reported higher strategy use among female ESL college students based on SORS results. At the same time, she points out the discrepancy between the SORS scores and the results of the reading comprehension test (a component of the complex language exam given at the University of Debrecen): several students scoring high on the SORS performed poorly on the comprehension test. Mónos offers two possible reasons for this phenomenon: either strategy use is not always indicative of reading performance and vice versa (which is unlikely, given the established correlation between the two – comment by the author), or, what appears to be a more plausible explanation is that respondents reported using strategies they do not actually possess either because they believed they did or because they wanted to match the assumed expectations of the researcher. This might be true for female participants as they are more likely to have a compulsion to conform (Mónos, 2005, pp. 19-20).

A subsequent study on Colombian EFL students' strategy use suggests greater variation across genders (Poole, 2009). Participants (n= 352, of which males = 117, females = 235) completed the SORS test. Both male and female respondents exhibited remarkably similar patterns of strategy use in terms of specific strategies, but females' overall average was high (M= 3.58), while males scored medium (M= 3.39). In the Omani higher education context, Saidi & Al-Mahrooqi (2012) found noticeable differences between male and female students' strategy use, with females scoring higher on all strategy types except for one. The differences between the two populations might be explained in terms of attitudinal differences. No such contrast was identified, however, in the case of Iranian EFL learners (Kamran, 2013). Males and females scored very similarly on the global and support strategy scales of the SORS test; the only strategy type where females outperformed males was that

of problem-solving strategies. Similar results were obtained in another Iranian study which examined the relationship between metacognitive reading strategies, gender and reading performance across a population of English L2 Translation students (Ganji, Yarahmadzahi & Sasani, 2018). A noteworthy finding of the research is that the most frequently employed strategy group was supporting strategies, which is indeed an unusual outcome as advanced learners tend to employ global reading strategies the most often as evidenced in the literature. To sum up, the current body of research investigating the relationship of gender to L2 reading strategies – of which a very narrow section was presented here – offers mixed results. While gender does seem to have some kind of influence on the frequency and quality of strategy use, it is not entirely clear how and to what extent it does.

Moving on to the body of studies focusing on different disciplines or on a larger student population in general, Martínez (2008) examined Spanish L1 university students' metacognitive strategy use in L2 academic reading at the University of Oviedo, Spain. Participants (n=157) were ESP students majoring in Sciences and Engineering. Using the MARSIS scale as the tool of measurement, Martínez concluded that participants' strategy use varied between moderate and high, in accordance with Oxford & Burry-Stock's statistical description (1995, as cited in Martínez, 2008, p. 171). In terms of specific strategies, they mostly prefer problem-solving and global strategies, with re-reading, re-focusing on text and re-adjusting reading pace being the most frequently used ones. Of global reading strategies, participants reported using context cues and skimming as primary ways to work on meaning.

Another variable which has been thought to have an effect on the quality of L2 strategy use is that of disciplinary choices in tertiary education, i.e. whether academic orientation makes any difference in students' reading practices. In a mixed-methods study, Dabaghi and Akvan (2014) focused on the possible differences in L2 reading strategy use between humanities and sciences majors in Iran. The findings indicate that, in this particular sample, science majors seem to use cognitive and metacognitive reading strategies more frequently than humanities students, and that there appears to be a correlation between reading proficiency and strategy use, an independent variable which we'll return to in the next subsection.

Using a self-developed survey based on the MARSIS test, Chen (2019) looked into the online reading strategy use of Taiwanese L2 English learners (n= 537) enrolled in different programs across Taiwan. Similarly to the MARSIS test, Chen's also included the three major scales to measure reading strategy use. Results show that students have moderate strategy use in terms of frequency (M= 3.31), and the order of strategies is as follows: support, problem-

solving and global strategies. There was a notable difference between junior and senior year students, with the former employing a higher number of strategies than the latter.

A recent paper by Čeljo, Bećirović and Dubravac (2021) investigated L2 English reading strategies in higher education along several extra-linguistic variables, including the respondents' major, year and university type in Bosnia and Herzegovina. The SORS test was administered on a sample of 228 students. The statistical analyses showed that the field of study and the age of respondents had a considerable impact on perceived reading strategy use: psychology students scored the highest with regard to frequency of use, and the number of problem-solving strategies increased proportionally to year of study (pp. 601-602). Mustajab Ahmed (2020) measured the reading strategies of Omani EFL students (n=375), with the independent variable being the respondents' field of study. Results suggest that independently of their majors, students have similar strategy preferences when it comes to facilitating the reading process, with problem-solving strategies scoring the highest (M= 3.75), seconded by support strategies (M=3.63). The use of global strategies was moderate, and showed some interesting differences across majors. To take an example, students in English Studies, Biology, Engineering and IT preferred the use of tables, figures and pictures to understand the course material, whereas Business Studies students tend to double-check their understanding of earlier information when coming across new information. Mustajab Ahmed's findings appear to be consistent across studies of similar kind (Ahmed, 2020, p. 302). In contrast, Rabadi et al. (2020) found that Jordanian EFL and FFL (French as a foreign language) majors preferred global reading strategies over the other two scales. Another noteworthy finding of the study is that EFL students appear to use global strategies in a significantly higher number than their FFL peers (M=3.26 and M=2.86, respectively).

So far we have seen examples of survey research investigating the correlations and possible cause-and-effect relationships between strategy use and the independent variables of culture/language, gender and academic discipline choices. Let us now turn our attention to survey studies which revolve around proficiency, perceived self-efficacy and the strategy use.

The possible correlation between L2 proficiency level and reading strategy use has been extensively researched as it has been found that higher proficiency L2 learners tend to use a wider array of strategies than those on the weaker end of the proficiency spectrum. This relationship is likely to be "reciprocal" in nature, meaning that strategy use appears to simultaneously promote and increase with proficiency (Sheorey & Mokhtari, 2001, pp. 14-15). By virtue of their strategy repertoire, more proficient students will therefore become

better readers, being able to employ more complex strategies in comparison to weaker readers; the latter generally lack the ability to decode the written text and have limited cognitive and metacognitive skills, which is – as explained in subsection 2.1.2.3 – related to the processes of the working memory (Lau & Chan, 2003, pp. 177-178). Strong reading skills have been found to positively affect metacognition (Zhang & Wu, 2009, p. 41).

Indeed, quantitative research conducted in the topic appears to reinforce the assumption that strategy use increases or improves proportionately to proficiency level. Zhang & Wu (2009) investigated strategy use at three levels of Chinese senior-year EFL learners: low, intermediate and advanced. Participants (n= 270) were grouped into proficiency levels according to the results of a placement test administered prior to the actual data collection. Learners were then given the SORS test. Results suggest that advanced learners outperform lower levels on the scales of global and problem-solving strategies, while there seems to be no difference across levels with respect to support strategies. In an unpublished MA thesis, Behbudian (2011, as cited in Mirzapour & Mozaheb, 2015) arrives at a similar conclusion about Iranian EFL learners. Zahra, Komariah and Sari (2016) investigated the relationship between metacognitive strategy awareness and reading comprehension in the Indonesian EFL context and found that participants had a high awareness of strategy use. The statistical analysis of the MARSII test showed that students use global strategies and support strategies the most frequently. Of the three scales, it is global reading strategies which correlate with reading performance the most.

In a study focusing on strategy use and proficiency level (Mirzapour & Mozaheb, 2015), Iranian EFL learners (n=60) were given the SORS test following the administration of a placement test based on which participants were divided into intermediate and advanced-level groups. The initial hypothesis was that both groups employ all three types of reading strategies, but there will be differences in the manner and extent of strategy use. The survey results confirmed both parts of the hypothesis: both levels have recourse to all three scales, but there are differences in the quantity and quality of strategy use as advanced learners tend to use problem-solving and global strategies more frequently than their intermediate peers (M=65.63 vs M=51.80 for problem-solving; and M= 62.40 vs M= 57.20 for global, rounded up to the nearest hundredth). The respective means for support strategies are considerably closer to each other than in the case of the other two scales (M=57.50 vs M= 55.80).

Yoshikawa and Leung (2020) reported findings contradictory to those presented above. Japanese L1 EFL learners (n=50) completed the MARSII test and a reading comprehension test to establish the values for the independent variable, which was reading

proficiency level. The data was processed using cluster analysis, and three naturally-occurring clusters were identified, corresponding to high, intermediate and lower proficiency levels. The analysis did not identify any statistically significant difference between the two highest clusters with respect to problem-solving and support strategies. Interestingly though, participants in the lowest cluster were found to use global reading strategies as frequently as respondents in the highest cluster, which belies previous numbers predicting more frequent strategy use at higher proficiency levels. While the authors do not challenge the correlation between strategy use and reading proficiency, they point out that reading strategy development is by no means linear in nature (as shown in the clusters) and call for further research in the field. Ganji, Yarahmadzahi and Sasani (2018, mentioned above) did not find significant relationship between SORS results and reading performance, which, again, provides some counterevidence to the highly accepted view that strategy use and performance are in a positive correlation with each other. In contrast, Sheikh, Soomro and Hussain (2019) concluded that metacognitive strategy awareness can be considered a strong predictor of learning outcomes in an academic context.

In a recent paper, Zarei (2018) analyzed the correlations between L2 reading proficiency level, metacognitive strategies and reading self-efficacy by administering three tests (one being the MARSII test) for each variable and performing multiple regression analyses. First, some terminological clarification might be in order. A principal element of Albert Bandura's social cognitive theory of human behavior is the notion of perceived self-efficacy (1977, as cited in Zarei, 2018). The term refers to the individual's judgement of their ability to think about and implement specific actions in order to achieve specific goals and perform as needed (Bandura, 1986, as cited in Zarei, 2018, p. 161). Self-efficacy has a positive impact on self-regulatory learning methods and is a reliable predictor of learner performance (Zimmerman, 2000). In the context of L2 learning, perceived self-efficacy can be translated into one's perception of their own strategy use. Participants were Persian L1 TEFL and Translation Studies majors at a university in Iran (n=119). The findings highlighted three statistically significant correlations. First, the use of global and problem-solving strategies is a predictor of good L2 reading comprehension. Second, good readers tend to employ global strategies frequently, which is statistical predictor of self-efficacy. Third, there appears to be a strong correlation between reading comprehension performance and perceived self-efficacy, implying that good readers are to a great extent aware of their abilities. Zarei's results do not only reinforce other research in self-efficacy, but they provide further evidence for the relationship between strategy use and performance.

Research findings in this particular sub-field of L2 reading survey studies seem to be overall in line with major theoretical tenets of the reciprocal relationship between comprehension performance and/or linguistic proficiency and L2 strategy use. Based on the corpus of studies presented above, it is safe to say that strategy use can be used as a predictor of reading performance, although there is empirical evidence that might challenge some aspects of this statement.

The primary goal of this section was to give an overview of the major directions of L2 reading strategy survey research and to point out patterns and tendencies that prevail in the field. The next section will discuss verbalization as a principal type of data collection, focusing on the various uses of the think-aloud protocol in reading research. Similarly to the summary on survey studies, the first part of this section will start out by taking account of the methodological considerations, and then the second part will synthesize empirical research from the 1980s on until today. While think-aloud and, in general, verbal protocols are less numerous in L2 reading research because of the time-consuming nature of the data collection and analysis procedures, they nonetheless constitute a valuable section of the research area. Any perceived disproportion between the survey & mixed methods section and the one to be presented now is due this particular reason.

2.2.3. Verbal protocols

Verbal reports are one of the most common qualitative data collection methods. With qualitative designs, the greatest advantage can, at the same time, become a methodological obstacle: since, generally speaking, any information obtained from respondents can potentially be used as data, it is crucial for the researcher to narrow down their research scope and focus on what is relevant to their specific research questions or goals (Dörnyei, 2007, pp. 124-125). The idea that verbal reports can serve as valid sources of data goes back to the early days of psychology (Ericsson & Simon, 1980), with some claiming that its beginning can be retrieved in early philosophical and theological thinking (Gass & Mackey, 2016, p. 3). The first systematic methodology for conducting verbal reports was introduced in the 1960s, when cognitive psychology finally overtook Skinnerian behaviorism (Ericsson, 2002, as cited in Dörnyei, 2007, p. 147).

The cognitively-informed approach of human information processing was particularly interested in the mechanisms of the working memory and how data indicative of mental processes can be extracted via verbalization. It was assumed that task-directed verbalization protocols will elicit behavior that responds to the instructions of the task (Ericsson, 2002, as

cited in Dörnyei, 2007, p. 217). For valid and reliable data to be obtained, participants have to verbalize their thoughts upon or very shortly after information has entered consciousness. It is assumed that verbalization does not alter the quality of the information that is being worked on in the short-term and working memory during the data collection procedure, implicating that researchers get the same data as if silent thinking processes could be directly observed (Ericsson & Simon, 1987, p. 32).

Verbal protocols belong to the broad category of introspective methods which are based on participants' self-reflection (Dörnyei, 2007, p. 147). The basic distinction was made between concurrent and retrospective think-aloud protocols (abbreviated and henceforth referred to as TAP). In the case of concurrent TAP, participants verbalize the information (i.e. their thoughts) simultaneously to performing a task. Retrospective TAP works the other way around: participants report their thought processes after the completion of the task (Ericsson & Simon, 1980, p. 219). In current research methodologies, however, concurrent and retrospective verbal protocols are discussed under slightly different terminological labels: by TAP, we generally mean concurrent (or real-time) verbalization, while retrospective verbalization is called 'stimulated recall' (Dörnyei, 2007, p. 147). One important criterion is to ask respondents to talk about their motivations and reasons for acting the way they do as understanding these variables is crucial if the researcher seeks to form an idea of the underlying mental processes (Ericsson & Simon, 1980, p. 230). It is therefore imperative that the protocol should be designed in such a way that it is conducive to eliciting data relevant to the specific research goal (Ericsson & Simon, 1980, p. 222). Since verbal protocols are not natural situations, the researcher has to first demonstrate the procedure to the respondent and then make sure that they understand the task (Dörnyei, 2007, p. 149). The usefulness of verbal protocols is often measured in terms of falsifiability and replicability (Gass & Mackey, 2016, pp. 3-4), and they have been shown to be reliable instruments to measure cognitive processes (Gass & Mackey, 2016, p. 13).

In what concerns the categorization of verbal reports, Cohen (1998 as cited in Gass & Mackey, 2016, p. 10) distinguishes between three main protocols that are conventionally employed in L2 research:

- (1) Self-reports, through which the researcher gains insight into the self-perceptions of the L2 learner and is suitable for formulating general statements;

- (2) Self-observation, which is either introspective (data collected shortly after the completion of the task) or retrospective and focuses on a specific language-learning phenomenon;
- (3) Self-revelation, which is synonymous to TAP.

Synthesizing relevant methodological research, Gass and Mackey (2016, p. 12) establish three criteria to categorize verbal protocols: time frame (concurrent/ retrospective), form (oral/ written/ both), support (none/ full), with support referring to any stimulus (e.g. video/audio recording of the event) that elicits introspection (Gass & Mackey, 2016, p. 12).

Further distinctions can be made between self-observation and stimulated recalls (also called ‘prompted interviews’), based on the exact method used to trace the targeted cognitive processes (Shavelson et al., 1986, as cited in Gass & Mackey, 2016, pp. 16-17). The main difference between the two is that self-observation protocols do not use prompts to elicit specific behaviors. With stimulated recalls, the timing of post-task introspection and the suitability of guiding questions are crucial for reliability. It is generally understood that if retrospection is done shortly after task performance, then the chances for a successful recall are higher (Shavelson et al., 1986, as cited in Gass & Mackey, 2016, pp. 16-17). Since today’s introspective methods and verbal protocols grew out of psychological research, their applicability extends to a wide range of scholarly areas, from cognitive psychology to medical and educational research (Gass & Mackey, 2016, p. 15). Verbal protocols have proved to be effective data collection instruments in uncovering complex cognitive processes, knowledge structures and strategy use (Gass & Mackey, 2016, p. 25). In comparison to surveys, they provide a considerably more detailed picture of specific language-related phenomena. Due to the richness of data derived from verbal reports, however, sample sizes are normally small and the analysis is time-consuming.

2.2.2.4. Verbal protocols in L2 reading strategy research

Among the earliest studies to measure L2 reading strategies through verbal protocols is Block’s (1986) TAP research investigating the reading comprehension and strategy use of non-proficient English L2 readers (n=6) in comparison with L1 readers (n=3). Block starts out by stating that even though verbalization has the potential of providing access to otherwise non-observable mental activities, it runs into difficulties when it comes to measuring automatized processes (i.e. skills). Participants of the research were first-year university students. Prior to the main data collection, the research design was piloted and students were given some training into verbal protocols beforehand. They were given to relatively short

texts (word counts: 589 and 843 words, respectively) from an introductory course book in Psychology. They were instructed to stop after every sentence and report what they read and what they did while reading. Then, after each passage, they had to recount the content. As a third and final part of the protocol, participants had to complete a multiple-choice questionnaire testing their comprehension of the texts. This last item served as a tool to compare strategy use with reading performance. The recordings were then transcribed, and the assumed instances of strategy use were coded. In this study, strategies were divided into two major groups: general comprehension (e.g. anticipating content, recognizing text structure, commenting on content) and local linguistic (e.g. paraphrasing, re-reading) strategies.⁸ The introspective interviews lasted on average between 17 and 33 minutes. It was observed that the systematic use of either strategy group was dependent upon reader attitude (what the author calls “reader modes”). Block concluded that L1 background did not appear to influence strategy use and performance. However, some participants gained visibly higher scores in the retelling and multiple-choice tasks than their fellow students, and this might be explained in terms of their efficient use of reading strategies that compensated for their lack of language proficiency. It is also emphasized that strategy use is tightly connected to questions of memory and academic performance. In a related study, Block (1992) examined the reading comprehension abilities of L1 and L2 proficient and non-proficient readers (n=25) through TAP. Participants had to read expository prose and complete two tasks: finding referents and vocabulary items. They had to verbalize their thoughts. The analysis revealed that the comprehension process consisted of three main steps: (1) evaluating the task; (2) acting or resolving the problem; and (3) checking if the solution was correct. Results indicated that both L1 and L2 proficient readers employed global reading strategies and had a top-down approach to the text. They also had the tendency to skip unfamiliar words which were not relevant to understanding the text. Strategy use was more salient in the referents task. Both characteristics are typical of good readers. In contrast, non-proficient L1 and L2 readers both preferred using bottom-up approaches to reading, used less global strategies, and sometimes struggled with unfamiliar vocabulary. The research suggests that reading comprehension abilities show similar patterns independently of the language. A related case study looking into proficient L2 readers’ metacognitive strategy use (Li & Munby, 1996) concluded that readers of L2 academic texts tend to show a high level of strategy awareness and are capable of verbalizing their strategy use. The two undergraduate Chinese L1 participants were

⁸ A more detailed list of Block’s strategy classifications is presented in the subsection on reading strategies (subsection 2.1.3.)

followed for a period of two months. Data was collected by way of interviews, TAP and journaling. The participants reported and were observed using a number of strategies, including paraphrasing, repetition, using contextual clues, skimming, scanning or translation.⁹ When their usual strategies failed, they were apt to find new ones which might work more efficiently in the given reading situation. The study reinforced the positive correlation between proficiency level and strategy use.

Recent research continues to exploit the potential of verbal protocols in strategy research. For example, Handayani and Widijantie (2021) measured Indonesian Business majors' strategy use when reading discipline-specific texts in English. The focus was on pre-viewing strategies, when the reader tries to guess the content of the text by looking at titles, images and subheadings and adding their background knowledge of the subject to that (p. 32). In addition to pre-viewing, strategies of finding the main idea and specific details were also measured. Participants (n=13) were given a business-related text about which they had to answer a series of questions and then verbalized their thoughts. The findings of the verbal protocols indicate that all students used some type of pre-viewing strategies to formulate a preliminary idea of the text. To find the main idea and specific details, they were found to employ multiple strategies at once. For the main idea, however, the most frequently used strategy was to read the first sentence in the paragraph.

A new TAP case study by Jincheng and Rahmat (2022) confirmed some of the earlier findings related to reading proficiency and strategy use. Of the two participants, the "high-achiever" employed global strategies considerably frequently than the "low-achiever", who mostly resorted to bottom-up strategies. Moreover, the more proficient L2 student used a "bird's eye view" approach, suggesting a preference for top-down processes. These patterns were present in all three stages of the reading process (planning, monitoring, and evaluation). Somewhat conflicting results were produced in another case study (Pamma, 2017). Five less proficient Indonesian L2 learners were selected based on TOEFL scores. They had to perform a concurrent verbal protocol while answering True/False statements about a text. The findings of the protocol analysis show that weaker readers do tend to use a wide range of strategies. These include pre-viewing, using a dictionary, skimming, scanning or synthesizing information. In fact, they were observed to use a strategy repertoire very similar to that of proficient readers. At the same time, their skills are not up to the level where they can read academic texts efficiently because of their limited vocabulary, a deficiency they were not

⁹ See Table 2 for a comparison of taxonomical groupings.

always able to surmount. Pamma's research, while to some extent reinforcing the general conclusions about weaker L2 readers, demonstrates that the question of strategy use is far more nuanced than simply distinguishing between good and poor readers.

Krismayani and Menggo (2022) used verbal protocols to identify reading difficulties of English L2 undergraduates at a University in Bali. They found that students struggled at several levels of reading comprehension, including syntactic parsing, self-monitoring and inferencing. The study shows the benefits of TAP as a means to detect problems and formulate pedagogically sound conclusions about learner behavior, which can serve as a basis for new methods or solutions.

Verbal protocols are often used with the aim of improving reading strategy use by focusing on a particular subset of skills. For example, Hamada and Park (2013) investigated the possibilities of improving inferencing skills for college-level L2 reading. In the experimental research design, the experimental group was asked to negotiate the meaning of English pseudowords in a text, while the control group was instructed to guess the meaning silently. The comparison of the pre- and post-test result showed that the experimental group demonstrated considerable increase in terms of meaning-inference, suggesting that the verbalization of thoughts facilitates thinking processes.

2.2.2.5. Some methodological questions of verbal protocols in reading research

The above section was intended to provide some insight into the different applications of verbal protocols in second language reading research. While it is undeniable that introspective methods and verbalization have a significant contribution to uncovering mental processes by virtue of their in-depthness, there are some methodological concerns that have been repeatedly expressed in the literature. Let us now summarize these briefly, starting first with the advantages and then moving on to some areas of potential concern

One of the greatest benefits of using verbal protocols in L2 reading research is the fact that they record and reflect the dynamic nature of thought processes, which makes them suitable for data collection across time and across different reading environments (Hu & Gao, 2017, p. 183). They are also frequently used to identify differences between low- and high-performing L2 readers, which stimulate pedagogical discussions and might positively contribute to syllabus and curriculum design in the long run (Hu & Gao, 2017, pp. 184-85; also, see the previous section). Conducting verbal protocols is, however, a time-consuming activity which requires a considerable amount of transcribing, coding and analyzing, which is the chief reason why surveys are often preferred to verbal protocols in data collection

procedures.

Laboriousness aside, there persist two main concerns related to verbal protocols in the literature, namely, the issues of reactivity and of veridicality (Hu & Gao, 2017; Smith & King, 2013). Reactivity refers to the possible negative effect of TAP on the reading process, i.e. the question is whether concurrent verbalization changes the quality of the data that is collected. Veridicality concerns the accuracy and completeness of the report. An oft-cited criticism towards verbal reporting is that information gets lost during verbalization, especially in the case of retrospective protocols (Hu & Gao, 2017, pp. 186-187), which contradicts the initial assumption of Several recommendations have been made to maximize veridicality in verbal reports (Smith & King, 2013, pp. 710-711). The first and most important one is that the data collected via TAP should be representative of the actual thought processes that are measured. Moreover, as it has been stated earlier, it is difficult to detect and identify automatic (i.e. cognitive or skills-level) strategies via TAP as they unnoticed by the respondent in the process of thinking. For this reason, it can be beneficial to opt for retrospective verbal protocols, enabling respondents to think about what they did and how they choose to verbalize it. The same was suggested earlier by Ericsson and Simon (1993, as cited in Smith & King, 2013, pp. 710-711). Some further recommendations to consider include respondents' verbal abilities as an independent variable and the force of the researcher's predictions about learner behavior in shaping the process (Smith & King, 2013, pp. 710-711). From a general research methodology perspective, there is an increasing need to adopt a more holistic view which would marry sociocultural and cognitive theories and to emphasize qualitative aspects of the data (Smith, Kim, Vorobel & King, 2019) as well as preferring process over product in the analysis whenever possible (Smith & King, 2013, p. 710). To minimize reactivity, participants should receive training in TAP prior to the actual data collection procedure in order to be familiar with the situation. In addition, prompting should be present all throughout the interview, which could take the form of reminders of the instructions and/or placing break-points into the text where respondents have to stop and talk (Hu & Gao, 2017, pp. 189-190). To summarize, the shortcomings of verbal protocols can be to a great extent compensated for with careful and consistent research design.

2.3. Conclusion

This section has demonstrated that both survey-based quantitative research and more in-depth verbal protocols can be effective means of studying reading strategy use. Both data collection methods have their advantages and drawbacks, but most of the methodological weaknesses

can be eliminated through careful research design. It is safe to say that survey studies have had a wider applicability than verbal protocols due to their straightforwardness in both the data collection and the analysis phase. At the same time, verbal protocols have the undeniable advantage of enabling a detailed insight into complex thought processes, a benefit which can definitely outweigh the laboriousness of data collection and analysis. Statistically speaking, however, survey studies remain more popular to this day as they are far more suitable for revealing general tendencies of strategy use within and across populations.

The dissertation will now move on to the Methodology chapter, which will first present the research questions and then discusses participant selection, data collection and the method of analysis.

3. Methodology of the research

Having covered the relevant theoretical, methodological and applied linguistic aspects of reading processes and L2 reading research, it is now time to turn to the research that was conducted within the limits of this dissertation. This chapter is dedicated to describing and justifying the methodology of the semi-retrospective TAP data collection procedure conducted in the spring semester of 2023, which constitutes the core of my research. The verbal protocol was supplemented with a structured follow-up interview and the SORS test, the results of which were then analyzed in comparison to participant responses in the protocol. These supplementary tools – while meaningful on their own right as we shall see in this chapter – served as a basis to compare instances of observed strategy use in the protocols with self-reported strategy use. The actual data collection was preceded by a pilot study in spring 2022, which will also be presented in the following pages in order to demonstrate the methodological revisions and improvements that were carried out before the most important phase of the research.

3.1. Research questions

As it was outlined in the Introduction chapter of this dissertation, the principal goal of the research was to investigate what strategies English majors use when reading academic texts in L2 English. In an attempt to uncover participant thought processes to the extent possible, I formulated four main research objectives, which aim at highlighting different aspects of the topic by collecting data by various means. With these considerations in mind, the four research questions might be formulated as follows:

RQ (1): What reading strategies do participants employ in a controlled reading situation which, to the greatest extent possible, attempts to imitate an actual academic L2 reading situation?

RQ (2): How do participants perceive their own strategy use when reading in the L2?

RQ (3): How do findings in the follow-up interviews relate to the results of the verbal protocol in terms of consistency between observed strategy use and self-reports of strategy use?

RQ (4): To what extent are tendencies of strategy use and self-perception in the data are consistent with the SORS results in general?

RQ (1) relates to the principal body of data, obtained from the verbal protocols. As this dataset constitutes the focus of the discussion, it is regarded as the axis of the qualitative analysis. RQ (2) discusses the follow-up interview questions relevant to strategy use, and RQ (3) aims at comparing the two datasets in order to see how researcher observations in the protocols tie in with or, conversely, differ from participant self-reports. Finally, RQ (4) looks at the group-level results of the SORS test and compares them to the totality of the two datasets, in the hope of finding certain patterns of strategy use which might be indicative of potential areas of generalization based on the data available.

3.2. The research design

Since my primary research goal was to identify and describe strategy use, it was crucial to choose a data collection method suitable for measuring thought processes. As was explained in a previous chapter of the literature review, introspective methods have proved to be reliable in uncovering the mental realities behind complex cognitive phenomena despite the apparent methodological and conceptual challenges which were addressed earlier in the dissertation. Previous research in L2 reading strategies has demonstrated the applicability of verbal protocols in exploring learner strategy use and studying potential correlations between variables. With these considerations in mind, I opted for a semi-retrospective think-aloud protocol (TAP)¹⁰ in my research. The labelling “semi-retrospective” will be explained in detail in the next paragraph. In addition to the verbal protocol, participants completed the SORS test. The inclusion of the survey was justifiable for two reasons. First, it gives more depth to the totality of the data collected. Second, it might help explain similarities and differences of strategy use across individual respondents as it provides general information on their levels of metacognitive strategy use.

3.2.1. Semi-retrospective think-aloud protocol

Some of the methodological concerns of verbal protocols are related to the reactivity and the veridicality of the data collection, as it was explained earlier (Smith & King, 2013; Hu & Gao, 2017). Reactivity concerns concurrent verbalization, while veridicality is an issue often raised in connection with retrospective verbal protocols (see Chapter 2, subsection 2.2.2.5.). Whilst it is quasi impossible to eliminate all factors that might affect the quality of the process under observation, there are some methodological precautions that can be taken in order to minimize the effect. To this aim, I decided to employ a design between concurrent and retrospective,

¹⁰ The full name and the abbreviation are used interchangeably throughout the dissertation. For the most part, the term ‘verbal protocol’ refers to the semi-retrospective TAP employed in the research.

assuming that the time respondents have at their disposal before talking will facilitate the verbalization of their thought processes, but, at the same time, the temporal distance between reading and talking is not too great to result in the participants' forgetting relevant information. To translate this idea of a semi-retrospective protocol into practice, three strategic steps were implemented into the design: training, prompting and placing markers or break-points into the text. All of these three techniques are recommended by the literature to maximize the veridicality of the data (see Hu & Gao, 2017), and were introduced following the analysis of the pilot study.

3.3. The pilot study

3.3.1. Research design

The pilot study was conducted in the spring semester 2022. The original research goal was to pilot the data collection measures for collecting data on metacognitive strategy use in L2 academic reading and, related to that, to pilot test the potential analysis of the comprehension processes of metaphorical expressions in academic texts. This latter was justified by the abundant literature on L2 metaphor comprehension and conceptual fluency, a subfield of applied cognitive linguistic research that has been increasingly popular given its contributions to both L2 pedagogy and cross-cultural linguistics.

The participants of the pilot study were six first-year English and American Studies majors. They all contributed on a voluntary basis. The text was an abridged and adapted online article on recent findings in attention research entitled 'How the brain's blue spot helps us focus our attention' (see Appendix for full text). The text had a 661-word count from title to end and was estimated by the researcher to be on a par with the texts students are assigned to read in the reading seminar in terms of difficulty. The verbal protocols were recorded on a one-on-one basis. The researcher knew all the participants in person, which facilitated communication with them. The language of the protocol was Hungarian, but participants were allowed to use English if they found it necessary for any reason.

The structure of the interviews was the following. Respondents were told that they were going to read a text on attention and that they would have to summarize its main arguments in approximately five sentences in Hungarian, as if they were to present it to their peers in class. It was essential to give participants a task so that they had a purpose in mind when reading. Before reading, they were asked some general questions about attention to put the reading in context. They were then instructed to start reading and stop after each asterisk (*). The text was divided into four parts, the end of each one signaled with an asterisk. Upon

seeing this marker, participants had to begin discussing their experience, focusing on the following aspects of the reading process: a) what they had read so far; b) how they made sense of it; c) if there were any ideas they had difficulty understanding; d) if yes, how they tried to overcome them. They were asked to say the first thing that comes on their mind and to verbalize their thoughts in as detailed a manner as possible.

When a respondent was visibly struggling to express themselves, the researcher asked some helping questions to elicit more data. What was quite noticeable from beginning was that respondents did not seem to have paid attention to metaphorical expressions in the text; rather, they either incorporated them in their explanations or they simplified them by paraphrasing the original phrase. To see if this tendency was an indicator of L2 metaphor comprehension being possibly automatized, the researcher asked some during and after reading questions deliberately directed at specific metaphors (e.g. slip by our awareness, our attention fluctuates, shed new light on). The interviews were ended with follow-up questions regarding students' reading practices and perceived strategy use.

3.3.2. Results

Following data collection, the verbal protocols were transcribed, coded and analyzed manually. The coding system employed adopted four broad categories: (1) assumed use of cognitive or metacognitive strategies; (2) participants' comments and reflections on the text; (3) assumed strategy use for metaphor comprehension, and (4) comments and reflections on strategy use in the follow up questions. Instances of cognitive and metacognitive strategy use were further broken down into subcategories based on an integrated taxonomy of reading strategies, with Mokhtari & Reichard's classification of metacognitive strategies (global, problem-solving and support) constituting the core of the system. This *ad hoc* taxonomy was the preliminary version of the final one used in the analysis of the main data.

The results of the analysis suggest that participants employed a high number of reading strategies, both from the cognitive and metacognitive repertoire. In many cases, the data showed that they employed both cognitive and metacognitive strategies to make sense of the information presented to them. Based on the data provided, the most frequently used strategies across all six participants are the following: analyzing information and elaboration, clarification, creating mental imagery to facilitate comprehension, monitoring one's own reading process, evaluation of comprehension, and activating prior knowledge. With the exception of the last three items on the list, which are metacognitive strategies, the others

belong to cognitive strategies according to most classifications.¹¹

As for the comprehension of metaphors, students appear to mostly treat them as larger chunks of language that are automatically processed. The participants showed little to no attention to metaphors in the text. On two instances, they incorporated the metaphor *the eye is a window* into their explanation of the content. In the follow-up questions all but one participant reported not usually noticing metaphors in a text as those are not salient. This can be explained by multiple factors including language proficiency, background knowledge and conceptual universality, e.g. attention conceptualized as a moving entity or the eye as a window are metaphors shared across several cultures, including Hungarian and Anglo-Saxon ones. When asked about metaphors, participants reported not having any difficulties understanding metaphorical expressions in the L2. One participant said that in the rare cases when he does not recognize the meaning of a metaphor, he relies on the context to guess its meaning. Another one found that the expression ‘slip by’ facilitated the understanding of the topic as it is semantically “movement-packed” and helped her visualize the attentional process. The scarcity of metaphor-related reflections and the above comments may suggest that at higher levels of proficiency the processing of L2 metaphors becomes to a great extent automatic, given that the conceptual motivation in the L1 and the L2 are similar and learners have either the lexical or strategic repertoire to make sense of these expressions.

3.3.3. Lessons of the pilot study

The pilot study and the analysis helped identify the conceptual and methodological weaknesses of the research design. First of all, it became clear that the research goal had to be narrowed down so that a more consistent and focused plan could be devised. Since the preliminary investigation of metaphor comprehension suggested no noteworthy differences across participants, I decided to eliminate this component and concentrate exclusively on reading strategies. In my estimation, a major weakness of the pilot data collection was that I had to constantly divide my attention between strategies and metaphor comprehension during the interviews, which appears to have created a misbalance in research priorities. Second, the pilot did not include participants’ training for the verbal protocol, which, as it has been formulated earlier, should constitute a vital element of any TAP-based research in order to minimize reactivity and maximize veridicality. Third, the prompting of the participants should have been more frequent and emphatic with regard to strategy use, a deficiency, which, again, could be accounted for by the somewhat ill-defined research scope. Because of these

¹¹ Except for creating mental imagery, which, according to the Mokhtari-Reichard classification (2002) is a problem-solving metacognitive strategy (“visualizing information”).

perceived weaknesses of the pilot study, I implemented some important changes in the research design of the main study, which will be elaborated on below.

3.4. The main data collection phase

3.4.1. Participants

The participants of the research were 12 first-year students enrolled in the BA and teacher training programs at the Institute of English and American Studies at the University of Szeged, Hungary. They all contributed on a voluntary basis. At the time of the data collection participants were well into the second semester of their studies, meaning that they had completed at least three of the six compulsory first-year language classes prerequisite for the comprehensive language examination they take in the second (BA) or third semester (teacher trainees) of their respective programs.

At the outset of the data collection, three criteria were established in the selection of participants. First, all participants had to have passed the Reading Skills seminar by the time individual interviews were made. Second, they had not attempted the comprehensive language examination at the time the interviews were made. Third, participants were selected such that they represented weaker, average, and above average ranges in a balanced distribution. The methodological consideration behind this decision was to create a group composition which reflects, to the extent possible, an average Reading Skills group in terms of performance.

Since the time of the data collection, all participants have successfully completed the Academic English exam with a score on the Reading Skills component generally consistent with the grades they received on the seminar.

3.4.2. Research design

Prior to starting the actual data collection, the original research design had to be revisited and modified in accordance with the conclusions of the pilot study. The first step was to discard the measuring of metaphor comprehension, thereby narrowing the scope down to the perceived instances of strategy use. The second step was to re-design the logic of the verbal protocol. The most important addition is the pre-reading training session, which was meant to familiarize students with the task and the situation. The training session was held immediately before the actual interviews. Participants were given a short passage (word count: 141, see Appendix for full passage) on a recent piece of psychological research. They were instructed to read the text and verbalize their thoughts and perceived thought processes focusing on the following: a) what you have read so far; b) how you make sense of it; c) if there are any ideas you had difficulty understanding; d) if yes, how you tried to overcome them. They were told

to talk about anything that comes into their mind. Participants were aware of the purpose of the task (i.e. training). The passage was divided into two parts, and the breakpoints were marked with an asterisk. Participants were constantly prompted to verbalize their thoughts. This training session was not recorded.

3.4.3. The main text

The main text was an abridged and adapted version of a then recently published online article in cultural anthropology. The study discussed the universality of cooperation, and the article was entitled ‘Small acts of kindness are frequent and universal, study finds’ (source: sciencedaily.com). The text had a 510-word count, from title to the end (see Appendix for full text). In terms of difficulty, it was on a par with the texts covered in the Reading Skills seminars. The organization followed the logic of ‘conventional’ academic articles: after the presentation of the main findings, the text goes on to discuss earlier research for reference, states the research goals/questions, describes the methodology and then returns to the findings before drawing the conclusions. The arguments are supported by examples and statistical data.

3.4.4. The verbal protocol

The text was divided into three sections. The breakpoints, marked with an asterisk, were each placed at the end of what could logically be considered an organizational unit. Accordingly, the first unit contained the presentation of the research and the findings; the second presented the research design and the data collection; and the third reiterated the results to state the major conclusions. Identical to the pilot, the collection of the verbal data consisted of three phases, which are the following:

1. Pre-reading phase: contextualizing the reading task, instructions, pre-reading questions. The pre-reading questions were not included in the analysis as their goal was to familiarize participants with the topic they are going to read about.
2. During reading phase: reading and verbalization through semi-retrospective think-aloud protocols
3. Post-reading phase: follow-up questions to elicit more data on the reading process and on perceived strategy use

All three phases were recorded. The language of the protocol was Hungarian, but respondents were allowed to use English if they found it necessary or if they were more comfortable speaking English.

Pre-reading phase

Before participants started reading, they were told that they have to read a short article for one of their classes to gain some insight into current research in cultural anthropology. Their task was to summarize the main findings of the study for their peers in a maximum of 5 sentences in Hungarian. They were then asked a couple of pre-reading questions about cooperation (and collaboration) to ensure that they know what the concept means and can provide everyday examples of people helping each other or working together towards a shared goal.

During reading phase

At the beginning of the reading phase, participants were given the instructions, which were essentially identical to those in the pilot study and in the training phase:

Start read the text, stop after every asterisk, and explain a) what you have read so far; b) how you made sense of it; c) if there are any ideas you have/had difficulty understanding; d) if yes, how you to overcome them. Please say the first thing that comes to mind and verbalize your thoughts in as detailed a manner as possible. I might ask some additional questions.

Of the 12 participants, 11 used Hungarian to formulate their ideas, and only one of them decided to speak in English. It is important to add that all participants used code-switching at one point or another of the protocol.

Post-reading phase

Following the semi-retrospective TAP, participants were asked a series of questions pertinent to the reading they had just finished, their perceived use of reading strategies and their reading practices. This part of the data collection mostly resembled a semi-structured interview: the questions were always asked in the order that was originally set, but the researcher left room for additional questions and off-the-topic comments as well. Below is presented the complete set of questions translated into English:

1. On a scale of 1 to 5, how difficult did you find the text? (If you found it difficult: what do you think the reason was?)
2. In general, how do you approach the reading of an English text? Do you have any conscious strategies for this?
3. What do you do when you get stuck while reading a text? Do you try to resolve the problem yourself, or do you seek external help?
4. While and after reading a text, what do you do to understand and remember what you have read?
5. How often do you read scientific and non-scientific texts in Hungarian?

6. How often do you read scientific and non-scientific texts in English?
7. Besides English, what other language(s) do you speak? (If you speak another language: do you read in that language?)

The follow-up questions concluded the verbal protocol.

After the recording of the verbal protocol ended, students were asked to complete the SORS test of L2 metacognitive strategy use (Mokhtari & Sheorey, 2001).

3.4.5. The data analysis procedure

To summarize, the data used in this analysis consisted of three main parts:

1. Semi-retrospective verbal protocols from the during reading phase
2. Follow-up questions from the post-reading phase
3. SORS test

1. Analysis of semi-retrospective verbal protocols

This section describes the analysis of the verbal protocols, which constituted the principal data source in the research. The protocols were first transcribed and then translated into English (with the exception of protocol no. 10 which was conducted in English and was therefore translated into Hungarian). Once the transcriptions were done and proofread, they were uploaded into MAXQDA, a software often used for qualitative content analysis in the social sciences. I started out with a deductive coding process, using a set of 21 codes referring to reading strategies (as described in the Chapter 2, Subsection 2.1.3.), which were later complemented with a further 8 codes as a result of inductive coding based on the data.

The methodological principles of the coding process were guided by Schreier (2013).

The initial 21 codes are the following:

1. Previewing
2. Skimming
3. Scanning
4. Predicting and anticipating problems
5. Activating prior knowledge
6. Re-reading
7. Adjusting reading rate
8. Reading aloud
9. Guessing the meaning (from context or morphological structure)

10. Visualizing information, creating imagery
11. Using external references
12. Paraphrasing; later modified to: Paraphrasing & translation
13. Note-taking and highlighting
14. Prioritizing information
15. Self-monitoring
16. Self-evaluation
17. Formulating questions
18. Inferencing
19. Summarizing
20. Analyzing
21. Clarifying

To these 21 codes were added the following eight later on during the analysis:

22. Doing a final reading (before formulating main idea)
23. Taking a break
24. Consciously focusing on the text
25. Skipping parts of the text, then returning
26. Comparing expectations with actual content (~ verification)
27. Pre-reading (and pre-viewing) preparations
28. Getting the gist of the text (i.e. main idea)
29. Reading aloud

Twenty-six of the 29 strategies are listed in at least one, but more likely in several of the taxonomies presented in the Literature Review chapter. Codes 1-2 and 4-13 are identical to the Mokhtari-Reichard taxonomy of metacognitive strategies; code 3: scanning was inserted in there on the grounds of it being the complementary strategy to code 2: skimming, as explained earlier. Codes 14-21 are among the most common learning and reading strategies dealt with in the literature, and so are the rest of the items on the list, with the exception of 22: doing a final reading (before formulating a main idea); 23: taking a break; and 25: skipping parts of the text (and then returning). Given that these strategies assumedly require conscious decision-making, it might not be implausible to hypothesize that they are more likely to be on the metacognitive side of the spectrum. In fact, the majority of strategies in the code set are classified as metacognitive, with only a few considered unanimously cognitive in the strategy repertoire (e.g. clarification, verification, analyzing).

As explained earlier (Chapter 2, Subsection 2.1.3.), the identification of individual strategies in the data was based on a combined cumulative taxonomy of reading strategies drawing on existing classifications. The decision to synthesize the mainstream learning and reading strategy taxonomies presented in the Literature Review was motivated by the fact that

certain classifications lack specific strategy groups or provide only general definitions to the most common strategy groups, failing to take nuances into consideration. The goal was to provide an inventory of strategies as comprehensive as possible in order to be able to account for the assumedly diverse occurrences of strategy use in the data. Since it was not possible to predict what would eventually emerge from the protocols and the follow-up interviews, I found it justified to create an *ad hoc* taxonomy,

The data analysis took place in two steps. First, the codes 1-21 were applied to the transcripts, with codes 22-29 gradually added to the list as they emerged in the process. The second step in the analysis was to re-read all the transcripts to verify the accuracy of the initial coding, make any necessary corrections and to check if all instances of strategy use had been marked and labelled. The second reading also gave me the opportunity to reframe some of the codes. For example, code 12: Paraphrasing was reframed as “Paraphrasing and translation” as the result of the proofreading after noticing that participants treated the two as near-identical to each other.

A total of 253 instances of strategy use were identified across the 12 protocols; 38 of these occurrences were instruction-induced summaries that were part of the task. These were taken out from the data interpretation and discussion phase as they could not be qualified as naturally-occurring strategy use. Following subtraction, 215 instances of strategy use were finally established. These were further subdivided into two major categories: (1) strategy use emerging during the protocol; (2) strategy use mentioned during the follow-up questions. This distinction was necessary as the two categories reflect fundamentally different approaches to strategy analysis.

2. Comparison of protocol findings with follow-up questions and SORS results

Following respective the discussion of the verbal protocols and the follow-up questions, which constituted the bulk of the analysis, the findings of the two datasets were compared to each other, and then the combined results were compared to the general findings of the SORS test. At this point, it might be useful to reiterate the research questions formulated at the beginning of Chapter 3:

RQ (1): What reading strategies do participants employ in a controlled reading situation which, to the greatest extent possible, attempts to imitate an actual academic L2 reading situation?

RQ (2): How do participants perceive their own strategy use when reading in the L2?

RQ (3): How do findings in the follow-up interviews relate to the results of the verbal protocol in terms of consistency between observed strategy use and self-reports of strategy use?

RQ (4): To what extent are tendencies of strategy use and self-perception in the data are consistent with the SORS results in general?

Research goals (1)-(3) were achieved via detailed presentation and analysis of the findings, including the presentation of the data in the form of various tables. This encompassed the largest part of the data analysis. Goal (4) might have been smaller in terms of the volume of the data analyzed, but it nonetheless constituted a substantial share of the study as it allowed me to obtain a more profound understanding of the subject matter.

4. Findings and discussion

The first part of the discussion (4.1.) provides space for the analysis and interpretation of the verbal protocol data with the aim of describing participants' strategy use in terms of the distribution of cognitive and metacognitive strategies. The second part discusses the results of the self-reports (4.2.). The third part (4.3.) offers the detailed comparison of the two datasets in order to present and try to account for the differences between actual and self-reported strategy use, which is in the focus of research question (3). These three parts should, respectively, take up the discussion and analysis of the three principal research questions. The fourth and last part of the data analysis (4.4.) examines whether the overall results of the SORS test are in any way indicative of the main findings and vice versa, thereby providing a tentative answer to research question (4). These research questions will be discussed individually following the presentation of the main results.

Table 3 presents an overall picture of the data summarizing all strategy use appearing in the verbal protocols and the follow-up interview data. As indicated in the last section of the Methodology chapter, there were a total of 215 instances of strategy use or mention (with 38 occurrences of 'summarizing' taken out as those were parts of the task). Table 3 shows the distribution of the total, broken down by strategy type and frequency of occurrence across the data, in ascending order of frequency. Here frequency refers to the total number of times a given strategy was used and/ or mentioned in the two datasets, including multiple uses by the same participant.

| Strategy type | Frequency | Percentage |
|-----------------------------------|-----------|------------|
| visualizing information | 0 | 0.00 |
| adjusting reading rate | 0 | 0.00 |
| final reading | 1 | 0.46 |
| taking a break | 1 | 0.46 |
| conscious focus | 1 | 0.46 |
| skipping (then returning) | 1 | 0.46 |
| compare expectations with content | 1 | 0.46 |
| summarizing | 1 | 0.46 |
| previewing | 1 | 0.46 |
| pre-reading preparations | 2 | 0.93 |
| formulating questions | 2 | 0.93 |
| paraphrasing & translation | 2 | 0.93 |
| reading aloud | 2 | 0.93 |
| predicting | 3 | 1.40 |
| using supporting details | 6 | 2.70 |
| clarifying | 6 | 2.70 |
| note taking & highlighting | 6 | 2.70 |
| analyzing | 7 | 3.20 |

| | | |
|-----------------------------------|-----|----------|
| inferencing | 7 | 3.20 |
| scanning | 7 | 3.20 |
| getting the gist of the text | 8 | 3.72 |
| skimming | 8 | 3.72 |
| using external resources | 9 | 4.19 |
| self-monitoring | 13 | 6.05 |
| activating prior knowledge | 15 | 6.98 |
| prioritizing information | 18 | 8.37 |
| guessing the meaning from context | 26 | 10.28 |
| re-reading | 30 | 13.95 |
| self-evaluation | 31 | 14.41 |
| TOTAL | 215 | (100.00) |

Table 3. Total instances of strategy use and mention across the data.¹²

As it can be seen from the table above, 19 out of the 21 strategies listed in the deductive coding process were present in the data, to varying degrees. Two strategies: visualizing information and adjusting reading rate were neither employed nor mentioned in the verbal reports. From the complete list of 29 strategies, there were seven items which occurred once (accounting for 0.46% of the total for each). These were the following: final reading, taking a break, conscious focus, skipping (then returning), comparing expectations with content, summarizing and pre-viewing. Out of the seven strategies, only the last two were in the initial 21-item list, with the rest having been added later on in the analysis. There were four items with two occurrences (0.93%) and one with three (1.40%). In the mid-range of the spectrum we find 9 strategies with an occurrence between 6 and 9 (2.70-4.19%, translated into percentages). With the exception of ‘getting the gist of the text’, all of the items in this range are from the original 21-item list, which comprises some of the most commonly used strategies cited in the relevant literature. In the top tier are six strategies, namely: self-monitoring (6.05%), activating prior knowledge (6.98%), prioritizing information (8.37%), guessing the meaning from context (10.28%), re-reading (13.95%), and self-evaluation (14.41%). These numbers include all occurrences and mentions of strategy use, with the verbal protocols and follow-up interviews taken together. As one of the research questions (RQ 3) focuses on the potential differences between the protocols and the self-reports, it is necessary to break down the data according to the particular form of data collection.

One initial assumption made prior to the data collection was that there would be salient differences between participants’ performance on the verbal reports and their perception of strategy use in the self-reports. The separation of the data into two main sets did

¹² Percentages are rounded to two decimal places for transparency, which might result in the total percentage being over 100%, but the difference does not distort the proportions.

confirm this hypothesis. The following table demonstrates the types and frequency of strategy use in the 12 verbal reports, in ascending order of frequency.

| Strategy type | Frequency | Percentage |
|----------------------------|-----------|------------|
| skimming | 1 | 0.99 |
| formulating questions | 2 | 1.98 |
| scanning | 2 | 1.98 |
| analyzing | 3 | 2.97 |
| getting the gist | 3 | 2.97 |
| inferencing | 5 | 4.95 |
| using supporting details | 6 | 5.94 |
| clarifying | 6 | 5.94 |
| prioritizing information | 7 | 6.90 |
| activating prior knowledge | 8 | 7.92 |
| self-monitoring | 10 | 9.90 |
| guessing the meaning | 11 | 10.90 |
| re-reading | 13 | 12.90 |
| self-evaluation | 24 | 23.70 |
| Total no. of occurrences | 101 | (100) |

Table 4. Types and frequency of strategy use in the verbal protocols

Altogether 13 different types of strategy were observed in the semi-retrospective reports, with three strategies topping the list: guessing the meaning, re-reading for clarification and self-evaluation. The total amount of strategy use in this segment of the data (101 out of 215) accounts for 47% of the total. This leaves us with 114 individual occurrences of mentions of strategy use in the follow-up interviews, adding up to 53% of the total data. Below are the strategies mentioned or described in the self-reports. Frequency was calculated based on the number of participants mentioning the strategy at least once; as it was a case on several occasions that participants' reports of using a strategy were redundant (i.e. there was no perceivable difference in the function(s) of the given strategy between its individual mentions), it appeared to be of no real practical value to count the individual occurrences in this set of the data according to strategy type.

| Strategy type | Frequency across participants (n=12) |
|--|---|
| inferencing | 1 |
| pre-viewing | 1 |
| summarizing | 1 |
| mental notes | 1 |
| compare expectations with actual content | 1 |
| skip and then return | 1 |
| conscious focus | 1 |
| taking a break | 1 |
| reading aloud | 1 |
| final reading | 1 |
| predicting | 2 |
| keywords | 2 |
| using supporting details | 2 |
| paraphrasing and translation | 2 |
| background knowledge | 3 |
| self-monitoring | 3 |
| pre-reading preps | 3 |
| analyzing | 3 |
| getting the gist | 4 |
| scanning | 5 |
| prioritizing information | 5 |
| note-taking and highlighting | 5 |
| skimming | 6 |
| self-evaluation | 6 |
| using external sources | 7 |
| guessing the meaning | 9 |
| re-reading | 11 |
| Total | 88 |

Table 5. Types and frequency of strategy mention across participants in the follow-up interviews

As it can be seen from the comparison of Tables 4 and 5, the number of strategies reported is noticeably higher than the number of strategies observed in the verbal protocols: 27 in contrast to 15. This important difference will be taken up in the relevant parts of the Discussion below; for now, suffice it to say for a general overview of the results that some salient differences can be noticed in the two datasets, which will subject to particular interest in the analysis. The following sections will discuss the findings concerning the four respective research questions formulated in the Methodology section.

4.1. Analysis of the verbal protocols: focusing on research question (1)

As it was stated earlier in the chapter, the total number of observed strategy use revealed in the TAPs accounts for 47% of the data (101 out of 215) and it comprises 13 strategies out of the 29 labelled in the codes. Let us now see the distribution of strategies according to the cognitive-metacognitive spectrum:

| Cognitive strategy | Frequency in the dataset | Metacognitive strategy | Frequency in the dataset |
|--------------------|--------------------------|--------------------------|--------------------------|
| Getting the gist | 3 | Scanning | 2 |
| Analyzing | 3 | Formulating questions | 2 |
| Inferencing | 5 | Using supp. details | 6 |
| Clarifying | 6 | Prioritizing information | 7 |
| | | Act. prior knowledge | 8 |
| | | Self-monitoring | 8 |
| | | Guessing the meaning | 11 |
| | | Re-reading | 13 |
| | | Self-evaluation | 24 |

Table 6. Distribution of cognitive/ metacognitive strategies in the verbal protocols

The governing principles of the categorization were guided by Grabe (1991), the Mokhtari-Reichard taxonomy (2002) and the general classifications for learning strategies presented by O'Malley and Chamot (1990). The lack of theoretical unity in the field of reading research – an issue extensively dealt with in the Literature Review – justifies the combination of taxonomies in the analysis.

Of the 13 strategies emerging in the verbal protocols, four can be categorized as cognitive (i.e. automatically functioning) strategies and nine as metacognitive. The strategy ‘using supporting details’ was placed in the metacognitive category despite its not being listed in any of the taxonomies used in the research. This was motivated by the fact that using supporting details as a means to understand the argumentative structure of the text presupposes the conscious decision of the reader to focus on the textual devices contributing to coherence in the process of comprehension. In terms of occurrence, metacognitive strategies appeared roughly four times more frequently than cognitive ones. One of the important contributions of this dissertation is in documenting and explaining the strategies one by one through a number of representative examples taken from the protocols. The presentation of strategies followed a grouping that seemed logical based on the taxonomies

presented in the Literature Review; thus strategies that are related or considered complementary in terms of strategy use are discussed under the same heading.

Skimming and scanning

First of all, skimming and scanning – two of the most commonly used strategies cited by the literature – were observed three times across the verbal protocols in total, with 1 and 2 occurrences, respectively. The only time skimming appeared in the verbal protocols was in the case of Participant 9, who, stepping out of the reading process, described their approach to reading a text:

- (1) To be honest, I think this was comprehensible. I tend to skim through the text first, but I can't remember much of it then, so I have to force myself to focus and re-read it attentively. (Participant 9)

Note that within this very same excerpt there is a mention of scanning as well: the participant reports on doing the reading in steps, first doing a global comprehension reading (skimming), and then moving on to a more detailed reading, which involves looking for specific pieces of information (scanning). While the excerpt cited above showcases an instance of self-reflection instead of pointing to actual strategy use, it can be assumed that the participant used the same logic to reading and interpreting the passage where the comment was made upon. The only other occurrence for scanning was detected in the verbal report of Participant 1, who made the following comment with regard to the density of information in part 2 of the text:

- (2) It was the part about the hunters and the Tanzanian people which was difficult. Here I had to pay close attention to what is said about the behavior of people in the different cultures. I also had to think about the anthropological and the economic part to understand which approach was adopted in the text. All this became clear as I went on reading. The example and the questions in the text made it easier for me to understand it. (Participant 1)

The passage that is being referred to discusses examples of cross-cultural variation in cooperation and briefly mentions methodological approaches to research in the field. As it is an information-packed part of the text presenting minute details, understanding the co-referential relationships and grasping the main idea requires close attention, which entails scanning for matching pieces of information and distinguishing between the gist and the supporting details. In fact, Participant 1 describes their approach to reading this particular passage as a process of clarification by employing multiple strategies in addition to scanning, including prioritizing information and predicting and using supporting details to understand the text. While these can count as individual occurrences of strategy use on their own right, one cannot ignore the possibility of interdependence in the process of clarifying meaning.

Getting the gist and using supporting details

As mentioned on multiple occasions previously, all but one incidence of summarizing were taken out of the dataset (38 out of 39) as they were elicited by the instructions of the task accompanying the verbal protocol. The one left emerged as a part of the participant's description of his strategy use in the follow-up questions. There were, however, multiple mentions of participants' trying making sense of the text by finding the gist or the main idea, both in the verbal protocols and in the follow-up questions. Of the eight segments that were assigned this code, three appeared in the verbal protocol (emphasis mine)¹³:

(3)It's just that I could not find the word "culture" when looking for it, but **I got the main point of it** anyway. (Participant 5)

(4)Well, there are a few words I don't understand, **but on the whole, I understand what the text is about and what it wants to convey**. (Participant 9)

(5)The beginning of the text was a little bit easier. I had to re-read some of the sentences towards the end, **but I tried to formulate a general idea of the text**. (Participant 11)

It seems to be clear from these excerpts that the three quoted participants are aware of the importance of extracting main ideas in global comprehension processes. One noteworthy similarity in the three excerpts is participants' account of understanding the main idea despite experiencing difficulties reading the text. This suggests that the participants might have a well-developed concept of what it means to understand a text in general terms, which allows for gaps in comprehension when it comes to certain specific information or vocabulary that are not essential for the formulation of the main idea. At this point, I find it necessary to tentatively reassess the place of summarizing and getting the gist in the broad taxonomy of reading strategies. Both strategies are generally considered to belong to the realm of cognitive strategies, that is, they are supposed to be skills-level processes. It can be nevertheless hypothesized that in the initial phases of L2 readers' using this strategy, it worked mostly at a declarative, i.e. metacognitive level, especially if summarizing is part of specific reading tasks or is explicitly discussed in high-school or university curricula. It might therefore be feasible to assume that the proceduralization of the strategy is preceded by some kind of explicit instruction which emphasizes the importance of summarizing in the reading process. If this assumption is correct, then examples (3)-(5) can be regarded as evidence of participants' awareness of the centrality of main ideas and summaries in comprehension, which might, in turn, tip the balance for the strategy being part of the readers' metacognitive repertoire. I will

¹³ Where relevant, emphasis on certain parts of the given excerpt is indicated in bold.

return to this stream of thought later on when discussing the findings of the follow-up interviews; for the time being, however, let us move on to the use of supporting details, which are commonly presented in a complementary fashion to summaries in the literature (with reference to Alderson, 2000; Block, 1986; Grabe & Yamashita, 2022, presented earlier).

In terms of coherence, the primary function of supporting details is to provide arguments for the main idea by viewing it from different aspects. Advanced English reading skills course books emphasize the interdependence of main idea and supporting details in a text while also systematically teaching how to distinguish between the two in an aim to equip L2 readers with the strategies necessary to correctly identify the different parts of the argumentative structure and thereby avoid misidentifying the main idea¹⁴ – a common problem being readers’ mistaking specific supporting details for the gist of the text.¹⁵

There were overall six incidences of participants’ describing the use of supporting details and specific information in the verbal protocols:

- (6)[...] **The example and the questions in the text** made it easier for me to understand it. (Participant 1)
- (7)Furthermore, I had to pay close attention to the categorization of decisions as low-cost or high-cost. **These were also clarified through the examples**, and that also helped me better understand the expression in question. (Participant 1)
- (8)[...] and I hope that **reading on will help me** understand what I failed to comprehend earlier. (Participant 7)
- (9)I try to think about what I've just read, and then I'll break it down into different parts. **For instance, there were examples in this text too**, which I tried to make sense of one by one. (Participant 8)
- (10)To tell the truth, the last sentence was not (?) [...], I mean, **what helped me was when in the text I read "prior research has established"**, meaning that it is different from what other research says as this study claims that cooperation transcends cultural boundaries, and it is possible that every person is instinctually inclined to cooperate. (Participant 9)

¹⁴ See the following course books for reference: Mann, M. & Taylore-Knowles, S. (2018). *Reading for Advanced with Answer Key*. Macmillan; Engelhardt, D. (2013). *Practice Makes Perfect. Advanced English Reading and Comprehension*. McGraw-Hill Education; Rogers, L. & Kuhles, E. (2011). *Delta Academic Objectives: Reading Skills*. Delta Publishing.

¹⁵ Failing to distinguish between the main idea and the supporting details is indeed a frequent issue our students face in their first-year reading skills classes. In my experience as an instructor, there appear to be two main reasons for this problem: students either fail to map the main parts of the argumentative structure (a gap in knowledge which can be filled in fairly easily through explicit instruction, which we do in the class) or their attention is taken away by a supporting detail they find interesting, and, as a result of their subjective evaluation of the content, they misinterpret it as the main idea of the text, creating what we have labelled as a “focus problem” in our assessment framework. This latter concern seems to be harder to remedy as personal bias often overwrite the objectively analyzable qualities of the text such as textual organization, argumentative structure, co-referential relationships.

(11) **Some pieces of information were confusing to me**, but it was generally comprehensible. (Participant 9)

Excerpts (6)-(11) come from four protocols, with two mentioning supporting details twice, in different contexts. Participants evoke their relying on questions, examples and specific information (reference to “prior research” in [10]) to aid comprehension. With the exception Participant 9’s comment in excerpt (11), all other examples demonstrate the facilitatory role of supporting details. Zooming in on the data, excerpt (9) suggests a methodological approach to the reading process: Participant 8 reports mentally reviewing and analyzing the text before separating supporting details from the rest of the text in order to make sense of the argumentation.¹⁶ Excerpt (10) demonstrates Participant 9’s use of specific information (i.e. the contradictory findings between earlier and current sociological research on collaboration) to formulate the main idea of the text through an “if..., then” type of logical deduction. Excerpts (6), (7) and (8) illustrate participants’ reading for details, and (11) is an example of supporting details hindering comprehension; the abundance of supporting details and specific information (names of researchers, countries and statistical data) were a source of confusion for Participant 9, but she did not report any considerable obstacle in understanding the text as a whole.

As mentioned previously, the use of supporting details did not figure in any of the major taxonomies presented in the literature review. It was suggested at the beginning of this subchapter that it should be considered as a metacognitive strategy given that it requires the readers’ conscious reviewing of the argumentative structure of a text. Based on the excerpts presented and analyzed above, it can be concluded that participants demonstrate a certain degree of awareness of the importance of supporting details in clarifying meaning and establishing coherence. This observation could potentially support my hypothesis of this strategy involving the meta-reflective dimension of thought processes. At this point, however, any conclusion of this kind should be regarded as highly tentative given the small and limited sample it is based upon. It should be noted that (7) was included in the discussions of scanning and clarifying earlier in this chapter too, further reinforcing the idea of multiple strategies overlapping in reading comprehension, making clear-cut categorizations occasionally difficult if not impossible.

To sum up this subsection, there was evidence in the verbal protocols for participants’ showing awareness of the general argumentative structure of texts with regard to main ideas

¹⁶ This excerpt has been included in the verbal protocol dataset despite its having been reported in the follow-up questions. The reason for this decision is that some of Participant 8’s comments in it refer specifically to her approach to reading the text, thus directly relating to the verbal protocol.

and supporting details, which opens up the possibility of these strategies being considered metacognitive in nature, with the limitations formulated in the previous paragraph. The question of main ideas (getting the gist) will be taken up again in the analysis of follow-up interviews and in the comparison of the two datasets; as for supporting details, however, there were no occurrences in the rest of the data.

Prioritizing information

Recognizing important information in a text is considered a vital metacognitive strategy across the literature (Alderson, 2000; Grabe, 1991; O'Malley & Chamot, 1990; Rubin, 1987). The reader's ability to decide which pieces of information to focus on to achieve a given reading goal, i.e. applying selective attention, should in principle reflect awareness of textual and informational organization. In this respect, prioritizing information is fundamental when it comes to distinguishing between main ideas and supporting details, or when scanning for specific information.

There were altogether seven observed incidences of this strategy in the dataset that is currently being discussed. Below are two examples for illustration:

(12) Some expressions, like Lamarela or Indonesia, can distract my attention. Do I have to focus on these? I mean, **is it important to remember where these experiments took place or what examples are presented in the text? I think it is possible to push these into the background similarly to unknown words, because these do not constitute the core of the text.** (Participant 9)

(13) There's **so much information in this first paragraph** that I cannot decide what is important in it and what is not. (Participant 5)

While both (12) and (13) demonstrate participants' awareness on the necessity of treating information selectively, they highlight different aspects of the strategy. In excerpt (12), Participant 9 draws a parallel between non-vital information and unfamiliar words which do not influence general comprehension, stating that these elements of a text can be "pushed into the background" without much hesitation. What is being described here is the participant's making a distinction between major supporting details and specific information. By contrast, Participant 5 in excerpt (13) reports an unsuccessful attempt of separating what is important from what is not, which, she argues, is due to the first paragraph of part 2 being too rich in information. To help her proceed with the reading, the researcher tries to direct her attention to the one paragraph which contains the main idea of the passage:

(14) Researcher: If we look at this one paragraph, which part of it do you think you need to focus on to find the main idea?

Participant: Those in double quotation marks?

Researcher: And what do those parts tell you?

Participant: It tells me that these things [the things cited between quotation marks] helped them better understand cooperation between people.

(Participant 5)

With the help of these additional questions, the participant eventually manages to extract the main idea by narrowing down the information available to the small set of verbatim quotes.

As straightforward as it may seem at first sight, the lines between prioritizing information, using supporting details and identifying the gist of the text might not always be that clear-cut. In fact, based on some further examples of the sub-corpus, it might be asserted that these two latter strategies are governed by general processes of prioritizing information. To illuminate this point, let us now see the extended version of an excerpt which was originally presented under (7) in the previous subsection on the use of supporting details.

(15) Problems in comprehension? **Err, what I had to think about a lot were the percentages, because the text mentioned 74%. OK, but then I also had to pay attention to when people justified their refusal of a request. These could be easily mixed up in the text.** Furthermore, I had to pay close attention to the categorization of decisions as low-cost or high-cost. These were also clarified through the examples, and that also helped me better understand the expression in question. (Participant 1)

It was argued earlier that the last sentences of the example is an evidence of the participant making use of supporting details to facilitate the comprehension of a main element in the text, i.e. the difference between low-cost and high-cost decisions when it comes to accepting or rejecting requests. What is of particular interest right now is the first part (highlighted in bold), where Participant 1 explains what she found important to focus on in the passage to identify the results of the research. Now, when looking at it from a closer angle, it can be established that there is a certain relationship between the two processes: in order to understand the importance of the statistical data assigned to the major variables of the research (acceptance/rejection; explain/ignore request) and thus make sense of the major findings, the participant had to be able to tell the difference between low-cost and high-cost decisions, which she ultimately learnt from the supporting details. It appears, then, that reading selectively and other major identification processes might come hand in hand in the reading process.

Activating prior knowledge

As it was taken up in the literature review, using background knowledge is regarded as a key metacognitive strategy in pre-reading processes (Grabe & Yamashita, 2022, p. 302). Oxford (2017, p. 275) considered both encyclopedic knowledge and readers' awareness of textual structure to be of particular importance when it comes to activating background knowledge during reading. In this respect, the use of supporting details, discussed above, can be seen as a strategy relying on participants' knowledge of textual organization. The excerpts analyzed in the previous subsection did not shed light on whether the activation of the basic devices of coherence was intentional or automatic. This subsection looks at some examples of participants' connecting their general knowledge and experiences to the text.

There were overall eight incidences evidencing the activation of prior knowledge. Below are three examples to illustrate participants' use of this strategy:

- (16) I found this research interesting, because I never thought about how often we ask a favor from others, like pass me this glass or a piece of cutlery. **These seem so natural that people won't normally think about it.** (Participant 4)
- (17) **I know it from prior knowledge that "ascend" and "transcend" are similar, and so I deduced** that it either means something similar or the opposite. (Participant 7)
- (18) And then here, for example, we see that Lamarela and Indonesia are **mentioned together** and as they are both **written in capital letters**, I deduced that Lamarela should be a country **given that it is followed by Indonesia in the text.** (Participant 7)

The above excerpts appear to illustrate the use of three different types of background knowledge. First, in (16) we see the participant connecting her everyday experiences of cooperation to the research to interpret the results. Then, in (17) and (18) there are two different areas of linguistic knowledge activated: in (17) Participant 7 recalls words of similar form to try to figure out the meaning of the verb "transcend" (in which she succeeds), while in (18), the very same participant uses his knowledge of textual and typographical features to guess what nominal category "Lamarela" belongs to. It might be argued that in (18), there are three areas of knowledge drawn together in the analysis: typographical (proper nouns are capitalized); textual organization (lists often contain elements of the same category); and logical deduction based on factual knowledge (Indonesia is a country; therefore, Lamalera should also be a country). However, the participant arrives at an erroneous conclusion about Lamalera as a result of overlooking or not being aware of rule that applies to lists of two items. In the original text, it is written "Lamalera, Indonesia" instead of what should be "Lamalera and Indonesia" if they were two separate countries. In reality, Lamalera is an

island of Indonesia, and the comma separating the two elements signals a part-to-whole relationship. Despite the participant's having misidentified the target word, this example showcases that using this strategy can involve the combination of multiple knowledge elements.

Inferencing, analyzing and clarifying: evidencing multiple strategy use

Three strategies classified as cognitive in the relevant literature (O'Malley & Chamot, 1990; Sementin & Maniam, 2015), clarifying, inferencing and analyzing appear a total of 14 times in the dataset of verbal protocols. This subsection is intended to create space for the discussion of two cardinal questions which emerged in the process of analysis.

The first one is the apparent lack of definitional clarity of some strategies, an issue which was anticipated in view of the terminological volatility characterizing some aspects of reading strategy research as discussed in the literature review. This subsection will attempt to offer broad working definitions for the strategies of analyzing and clarifying which could help interpreting the data in the corpus. As it has been made clear on multiple occasions in the dissertation, I have no intention to review or reinvent existing classifications of reading strategy use; any suggestions to reconsider current categorizations should be considered feasible in the framework of the present analysis only.

The other question to address is that of multiple strategy use. While there have been indications of the literature to efficient readers' employing several strategies simultaneously (likely an interaction between bottom-up and top-down strategies), there has been little research done on this aspect of reading skills. The data obtained from the protocols do indeed suggest that participants employed more than one strategy simultaneously to facilitate comprehension as it was briefly touched upon in the case of skimming and scanning. There appears to be ample evidence for multiple strategy use in the instances of participants' employing inferencing, analyzing and clarifying strategies, which will be thoroughly examined following the local terminological clarifications. Due to the complexity of the subject matter, it would be, at the same time, difficult and methodologically unsound to discuss the three main strategies under separate headings. The analysis will therefore follow an integrative logic of presentation while still trying to maintain the division lines between the main strategy types.

The theoretical literature does not define what is exactly meant by 'clarifying', which makes the identification of the strategy rather difficult. The six instances of what were identified as

potential examples of clarification were the following (the relevant parts of the excerpts are highlighted in bold):

- (19) The text says that this is a natural cross-cultural phenomenon, but then it says that these human tendencies go beyond cultures, and, because of that, most people behave the same independently of culture. **And since culture is a pretty important factor among people, it was necessary to clarify that it is invariable.** (Participant 1)
- (20) Here **I had to pay close attention** to what is said about the behavior of people in the different cultures. I also had to think about the anthropological and the economic part to understand which approach was adopted in the text. **All this became clear as I went on reading. The example and the questions in the text made it easier for me to understand it.** (Participant 1)
- (21) I had a bit of a comprehension problem in the first sentence of paragraph 3 when reading about requests. **I had to go back to see who is asking for help or what is being said about it in general.** I re-read this part two or three times. **Then I went back to the first paragraph, and there it was explained that they are not talking about collaboration per se,** but first about asking for help, and then about giving help. So, in the end I understood what the word "request" refers to. (Participant 2)
- (22) [talking about the numbers in the text] I'm more of a visual type, so I always try to image both sides [of the equation] and multiply or divide them in my head. I try to create a system, but this one is rather difficult to do, **and I think that the third paragraph explained the previous one by providing a short summary of it.** (Participant 9)
- (23) I think this was the easiest part because **it repeats what was explained in the beginning too. It also reiterated that people help each other every few minutes, for example.** That's why there was no difficulty reading this part of the text. (Participant 12)

In excerpts (19)-(23), several instances of clarifying were identified. They appear to emerge through the idea of the reader's explaining the logic employed to clarify the more complex parts of the text to themselves. The comments in bold all indicate the readers' subsequent reflection on the comprehension process. Based on these examples, clarifying as a strategy can refer to the reader's explanation to themselves about the ways of figuring out meaning. These seem to involve, in turn, the use of various other strategies, such as re-reading or using text structure and supporting details. In this sense, clarifying might be defined as a way of retrospective "meta-reflection" about the comprehension process, a conclusion which might ultimately question its being categorized as an exclusively cognitive strategy, based on what has been deduced in the corpus.

Supposing that this tentative definition for clarifying can be acceptable within this line of logic, it might be worth looking at other strategies that can potentially be linked to it. For example, the metacognitive strategy of formulating questions can be applied not only to pre-

reading tasks (see Grabe & Yamashita, 2022, p. 303), but it can prove to be useful in deciphering meaning as well. In the dataset of the verbal protocol, two incidences of formulating questions were identified. The first one (24) emerged as a part of a question-answer turn-taking between Researcher and Participant 5:

(24) Researcher: OK, and what do we know about the cultural aspects of cooperation?

Participant: What this part tells us about it? [obviously hesitating]

Researcher: Which part of the passage do you think you should read again?

Participant: This last one. Cooperation is a human reflex, it is not culture-specific.

(Participant 5)

In example (24), the question asked by the participant more likely serves as a form of comprehension check to the researcher's question which was asked in order to elicit the main idea of the passage. In this respect, this instance of formulating questions did not directly aim at improving comprehension, but rather at answering the researcher's question. It is nevertheless true that the turn-taking ends in the participant's producing the correct response.

The other incidence of formulating questions appears in a turn-taking situation similar to the first one in that it emerged in response to the researcher's question, which came as an invitation to clarify the puzzle metaphor in the second part of the text. The metaphor featured in the topic sentence "[T]he new findings help solve a puzzle generated by prior anthropological and economic research", which Participant 11 interpreted literally at first.

(25) Researcher: And the puzzle you've mentioned, what do you think they mean by the word "puzzle"?

Participant: Well, yes. I didn't understand that part. Does that refer to something?

Researcher: Do you think they are talking about an actual puzzle?

Participant: No.

Researcher: Then what is this puzzle? Do we have to take it literally or not?

Participant: I don't think so. Rather, it is a problem that needs to be resolved.

(Participant 11)

With the question "Does that refer to something?", the participant considers the possibility of a non-literal layer of meaning, or, at least, thinks about the referential value of the metaphor. Despite the fact that the participant did not initially recognize the metaphor, she got closer to guessing the meaning by formulating the right question. This leads to another instance of turn taking in which the researcher asks another clarification question ("Do you think that they are talking about an actual puzzle?"), and, when the participant gives a favorable answer, the researcher moves on to directly point out the two possibilities of interpretation, i.e. literal or figurative. It is through this series of question-answer turns that the participant finally manages to figure out the meaning.

In addition to the above sentence, the participant reported having difficulty understanding the second sentence of the paragraph as well. She tried to decipher the vague parts by re-reading the sentences that she found too long or complicated because of the high density of information that was present in them. Interestingly though, the initial misinterpretation of the puzzle metaphor did not seem to have negatively influenced the participant's comprehension of the main idea as she was still able to make a fair summary of the second part. The discussion will now move on to analyze inferencing.

Inferencing skills have been found to be an essential part of a successful reader's repertoire (see Davis, 1968; Grabe & Stoller, 2013), and the broad definition of inferencing as a form of logical reasoning to decipher meaning in a text seems to be clear. Inferencing is mostly considered as higher-order skill involving top-down processes. Below are all the excerpts in which indications of inferencing strategies were identified.

(26) In the first paragraph I encountered the verb "comply", and what I did was compare it with other words [...]. So, here are the verbs "reject" or "ignore", and then we have 'but', so there is a contrast here. And then the text says "rejected less frequently than they complied". I guess "comply" means "belemenni" or something similar, and "compliance" also comes from this verb. (Participant 7)

(27) In the last paragraph I read "ingrained reflex", and I had absolutely no idea what it meant. But then the text talked about "human species", and of course, I know what "reflex" means, so I guess "ingrained" means something like "internal" or "in-built". (Participant 7)

(28) In the beginning, in the beginning of the paragraph. When I was reading about puzzle solving, first I had the image of a real puzzle solving and then I've understood that it's just a linguistical [sic!] term for solving a problem or issue, or you know? (Participant 10)

(29) [Trying to guess what "puzzle" refers to] Rather, it is a problem that needs to be resolved. (Participant 11)

Excerpt (29) was already presented in the brief analysis of formulating questions and turn-taking. The decision to involve it in the discussion of inferencing as well was motivated by the fact that the participant recognizes that the word 'puzzle' in the text refers to something other than an actual puzzle game. After the series of turn-taking presented in (25), the participant finally makes the correct inferences about the meaning of the figurative expression (while still using elements of the same metaphor by saying "a problem that needs to be resolved"). The combination of questions and the participants' metaphorical competence helped her draw the right inferences and read 'between the lines' (see, Alderson & Lukmani, 1989, p. 253; Alderson, 2000, pp. 7-9, for earlier reference on inferential reading). A similar approach is formulated in (28) where the participant refers to metaphor as "a linguistical [sic!]

term”, implying she understands the non-literal nature of the expression. She also evokes using visual imagery to aid comprehension.

Examples (26) and (27) appear to constitute a case for a different type of inferencing strategy. In both excerpts, the participant explains how she figured out the meaning of unfamiliar words: ‘comply’ in (26) and ‘ingrained’ in (27) using the context, lexical and background knowledge. In (26) specifically, the participant relies on semantic and structural analysis to infer the meaning of the unknown word: by noticing the adversative conjunction ‘but’, she recognizes the contrast between the two parts of the sentence “[p]eople did sometimes reject or ignore small requests, but a lot less frequently than they complied”, which helps her deduce the approximate meaning of the verb. In addition, she successfully connects it to the nominal form which appears later on in the same paragraph.

While all four incidences of inferencing revolve around unfamiliar lexis, they do so in slightly different ways. Examples (28) and (29) evidence the activation of metaphorical competence, which in turn suggests the presence of conceptual fluency in the L2.¹⁷ On the other hand, excerpts (26) and (27) point to inferencing made through lexical guesswork. Indeed, both excerpts were labelled as examples of ‘guessing the meaning from context’ besides ‘inferencing’. Moreover, in the case of (26), a third code: ‘activating prior knowledge’ was also assigned with reference to the participants’ making use of her knowledge in word formation to figure out the meaning of the unknown lexical item. The metacognitive strategy of guessing the meaning appears in the dataset 11 in total, which makes it the third most frequent strategy in the verbal protocols. I will return to its discussion in the next subsection. For now, suffice it to say that, based on this small yet fairly elaborate sample, inferencing might rely on more specific, content-dependent strategies in the process of comprehension, which, in this particular dataset, would imply multiple top-down strategies operating simultaneously.

¹⁷ As explained in the Methodology chapter, the preliminary research plan included the investigation of metaphorical competence in L2 reading, which was taken out after the pilot as the findings were scarce and the little that could be extracted from the data clearly pointed to L2 metaphor comprehension working at a skills level in the case of advanced students. Indeed, research on the topic suggests that metaphorical competence and language proficiency tend to have a positive correlation with each other. Some basic readings include: Abel, B. (2003). English idioms in the first language and second language lexicon: A dual representation approach. *Second Language Research*, 19(4), 329–358; Cieślicka, A. B. (2017). Bilingual figurative language processing. In Ardila, A., Cieślicka, A. B., Heredia, R. R., & Rosselli, M. (Eds), *Psychology of Bilingualism: The Cognitive and Emotional World of Bilinguals* (pp. 75-118), Springer ;Danesi, M. (1995). Learning and teaching languages: the role of “conceptual fluency”. *International journal of applied linguistics*, 5(1), 3-20.; Danesi, M. (2016). Conceptual fluency in second language teaching: An overview of problems, issues, research findings, and pedagogy. *International Journal of Applied Linguistics and English Literature*, 5(1), 145-153.

Unlike inferencing, the strategy of analyzing appears to be more elusive in its definition. In Semtin and Maniam (2015, p. 56) analyzing was defined in terms of the L2 reader's ability to relate the reading task to the text ("I analyze the relationships between the given reading text and reading tasks"). With reference to the this study, Ali and Razali mention the importance of adjusting reading speed to "analyze and visualize the reading text" (Ali & Razali, 2019, p. 96). What is meant by analyzing in the process of reading comprehension, remains, however, largely unexplained, if not ignored, in the literature.

One possible way to account for this apparent lack in the terminology is to assume that the notion of analyzing does not refer to one specific strategy but should rather be considered an umbrella term under which multiple strategies can be categorized. Taking the dictionary definition of the verb 'analyze': "to study (something) closely and carefully: to learn the nature and relationship of the parts of (something) by a close and careful examination"¹⁸, then most of the cognitive strategies discussed in the present dissertation could be grouped under this broad strategy, given that strategy use in general is aimed at developing understanding and learning. If we look at the cognitive strategies listed in O'Malley and Chamot (1990) – which include organization, inferencing, summarizing, deducing, imagery, and elaboration, just to name the most common ones – they all can be argued to involve a certain time of analytical approach.

Following the logic presented above, there seem to be two trajectories to take: one is to apply the dictionary definition and say that cognitive strategies as a whole are analyzing strategies, a conclusion which should tie in with the general definitions of learning strategies discussed at the outset. This reasoning would eliminate the need to include analyzing as a separate strategy, which would be a pragmatic decision. The other possible way to see this definitional issue would be to narrow down the scope of analyzing to a limited set of sub-strategies which might not explicitly be covered by other cognitive strategies. These can include syntactic parsing, the close analysis of textual properties and of information content. Adopting this approach would justify the inclusion of analyzing as an individual cognitive strategy and would make it possible to describe otherwise potentially miscellaneous instances of strategy use, i.e. the ones that cannot be categorized under any other codes. Since a major goal of this dissertation is to provide an as detailed description of strategies as possible, I have decided to take this latter approach and see how it might fit into the larger system of strategic connections, including its potential combination with other strategies in the list.

¹⁸ <https://www.britannica.com/dictionary/analyze>

Incidences of this more refined definition of analyzing in the corpus are divided into two groups: the first one contains examples which can, based on the working definition just provided, be categorized as instances of analyzing per se, and the second group presents excerpts that were discussed in an earlier subsection of the analysis, suggesting, once again, the presence of multiple strategy use in the data. In the following are two individual excerpts from two different verbal protocols:

- (30)[commenting on the last part of the text] I think the second paragraph is very distracting in the sense that **you have to do the maths, like how much bigger is that number, what percentage is it**. I'm more of a visual type, so I always try to image both sides [of the equation] and multiply or divide them in my head. I try to create a system, but this one is rather difficult to do (Participant 9)
- (31)[in response to researcher's question about the difficulties experienced during reading] I didn't really have any, maybe the numbers a little bit. I had to make an effort to remember the numbers. I think this was the easiest part because **it repeats what was explained in the beginning too. It also reiterated that people help each other every few minutes, for example**. That's why there was no difficulty reading this part of the text. (Participant 12)

These two excerpts illustrate the analysis of information content (30) and what was labelled as the meta-analysis of textual organization in information retrieval by the researcher (31). In (30) the participant reports making arithmetic calculations to figure out how the different variables (compliance, rejection, ignorance) relate to each other numerically. In (31), the participant recalls using repetition to retrieve information, which ultimately facilitated the comprehension of the passage. Let us now see two further examples of participants' assumedly using analyzing in the reading process.

- (32)I try to think about what I've just read, and then I'll break it down into different parts. **For instance, there were examples in this text too**, which I tried to make sense of one by one. And then it all comes together in my head. (Participant 8)
- (33)To tell the truth, the last sentence was not (?) [...], I mean, **what helped me was when in the text I read "prior research has established"**, meaning that it is different from what other research says as this study claims that cooperation transcends cultural boundaries, and it is possible that every person is instinctually inclined to cooperate. (Participant 9)

The two excerpts above were presented in the subsection on supporting details earlier in this chapter, where it was established that the use of supporting details can help identify the main idea. Relying on examples (32) and on the compare & contrast logic of organizing information (33) might also be, however, considered a form of analyzing given that they both implicate the close analysis of textual properties and of information content (understanding what "prior research" means in the given context) in order for the participant to be able to

distinguish between the organizational levels of the text and recognize co-referential relationships.

The aims of this lengthy subsection were twofold: on the one hand, it set out to provide tentative working definitions to the strategies of clarifying and analyze which could be applied within the limits of this analysis. On the other hand, it tackled the possibility of participants' employing more than strategies simultaneously in the process of comprehension. The analysis of this small set of samples does indeed imply the presence of multiple strategy use. It should be noted, however, that the dividing lines between strategies might not be as clear-cut as it might be presumed based on the taxonomies. The three main strategies discussed here appear to encompass general cognitive skills which might not only be interrelated in our complex cognitive architecture but might ultimately be the basis for more content-specific local strategies. These observations, of course, are far from being generalizable, and it would take a narrow research scope and a considerably larger sample to draw far-reaching conclusions about this sub-area of reading strategies. Nevertheless, this could be a promising avenue of future research. As in the case of most of the strategies derived from the verbal protocols, the discussion will return to this particular set when scrutinizing the follow-up questions.

The final subsection of this subchapter will now focus on the top three strategies in the verbal protocols before concluding this first substantial part of the dataset.

Self-monitoring

Incidences of self-monitoring in the dataset recount participants' keeping track of their progress of the reading. A total of 10 segments were assigned this code, with lengths ranging from a couple of words (e.g. "that's all I can remember", Participant 2) to longer reflections. Examples of self-monitoring are presented in excerpts (34)-(37):

- (34) The first few sentences **were a bit difficult for me to understand**, so I had to re-read it. This part was a bit more complex in language too, so I re-read it. **I found it hard to concentrate, but after re-reading it, I managed to understand it. I think the rest was OK.** (Participant 6)
- (35) The phrase "more than 1, 000 such requests occurring" was a bit difficult to work out, down there where they are talking about the numbers. **But I think it was partly so because I started to think about my own life, what examples I can bring for this phenomenon, and because of that I had to re-read these parts.** (Participant 8)
- (36) [After reading Part III] Actually, this part appears to be easier than the others. **Either I've got better at reading or it really was the easiest of all parts.** (Participant 3)

- (37) **I've noticed that in my head, I read everything in English, except for numbers.** I read them in Hungarian, for example, I said "hetvennégy százalék" in my head when reading out 74%. (Participant 8)

Note that on multiple occasions, i.e. in (34) and (35), acts of self-monitoring include participants' mentioning the use of text-oriented strategy use, i.e. re-reading. By contrast, in (36) we see the participant reporting on their progress in general ("Either I've got better [...]"). Participant comment in (37) highlights a curious aspect of silent reading, and, for some reason, she found it important to mention that she reads out the numbers in Hungarian¹⁹.

The top 3: Guessing the meaning, re-reading and self-evaluation

The three strategies with the highest number of incidence all happen to be metacognitive strategies. Guessing the meaning and re-reading – with 11 and 13 occurrences, respectively – belong to the group of problem-solving strategies in the Mokhtari-Reichard taxonomy, while self-evaluation, counting 24 occurrences, is among the most fundamental reading (and learning!) strategies. Overall, they account for 23.70% of the total in the verbal protocols. Due to their abundance in the data, the analysis will be limited to some representative examples of each strategy.

The previous section briefly mentioned guessing the meaning from context with reference to inferencing. Let us now see some other examples of participants' use of this strategy.

- (38) For example, if I was presented the verb 'comply with' without context, I would not be able to guess the meaning, but here it was clear to me what it meant. (Participant 3)
- (39) There were a few scientific terms I never encountered prior to reading the text, but I deduced their meaning from the context. (Participant 6)
- (40) Here is the word "anthropological", and I should know what it means, but I still don't get it. I always try to guess from the context, and, as it stands together with "economic" and the two are connected with "and", I infer that it means something similar. (Participant 7)
- (41) In the first paragraph of this part I encountered a couple of unknown words and phrases. For example, I had never seen the expression "Lamalera", and the same goes for the words 'large catch' and 'forager'. First I tried to work out the meaning from the context, but it did not help. Luckily though, I did not need them to understand the passage. I don't think they were important for comprehension. (Participant 2)
- (42) I had not encountered the phrase "preference for compliance" prior to reading the text. Obviously, I know what "preference" means, but I have never seen "compliance" in this

¹⁹ I have oftentimes observed in my reading skills and writing skills classes is that many students either skip numbers when reading out loud or they hesitate to read them out in English. They sometimes report having problems formulating numbers in English.

context, and I could not make out what it means. That gave me some thinking, but I still managed to understand the conclusion of the research. (Participant 2)

Excerpts (38)-(40) demonstrate an (at least partially) successful guesswork. Interestingly though, in none of the three cases do participants actually verbalize their solution, which might imply that they formulated an approximate idea of what the unknown word means and they were comfortable enough with that to move on reading. Examples (41) and (42), however, show two unsuccessful attempts of participants' trying to figure out the unfamiliar words. At the same time, both participants report being able to grasp the gist of the text without knowing these words – a remark worthy of attention, particularly in the case of (41), where it was one of the keywords in question. This strategy appears to follow similar patterns across the data: apart from the few unsuccessful ones, most attempts result in participants' reporting having understood the meaning of the unfamiliar lexical item. As it will be evident from the corresponding data in the follow-up interviews, participants seem to be aware of the benefits of guessing from context and consider it a most useful problem-solving strategy.

Re-reading was first mentioned in the analysis when examining the potential instances of clarifying. Together with adjusting reading speed (i.e. slowing down) and reading aloud, this strategy is used to overcome comprehension obstacles which usually concern larger units of texts. As it was formulated earlier in the literature review, the Mokhtari-Reichard taxonomy does not include scanning, which might sound contradictory given that skimming figures in the list of global comprehension strategies. As these two reading modes tend to be regarded complementary of each other, representing two “ends” of a spectrum (i.e. global and detailed comprehension), the apparent lack of scanning in the Mokhtari-Reichard taxonomy might seem unjustified and it would definitely upset the balance in this otherwise near-comprehensive classification system of metacognitive strategy. To compensate for this lack, it was suggested that re-reading, adjusting reading speed and reading aloud could be considered three aspects of scanning as they are directed at detailed understanding. Let us now see some illustrative examples of re-reading and how they relate to the broad idea of scanning.

(43) The first sentence was a bit too long, and I had to go through it like three times to understand it. (Participant 3)

(44) Maybe the very last sentence was a longer and more complex one, and I had to skim through it twice or three times. It was important to understand this final sentence, but the sentences at the beginning were easy to understand. (Participant 4)

(45) There weren't any difficult words, but I had to re-read some parts to make sure I remember them. For example, we had these examples from Indonesia and Tanzania, and I re-read them to get the idea, but, apart from that, it was comprehensible. (Participant 8)

Reflections of re-reading follow a very similar pattern: the participant identifies the part or the sentence which was difficult for them to understand upon first reading, and then reports going back and re-reading that specific part in the hope of figuring out the meaning. Excerpts (43) and (44) showcase instances of re-reading as a result of syntactic complexity, while in (45) the difficulty in comprehension springs from the abundance of supporting details in passage (part II of the text).

One noteworthy detail with regard to the sub-corpus on re-reading is the phenomenon of some participants' tendency to integrate bits of self-evaluation into the retrospection. Below are two examples evidencing this behavior:

(46) [commenting on the comprehension of numerical data in the text] I have noticed that I always overlook numbers. I don't really read them, but if I have to, I go back to them to find the exact number. (Participant 6)

(47) I tend to skim through the text first, but I can't remember much of it then, so I have to force myself to focus and re-read it attentively. Unfortunately, this is a time-consuming process. (Participant 9)

These excerpts seem to substantiate the idea of re-reading being a metacognitive strategy: participants report taking the conscious decision to re-read the sentence or passage in order to clarify meaning. This observation will be further elaborated on in the next subchapter, but it is now time to turn to self-evaluation, it being the most frequent strategy not only in the protocols, but across the whole dataset.

Unlike the other metacognitive strategies identified in the verbal reports, self-evaluation bears upon participants' perception of themselves as strategic readers instead of the information content and organizational structure of the text. In this respect, self-evaluation is the most introspective of all strategies, being the space where readers can review their habits and their performance on a specific reading task. As O'Malley and Chamot (1990, p. 205) suggest, it might not always be advisable to draw a clear-cut line between self-monitoring and self-evaluation strategies as many considerations of the latter might be applicable in the process of learners' monitoring their own progress. While it is certainly true that the coding process identified overlaps between the two strategies in the corpus, it was decided that they would be kept separate in the analysis in order to emphasize their distinctive features. Accordingly, self-monitoring remains limited to participants' checking their progress in the reading task, and self-evaluation is used as a synonym to self-assessment. The excerpts presented below

highlight different aspects of self-evaluation, which can be broken down into two groups, viz., self-assessments of text-specific performance and of general strategy use.

(48) [Before summarizing part 2] This starts out a lot harder than the beginning of the text. I had problems with this from the very beginning. **Here is the word “anthropological”, and I should know what it means, but I still don’t get it.** (Participant 7)

(49) I don’t know why, but for some reason it took me longer to read this part. It’s either because I have become tired or simply because it was harder for me to understand. (Participant 8)

(50) **I think I’m generally a slow reader, because I often can’t concentrate and I have to re-read the same sentence again and again** Like, I read it halfway through and I have not understood a word of it. It is often the same in Hungarian, and then I have to re-read it. It’s weird because I read a lot in general. (Participant 3)

(51) Participant: I had to re-read the first sentence, but only because I don’t always understand what I read at first attempt as I mentioned before. I had to read it again, but other than that, this part was OK.

Researcher: **When you re-read the first sentence**, do you usually have to proceed the same way with the subsequent sentences too?

Participant: **No, I always get myself together and concentrate on the text afterwards.** (Participant 4)

(52) I have noticed that sometimes I don’t understand what’s going on at the beginning of the paragraph, and, instead of re-reading, **I decide to read on and hope that it will help me understand what was not clear before.** This might be a bad strategy and I should re-read instead, but **I usually opt for this solution due to lack of time.** (Participant 7)

Excerpts (48) and (49) are instances of self-evaluation where the participant focuses on the specific task at hand. In (48) the participant points out a gap in his lexical repertoire, comparing it to what he is supposed to know at this level of proficiency, whereas in (49) we see the participant reflecting on the reasons of her self-perceived performance.

Excerpts (50)-(52), in contrast, exemplify participants’ general observations of their reading practices, and they do it in two different ways. Examples (50) and (51) report concentration issues during reading and explain how they try to overcome it by re-reading. In (52), we see a more complex explanation developed in the self-reflection: the participant identifies the problem (comprehension problems at the beginning of paragraphs), explains the strategy he usually employs in an attempt to overcome it (reading on), and then criticizes his own approach and offers a seemingly better solution (re-reading). To answer the question that would logically follow, he immediately adds that lack of time is the chief reason why he chooses to go with a “weaker” strategy.

All five excerpts suggest participants’ critical view on their strategy use: they recognize their weaknesses and are capable of verbalizing them. Excerpts (50)-(52), which

seem to provide evidence for general reading practices, show an increased awareness on the students' part to identify and critically evaluate their strategy use. In this respect, (52) might be considered the most complex of all the examples as it offers a most detailed description of the thought process. It is important to clarify, however, that the word "critical" should not, in any case, be interpreted as exclusively negative or unfavorable; instead, its broader meaning: "exercising or involving careful judgment or judicious evaluation"²⁰ should be adopted in the analysis of the self-evaluation strategy subset in both sub-corpora. Based on the data available, participants appear to have the necessary insight into formulating sound judgements about their own performance. Since self-evaluation strategies were the most frequent across the data, participant reports in the follow-up interviews will be of particular importance for a better understanding.

4.1.2. Summary of the findings in the verbal protocols

The analysis of self-evaluation strategies concludes the first main section of the data analysis, which set out to describe and interpret the findings as comprehensively as possible in the hope of answering the first major research question of the study:

RQ (1): What reading strategies do participants employ in a controlled reading situation which attempts to imitate an actual academic reading situation to the extent possible?

As RQ (1) addresses a chiefly descriptive aspect of the data, the analysis itself, presented in the previous pages, is meant to provide the bulk of the answer. The strategies identified in the dataset were grouped according to their perceived relationships or similarities. In addition to conducting an in-depth investigation, this section also clarified some terminological issues in order to create a functioning taxonomy that is applicable within the limits of this research.

All aspects of the analysis taken into consideration, there are two key findings with regard to strategy use in the twelve verbal protocols. The first – the one which is numerically representable – concerns the frequency of specific strategies across the subcorpus. Participants were observed to have used or demonstrated their awareness of 13 different strategies, of which four were classified cognitive and nine metacognitive. Strategies with the highest frequency of occurrence all belonged to this latter group and they were, in ascending order: guessing the meaning, re-reading and self-evaluation.

The second discovery of the analysis is the reoccurring evidence for multiple or simultaneous strategy use, which has two major implications. First, the data available

²⁰ <https://www.merriam-webster.com/dictionary/critical>

suggests that strategy use during reading is rarely a matter of employing one strategy at a time; rather, it might be more plausible to assume that readers use multiple strategies either simultaneously or sequentially to help comprehension. Second, the dividing line between strategies might not be as clear-cut as it may have been suggested given that there are numerous instances of strategies perceivably overlapping in the very same place. The need for constant terminological reconsideration further supports the idea of the relative “fluidity” of strategy boundaries. The author acknowledges that this latter statement is merely tentative and it is not possible to further investigate this question within the limits of the dissertation. Nevertheless, the author considers this observation to be worthy of further research, within the framework of a research design specially tailored to this purpose.

As it was explained at the outset of the Discussion chapter, the results of the verbal protocol will be compared and contrasted with the related questions of the follow-up interview, which is the ultimate scope of RQ (3). Before addressing this question, however, the analysis will now focus on participant answers provided to the follow-up interviews.

4.2. Analysis of the follow-up questions: answering research question (2)

The second subsection of the data analysis will present the results of the follow-up interviews. The goal of this segment of analysis is twofold: on the one hand, it will examine participant answers as data on its own right, with the aim of collecting useful data about the self-perception of participants as L2 readers in an academic context. On the other hand, the data extracted and analyzed here will be used to provide a basis for comparison with the findings of the previous subsection. These two objectives respond to RQs (2) and (3), respectively, with this subsection limited to discussing the former one, which was formulated as:

RQ (2): How do participants perceive their own strategy use when reading in the L2?

In a similar fashion to the verbal protocols, the analysis of the follow-up interviews will start out by presenting numerical data broken down by strategies and then it will move on to discuss the most important tendencies and patterns of the data.

A preliminary presentation of the results was made at the beginning of the chapter, in Table 3. As it was formulated in the same space, mentions of strategy use in the interview questions were not individually counted, but rather, it was decided that they would be presented by the number of participants referring to them due to the fact that there was little functional difference found across the different mentions of the same strategy within the same interview.

Table 7 below regroupes strategies according to three bands of frequency of occurrence (i.e. in how many of the 12 interviews they were mentioned).

| Frequency 1-3 | Frequency 4-6 | Frequency 7-11 |
|--|---|--|
| inferencing pre-viewing summarizing taking mental notes comparing expectations with actual content skip and return conscious focus taking a break reading aloud final reading predicting keywords using supporting details paraphrasing and translation background knowledge self-monitoring pre-reading preparations analyzing | getting the gist scanning prioritizing information note-taking and highlighting skimming self-evaluation | using external sources guessing the meaning re-reading |

Table 7. Strategies mentioned in the follow-up interviews regrouped in three bands

As it can be seen from Table 7, the number of strategies evoked in the follow-up interviews by far exceeds that of the verbal protocols, with 27 compared to 13. With the exception of clarifying and formulating questions, all strategies present in the verbal protocol were made reference of in the interviews. The majority of them, however, had a frequency of between 1 and 3, meaning they were mentioned between 1 and 3 participants. This frequency band contains 18 out of the 27 strategies, taking up two-thirds of the total number. The frequency band of 4-6 mentions counts 6 strategies, and the remaining three strategies belonged to the 7-11 range. There was no strategy that all participants mentioned.

Since this part of the data was collected by means of a structured interview, the relevant questions will provide the background for the presentation of the data, and the discussion of strategies will be limited to the most frequent ones and to some peculiarities of the self-reports. The full list of the follow-up questions was already presented in the Methodology section. Of the seven questions, there were three that directly targeted at L2 reading strategies, namely:

Q2: In general, how do you approach the reading of an English text? Do you have any conscious strategies to it?

Q3: What do you do when you get stuck while reading a text? Do you try to resolve the problem yourself, or do you seek external help?

Q4: While and after reading a text, what do you do to understand and remember what you have read?

Q2 enquires about general participant strategies of treating the text globally, including pre-viewing techniques and general comprehension strategies. Q3 is related to participants' coping strategies when in the case of encountering any kind of difficulty during reading, and Q4 focused on strategies of remembering information. A summary of the findings for the rest of the questions will be provided at the end of the subchapter. As those questions highlighted aspects of reading other than strategies, they did not directly concern strategy use.

4.2.1. Participant answers to Q2: general approach(es) to reading

As explained above, Q2 of the follow up interviews: "In general, how do you approach the reading of an English text? Do you have any conscious strategies to it?" was aimed at eliciting participant data about the first stages of reading a text, which would typically involve pre-reading strategies (e.g. pre-viewing and activating background knowledge) and global comprehension strategies, most likely skimming and getting the gist.

Answers to the question reveal that skimming, re-reading (scanning) and prioritizing information are the most common strategies participants tend to employ when familiarizing themselves with the text. As for the pre-reading stage, there were three mentions of participants pre-viewing the text and making pre-reading preparations and two mentions of students' using background knowledge to make predictions about what they read.

Participant reports of strategy use to Q2 appear to be in line with the observations of the literature. The first reading of a text should normally involve skimming, which is then followed by re-reading important and/or difficult parts, in other words, scanning. By selecting which part(s) of the text should be prioritized in the re-reading phase, readers will formulate a preliminary structure of the main arguments. Prior to this, the reader should be able to formulate a basic idea of what the text is going to be about by activating background knowledge. Let us now see some examples from the subcorpus for each of these strategies, in the order considered logical as one progresses during reading.

Pre-reading preparations & pre-viewing

(53) If the text has a title – and most texts of this type tend to have one –, first read the title, obviously. I try to understand the title and form an image of what I'm going to read about so that I get an outline of the topic even before starting to read. (Participant 2)

(54) To tell the truth, I have to force myself to focus when reading in either of my two languages. I have to calm myself down before sitting down to read. Of course, this depends on the stress level of the situation too. (Participant 9)

Skimming

(55) When I don't have to divide the text into parts, so I'm just reading for myself, I first skim through the text quickly to get a clearer picture of what I read in the title. (Participant 2)

(56) I don't really have a conscious strategy, but I've noticed that I first skim through the text [...], and then I go back and do a more detailed reading of the text. (Participant 8)

Examples (53) and (55) come from the same participant, whose description reflects the gradual progress from pre-viewing certain properties of the text (title) to skimming through the reading in order to formulate a more specific idea of its topic. In excerpt (56), Participant 8 mentions skimming the text and then scanning for details:

Scanning

(57) [...], and then I go back and do a more detailed reading of the text. (Participant 8, (53) continued)

(58) When I have obtained a complex view of the argumentation, I do a more detailed reading. I add the little details to the big picture, and when I get to the last paragraph, I always pay extra attention as it summarizes what I've read so far. As a result of these steps, I get the complete text in the end. (Participant 2)

Excerpt (58) offers a look into the participant's reasoning about the importance of scanning. By doing a detailed reading along the main argumentative lines, the reader gets a complex picture of the text, suggesting a gradual building up of meaning. Furthermore, the participant gives a proof of a high awareness of the structural-functional properties of academic texts when pointing out that the last paragraph of a text should typically serve as a summary paragraph which concludes the whole of the reading.

Prioritizing information

Selecting which part(s) of the text or which piece of information is worth special attention can be considered a primary function of scanning. Whether it is a word, a sentence or a longer chunk of text, prioritizing specific types or pieces of information will contribute to the reader's forming an idea of the argumentative structure.

(59) Capital letters can be important, because they might signal relevant information. I jump back on these words and try to connect them to what I'm reading. (Participant 7)

In the above example, the participant mentions the perceived relationship between the typographical features of words and their importance in the text. Keyword search is another type of prioritizing information, which will be discussed in relation to Q4.

To sum up the main findings to Q2, it can be concluded that participants show tendencies of employing the most commonly cited reading strategies when inspecting a text for the first time. Certain examples suggest the sequential use of these strategies, while others imply a less complex approach, with some elements such as pre-viewing apparently missing from participant repertoire.

4.2.2. Participant answers to Q3: overcoming difficulties during reading

The third question of the follow-up interview invited participants to talk about their strategies of resolving comprehension difficulties that they might run into while reading a text: “What do you do when you get stuck while reading a text? Do you try to resolve the problem yourself, or do you seek external help?” The two sub-questions aimed at eliciting data on problem-solving and support strategies.

With regard to the second sub-question, seven out of the 12 participants reported trying overcome reading difficulties by themselves, using strategies such as guessing from context or re-reading (60). There was one mention each of a participant’s taking a short break before re-reading the text (61), and one of reading aloud; and there were two instances of participants’ saying that translation and/or paraphrasing can help them decipher meaning.

(60) Well, I usually like to resolve difficulties myself even if I have to read the same thing five times. If I get really stuck, then I use external help. It depends on the text as well, but I generally try guess meaning from the context. (Participant 1)

(61) When I get stuck in a text because I am mentally or physically tired, I try to take a quick break and get back to it a little later if possible. (Participant 9)

Participants preferring these problem-solving strategies have recourse to external resources, most frequently the dictionary or online translation tools, only when the usual strategies prove to be inefficient. The other five participants reported immediately looking up unfamiliar words in the dictionary, and while they did not necessarily consider that beneficial to learning, they found it the easiest way to surmount difficulties when, for example, they are short on time. In addition to using the dictionary, asking for peer help was also listed as a possible solution.

4.2.3. Participant answers to Q4: strategies for retention

Question 4 of the follow-up interviews: “While and after reading a text, what do you do to understand and remember what you have read?” concerned during and after reading strategies directed towards retaining important information. Responses outlined the use of a wide range of strategies, in the pre- and during reading phases in particular. These include, in order of frequency: re-reading (4), prioritizing information (4), relying on keywords (3), getting the gist of the text (3), note-taking & highlighting (3), using the context (1), predicting (1), comparing expectations with content (1), activating prior knowledge (1), and skipping, then returning to given sentence or passage (1). As predicting and comparing expectations with content both involve using background knowledge, the three might be grouped together to constitute different angles of the same strategy. With regard to their respective frequency bands, all but one of the strategies mentioned in highest numbers (3-4) belong to the mid- and high-frequency range. The only exception to this is using keywords, which figures three times in the responses and is listed in the low-frequency band.

The following excerpts highlight some peculiarities of participant answers.

(62) When I know that the task will be to summarize the text, I re-read the parts that I consider important. While reading, I make mental notes of what will be important for the summary. Sometimes I underline or highlight relevant information, but what I'm trying to do is get a general picture of the text. If I understand the concept of the text, then I will be able to meaningfully talk about it. (Participant 3)

In this example, the participant recounts a systematic approach to retaining information in a hypothetical instructional context, possibly based on his own in-class experiences. After choosing what might be worth remembering later (prioritizing information), he goes back to the selected sentences or passages (re-reading) and highlights important information by underlining it (note-taking and highlighting information). Employing this set of strategies, in this particular order, contributes to formulating the main idea or the short summary of the text.

Another example of multiple strategy use can be observed in excerpt (63) below:

(63) First I try to get the main idea of the text and I try to compare my expectations with what the text says. This is the way I interpret the text. I try to focus on the more important things, like capital letters and specific data. I also look at the keywords in the given context. (Participant 7)

The logic presented in this excerpt is different in that the participant starts out by understanding the gist of the text, and then compares it with his predictions about the content. Relevant details (names, numbers, key concepts) help establish the supporting details. These methodical steps contribute the creation of a fuller image of the text. Both of the examples

presented here appear to reflect a systematic approach to working with the text, similarly to excerpt (52) in the subchapter on verbal protocols; for the sake of clarity though, it should be added that (52) and (63) were taken out of the same verbal report, suggesting considerable metacognitive awareness at the individual level.

4.2.4. About the other interview questions

While the rest of the interview questions did not directly touch upon strategy use, a brief summary of the responses provided to them should be in order here. These questions enquired about perceived text difficulty and participants' reading habits in their L1, L2 and potential L3. With regard to the question "On a scale of 1 to 5, how difficult did you find the text?", participants responded with an average of 2.45 (all 2s and 3s). Their almost unanimous opinion was that the text was pretty readable, apart from some unknown words and technical terms. Some participants found main arguments a little bit difficult to understand at first, citing the richness of information as the principal reason for re-reading certain passages, as evidenced in the data presented above. Independently of the perceived difficulty of the text, several respondents claimed having enjoyed reading the text as it shed light on aspects of cooperation which tend to go unnoticed despite being obvious when consciously thought about. In this respect, the research instrument served as a source of learning for some, which might have led to the participants' putting greater effort into understanding the more challenging parts, assuming that interest in the topic increased the motivation to learn.

As for reading habits, it can generally be concluded that participants read texts in English regularly, meaning every day or at least two times a week. As for length, however, they tend to choose shorter texts, such as articles or social media posts. Some of them like to read books in English (almost exclusively literature) or have read at least one since they started learning the language, but this was not a typical answer.

With regard to their language of preference, some participants reported reading exclusively in their L2. One of them justified this by saying that scientific information is more likely to be retrieved in English, and that articles written in English give a more scientific impression, i.e., have greater validity in terms of academic value for some reason. Only a few of the participants reported reading regularly in their L3 (if they had one), and this was characteristic of students either majoring in two languages (English and French, English and Italian) or having graduated from a bilingual secondary school. Even so, trilingual readers reported reading very little in their L3 in comparison to their L2, and when they do, their main goal is to maintain their proficiency level, or, in two cases, to improve general language skills.

One student mentioned that while she prefers reading in English, she can express her thoughts and emotions better in French, which is then her favorite language to write in.

To summarize the findings in the other interview questions, participants did not find the text overall difficult. Most of them read in English on a daily basis, but at least two times a week. The majority of the respondents prefer reading shorter texts, and they do not read extensively in the L3.

4.2.5. Summary of the findings in the follow-up interviews; RQ 2

The primary goal of this subchapter was to look into participant responses provided to the follow-up questions relevant to L2 reading strategy use. The reason for including interview questions was twofold: first, it provided a space for participants to reflect, with the help of directed questions, on the different aspects of their strategy use when reading in English. Second, the data gathered this way will compare well to the findings of the verbal protocols, which will indeed be the focus of RQ (3) in the following section. Before moving on to the third major research question, however, let us now revisit RQ (2):

How do participants perceive their own strategy use when reading in the L2?

First of all, it should be emphasized that the relevant interview questions concentrated on three areas of reading skills, namely, readers' global approach to familiarizing themselves with a text, their strategy choice(s) when encountering reading difficulties and their ways of remembering and recalling information in a text. The most noticeable finding is the high number of strategies evoked in the self-reports (27), with two-thirds of them (18) having a low-frequency occurrence in the data, according to the *ad hoc* grouping into three frequency bands. The three strategies with the highest number of mentions were using external resources, guessing the meaning and re-reading, which are typical problem-solving and support strategies. Participant responses suggest the use of the most common global strategies and problem-solving strategies when approaching a text for the first time and familiarizing themselves with the content, in particular, pre-viewing, skimming and scanning for prioritized information. When encountering difficulties during reading, almost half of the participants opt for trying to resolve the problem themselves, with guessing word meanings from context and re-reading being the most frequently cited strategies. Finally, as for the retention of information, participants seem to employ a range of strategies, and the combination of multiple strategies was not uncommon in the data either.

In an answer to RQ2, it can be inferred from interviews that participants show awareness of the strategies they use during L2 reading and are capable of verbalizing them in

a straightforward way. Moreover, some of the excerpts suggest participants' complex and, in certain cases, critical view of their strategy use: the lengthy descriptions seem to evidence that some students have a clear idea of how strategies should be sequenced in order to achieve the reading goal, with skimming and re-reading (scanning) being the most often co-occurring strategies in the self-reports. A third and final observation is the recurrent mentioning of details, whether in general terms or through specific examples (numbers, names and typographical features), and typically in connection with re-reading. Zooming in on three particular aspects of reading strategy use, the interview questions have shed light on certain patterns, the most salient one being the perceived importance of global and detailed reading in general comprehension processes.

At this point of the discussion, it should be safe to say that there appears to be a noticeable overlap between the main findings of the verbal protocols and the follow-up interviews. However, a more nuanced comparison would definitely help surface some further peculiarities of the data, including potential differences between the two datasets.

4.3. Comparing observed strategy use with self-reports

The penultimate section of the data analysis discusses the comparison of the two datasets in order to see how self-reported strategy use in the follow-up interviews relates to the findings of the verbal protocols on a general level, which is the focus of research question (3):

RQ (3): How do findings in the follow-up interviews relate to the results of the verbal protocol in terms of consistency between observed strategy use and self-reports of strategy use?

As it was formulated in the previous sections, there is a significant gap in the number of strategies that emerged in the two datasets: while it was possible to identify 27 strategies in the follow-up interviews, participants' repertoire in the verbal protocols was limited to 14, which can at least partially be explained by the nature of task they had to perform. For instance, they did not have access to much external help (dictionary, internet), which justifies the lack of support strategies in the think-aloud process. Likewise, formulating questions appears to be tightly connected to the on-line processing of information, which might explain while they were non-existent in the self-reports, as it required the recalling of habitual patterns

of strategy use. Let us now see the comparative distribution of strategies in the two sets of data, in alphabetical order:

| Strategy type | Verbal protocols | Self-reports |
|--|------------------|--------------|
| analyzing | + | + |
| background knowledge | + | + |
| clarifying | + | - |
| compare expectations with actual content | - | + |
| conscious focus | - | + |
| final reading | - | + |
| formulating questions | + | - |
| getting the gist | + | + |
| guessing the meaning | + | + |
| inferencing | + | + |
| keywords | - | + |
| mental notes | - | + |
| note-taking and highlighting | - | + |
| paraphrasing and translation | - | + |
| predicting | - | + |
| pre-reading preps | - | + |
| pre-viewing | - | + |
| prioritizing information | + | + |
| reading aloud | - | + |
| re-reading | + | + |
| scanning | + | + |
| self-evaluation | + | + |
| self-monitoring | + | + |
| skimming | + | + |
| skip and then return | - | + |
| summarizing | + | + |
| taking a break | - | + |
| using external sources | - | + |
| using supporting details | + | + |

Table 8. Comparative distribution of strategies (+/-) across the two sets of data.

Table 8 above shows that while there were only two strategies (formulating questions, clarifying) in the 29-item list that did not figure in the verbal reports, there were 14 strategies overall that appear to be missing in the verbal protocols. In terms of them being separated according to the cognitive/metacognitive dimensions, the comparative distribution supports the principal findings to research questions (1) and (2), namely, that participants had an overall preference for metacognitive strategies in both datasets. In fact, of the total, there were only four strategies labelled as cognitive (analyzing, clarifying, inferencing and getting the gist), whereas the rest – as was established in 4.1. and 4.2. – belongs to the metacognitive

group, with some of the low-frequency strategies in the follow-up interviews potentially representing subtypes of larger strategies as it shall be seen in the following.

4.3.1. General-level comparison of the datasets

Let us now see the complete list of strategies which were not present in the verbal protocols but had at least one mention in the follow-up interviews, grouped according to the Mokhtari-Reichard taxonomy.

Global strategies

Global metacognitive strategies evoked in the self-reports but not detected in the verbal protocols were pre-viewing, pre-reading preparations, predicting, comparing expectations with actual content, keyword search, final reading²¹ and conscious focus, the latter referring to practicing self-control and forcing oneself to pay attention to the reading at hand. One strategy that might be considered a near approximation of comparing expectations with actual content, but still not identical, was participants' comparison of everyday experience with the findings of the text when learning about the frequency of requests.

Problem-solving strategies

Participants mentioned reading aloud, skipping and returning (which might be identified as a subtype of scanning given that it involves re-reading as a specific passage) and taking a break in the self-reflections, but none of the three were observed to have been actively used in the verbal protocols. A close equivalent to skipping and returning is re-reading, which was indeed among the most frequently used problem-solving strategies in the think-aloud protocols. However, no participant reported leaving unread or unresolved any part of the text and then returning to it later; re-reading was either instantaneous or it was used to check comprehension upon comparing information in different parts of the text.

Support strategies

As it was established in the previous section, participants reported the use of external resources in a high number when asked about how they try to overcome reading difficulties in the L2. In addition to that, they mentioned taking mental and written notes to increase retention and there were two mentions of using paraphrasing and translation techniques to

²¹ While the author acknowledges that keyword search, final reading and pre-reading preparations do not figure in the Mokhtari-Reichard taxonomy, the nature of these three strategies – mentioned 1 to 3 times in the follow-up interviews – suggests that they are used to facilitate global comprehension processes.

figure out meaning. These latter strategies were found to be non-existent in the verbal protocols provided that we do not count in the summaries participants were required to make during and after reading and which do not constitute part of the analysis for reasons explained earlier.

4.3.2. Some comments on the data

At first sight, the gap between observed strategy use and self-reports does indeed appear to be significant. A closer look into the latter, however, shows that these differences might in fact be more of a matter of linguistic formulation than actual numerical asymmetry. For example, pre-reading preparations (i.e. mentally preparing for the reading task, in the participant's words) and conscious focus are both strategies related to monitoring and evaluating one's behavior during the reading process. In a similar vein, making predictions about the text and comparing expectations with actual content during reading both require the activation of background knowledge necessary to understand the text. Finally, skipping and returning can be regarded a subtype of scanning as it involves the reader going back to a specific part of the text, which ultimately makes it, as implied above, a specific case of re-reading strategies. It seems therefore that this numerical difference could be reduced by integrating of the strategies unique to the follow interviews into the larger categories, which would, in any case, further nuance the already complex nature of strategies.

Indeed, this observation about participant answers highlight what might be regarded as a methodological weakness of the structured interview: despite consequently proceeding with the pre-determined order and formulation of the questions, participants were given absolute freedom in describing strategy use in their own words. The mismatch between the relative rigidity of the coding protocol employed in the think-alouds and the lack of pre-determined strategy choices in the interviews resulted in a certain degree of inconsequentiality when it comes to comparing responses. One possible way to compensate for the disparate nature of data would have been to provide participants with a list of strategies they could choose from, and add that they were free to add anything that did not figure on the list. Unfortunately though, this problem was not anticipated.

With this methodological deficiency taken into account, a noteworthy aspect of the finding was participants' readiness to talk about their reading habits in great detail, thus highlighting otherwise invisible subtleties of individual strategy use. That being said, there still remain noticeable differences between the two datasets, with regard to previewing practices and support strategies, in particular. These, again, might be explained by the nature

of the task itself.

The saliency of the differences pointed out above might overshadow some obvious similarities between the two sets of data, which are not less significant. One major overlap is the fact that two of the top three strategies are the same in both subcorpora. These are guessing the meaning and re-reading, two common problem-solving strategies. The other top strategies were self-evaluation in the protocols and the use of external resources in the interviews, as discussed in their respective sections. There are a number of instances of the same participant using and mentioning the same strategy in both parts of the data collection procedure. One such example was given by Participant 8:

(64) I started to think about my own life, what examples I can bring for this phenomenon, and because of that I had to re-read these parts.

(65) When I don't understand something, I read on and then go back to it. Honestly, I don't know why, but that's what I do. Plus I read that part several times, it might help.

In the first excerpt of the set above, the participant tells that the explanation of background knowledge negatively influenced her attention while reading the text about cooperation, and, to redirect her focus, she has to read the parts in question over and over again. The second example was taken out from the follow-up interview, and it describes the strategy of skipping and returning (actually, the only occurrence of it in the data) as well as general re-reading practices.

A similar pattern emerges in the following set of examples, where Participant 6 was observed to use and explicitly mentioned guessing the meaning from context on several occasions:

(66) I didn't know what "high-cost" and "low-cost" mean, because I had never seen them, but I could deduce their meaning.

(67) It's the scientific terms that proved to be more difficult as they were unfamiliar to me, but I guessed their meaning from the context.

(68) I've read texts which were a lot more difficult for me to read topic-wise. On the contrary, the vocabulary in this text is a lot easier, and when there's something I don't understand, I can guess it from the context.

(69) The first thing I do is re-read the sentence or the whole previous paragraph. If I can't deduce the meaning from the context, then I ask for help, but only if it that word is vital for understanding the text.

Some of these excerpts were analyzed in one of the earlier sections when discussing their respective strategies. What is of interest here is that these examples serve as evidence for participants' simultaneously using and describing these strategies.

4.3.3. Answering research question (3)

The chief purpose of this brief section was to uncover the extent to which participant answers overlap and differ in the two major datasets. In a tentative answer to research question (3), then, it can be concluded that there is a clear preference for metacognitive strategies across the whole data, and, while there were 13 strategies which occurred in both datasets (four of which are cognitive), the number of strategies mentioned in the follow-up interviews was more than twice as high as in the verbal protocols. The analysis shed light on two possible reasons for this disparity, namely, the inherent difference between the two types of data collection procedures and imperfections in research design with respect to the follow-up questions. A more detailed look into the data revealed that the numerical difference might be reduced by classifying some of the low-frequency strategies emerging from the follow-up interviews as subtypes of more general ones. An equally important finding of the comparison was the presence of certain high-frequency strategies in both the protocols and subsequent interview questions. In light of and reinforcing the main conclusions to research questions (1) and (2), this finding can suggest strategic awareness on the part of the participants. Their apparent knowledge of basic strategy types and ability to verbalize them are indicative of metacognitive knowledge, which tends to be an indicator of proficient readers.

This comparative analysis concludes the major part of the Discussion. The careful examination of participant responses has revealed a number of patterns relevant to L2 strategy use as well as uncovering some important similarities and differences across the data. The fourth and last section of the Discussion focuses on the results of the SORS test and how they might support, or, perhaps, contradict the findings reported up to this point.

4.4. The results of the SORS test: research question (4)

This final section summarizes the results of the Mokhtari-Sheorey SORS test (2001) that students took as the last part of the data collection. Table 9 below demonstrates the results, broken down into individual participants.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Average | 4.30 | 3.67 | 3.80 | 3.33 | 3.20 | 4.30 | 3.53 | 3.40 | 4.10 | 4.30 | 3.03 | 3.30 |
| Level | H | H | H | M | M | H | H | M | H | H | M | M |
| GLOBAL | | 2 | 1 | 2 | 2 | 1 | 1 | 2 | | 1 | 2 | 2 |
| PROBLEM | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 | 1 |
| SUPPORT | 2 | | | | | | | | 2 | | | |

Table 9. The SORS results. M=medium average, H=high average

Numbers 1 and 2 indicate if the given strategy type was participants' first or second strongest strategy type based on their respective averages. "Average" refers to the overall mean average of the three strategy groups, and "Level" indicates which band of L2 reading proficiency (low, medium, high) individual participants are assigned based on their average.

To briefly recap, the SORS measures L2 learners' metacognitive reading strategies along the three main dimensions of the Mokhtari-Reichard taxonomy, namely, global, problem-solving and support strategies. In addition to ranking respondents' preference for the three strategy groups, the survey calculates an average to measure their level of general reading skills. The overall average of the 12 participants was 3.69, which falls into the lower range of the high band (from 3.5 upwards), indicating that participants generally have a high level of strategy use when it comes to reading in the L2. Individual averages varied between 3.03 (medium) and 4.30 (high). No participant scored in the low band (2.4 or lower).

As for the specific groups of strategies, the results show the following order of preference across participants: problem-solving, global and support strategies. Indeed, 8 out of 12 (67%) respondents scored highest on problem-solving strategies, and 4 out of 12 (33%) were found to use global strategies in the first place. Support strategies came in third place 10 out of 12 times (83%).²² The findings in this relatively small sample seem to reinforce international tendencies of strategy use measured among advanced learners, which show that they are most likely to employ problem-solving and global strategies when reading in the foreign language (with reference to Ahmed, 2020; Čeljo, Bećirović & Dubravac, 2021; Ganji, Yarahmadzahi & Sasani, 2018; Martínez, 2008; and Rabadi et al., 2020), with weaker readers having been observed to have recourse to support strategies noticeably more frequently than more proficient ones (Chen, 2019; Ganji, Yarahmadzahi & Sasani, 2018). Let us now turn our attention to research question (4):

RQ (4): To what extent are tendencies of strategy use and self-perception in the data are consistent with the SORS results in general?

Based on the overall results of the SORS test, it can be concluded that the self-report survey appears to support the major findings of the verbal protocols and the follow-up interviews in that participants show a general preference for global and problem-solving strategies.

²² Informal SORS measurements taken in our Reading Skills classes in the fall semester of 2023 (n=75) indicated an overwhelming preference for problem-solving strategies across participants, with global strategies generally in second place, and support strategies almost always coming third in line. Beginning- and end-of-semester SORS measurements are planned to be introduced from the spring semester of 2024 onwards in order to measure improvement of metacognitive reading strategies between the two endpoints of the semester.

Metacognitive strategies with the highest frequency in the two datasets all belong to either of the two groups, with the notable exception of using external resources in the follow-up interviews, which is categorized as support strategies. To have a fuller picture of the survey results, let us now see some examples of the highest-scored items from each strategy group.

In the global metacognitive strategies group, statements “I think about what I know to help me understand what I read” (activating background knowledge) and “I check my understanding when I come across new information” (self-monitoring) were among the top strategies, receiving all 4s and 5s. In contrast, the majority of participants did not score above 4 for the statement “When reading, I decide what to read closely and what to ignore”, which refers to the strategy of prioritizing information. In fact, two participants marked this statement a 2 and one a 3. Given that the strategy of prioritizing information was among the more frequently used and mentioned ones in the main datasets (7 counts in the protocols and mid-range frequency in the follow-up interviews), this result came unexpected, especially if we take into consideration participants’ apparent awareness about the importance of skimming and scanning, which are indeed based on the selection of relevant information. In fact, the statement related to pre-viewing and skimming, “I take an overall view of the text to see what it is about before reading it”²³ also received mixed responses, with values ranging between 2 and 5, 4 and 5 being the most frequent.

Moving to problem-solving strategies, the statement that might be of greatest interest to the present analysis is the one referring to re-reading: “When the text becomes difficult, I re-read it to increase my understanding.” The responses to this item reinforce the main findings: of the twelve participants, eleven marked this statement with 5. Re-reading therefore seems to be the most important problem-solving strategy, presumably because of it being the most logical choice when encountering difficulties in reading. Similarly, items related to adjusting reading speed (statements 7 and 11) received mostly high scores, with the exception of two respondents who gave them an average of three (varying between 2 and 4).

The final example concerns the group of support strategies, which received the lowest average score. While this result is consistent with what has generally been observed in the verbal protocols and the follow-up interviews – i.e. support strategies are the least numerous in the data, there is one notable exception, which is the high-frequency mention of external resources. By this, participants typically meant using a dictionary or an online translator, and there were a few mentions of taking notes and highlighting important information as well. In

²³ In the SORS test, this statement is the closest reference to skimming; because of the formulation of the sentence, however, it is not obvious if it should refer to skimming, top re-viewing or, possibly, to both.

the SORS, statements relevant to these practices were the following: “I take notes while reading to help me understand what I read” (item 2); “I underline or circle information in the text to help me remember it” (item 10); and “I use reference materials (e.g. a dictionary) to help me understand what I read” (item 13). Respondent answers suggest the infrequent use of note-taking and highlighting in general, although answers to the latter were rather mixed, with five participants marking it a 5, and the rest between 2 and 4. A similar tendency is outlined in the case of reference materials, where three-quarters of the respondents marked the respective statement between 1-3, with 2 being their most popular choice. While this seems to contradict the results of the follow-up interview, it is important to keep in mind that the guessing from context was among the most frequent strategies in the two main datasets; in fact, it was in the top three in both. There are two statements in the SORS related to the use of context in comprehension: “I use context clues to help me better understand what I am reading” (item 17), referring to text-level comprehension; and “When I read, I guess the meaning of unknown words or phrases” (item 28), referring to word-level comprehension. For the former, responses varied between 2 and 5, and for the latter, participants gave all 4s and 5s, which indicates great consistency with the findings of the protocols and the follow-up interviews in this respect. Indeed, the examples presented in this subsection suggest that the results of the SORS test do actually reflect the general tendencies revealed in the main datasets.

This subsection concludes the data analysis and discussion. Let us now move on to the final chapter of the dissertation, which first summarizes the main research objectives and findings as well as positioning it within international research trends. It then reflects on the strengths and weaknesses of the research design and data analysis, and finally formulates some suggestions for further research, taking potential pedagogical implications into consideration.

5. Conclusion

First of all, I find it important to reiterate that the idea of my research began to evolve when redesigning our first-year Reading Skills seminar which I have been teaching for seven years, and which holds a prominent place in my professional career as an L2 teacher. Our experience with the hundreds of students taking the course every academic year suggests that many of our incoming students lack the strategies necessary for successful academic reading. When working out a new concept and syllabus for the course, we therefore put explicit strategy development in the first place, and we have been systematically updating and reconsidering the syllabus since the introduction of the new course. The research presented in this dissertation is the logical consequence of my interest in the topic both as a teacher and a linguistics instructor.

5.1. Recapitulating the theoretical background

As I hope to have clearly shown in the theoretical review, strategy research is a vast field of study, which, despite theoretical disagreements and methodological concerns, remains a major subdiscipline in educational and L2 research due to its broad applicability in real-life instructional contexts. Among the pioneers of L2 learning strategy research are Rubin (1987), O'Malley and Chamot (1990) and Oxford (1990; 2016), whose seminal work has laid down the foundations of the field. The area of (L2) reading studies has also greatly benefited of the proposed definitions and strategy classifications presented in these general textbooks. However, the scientific investigation of such complex mental phenomena requires an interdisciplinary approach drawing together the relevant findings of interrelated yet essentially independent disciplines. In its quest to uncover the cognitive mechanisms beyond (L2) reading, contemporary scholarship has mostly relied on cognitive psychology, education sciences, and second language acquisition studies. Comprehensive overviews of the last fifty years of joint research efforts are presented in the recent works of Oxford (2016), Grabe and Stoller (2013) and Grabe and Yamashita (2022), which I made extensive of in outlining the theoretical background of the topic. As a general conclusion, I think it is safe to say that (L2) reading studies is a dynamically developing field, and the past roughly fifty years of research has brought about important developments which have opened up the way for meaning academic discussions in the field.

Of the diverse aspects of L2 reading studies, learner strategy use occupies a central place in related applied linguistic research on the international scene. As the present

dissertation concentrated on L2 reading in an academic environment, the studies cited in it were almost exclusively conducted in a higher education context. It was my intention to provide an as varied array of studies as possible, with my focus always resting on the particular strategy taxonomies and research designs employed in the papers presented in my review.

With regard to the former, it was pointed out in the last section of the theoretical overview that there appears to be substantial overlap between existing classification systems, which could be explained by the fact that general learning taxonomies are to a great extent applicable to skills-specific categorizations of strategies. In this respect, again, Rubin (1987), Chamot and O'Malley (1990) and Oxford (1990) constitute an excellent starting point for reading strategies as well. Taxonomies specific to reading were proposed by Block (1986), Grabe (1991), Alderson (2000) and Mokhtari and Sheorey (2002). Table 2. summarizes current taxonomies, providing a fairly comprehensive view of our knowledge of reading strategies in the L1 and the L2. A core concept is the transferability of reading skills from the L1 to the L2 (Grabe & Yamashita, 2022). These major taxonomies constitute the basis of most L2 reading strategy use research.

As for research design, the basic distinction was made between survey studies and verbal protocols, which roughly covers the quantitative-qualitative spectrum. Indeed, mixed methods studies were not typical in the corpus, apart from a few mixed-methods studies (see, for example, Szűcs, 2017). Statistically speaking, survey studies are far more numerous by virtue of their easy applicability and the relative straightforwardness of the data analysis. The preference for surveys in measuring reading skills appears to be further supported by the existence of reliable measurement tools, in particular, the MARS (Mokhtari & Reichard, 2002) and the SORS tests (Mokhtari & Sheorey, 2001), both designed to measure readers' metacognitive strategy use when reading for learning in the L1 and L2, respectively. These surveys count as popular instruments, as attested by the high number of studies opting for either of them (or an adapted version) in the data collection procedure (see, for example, Solak & Altay, 2014; Tary & Molnár, 2022; Zarei, 2018). On the other hand, verbal protocols, though more in-depth in their analytical potential when it comes to examining underlying mental processes, have so far been less widely used due to their laboriousness. This does not mean, however, that verbal protocols have been completely ignored in reading strategy research as there are some recent examples of TAP-based or mixed-methods studies in the literature (Block, 1986; Hamada & Park, 2013; Handayani & Widijantie, 2021; Szűcs, 2017).

5.2. Summary of research design

It was an explicit goal of mine to conduct a study which would simultaneously fit into current international research and fulfill my wish to investigate L2 reading strategy use in a local context. As explained in the Introduction, my general intention was to create baseline research which would serve as a foundation to further investigations among our student population and to help shape our reading skills syllabus in accordance with what our students assumedly need to become more proficient readers in an academic setting. For this latter reason, I decided to adopt a data collection method which would enable a detailed analysis of participant responses while also revealing potential patterns of strategy use across respondents. To achieve these objectives, I employed a semi-retrospective think-aloud protocol procedure, complemented with a structured follow-up interview and the SORS test. I opted for the semi-retrospective format in order to minimize the interference that might occur as a result of the participant simultaneously reading and speaking.

The data collection was preceded by a pilot study, which helped identify the potential weaknesses of the research design. Following the implementation of the modifications deemed necessary, the main data collection took place in the spring semester 2023. Participants (n=12) were first-year English Studies majors and teacher trainees who all contributed on a voluntary basis. Prior to recording the verbal protocols, they were given a short training on how to do the think-aloud procedure. The main text discussed recent findings in cooperation studies (social/cultural anthropology). The text was divided into three main parts, and participants had to stop after each one and verbalize their thoughts according to the instructions they were told at the beginning of the task. At the end of the reading, they were asked to summarize the text in five sentences. The summaries were not included in the analysis. The subsequent follow-up interviews were used to elicit data about participants' L2 reading strategies and their reading practices in general. The SORS test concluded the data collection. The verbal protocols and the follow-up interviews were analyzed with MAXQDA, using both deductive and inducting coding based on the suggestions formulated in Schreier (2013).

The decision to include three different types of data was motivated by the multiaspectual nature of the research questions. The data obtained from the verbal protocols constituted the core of the analysis, with the interviews and the SORS-test providing supplementary information and a good basis for comparison. RQ1 concerned participants' reading strategy use in a controlled situation, i.e. what strategies participants are observed to

use in the semi-retrospective protocols. This research question took up the bulk of the analysis, thanks to the richness of the data provided by the participants, who proved to be exceptionally cooperative and motivated all through the process. RQ2 concentrated on self-reported strategy use in the related questions of the follow-up interviews. A comparative perspective was adopted in RQ3, which looked into the similarities and differences between observed and self-reported strategy use in the two datasets. A final aspect of the research was the comparison of findings in RQ1-RQ3 with the group-level results of the SORS test, which was taken up in RQ4.

5.3. Summary of findings

Although all four research questions were thoroughly discussed in their relevant subsections, a brief summary of the results should be in order here. In the verbal protocols, 13 different types of strategy were identified, nine of which are metacognitive. The three most frequently used strategies were guessing the meaning, re-reading and self-evaluation. Already in the think-aloud protocols there were instances of participants' engaging in self-reflection, which seemed to emerge as a natural consequence of the verbalization process. Interestingly, some of these acts of self-evaluation touched upon participants' general perceptions of themselves as readers, and their comments were not limited to their perceived performance on the task. This observation suggests that participants are capable of viewing themselves critically, thus identifying potential areas of strategic competence that need improvement.

The follow-up interviews revealed some peculiarities of self-reported strategy use, with the most spectacular finding being the sheer number of individual strategies mentioned (27) in comparison to the number of individual strategies observed in the verbal protocols (13). Strategies obtained from the interviews were grouped in three frequency bands based on how many of the 12 interviews mentioned them. While two-thirds of the strategies (18) had a low frequency count (1-3), the top ones showed considerable overlap with the verbal protocols, the three most frequently mentioned strategies being the use of external resources (which was understandably missing from the TAPs), guessing the meaning and re-reading, which was suggested to be regarded as a subtype of scanning. Overall, the comparison of the two datasets showed an overwhelming preference for metacognitive strategies, and within that broad category, for global and problem-solving strategies in general. The group-level results of the SORS test reinforce these conclusions, and thereby seem to support the general finding that more proficient readers tend to employ problem-solving and global strategies when reading in their L2 more frequently and in higher numbers than weaker readers (with

reference to international research).

In spite of some notable differences in the individual subcorpora, the principal results of the analyses seem to show consistency, pointing to some potentially generalizable patterns of metacognitive strategy use across participants, which I am going to briefly summarize below.

The first and most important conclusion to be made is that the findings seem to evidence the presence of metacognitive awareness across participants. This conclusion is supported by the fact that self-evaluation, a global metacognitive strategy, was the most frequent strategy across the data. Problem-solving strategies such as re-reading and the use of outside resources also topped the list of strategies, and accompanying participant explanations were indicative of a higher sense of awareness with regard to strategy use as well. It should not be overlooked, however, that participants used a variety of cognitive strategies as well, mostly in order to better understand complex arguments or key ideas.

The other major finding concerns the strategy repertoire: the range of strategies reported in the follow-up interviews was considerably wider than observed strategy use in the think-aloud protocols. It can be argued, of course, that the different data collection methods highlight the same issue from a different perspective and will therefore yield slightly different results. While this definitely appears to be the case here, it is equally important to emphasize the overlaps between the two corpora, suggesting, once again that participants have a certain degree of metacognitive knowledge about *what* they do and *why* they do it while reading, i.e. in addition to using these strategies, they can also verbalize them and justify their use to achieve a specific reading goal. A final piece of supporting evidence is provided by the SORS test, the results of which reinforce international findings about advanced level students' strategy use.

5.4. The limitations of the study

Before concluding this last chapter with my proposed perspectives for the future, the limitations of the research will first be addressed. First of all, it should be stated that the findings are not generalizable to the whole population of English majors in Hungary, given the small sample size and the relatively homogeneous group of students I worked with. It is true, however, that this is what made the in-depth analysis of the data possible as a larger sample size would probably have resulted in significant loss of information during the analysis. In any case, the findings presented in this dissertation should be regarded as indicative of what first-year students enrolled in our programs at the University of Szeged

possess in terms of strategy use and awareness before taking the comprehensive language examination.

A second potential area of weakness concerns the research design. The data was recorded in a highly controlled environment where students were aware of the fact that they were being observed. This unnatural setting could have potentially impeded performance or at least have an effect on the quality of the data provided by respondents. This was a calculated risk I agreed to take in order to implement the research design I found to be the most suitable for the purposes of the study. Luckily though, none of my participants reported feeling uncomfortable, nor did they show signs of anxiety before or while they were being recorded. It needs to be further added that I knew all my participants personally and had a generally good rapport with them, which probably contributed to the relaxed atmosphere that prevailed in these sessions.

A third issue I would like to raise is related to the data collection procedure. When transcribing the think-aloud protocols and the interviews, I noticed that in some cases participants were vague in formulating their thoughts, which made the description of strategies difficult in these places. In retrospect, further questions would have been necessary to clarify what they meant or to help them verbalize their thoughts more explicitly. This is definitely something to bear in mind in future think-aloud protocol studies. Another potential weakness of the research design, which was already taken up in the Discussion chapter, concerns the mismatch between the coding protocols employed in the two main datasets. By providing a list of proposed strategies participants could have chosen from when reflecting on their strategy practices, the findings in the two subcorpora might have been better harmonized in the data analysis procedure.

5.5. Implications for further research in a higher education context

Based on the principal findings of the project, I would like to propose some possible directions for future research. The continuation of this dissertation can take two distinct yet interrelated paths, which might be seen as extensions of the general research interests I formulated earlier on multiple occasions. The first one concerns the expansion of the study to a wider population and, possibly, over longer periods of time. A longitudinal examination of participants' L2 reading strategy use could give a reliable picture of how their reading skills develop. A study of such scale would, of course, require a research design embedded in the syllabus of the Reading Skills seminar. Alternatively, recording strategy use at a given moment of time in a larger population would contribute to the generalizability of the findings.

In both cases, the focus would be on the (changing) thought processes and patterns signaling the different stages of skills development.

The other direction to take is more tightly connected to the pedagogical aspects of reading skills. Research findings can contribute to curriculum design in multiple ways. For example, they can help us decide on what strategies the developmental block of the syllabus should concentrate on, and it can contribute to a more mindful selection of the course materials. These pedagogical choices could be further supported by the regular assessment of students' strategy repertoire through the SORS test. In fact, I have decided to incorporate the test into the syllabus by administering it at the beginning and at the end of the semester to see if participating in the seminar makes a difference at the level of metacognitive strategy use. Indeed, raising awareness on strategy use and the importance of proceduralization already constitute a core part of our teaching philosophy.

A combination of these two potential directions would definitely contribute to a better understanding of L2 reading skills development processes. Students could take the SORS test in the first class of the semester. After evaluating the results of the SORS test, I could adjust the original syllabus (a large part of which already revolves around the practicing of metacognitive strategies) to match learner needs in terms of strategy development. For example, if the results of the SORS suggest that students are, in general, good at guessing words from context, then that topic can be omitted or minimized in extent to give space to strategies students seem to lack based on the findings. Students would then retake the SORS in the last class of the semester, and the results of the pre- and post-test would probably be indicative of any potential development (or deterioration) taking place. The same logic could be implemented into an experimental research design including a control group. It should not be forgotten, of course, that the SORS test is a self-report survey, and as such, subjectivity of responses can never be fully excluded.

5.6. Closing remarks

In this final section of my dissertation, I would like briefly reflect on some of the potential reasons why Hungarian students tend to enter tertiary education without possessing the reading competence necessary for academic success. Whilst it is true that the findings of my research can be considered overall positive, they even surpassed my initial expectations as a reading skills instructor of seven years. The composition of my seminar groups tends to be rather mixed in terms of language proficiency and skills level, with normally very few highly proficient readers. Within the framework of our recently redesigned reading skills syllabus, a

strong emphasis is placed on skills development, which involves both meta-level instruction and focused practice. In my experience, the majority of students hear about the most basic strategy types and reading modes for the first time when they enroll the class, and, upon further enquiry, they claim not having discussed or practiced strategy use at all in their high school classes. These observations seem to be in stark contrast with the goals set out in the National Core Curriculum (2020) regarding the level of reading competence students are expected to have in the L2 by the time they graduate from high school.²⁴ The recommendations formulated in the Core Curriculum depict the ideal L2 reader who possesses a large repertoire of skills-level and metacognitive strategies that they can efficiently use to complete a variety of text-related tasks corresponding their level of proficiency, such as deducing unfamiliar lexis from the context, comparing new information in the text with prior knowledge, understanding abstract ideas and cause-and-effect relationships or reading literary texts (2020, p. 324). While these recommendations are fair and should certainly be attainable by the end of 12th grade, the increasingly widening gap between what first-year university students *should* do and what they actually *can* do suggests that there is a discrepancy between the pedagogical philosophy and its methodological implementation.

In my opinion, the greatest problem is that reading is still largely regarded as a receptive skill despite the generally accepted view in cognitive psychology and educational sciences that reading is a dynamic process of (re)constructing meaning through an intricate network of associated cognitive mechanisms, in which metacognition plays a crucial part. As Hungarian foreign language education still sees reading as a matter of passive reception and the reader as a mere receiver of information, texts and reading tasks remain unexploited for the most part. The focus generally limited to unfamiliar vocabulary and a quick post-reading task, while explicit strategy development tends to be largely ignored in language classes. A similar approach to reading prevails in Hungarian classes, where there is generally little interpretive reading taking place, and students are left with the ready-made interpretations of literary texts presented in their textbooks. Raising competent and attentive readers in any language would therefore require the radical reframing of the concept of reading at the macro-level of education, a first step to which would be to integrate the relevant findings of international scholarship into the Hungarian curriculum design. It would be just as equally

²⁴ *Magyar Közlöny*, 2020 (17), pp. 290-446.

important to place encyclopedic knowledge and skills development on a par with each other, given that one cannot meaningfully exist without another.

On a final note, I would like to express my conviction that adopting internationally renowned practices that further promote the centrality of conscious strategy use in foreign language learning can greatly contribute to students' developing effective means of self-regulated skills development. In my estimation, this type of learner autonomy would ideally be the ultimate goal of the teaching-learning process in an academic context.

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Appendices: The research materials

Appendix A: Materials for the verbal protocol training

Pre-reading TAP training

Comments: the purpose of this part is to train the participant how to do the semi-retrospective think aloud before the actual data collection.

Utasítás: Az adatfelvétel előtt szeretném, ha elolvasná ezt a rövid szöveget. A feladat célja, hogy begyakorolja, hogyan reflektáljon egy szövegre. Minden csillaggal jelzett rész után álljon meg, és mondja el (a) miről olvasott eddig; (b) hogyan értelmezte az olvasottakat; (c) volt-e bármilyen megértési nehézsége, ha igen, hol és mi; (d) hogyan próbálta értelmezni a számára nehezebb részeket. Mondjon el mindent, ami eszébe jut, amilyen részletesen csak lehet.

(Instructions: Before the data collection, I'd like to ask you to read this short text. The goal of this section is to help you practice commenting on a text. Please stop after each asterisk and tell me: a) what you have read so far; b) how you make sense of it; c) if there are any ideas you had difficulty understanding; d) if yes, how you tried to overcome it. Say the first thing that comes on your mind and to verbalize your thoughts in an as detailed manner as possible.)

Practice text:

A new study published in *Journal of Cognitive Neuroscience* suggests that when actors take on a new character, they may be able to suppress their everyday self – implying that theatre training may have a big impact on the fundamental mechanisms of the human brain. The team conducting the research used wearable brain imaging technologies to evaluate the brain activity of actors as they rehearsed scenes from Shakespeare's *A Midsummer Night's Dream*. *

The findings showed that when the actors heard their own name during the performance, their response was suppressed in the left anterior prefrontal cortex of the brain, which is usually associated with self-awareness. The same result was witnessed consistently in six actors who were tested when rehearsing several times over a week.

Meanwhile, when the performers were not in acting conditions, they responded normally to hearing their own name.*

(sciencedaily.com)

This part is not recorded.

Appendix B: The main text

Small acts of kindness are frequent and universal, study finds

Around the world, research reveals, people help each other about every 2 minutes

A new study by UCLA sociologist Giovanni Rossi and an international team of collaborators finds that people rely on each other for help constantly.

In the study, published in *Scientific Reports*, a group of international authors explore the human capacity for cooperation. They found that people signal a need for assistance, such as asking someone to pass them a utensil, once every couple of minutes.

The research revealed that those requests for help do not go unanswered: Across cultures, people comply with these small requests far more often than they decline them. On the rare occasions when people do decline, they explain why. These human tendencies transcend cultural differences, suggesting that, deep down, people from all cultures have more similar cooperative behaviours than prior research has established.*

The new findings help solve a puzzle generated by prior anthropological and economic research, which has emphasized variation in rules and norms governing cooperation. For example, while whale hunters of Lamalera, Indonesia, follow established rules about how to share out a large catch, Hadza foragers of Tanzania share their food more out of a fear of generating negative gossip. "Cultural differences like these have created a puzzle for understanding cooperation and helping among humans," said Rossi, the paper's first author. "Are our decisions about sharing and helping shaped by the culture we grew up with? Or are humans generous and giving by nature?"

To answer those questions, the authors analyzed over 40 hours of video recordings of everyday life involving more than 350 people in geographically, linguistically and culturally diverse sites -- towns in England, Italy, Poland and Russia, and rural villages in Ecuador, Ghana, Laos and Aboriginal Australia.*

The analysis focused on sequences in which one person sent a signal for help, such as asking directly or visibly struggling with a task, and another person responded. The authors identified more than 1,000 such requests, occurring on average about once every two minutes. The situations involved "low-cost" decisions about sharing items for everyday use or assisting others with tasks around the house or village, for example. Such decisions are many orders more frequent than "high-cost" decisions such as sharing the spoils of a successful hunt, a type of decision that has been found to be significantly influenced by culture.

People complied with small requests seven times more often than they declined, and six times more often than they ignored them. People did sometimes reject or ignore small requests, but a lot less frequently than they complied. People helped without explanation, but when they declined, 74% of the time they gave an explicit reason. The average rates of rejection (10%) and ignoring (11%) were much lower than the average rate of compliance (79%).

The preference for compliance held across all cultures and was unaffected by whether the interaction was among family or non-family members. The findings suggest that being helpful is an ingrained reflex in the human species, Rossi said.* www.sciencedaily.com

Appendix C: The SORS test (Mokhtari & Sheorey, 2001)

SURVEY OF READING STRATEGIES Kouider Mokhtari and Ravi Sheorey, 2002

The purpose of this survey is to collect information about the various strategies you use when you read school-related academic materials in ENGLISH (e.g., reading textbooks for homework or examinations; reading journal articles, etc.). Each statement is followed by five numbers, 1, 2, 3, 4, and 5, and each number means the following:

- '1' means that 'I never or almost never do this'.
- '2' means that 'I do this only occasionally'.
- '3' means that 'I sometimes do this'. (About 50% of the time.)
- '4' means that 'I usually do this'.
- '5' means that 'I always or almost always do this'.

After reading each statement, *circle the number* (1, 2, 3, 4, or 5) which applies to you. Note that there are **no right or wrong responses** to any of the items on this survey.

| Statement | Never | Always |
|--|-----------|--------|
| 1. I have a purpose in mind when I read. | 1 2 3 4 5 | |
| 2. I take notes while reading to help me understand what I read. | 1 2 3 4 5 | |
| 3. I think about what I know to help me understand what I read. | 1 2 3 4 5 | |
| 4. I take an overall view of the text to see what it is about before reading it. | 1 2 3 4 5 | |
| 5. When text becomes difficult, I read aloud to help me understand what I read. | 1 2 3 4 5 | |
| 6. I think about whether the content of the text fits my reading purpose. | 1 2 3 4 5 | |
| 7. I read slowly and carefully to make sure I understand what I am reading. | 1 2 3 4 5 | |
| 8. I review the text first by noting its characteristics like length and organization. | 1 2 3 4 5 | |
| 9. I try to get back on track when I lose concentration. | 1 2 3 4 5 | |
| 10. I underline or circle information in the text to help me remember it. | 1 2 3 4 5 | |
| 11. I adjust my reading speed according to what I am reading. | 1 2 3 4 5 | |
| 12. When reading, I decide what to read closely and what to ignore. | 1 2 3 4 5 | |
| 13. I use reference materials (e.g. a dictionary) to help me understand what I read. | 1 2 3 4 5 | |
| 14. When text becomes difficult, I pay closer attention to what I am reading. | 1 2 3 4 5 | |
| 15. I use tables, figures, and pictures in text to increase my understanding. | 1 2 3 4 5 | |
| 16. I stop from time to time and think about what I am reading. | 1 2 3 4 5 | |
| 17. I use context clues to help me better understand what I am reading. | 1 2 3 4 5 | |
| 18. I paraphrase (restate ideas in my own words) to better understand what I read. | 1 2 3 4 5 | |
| 19. I try to picture or visualize information to help remember what I read. | 1 2 3 4 5 | |
| 20. I use typographical features like bold face and italics to identify key information. | 1 2 3 4 5 | |
| 21. I critically analyze and evaluate the information presented in the text. | 1 2 3 4 5 | |
| 22. I go back and forth in the text to find relationships among ideas in it. | 1 2 3 4 5 | |
| 23. I check my understanding when I come across new information. | 1 2 3 4 5 | |
| 24. I try to guess what the content of the text is about when I read. | 1 2 3 4 5 | |
| 25. When text becomes difficult, I re-read it to increase my understanding. | 1 2 3 4 5 | |
| 26. I ask myself questions I like to have answered in the text. | 1 2 3 4 5 | |
| 27. I check to see if my guesses about the text are right or wrong. | 1 2 3 4 5 | |
| 28. When I read, I guess the meaning of unknown words or phrases. | 1 2 3 4 5 | |
| 29. When reading, I translate from English into my native language. | 1 2 3 4 5 | |
| 30. When reading, I think about information in both English and my mother tongue. | 1 2 3 4 5 | |

SCORING GUIDELINES FOR THE SURVEY OF READING STRATEGIES

Student Name: _____ Date: _____

1. Write the number you circled for each statement (i.e., 1, 2, 3, 4, or 5) in the appropriate blanks below.
2. Add up the scores under each column and place the result on the line under each column.
3. Divide the subscale score by the number of statements in each column to get the average for each subscale.
4. Calculate the average for the whole inventory by adding up the subscale scores and dividing by 30.
5. Use the interpretation guidelines below to understand your averages.

| Global Reading Strategies (GLOB Subscale) | Problem Solving Strategies (PROB Subscale) | Support Reading Strategies (SUP Subscale) | Overall Reading Strategies (ORS) |
|---|--|---|--|
| 1. _____ | 7. _____ | 2. _____ | GLOB _____ |
| 3. _____ | 9. _____ | 5. _____ | PROB _____ |
| 4. _____ | 11. _____ | 10. _____ | SUP _____ |
| 6. _____ | 14. _____ | 13. _____ | |
| 8. _____ | 16. _____ | 18. _____ | |
| 12. _____ | 19. _____ | 22. _____ | |
| 15. _____ | 25. _____ | 26. _____ | |
| 17. _____ | 28. _____ | 29. _____ | |
| 20. _____ | | 30. _____ | |
| 21. _____ | | | |
| 23. _____ | | | |
| 24. _____ | | | |
| 27. _____ | | | |

| | | | |
|--------------------|--------------------|-------------------|-----------------------|
| _____ GLOB Score | _____ PROB Score | _____ SUP Score | _____ Overall Score |
| / 13 | / 8 | / 9 | / 30 |
| _____ GLOB Average | _____ PROB Average | _____ SUP Average | _____ Overall average |

KEY TO AVERAGES: 3.5 or higher = High 2.5 – 3.4 = Medium 2.4 or lower = Low

INTERPRETING YOUR SCORES: The overall average indicates how often you use reading strategies when reading academic materials. The average for each subscale shows which group of strategies (i.e., Global, Problem Solving, or support strategies) you use most often when reading. It is important to note, however, that the best possible use of these strategies depends on your reading ability in English, the type of material read, and your reading purpose. A low score on any of the subscales or parts of the inventory indicates that there may be some strategies in these parts that you might want to learn about and consider using when reading (adapted from Oxford 1990, pp. 297-300).

Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students reading strategies. *Journal of Developmental Education*, 25 (3), pp. 2-10.